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AIMS & SCOPE:

The Green Life Medical College Journal is an english language scientific papers dealing with clinical medicine, basic sciences, epidemiology, diagnostic, therapeutics, public helath and healthcare in relation to concerned specialities. It is an official journal of Green Life Medical College and is published bi-annually.

This Journal is recognized by Bangladesh Medical & Dental Council (BM&DC).

The Green Life Medical College Journal of Bangladesh intends to publish the highest quality material on all aspects of medical science. It includes articles related to original research findings, technical evaluations and reviews. In addition, it provides readers opinion regarding the articles published in the journal.

INSTRUCTION TO AUTHORS:

Papers:

The Green Life Medical College Journal (published bi-annually) accepts contributions from all branches of medical science which include original articles, review articles, case reports, and letter to the Editor.

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In preparing the manuscript, use double spacing throughout, including title, abstract, text, acknowledgement, references, table and legends for illustrations and font type and size 'Times New Roman 12'. Begin each of the following sections on a separate paper. Number pages consecutively.

The standard layout of a manuscript:

- Title page
- Abstract, including Keywords
- Introduction
- Methods
- Results
- Discussion
- Acknowledgements
- Funding
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- Illustrations

The pages should be numbered in the bottom right-hand corner and the title page being page one, etc. Start each section on a separate page.

Title page:

A separate page which includes the title of the paper. Titles should be as short and concise as possible (containing not more than 50 characters). Titles should provide a

reasonable indication of the contents of the paper. This is important as some search engines use the title for searches. Titles in the form of a question, such as ‘Is drinking frequent coffee a cause of pancreatic carcinoma?’ may be acceptable.

The title page should include the name(s) and address(es) of all author(s). Details of the authors’ qualifications and post (e.g., professor, consultant) are also required. An author’s present address, if it differs from that at which the work was carried out, or special instructions concerning the address for correspondence, should be given as a footnote on the title page and referenced at the appropriate place in the author list by superscript numbers (1, 2, 3 etc.) If the address to which proofs should be sent is not that of the first author, clear instructions should be given in a covering note, not on the title page.

Abstract:

The ‘Abstract’ will be printed at the beginning of the paper. It should be on a separate sheet, in structured format (Introduction/Background; Methods; Results; and Conclusions) for all Clinical Investigations and Laboratory Investigations. For Reviews and Case Reports, the abstract should not be structured. The Abstract should give a succinct account of the study or contents within 350 words. The results section should contain data. It is important that the results and conclusion given in the ‘Abstract’ are the same as in the whole article. References are not included in this section.

Keywords:

Three to six keywords should be included on the summary page under the heading Keywords. They should appear in alphabetical order and must be written in United Kingdom English spelling.

Introduction:

The recommended structures for this section are:

- Background to the study/Introduction
- What is known/unknown about it
- What research question / hypothesis you are interested in
- What objective(s) you are going to address

The introduction to a paper should not require more than about 300 words and have a maximum of 1.5 pages double-spaced. The introduction should give a concise account of the background of the problem and the object of the investigation. It should state what is known of the problem

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Methods:

The title of this section should be ‘Methods’ - neither ‘Materials and methods’ nor ‘Patients and methods’. The Methods section should give a clear but concise description of the process of the study. Subjects covered in this section should include:

- Ethics approval/license
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Ethical clearance:

Regardless of the country of origin, all clinical investigators describing human research must abide by the Ethical Principles for Medical Research Involving Human Subjects outlined in the Declaration of Helsinki, and adopted in October 2000 by the World Medical Association. This document can be found at: <http://ohsr.od.nih.gov/guidelines/helsinki.html>. Investigators are encouraged to read and follow the Declaration of Helsinki. Clinical studies that do not meet the Declaration of Helsinki criteria will be denied peer review. If any published research is subsequently found to be non-compliant to Declaration of Helsinki, it will be withdrawn or retracted. On the basis of the Declaration of Helsinki, the Green Life Medical Journal requires that all manuscripts reporting clinical research state in the first paragraph of the ‘Methods’ section that:

- The study was approved by the appropriate Ethical Authority or Committee.
- Written informed consent was obtained from all subjects, a legal surrogate, or the parents or legal guardians for minor subjects.

Human subjects should not be identifiable. Do not disclose patients’ names, initials, hospital numbers, dates of birth or other protected healthcare information. If photographs of persons are to be used, either take permission from the person concerned or make the picture unidentifiable. Each figure should have a label pasted on its back indicating name of the author at the top of the figure. Keep copies of ethics approval and written informed consents. In unusual

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The methods must be described in sufficient detail to allow the investigation to be interpreted, and repeated if necessary, by the reader. Previously documented standard methods need not be stated in detail, but appropriate reference to the original should be cited. However, any modification of previously published methods should be described and reference given. Where the programme of research is complex such as might occur in a neurological study in animals, it may be preferable to provide a table or figure to illustrate the plan of the experiment, thus avoiding a lengthy explanation. In longitudinal studies (case-control and cohort) exposure and outcome should be defined in measurable terms. Any variables, used in the study, which do not have universal definition should be operationalised (described in such terms so that it lends itself to uniform measurement). Where measurements are made, an indication of the error of the method in the hands of the author should be given. The name of the manufacturer of instruments used for measurement should be given with an appropriate catalogue number or instrument identification (e.g. Keyence VHX-6000 digital microscope). The manufacturer's town and country must be provided, in the case of solutions for laboratory use, the methods of preparation and precise concentration should be stated.

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In the case of animal studies, it is the responsibility of the author to satisfy the board that no unnecessary suffering has been inflicted on the animal concerned. Therefore, studies that involve the use of animals must clearly indicate that ethical approval was obtained and state the Home Office License number or local equivalent.

Drugs:

When a drug is first mentioned, it should be given by the international non-proprietary name, followed by the chemical formula in parentheses if the structure is not well known, and, if relevant, by the proprietary name with an initial capital letter. Dose and duration of the drug should be mentioned in sufficient details. If the drug is already in use (licensed by appropriate licensing authority), generic name of the drugs should preferably be used followed by proprietary name in brackets.

Present the result in sequence in the text, table and figures. Do not repeat all the data in the tables and/or figures in the text. Summarize the salient points. Mention the statistics used for statistical analysis as footnote under the tables or figures. Figures should be professionally drawn. Illustration can be photographed (Black and White glossy prints) and numbered.

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Comments on the observation of the study and the conclusion derived from it. Do not repeat the data in detail, already given in the results. Give implications of the findings, their strengths and limitations in comparison to other relevant studies. Avoid un-qualified statements and conclusions which are not supported by the data. Avoid claiming priority. New hypothesis or implications of the study may be labeled as recommendations.

Letters are welcome. They should be typed double-spaced on side of the paper in duplicate.

References:

References should be written in Vancouver style, numbered with arabic numerals in the order they appear in the text. The reference list should include all information, except for references with more than six authors, in which case give the first six names followed by et al.

Examples of correct forms of references:

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Any reader can provide feedback regarding published articles by writing letter to editor. The reader can also share any opinion in relation to medical science.

Prof. Dr. ABM Bayezid Hossain

Editor-in-chief

Green Life Medical College Journal and
Principal

Green Life Medical College

ABOUT THE COLLEGE

INTRODUCTION

In 2005, about fifty distinguished physicians of the country started a hospital to give specialized care in the private sector. They named it Green Life Hospital and it turned out to be a great success. So in 2009, they decided to establish a medical college which will be a non-government, non-profit, self-financing project and will serve the humanity.

This College came into existence in 2009. The college commences its activities with the enrollment of 51 students in the 1st batch in 2010. Since inception, the college has undergone tremendous development and became a splendid centre for learning and development. At present we are enrolling 110 students each year. Among them, numbers of seats are reserved for overseas students.

We continue to evaluate and improve our programme to ensure the best medical education for the students. Our educational strategy is to create a conducive learning environment and to steer our students to acquire adequate knowledge, skills and temperament to practice medicine and be a competent health care professional group.

Green Life Medical College (GMC) is approved by the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh and Bangladesh Medical and Dental Council (BMDC) and affiliated to the University of Dhaka.

AIMS AND OBJECTIVES OF THE COLLEGE

Aims:

To create a diverse and vibrant graduate scholars in medical discipline and to create highly competent and committed physicians for the country.

Objectives:

- To provide an appropriate learning environment where medical students can acquire a sound theoretical knowledge and practical skills with empathetic attitude to the people.
- To carry out research in medical sciences to scale up the standard of medical education in the country.

LOCATION

The campus is located at 31 and 32, Bir Uttom K. M. Shafiullah Sarak (Green Road), Dhanmondi, Dhaka. The location is at the heart of the mega city Dhaka and is facilitated with very good communication networks.

The Medical College and the Hospital complexes have been raised in a multistoried fully air-conditioned building with an arrangement of approximately 500 patients. The building is equipped with state-of-the-art infrastructure, excellent with an out-patient department and adequate in-patient facilities.

Simulation Based Learning in Medical Education

Simulation-Based Learning is considered as the best alternative teaching and assessment tool that able to make the change in education, training, improving the quality and assessing the performance of the medical students. It helps students for acquiring many skills such as professionalism, communication, self-evaluation, time management, and teamwork.

Simulation has been defined as a situation in which a particular set of conditions is created artificially in order to study or experience something that is possible in real life; or a generic term that refers to the artificial representation of a real world process to achieve educational goals via experimental learning.¹

Aviation and aerospace industries have been using simulation as a teaching tool for many years. Simulators are now widely used in education and training in a variety of high risk professions and disciplines, including the military, commercial airlines, nuclear power plants, business and medicine.²

There are many types and classifications of simulation; it may be classified into human simulation such as role-play and standardized patient or non-human simulation such as manikin and the based computer simulation.³ According to the type, it is classified into compiler-driven and event-driven.⁴ Simulators can be classified according to their resemblance to reality into low-fidelity, medium-fidelity and high-fidelity simulators.⁵ Low-fidelity simulators are often static and lack the realism or situational context. They are usually used to teach novices the basics of technical skills. Example of a low-fidelity simulator is the intravenous insertion arm and Resusci-Anne. Moderate fidelity simulators give more resemblance of reality with such features as pulse, heart sounds, and breathing sounds but without the ability to talk and they lack chest or eye movement. They can be used for both the introduction and deeper understanding of specific, increasingly complex competencies. An example of a moderate fidelity simulator is the “Harvey” cardiology simulator. High fidelity simulators combine part or whole body manikins to carry the intervention with computers that drive the manikins to produce physical signs and feed physiological signs to monitors. They are usually designed to resemble the reality. They can talk, breathe,

blink, and respond either automatically or manually to physical and pharmacological interventions. Good examples of high-fidelity simulator is the METI Human Patient Simulator (HPS) which is model driven and the “Noelle” obstetric simulator which is instructor driven. In general, the higher the fidelity, the more expensive it is. Simulation types should be assessed depending on their design and the expectations for its ability to achieve because there is not any type of simulation that can do all tasks effectively.

It is universally accepted that clinical skills constitute an essential learning outcome. The acquisition of appropriate clinical skills is key to health education; however, students sometimes complete their educational programs armed with theoretical knowledge but lack many of the clinical skills vital for their work. A major challenge for medical undergraduates is the application of theoretical knowledge to the management of patients.

Traditionally, the acquisition and ongoing improvement of high level psychomotor skills required by future physician take place in an apprentice-style model of ‘See One, Do One, Teach One.’ This apprentice-style of learning is no longer considered acceptable because of the increasing concern for the quality of patient care and safety and change in health care systems. The pressure of managed care has shaped the forms and frequency of hospitalization and led to a higher percentage of acutely ill patients and shorter inpatient stays. This has resulted in fewer opportunities for the medical learner to access a wide variety of diseases and physical findings. Relying on exposure to real hospital patients during training years may result in an ad-hoc method of learning clinical skills, as this depends on the availability of cases, and consequently to less than optimal development and performance of clinical skills. There are many reports that indicate concerns for the level of skills medical graduates even in western countries possess.^{6, 7}

Effective learning requires repetitive practice and feedback during the learning experience. To err is human. But one err in high risk clinical management may takes live. Concerns about patient safety and fewer available patients for learning, and many other factors have led to the introduction of simulation and the development of

simulation centers and clinical skills laboratories in medical education.^{8,9} The practice of a scenario can be videotaped for immediate feedback to participants during the debriefing sessions. Employing medical simulation techniques can help move medical training from the old “See One, Do One, Teach One” method into a “See One, Practice Many, Do One” model of success.¹⁰

However, training through simulation should be viewed as an adjuvant and not a replacement for learning with real patients. Simulation is not intended to replace the need for learning in the clinical environment, so it is important to integrate simulation training with the clinical practice during curriculum development. Simulation laboratories are quite costly. The ability to practise without risk must be weighed against the cost of this new technology.

The major challenge to medical simulation is the fact that evidence to date is weak in methodology. Most of the published work is descriptive and limited in generalisability. The assumption that such learning is directly transferable to the clinical context is often untested.¹¹ Only a few studies have shown a direct positive impact in the clinical outcome from the use of simulation for medical training.¹²

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References:

1. Flangan B, Nestel D, Joseph M. Making patient safety the focus: Crisis resource management in the undergraduate curriculum. *Med Edu.* 2004;38:56–66.
2. Issenberg SB, Gordon MS, Gordon DI, Safford RE, Hart IR. Simulation and new learning technologies. *Med Teach.* 2001;16:16–23.
3. Ypinazar, VA, Margolis SA. Clinical Simulators: Applications and implications for rural medical education. *Rural Remote Health* 2006;6(2):527.
4. Maran NJ, Glavin RJ. Low- to high-fidelity simulation - A continuum of medical education? *Med Edu.* 2003;37(1):22-8.
5. Seropian MA, Brown K, Gavilanes JS, Driggers B. Simulation: Not just a Manikin. *J Nurs Educ.* 2004;43:164–9.
6. Langdale LA, Schaad D, Wipf J, Marshall S, Vontver L, Scott CS. Preparing Graduates for the First Year of Residency: Are Medical Schools Meeting the Need? *Acad Med.* 2003;78:39–44.
7. Jones A, McArdle PF, O’Neill PA. How well prepared are graduates for the role of pre-registration house officer? A comparison of the perceptions of new graduates and educational supervisors. *Med Edu.* 2001;35:578–84.
8. Al-Elq AH. Medicine and Clinical Skills Laboratories. *J Fam Community Med.* 2007;14:59–63.
9. Scalsese RJ, Obeso VT, Issenberg SB. Simulation Technology for Skills Training and Competency Assessment in Medical Education. *J Gen Intern Med.* 2008;23:46–9.
10. Vozenilek J, Huff JS, Reznick M, Gordon JA. See one, do one, teach one: Advanced technology in medical education. *Acad Emerg Med.* 2004;11:1149–54.
11. Gordon JA, Oriol NE, Cooper JB. Bringing good teaching cases “to life”: A simulation-based medical education service. *Acad Med.* 2004;79:23–7.
12. Okuda Y, Bryson EO, DeMaria S, Jr, Jacobson L, Quinones J, Shen B, et al. The utility of simulation in medical education: What is the evidence? *Mt Sinai J Med.* 2009;76:330–43.

Pattern of Cutaneous Manifestations among Patients with Hypothyroidism in a Tertiary Care Hospital of Bangladesh

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Abstract

Introduction: Thyroid disorders are commonly associated with a variety of skin problems. Sometimes skin manifestations are the presenting symptom of thyroid diseases. Hypothyroidism, specially of the autoimmune cause, is associated with various common skin, hair and nail problems. The present study aimed to evaluate pattern of skin manifestations in 190 hypothyroid patients in a tertiary care hospital.

Methods: The study was conducted in the Out Patient Departments of both Endocrinology and Metabolism and Dermatology and venerology, Green Life Medical College and Hospital, in Dhaka, Bangladesh, from September 2020 to December 2020. In this case control study blood samples were collected from 190 hypothyroid patients and 100 healthy controls. Dermatological examinations were done at the time of inclusion. Age, Body Mass Index, skin manifestations were noted. Informed written consent was taken from each patient. FT4 and TSH levels were analyzed by ELISA method.

Results: Among the 190 subjects who were enrolled in the case group, 91.6% were female and 8.4% were male. The highest number (43.4%) patients belong to 29 to 48 years age group. The most common skin manifestation was hair fall (48.4%), followed by xerosis or coarse dry skin (29.9%) and urticaria (16.3%). There was a significant and positive correlation between xerosis and hair fall condition in case group (0.040).

Conclusion: The study revealed that cutaneous manifestations are an important association and presenting problem in hypothyroid patients and thyroid function tests should be done to evaluate various skin problems to exclude hypothyroidism.

Key words: Hypothyroidism, Xerosis, Urticaria, Hair loss

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Introduction:

Thyroid hormones are necessary in regulating the health and condition of the skin, and thyroid disorders, whether underactive or hyperactive, are associated with a variety of skin problems.¹ Some dermatological conditions may be the first symptom of thyroid disease.² It has been seen that thyroid disease at any age can cause multiple manifestations in the hair, skin, and nails.³ In normal subjects, thyroid-stimulating hormone (TSH) is made by the pituitary gland and stimulates the thyroid gland to secrete T4 (thyroxine) and T3 (triiodothyronine). In the periphery, T4 is converted to T3 by enzymes mainly in the liver and kidney. T3, and to some extent T4, then binds to specific nuclear receptors in the tissues like heart, brain, muscle, and perhaps skin and mediates thyroid hormone

action.⁴ In this study, we aimed to detect the common dermatological findings associated with hypothyroid patients in a tertiary care hospital.

Methods:

The study was conducted in the Out Patient Departments of Endocrinology and Metabolism and Out Patient Department of Dermatology and Venerology, Green Life Medical College and Hospital, in Dhaka, Bangladesh, from September 2020 to December 2020. In this case control study 190 hypothyroid patients and 100 healthy controls were enrolled. Dermatological examinations were done at the time of inclusion. Age, Body Mass Index, skin manifestations were noted. Blood samples were taken at the time of enrollment.

Serum T4 and TSH were measured by ELISA method. Values were presented as percentage or mean \pm SD. Comparisons between groups were analyzed by Student's t-test, analysis of variance or chi-square tests. All calculations were performed using SPSS 24.0 for windows (SPSS, Inc., Chicago, IL, USA). The level of significance was set at <0.05 .

The study protocol was approved by the Ethical Committee of Green Life Medical College. Informed written consent was taken from each subject.

Results:

Total 190 subjects were enrolled in the Case group, with female predominance. Among the Case group 91.6% were female and 8.4% were male.

Table I shows age distribution of the case group where 43.4% patients belong to 29 to 48 years group, 31.7% patients belong to 8 to 28 years age group, 24.3% cases belong to 49 to 68 years age group and 0.5% patients belong to 69 to 88 years age group.

Age group	Percent (case)	Percent (control)
8 to 28 years	31.7% (n=61)	22.00% (n=22)
29 to 48 years	43.4% (n=83)	47.00% (n=47)
49 to 68 years	24.3% (n=46)	27.00% (n=27)
69 to 88 years	0.5% (n=1)	4.00% (n=4)

The most common skin manifestation was Hair Fall (48.4%), followed by Xerosis or coarse dry skin (29.9%) and Urticaria (16.3%). Table II shows distribution of skin manifestations in the Case group.

Table II

Distribution of Skin Manifestations in the Case group

Skin Manifestation	
Xerosis	29.9% (n=57)
Hair fall	48.4% (n=93)
Urticaria	16.3% (n=31)
Vitiligo	4.7% (n=9)
Goiter	15.3% (n=29)

In Table III the correlation between skin condition in case group is shown where there was a significant and positive correlation between xerosis and hair fall condition was seen group (0.040); whereas, there was a negative and strong correlation between xerosis and urticaria diseases condition (-.002) was observed.

Table III

Correlation between skin condition in Case group

Skin condition	Hair fall p value	Urticaria p value	Xerosis, p value
Xerosis	.040	-.002	.040
Hair fall	1	.057	
Urticaria	-.002	1	.040

Table IV shows distribution of study subjects according to their TSH levels. In case group 88.4% had >4 mU/L TSH level, whereas in control group, 92% had TSH level <4 mU/L.

Table IV

Distribution of study subjects according to TSH level

TSH level	Case group, Percent	Control Group, %
>4 mU/L	88.4 (n=169)	8 (n=8)
<4 mU/L	11.6 (n=22)	92 (n=92)

Discussion:

Hypothyroidism is associated with various skin problems. The common dermatologic manifestations seen in hypothyroidism include thick, dry skin, thinning hair, and loss of the lateral aspect of the eyebrows. Patients also may have livedo reticularis on the extremities, thick, protuberant lips, thickened and perhaps everted eyelids. Scalp hair may be thin, and pubic and axillary hair may be sparse.⁵ The dermatologic manifestations of hypothyroidism may vary depending on the extent and

duration of thyroid disease but also on the patient's ethnicity.⁶

The problem is that most of these manifestations are nonspecific and many individuals without a definable thyroid problem may exhibit them. But hypothyroidism should be included in the differential diagnosis when confronted by possible cutaneous manifestations of thyroid disease, and thyroid function tests should be obtained in the skin diseases suggesting hypothyroidism.⁶

Hashimoto's thyroiditis is the most common cause of hypothyroidism, which is an autoimmune disease, and also related to Graves' disease.⁷ Patients with both disorders can develop a variety of thyroid autoantibodies. There is clinical and biochemical overlap between Hashimoto's thyroiditis and Graves' hyperthyroidism, and it is not surprising that the same dermatologic and ophthalmologic manifestations can occur in both.⁵ It should be remembered that any patient with autoimmune hypothyroidism is more likely to get other autoimmune disorders. Vitiligo, alopecia areata, pemphigus vulgaris, pemphigus foliaceus, and dermatitis herpetiformis are considered as autoimmune disorders of the skin and are theoretically related to autoimmune thyroid disease. Indeed, these dermatologic disorders occur more frequently in patients with autoimmune thyroid disorders.³

The most frequent dermatological findings detected in our study was hair fall (48.4%). In other studies, an association between diffuse alopecia and thyroid diseases was found in 60% of the cases, mainly of autoimmune origin.^{8,9} Our study also supports this relation. Hair loss can be attributed to inhibition of initiation and duration of the actively growing phase of hair cycle. Hence the percentage of hair in telogen increases leading to telogen effluvium. Since the duration of anagen is also affected, the hair growth is slowed with decreased length.¹⁰

Chronic urticaria is another skin condition associated with thyroid disease. It was found that thyroid autoimmunity is more prevalent in patients with chronic urticaria than in the general population.¹¹ One study compared three groups of patients: patients with demonstrable thyroid autoimmunity, patients with thyroid disease but without thyroid autoantibody production, and a control group. Chronic urticaria was significantly associated with thyroid autoimmunity.¹² Another study reported a study investigating the association between chronic urticaria and thyroid autoimmunity, and they found a higher frequency of thyroid autoantibodies in chronic urticaria patients, while no significant frequency of urticaria was found in patients with/without thyroid antibodies in

thyroid diseases.¹³ In our study we found urticaria in 16.3% patients with hypothyroidism, which was higher than findings of other studies done in this area.^{14, 15}

One of the most significant cutaneous findings of hypothyroidism is xerosis. In our study we found xerosis and coarse dry skin as second common association with hypothyroid patients. The result was similar to those seen in other studies.¹⁶ The etiology of xerosis in hypothyroidism is unknown. Theories suggesting are hypohidrosis related to cytologic alterations in the eccrine apparatus such as PAS-positive, diastase-resistant granules in the pale cells of the secretory coil, diminished sebaceous gland secretion, and diminished epidermal sterol biosynthesis, especially cholesterol and cholesterol esters.^{17,18}

Conclusion:

The relationship between thyroid disease and skin problems are dynamic and complex. Often the symptoms and signs related to skin, hair and nails go undiagnosed and many a times are not evaluated to detect associating thyroid hormone abnormalities. In our study we found that there is a close association of hypothyroidism with many skin disorders, especially hair loss, xerosis and urticaria. It is our recommendation to test thyroid hormones when the mentioned cutaneous symptoms and signs are present in any patient which will help for early detection and treatment of hypothyroidism.

References:

1. Heymann WR, Marlton MD. Cutaneous manifestations of thyroid disease. *J Am Acad Dermatol* 1992; 26: 885-99.
2. Mullin GE, Eastern JS. Cutaneous signs of thyroid disease. *Am Fam Physician* 1986;34:93-8.
3. Leonhardt JM, Heymann WR. Thyroid disease and the skin. *Dermatol Clin* 2002;20:473-81, vii.
4. Burman K. Hyperthyroidism, Chapter 41. In: Becker KA, editor. *Principles and practice of endocrinology and metabolism*. 2nd ed. Philadelphia (Pa)7 J.B. Lippincott; 1995. p. 367 - 85.
5. Jabbour SA. Cutaneous manifestations of endocrine disorders: a guide for dermatologists. *Am J Clin Dermatol* 2003;4:315 - 31
6. Dermatologic aspects of thyroid disease Kenneth D. Burman, MDa,b, *, Lynn McKinley-Grant, MDc, *Clinics in Dermatology* (2006) 24, 247-255.
7. Lu R, Burman KD, Jonklaas J. Transient Graves' hyperthyroidism during pregnancy in a patient with Hashimoto's hypothyroidism. *Thyroid* 2005;15:725 - 9.
8. Niepomnische H, Amad RH. Skin disorders and thyroid diseases. *J Endocrinol Invest* 2001;24:628-38

9. Jabbour SA, Miller JL. Endocrinopathies and the skin. *Int J Dermatol* 2000;39:88–99.
10. R K Freinkel, N Freinkel. Hair growth and alopecia in hypothyroidism. *Arch Dermatol*, 1972 Sep;106(3):349-52.
11. Dreskin SC, Andrews KY. The thyroid and urticaria. *Curr Opin Allergy Clin Immunol* 2005;5:408–12.
12. Lanigan SW, Short P, Moulton P. The association of chronic urticaria and thyroid autoimmunity. *Clin Exp Dermatol* 1987;12:335-8
13. Verneuil L, Leconte C, Ballet JJ, Coffin C, Laroche D, Izard JP. Association between chronic urticaria and thyroid autoimmunity: A prospective study involving 99 patients. *Dermatology* 2004;208:98–103.
14. Jamwal A, Sharma A, Rather PA. Cutaneous Manifestations of Hypothyroidism: Prospective Hospital Based Clinical Study. *J Adv Med Dent Sci* 2013;1(2):5-12.
15. Keen MA, Hassan I, Bhat MH. A clinical study of the cutaneous manifestations of hypothyroidism in kashmir valley. *Indian J Dermatol* 2013;58:326
16. Tonacchera M, Chiovato L, Pinchera A. Clinical assessment and systemic manifestations of hypothyroidism *Oxford Textbook of Endocrinology and Diabetes* 1st edition, 2002:491-501.
17. Means M. A., Dobson R. L. Cytological changes in the sweat gland in hypothyroidism. *JAMA* 1963; 186: 113±115.
18. Rosenberg R. M., Isseroff R. R., Ziboh V. A. et al. Abnormal lipogenesis in thyroid hormone-deficient epidermis. *J Invest Dermatol* 1986; 86: 244±248.

Rhomboid Flap - A Versatile Technique of Wound Coverage

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Abstract

Introduction: Skin defects may result following trauma or excision of cutaneous lesions not amenable to primary closure. In such situations the rhomboid flap can be used. First put forward by Alexander Limberg in 1945, the rhomboid flap is dynamic, versatile and safe to use. **Objective:** This observational study demonstrates the widespread utility of the rhomboid flap in various clinical situations.

Methods: A retrospective observational study of 14 patients with different surgical lesions was carried out from 2015 to 2019, in the Department of Surgery at a Medical College Hospital.

Results: The patients with a mean age of 35 years were 36% females and 64% males. 21% of the patients presented with Hidradenitis Supparativa. 21% of patients presented following traumatic injuries. Basal cell carcinoma (BCC) and dermoids were seen in 14% patients, each. Single cases, amounting to 7% each, presented with porokeratosis, compound naevus, pilonidal sinus, and steroid ulcer at HT scar site. The face was the most commonly affected anatomical entity with 7 cases (50%). Complications seen in 1 patients (7%) wound infection.

Conclusion: The rhomboid flap is indeed a versatile flap for reconstruction of skin defects.

Key words: Rhomboid Flap, Versatility, Technique of wound coverage

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Introduction:

Rhomboid flap is a reconstructive technique for full thickness skin loss by any means, where primary repair is not possible or appropriate. In this technique a local flap is transposed using geometric principles. The rhomboid flap is a versatile and safe percentage.¹ Procedure is used in different surgical principles for reconstructive purpose

such as plastic surgery, head neck surgery, ophthalmology, proctology etc. Rhomboid flaps maintain continuity of texture, color and vascularity with the surrounding tissue, resulting in a better aesthetic and functional outcome.² The flaps are designed as a rhomboid with angles of 60° and 120°. The primary defect is made or imagined as a rhomboid; the secondary defect is closed primarily.^{1,3}

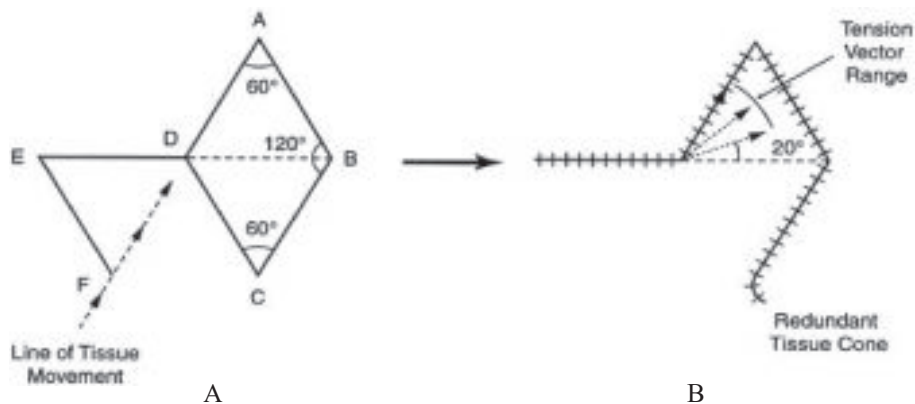


Fig.-1: (A) Rhomboid flap marking with internal angles of 60 and 120 degrees. (B) Final configuration of the scar.¹

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The length and width ratio of the flap is 1:1. Good planning of the entire procedure is pivotal to a satisfactory outcome.^{1,2} The flap is raised and transposed tension-free onto the primary defect following meticulous haemostasis.

This study aims to share our experience with this reconstructive technique.

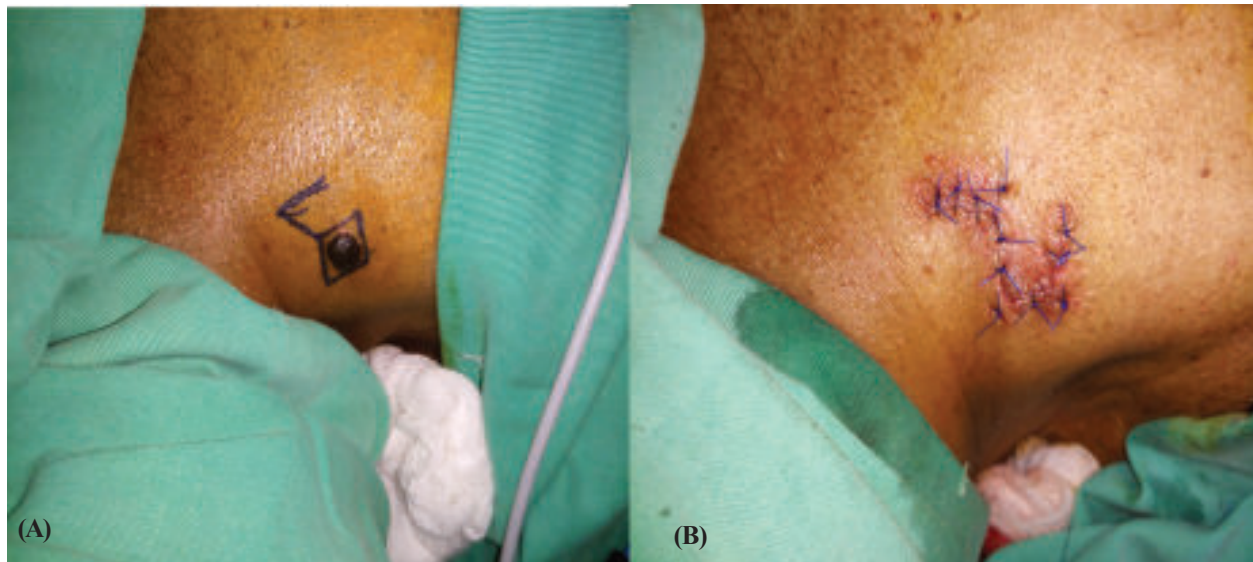


Fig 2: (A) Preoperative plan of flap for a benign skin lesion. (B) After flap inset.



Fig.3: (A) Preoperative preparation for flap in a pilonidal sinus. (B) After inset of flap.

Methods:

The study was retrospective and observational. A total number of fourteen rhomboid flaps were done at a teaching hospital within the period of 2015 to 2019. Written informed consent was given by each patient for the procedure along with consent regarding the photographs taken and its use solely for this study. All operations were done using same

surgical technique. The sampling of cases was purposive. No definitive inclusion or exclusion criteria were set. A checklist was used to collect the following data from patients such as age and gender of the patient, nature of the primary lesion, anatomical location of the flap and measurements of the flap. Data were analyzed manually and presented in table and charts.

There is no conflict of interest in this study.

Results:

In this study the mean age of the patients was 35 years. The female patients comprised 64% of this study with the male 36%.

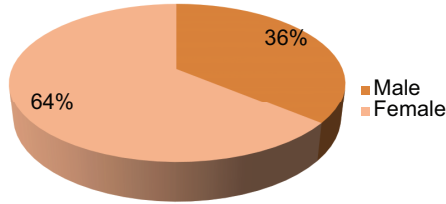


Fig.-4: Gender distribution of cases. Female (64%), male (36%). (n=14)

The age group of 21 -30 years comprised the majority of cases. (n=14)

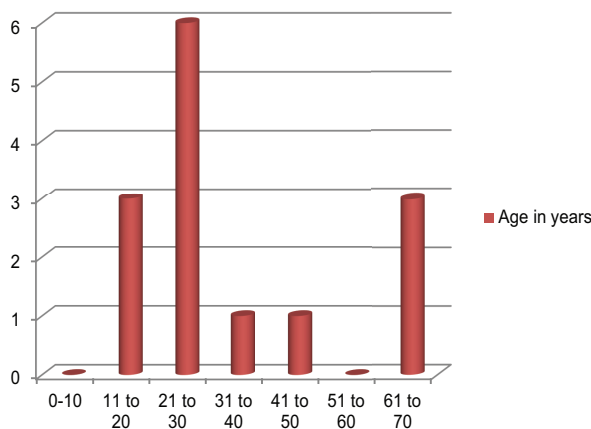


Fig.-5: Age distribution of the patients. Mean age 35 years (n=14)

Among the different anatomical locations where the flaps were done, face was the commonest location. (n=14)

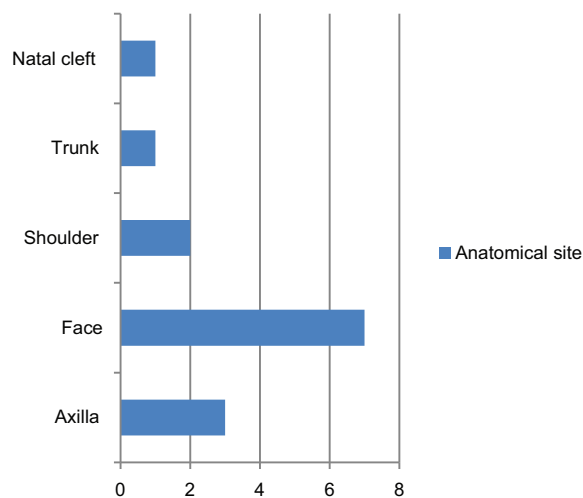


Fig. 6: Anatomical locations of flaps. (n=14)

Among the different primary lesions in this study benign skin lesions were the majority. (n=14)

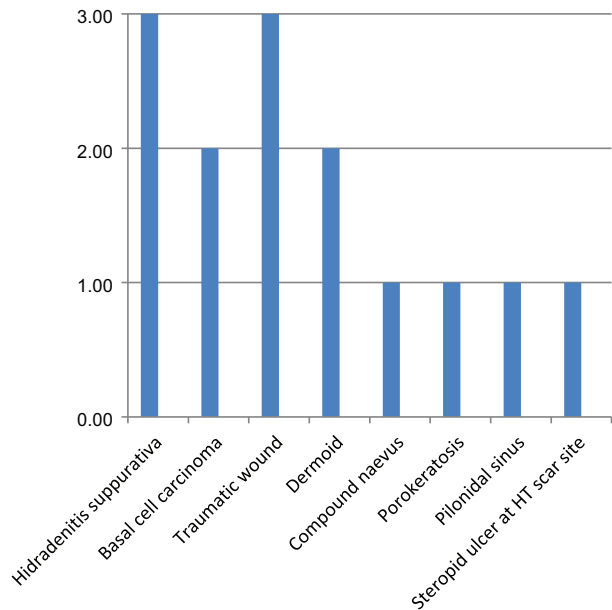


Fig. 7: Types of primary lesions. (n=14)

Table-1

Breakdown of individual flap measurements. (n=14)

Number	Flap measurement (in cm)	Number	Flap measurement (in cm)
1	10x10	8	10x12
2	10x8	9	5x5
3	3x2	10	6x6
4	7x7	11	2x2
5	3x2	12	1.5x2
6	2x2	13	3x2
7	2x2	14	1x1

Discussion:

From our observational study we reaffirm the versatility of the rhomboid flap, as observed by other authors. The flap allows the defect to be covered by tissue of the same colour and structure. Closure of larger skin defects by primary skin closure is difficult. Coverage by skin grafts is relatively inferior as they don't maintain sub-papillary and sub-dermal vascular plexuses.² Gustavo Steffen Alvarez et al.⁴ found the average age of their study of 38 patients to be 59.6 years as opposed to the average age of our study being 35 years. Similar to our commonest anatomical

site, the face was their commonest site of flap reconstruction, too. Complication was seen in 1(7%) out of the 14 cases in the form of wound infection. The wound infection healed following regular dressing and use of antibiotics.⁴ Rhomboid flaps maintain such vascularity through their pedicle and can be used anywhere provided tissue is available.⁶ Scar complications as trapping and hypertrophy were not seen; only a single case of wound infection was found. Facial reconstructions favour cutaneous flaps to primary closure or grafting to avoid distortion of adjacent structures.⁷ In our study, face (50%) was the commonest site of reconstruction.

G.D. Lister and T. Gibson in their study agree to the major advantage of the Limberg flap-its simplicity.⁸ Although only one pilonidal sinus case was reconstructed, rhomboid flap is considered the best option for treating sacrococcygeal pilonidal disease.⁹

Conclusion:

The rhomboid flap may be considered as a good option to reconstruct the full thickness skin defects at various anatomical locations. It is an easily applied flap and has very few complications. The study maybe used in a larger group for further evaluation.

References:

1. Charles H. Thorne. Techniques and Principles in Plastic Surgery. In: Charles H. Thorne, Robert W. Beasley, Sherell J. Aston, Scott P. Beartlett, Geoffrey C. Gurtner, Scott L.

- Spear.(Eds). Grabb and Smith's Plastic Surgery. 6th edition. Philadelphia: Lipincott-Raven Publishers; 2007. P 3-22.
2. Grammenos A, Rivas AM, Thomas JA, Thomas DL. Review of Rhomboid flaps and their modern modifications. www.semanticscholar.org. 2016: p16-19.
3. TIM Goodacre. Plastic and reconstructive surgery. In: Prof. Sir Norman Williams, Prof. P.Ronan O'Connell, Prof. Andrew W. McCaskie (Eds). Bailey and Love's Short Practice of Surgery. 27th edition. Florida: CRC Press; 2018.p 633-51.
4. Gustavo Steffen Alvarez, Francisco Felipe Laitano, Evandro Jose Siqueira, Milton Paulo de Oliveira, Pedro Djacir Escobar, Martins, Use of the rhomboid flap for the repair of cutaneous defects, *Rev Bras Cir Plast.*2012;2710: 102-7.
5. Khan AAG, Shah KM. Versatility of Limberg flap in head and neck region. *International Journal of Case Reports and Images.* 2012; 3(6): 13-18.
6. Ian T.Jackson. Local flaps for facial coverage. In; Stephen J. Mathes (Ed) Plastic Surgery. 2nd ed. Philadelphia: Saunders Elsevier; 2006. P. 345-90.
7. Borges AF. The rhombic flap. *Plast Reconstr Surg.* 1981;67(4): 458-66.
8. Lister GD, Gibson T. Closure of rhomboid skin defects: the flaps of Limberg and Dufouremontel. *Br. J. Plast. Surg.* 1972; 25: 300-14.
9. Horwood J, Hanratty D, Chandran P, Billings P. Primary closure or rhomboid excision and Limberg flap for the management of primary sacrococcygeal pilonidal disease? A meta-analysis of randomized controlled trials. *Colorectal Dis.* 2012; 14(2): 143-51.

Maternal and Fetal Outcome at Labor in Primigravid Adolescents

YASMIN E¹, EVA SY², AHMED QN³, SULTANA R⁴, SHOMPAL⁵, ROUF S⁶

Abstract

Introduction: Adolescent, as defined by the world health organization is the period of life between 10 to 19 years. It is the time of development involving changes in physical, mental, emotional, spiritual, and social functioning. A primigravid is someone pregnant for the first time. In our country, adolescents are often primigravid in nature, due to early marriage. Aim of the study To evaluate the maternal and fetal outcome of labor in primigravid adolescents.

Methods: This descriptive cross-sectional study was conducted at the department of obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka from April 2017 to September 2017. A total of 105 participants were included in the study. The sampling procedure followed a purposive sampling technique. Data were analyzed using the statistical package for social science (SPSS) for windows version 16. Ethical clearance for the study was taken from the Ethical review committee of Dhaka Medical College.

Results: The majority of adolescent mothers were between the age of 17 years to 19 years (87.62%). The majority were housewives (88.57%). Only 8.57% of patients used the contraceptive method regularly. 77.14% of pregnancy was planned and 22.86% was unplanned. 80% had an irregular antenatal checkup and 20% had regular checkups. Maximum (62.86%) were anemia and 20.95% were edema cases. 53.33% of adolescent mothers had a normal vaginal delivery, 6.67% had assisted breech delivery, 6.67% had ventouse delivery and 33.33% had a cesarean section. Post-partum haemorrhage (7.62%), postpartum eclampsia (12.38%). 59.05% of adolescent mothers were healthy and 1.90% of neonatal death. 5.71% perinatal mortality in adolescent mothers.

Conclusion: Adolescents are real assets and can be the driving force of positive change in society. They need to be brought up with care and tenderness and it is our duty to help them grow safe and with high quality of life.

Keywords: Adolescents, Primigravid, Fetal outcome

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Introduction:

Adolescence, as defined by the world health organization is the period of life between 10 to 19 years.^{1,2} It is the time of development involving changes in physical, mental, emotional, spiritual, and social functioning.^{3, 4, 5} A primigravid is pregnant for the first time.⁶ Adolescence is the period of life during which a carefree child becomes a responsible adult.⁷ About 14 million women 15-19 years old give birth each year, about 11% of all births worldwide. The adolescent population in Bangladesh (10-19 years) totaled 40.66 million in 2009, indicating an annual growth of about 1.78%. Over 27% of adolescent women in Bangladesh have given birth another 7% are currently pregnant with their first child 2007. Malnutrition in adolescence can cause poor growth or stunt the normal development of the body which can result in a small pelvis that leads to difficult labor with the consequences of chronic morbidity and even mortality for both mother and

child. Early marriage is a social norm in Bangladesh between the age of 15 and 19 years. Over 42% of 15-19 years old are married, whereas about 30% of adolescents are married by the age of 15 and about 60% are married by the age of 18, which is the legal age of marriage.⁴ For years it has been accepted that adolescence is a high-risk pregnancy. In our socioeconomic background, early marriage is a tradition, even children are a sign of blessed marriage. For some young women, the school does not hold any great attraction them.⁵ Moreover, lack of education and poverty leads to seeking economic and family support through marriage which adds to a contributing factor to early marriage and childbearing.⁴ In a study, it has been found that the maternal mortality rate in the 13 to 19 years age group was 5.8/1000 compared to 1.8/1000 for 20 to 25 years age group.⁸ The neonatal death rate was 80/1 000 for the younger group and 43/1000 for older.⁸ Adolescent mothers are unable to take proper care of themselves and their children.⁹ Adolescent pregnancy remains a significant social, economic, and health issue. The unique developmental needs of pregnant adolescents require attention when designing prenatal care services. Prenatal care should provide education and support for young women in an active and developmentally appropriate environment.¹⁰ Early marriage and childbearing, and differential health care utilization are associated with the poor health status of the women, due to the adverse social, cultural, political, and economic environment of societies.¹¹ Pregnancy outcome showed live births, stillbirth miscarriage, abortion was higher among younger age adolescents.¹¹ Objectives of this study are to evaluate the maternal and fetal outcome of labor in primigravid adolescents, to find out the prevalence of primi adolescent pregnancy and to evaluate the socio-demographic characteristics of adolescent mothers. To attain successful safe motherhood adolescent pregnancy stands as a burning issue and proper attention and evaluation for the prevention of its devastating effect.

Methods:

This descriptive cross-sectional study was conducted at the department of obstetrics and Gynaecology, Dhaka Medical College Hospital, Dhaka from April 2017 to September 2017. A total of 105 participants were included in the study according to the following inclusion and exclusion criteria. The sampling procedure was a purposive technique. After taking written consent from the patient, a thorough history taking, clinical examination & relevant investigations were done. Data were analyzed using the statistical package for social science (SPSS) for windows version 16. With inclusion criteria, All primi pregnant women admitted between the 13-19 years in labour irrespective of gestational age. Some exclusion criteria,

patient with known medical diseases, DM, Heart disease, jaundice, and who were discharge before completion of the study.

Results:

The cross sectional study was done to evaluate the national and fetal outcome of labour in primigravid adolescent.

Table-I

Age distribution of the patient (N=105)

Age	Number	Percentage %
13-16 years	13	12.38
>16-19 years	92	87.62

The majority of the patients were in the age group of >16–19 years (87.62%), with a smaller proportion in the 13–16 age group (12.38%).

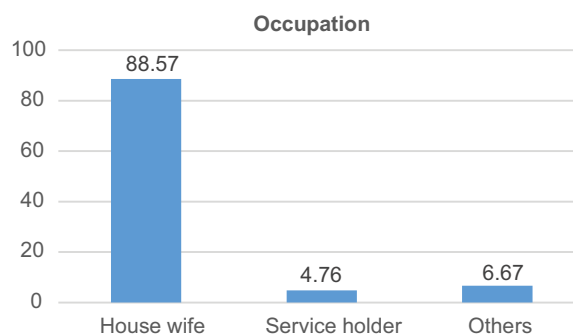


Fig-1: *Distribution of occupational status (N=105)*

Among the participants, a significant number of patients were housewives (88.57%), while a smaller percentage were service holders (4.76%) and others (6.67%).

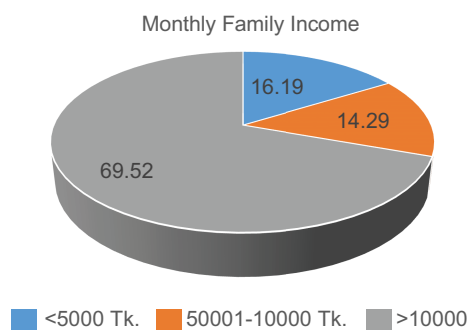


Fig-2: *Distribution of monthly family income (N=105)*

Regarding monthly family income, the majority of patients had an income of less than 5000 Tk. (69.52%), followed by 5001–10000 Tk. (16.19%), and >10000 Tk. (14.29%).

Table II*Distribution of the study patients according to their risk factor(N=105)*

Category	Number	Percentage(%)
Use of contraceptives		
Didn't use	89	84.76
Irregular	7	6.67
Regular	9	8.57
Clinical state		
Anemia	66	62.86
Jaundice	0	0.00
Edema	22	20.95

Among the participants, the majority of patients (84.76%) did not use contraceptives, while a small percentage reported irregular usage (6.67%) and regular usage (8.57%). Regarding clinical states, the most common risk factor observed among the patients was anemia, affecting 62.86% of the participants. The occurrence of jaundice was not reported in any of the patients, and 20.95% of the patients had edema as a clinical state.

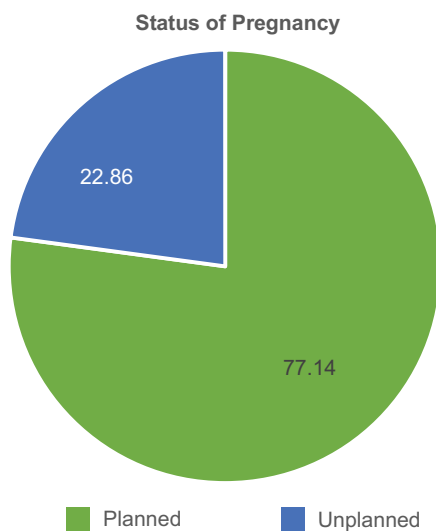


Fig-3: Present pregnancy status between two groups (N=105)

In this figure, 77.14% of pregnancy was planned and 22.86% was unplanned

Table III*Maternal and Delivery Outcomes (N=105)*

Category	Number	Percentage (%)
Antenatal checkup		
Regular	21	20.00
Irregular	84	80.00
Labor status		
Preterm labor	78	74.28
Term labor	27	25.71
PROM	12	11.42
Mode of delivery		
Normal vaginal delivery	56	53.33
Assisted vaginal delivery	7	6.67
Ventouse	7	6.67
Cesarean section	35	33.33
Complications following delivery		
Postpartum eclampsia	13	12.38
Puerperal sepsis	6	5.71
Wound infection	10	9.52
Postpartum hemorrhage (PPH)	8	7.62
Postpartum spinal headache	6	5.71

The antenatal checkup showed that 20% of women had regular checkups, while 80% had irregular checkups. Regarding labor status, 74.28% experienced preterm labor, 25.71% had term labor, and 11.42% experienced premature rupture of membranes (PROM). The mode of delivery varied, with 53.33% having a normal vaginal delivery, 6.67% assisted vaginal delivery, 6.67% ventouse-assisted delivery, and 33.33% undergoing a cesarean section. Complications following delivery included 12.38% of cases with postpartum eclampsia, 5.71% with puerperal sepsis, 9.52% with wound infection, 7.62% with postpartum hemorrhage (PPH), and 5.71% with postpartum spinal headache.

Table IV*Perinatal Outcome and Mortality (N=105)*

Condition	Number	Percentage (%)
Healthy	62	59.05
Birth asphyxia	37	35.23
Stillbirth fresh	2	1.90
Matured	2	1.90
Perinatal death	2	1.90
Antepartum & intrapartum mortality	4	3.81
Perinatal mortality	6	5.71
Total	105	100

According to the data, the majority of cases, 59.05%, had successful and healthy births. Birth asphyxia was experienced in 35.23% of cases. The percentage of stillbirths and cases where infants were born matured was 1.90% each. Similarly, perinatal deaths also accounted for 1.90% of the cases. Furthermore, there were four cases (3.81%) of mortality occurring before or during childbirth, and a total of six cases (5.71%) of mortality during the perinatal period.

Discussion:

In our study, the majority of adolescent mothers were between 17 years to 19 years (87.62%). Bangladesh is a developing country with about 140.3 million population. About 50% of them are women and 15.4% belong to less than 20 years of age. 30.57 million women are between the age of 15 and 49 years.^{12,13} This study found that most of the adolescents (88.57%) were housewives. Ilesanmi et al¹⁴ observed in their study that adolescent incident was 44%. This study showed that 69.52% of adolescent mothers had come from a low socioeconomic class. The increased risk of adverse pregnancy outcomes associated with low maternal age has largely been attributed to poor socioeconomic conditions among adolescents.¹⁵ A study by Yodev and Yong¹⁶ showed that most adolescent mothers were from a lower socioeconomic background. This study shows that only 11.43% of adolescents used contraceptives and 88.57% of adolescents never used contraceptives. DHS and UNIS¹⁷ and BDHS reports¹⁸ show that contraceptive prevalence in Bangladesh is 53.8%. In a study by Zeck et al¹⁹, two-thirds of the adolescents had not used any type of contraception before becoming pregnant. This study found 77.14% of pregnancies were unplanned, the main causes of which are ignorance about contraceptives. In a study by Zeck et al¹⁹, the majority of pregnancies among adolescents were unintended 84%. This study shows that 40% of adolescents had a regular antenatal checkup and 60% of adolescents had no antenatal checkup. According to the BDHS report,¹⁷ 48% of mothers have an antenatal checkup in Bangladesh. A Study by Yodev¹⁶ states that adolescent mothers use prenatal care less than older mothers. This study shows that 6.86% of adolescent mothers are anemic and 20.95% have edema. A study by Susan et al²⁰ shows that pregnancy with maternal anemia is 26.3%, UTI-19.9%, respiratory tract infection- 5.4%. Another study by Mahavarkar et al¹⁸ found 23% anemia in adolescent pregnancy. Ilesanmi et al¹⁴ study show anemia was more frequent in the younger primigravidae. This study shows that 53.33% of adolescents had a normal vaginal delivery, 33.33% had cesarean section and 6.67% had ventouse

delivery. In a study, Smith CS et al²¹ showed that among first births, the only significant difference in adverse outcomes by age group was for emergency cesarean section, which was less likely among younger mothers. In a study of Hull cesarean section rate in the index, the group was 0.56 times that in the elderly primi group.²² According to the British journal of obstetrics and gynecology-the cesarean section, rates were not higher for younger adolescents in comparison to the control group.¹³ In this study complications following delivery were post-partum hemorrhage, postpartum eclampsia, puerperal sepsis, and wound infection were seen in adolescent pregnancy. In this study perinatal mortality, it was 5.71% in adolescent pregnancy. Sundari TK et al²³ found that the perinatal mortality rate was 82/1000. Bangladesh Demographic and Health Survey report¹⁸ shows that in Bangladesh MMR is 1.62 per thousand. However, our study did not identify any cases of maternal mortality in adolescent pregnancies. It should be emphasized that the findings regarding maternal mortality in our study may not be considered reliable due to several factors. These factors include a limited number of participants, short durations of hospital stays, and other challenges such as a shortage of beds. Therefore, it is important to interpret the absence of maternal mortality cautiously in our study.

Conclusion:

Adolescents are real assets and can be the driving force of positive change in society. They need to be brought up with care and tenderness and it is our duty to help them grow safe and with high quality of life. Finally, it can be said that to reduce adolescent pregnancies, a multi-pronged program should be undertaken on a national level which should target, firstly, the adolescent population so that they are provided with education including sex education which would make them aware of the risk of unwanted and adolescent pregnancies and the risks of sexually transmitted diseases and knowledge of modern methods of contraception and the place of their availability. Secondly, establishing a large number of health and family planning service centers throughout the country so that such services are available to the general population.

References:

1. Adolescent pregnancy .http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en. WHO 2013
2. Capoor MI, Patel MV. Adolescent and Young People's issues and concerns in South Asia: Challenges Ahead. The International Conference on Best Practices for Scaling Reproductive Health and Family Planning Programme and

- Reducing Maternal and Neonatal Mortality on 20-21 November 2006 at Islamabad, Pakistan
3. NIPORT. UNFPA and Population Council, 2009, Barkat, 2000; MOHFW, 2009, BDHS 2007.
 4. Akhter HH, Karim F. A Study to identify the risk factors affecting nutritional starts of adolescent girls of Bangladesh 1998; 135(20):119-124.
 5. Campbell S, Lees C. Adolescent Pregnancy. Obstetrics by ten teacher, 17th edition, Hodder Arnold H&S; I.S.ed edition July 31, 2000.
 6. Dutt DC. Teenage pregnancy. Textbook of Obstetrics, 7th edition, new central Book Agency P Limited 2007; 10:95-105.
 7. United Nations Population Fund. The right to choose Reproductive rights and Reproductive Health, 1999. UNFPA, UNFPA and young people, Imagine 2003.
 8. Adolescent pregnancy —Unmet needs and Undone deeds. World Health Organization 2007; 1:1.
 9. Fatemeh Nairi A. Comparative study on outcome of pregnancy in adolescent and adult women, 25th International Congress of the Medical Women's International Association January 2001.
 10. Grady MA, Bloom KC. Pregnancy outcome of adolescent enrolled in a centering pregnancy program. J Midwifery Womens Health 2004; 49(5):412-20.
 11. Yoder BA, Young MK. Neonatal outcomes of teenage pregnancy in a military population. Obstetrics and Gynaecology 1997;90(4):55-60
 12. Borja JB, Adair LS. Assessing the net effect of young maternal age on birth weight. Am J Human Biol 2003; 15(6):733-740.
 13. Census Primary Report 2001.
 14. Zeck W. Impact of adolescent pregnancy on the future life of young mothers in terms of social, familial and educational changes. J of Adolescent Health 2007; 41:380-388.
 15. Adolescent pregnancy and risk of late foetal death and infant mortality. Br J Obstet and Gynaecol 1999; 106:116.
 16. Yodev BA, Young MK. Neonatal outcome of adolescent pregnancy in a military population. Obstetrics and Gynaecology 1997; 90(4): 500-6.
 17. DHS 1990-2000 and UMIS Family Planning Department, Dhaka.
 18. Bangladesh demographic and health survey report 2010.
 19. Centres for Disease Control and Prevention. Healthy Youth; Health Topics: Sexual behaviours. Updated 4/26/04, Accessed 5/10/04 (Internet).
 20. Ilesanmi AO, Fawole O, Olaleye DO, Arowojolu A. Pregnancy outcome in the elderly primigravidae. J Obstet Gynaecol. 1998; 18(1):40-3.
 21. Smith CS, Pell PJ. Adolescent pregnancy and risk of adverse perinatal outcome associated with first and second birth. Population based retrospective cohort study. BMJ 2001; 323:476.
 22. Hull JC, Palmer A, Watson A, Hay DM, Imric A, Ewings P. Early adolescent pregnancies. Br J Obstet Gynaecol 1992; 99(12):969-73.
 23. Dutt DC. Textbook of Obstetrics, 6th edition. New Central Book Agency P Limited 2005; 31:457-468.

Relationship of Short Inter-pregnancy Interval with Occurrence of Preterm Labour on Subsequent Pregnancy

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Abstract

Introduction: Inter-pregnancy interval (IPI) was calculated as the interval between the delivery date of the preceding live birth and the conception date of the index birth, with short inter-pregnancy intervals less than 18 months. Our aim was to evaluate relationship of short Inter-pregnancy interval with occurrence of preterm labour on subsequent pregnancy.

Methods: This observational study was conducted at the department of Obstetrics & Gynecology, Dhaka Medical College Hospital, and Dhaka from August 2017 to January 2018. A total of 100 participants were included for the study. Among them 50 participants were enrolled case group and 50 participants were enrolled control group. Purposive sampling method was used. The IPI was computed as the time period between the first and second deliveries, as only the month and year of the births were available, the day was assumed to be the fifteenth day of the month in both cases for all records. Statistical analysis was done by a statistical software SPSS 20. Before the commencement of the study, the protocol for the study was approved by Ethical review committee (ERC) of DMCH.

Results: The mean age of study subjects was 24.59±4.75 years, ranging from 18 years to 35 years. Majority of the pregnant mother was aged between 21 to 25 years (58%). Mean age of preterm group (25.84±5.57 years) was significantly higher than the subjects who had term pregnancy (23.34±3.38 years). Illiteracy were more prevalent among pregnant mother with pre-term labour (40%). Most of the study subjects had 1st para and 2nd Gravida (69%). Subjects with pre-term labour had significantly higher proportion of short IPI (72% among pre-term labour) than subjects with term labour (14% among term labour, $p < 0.001$). Maternal and neonatal complications were more common in patients with short IPI among preterm and term pregnancies.

Conclusion: Mother's age at first birth, mother's education status and parity had impact on gestational age at delivery and short IPI is significantly associated with pre-term labour and adverse perinatal outcomes.

Keywords: Inter-pregnancy interval, Preterm Labour, Prematurity

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Introduction:

Inter-pregnancy interval was calculated as the interval between the delivery date of the preceding live birth and the conception date of the index birth, with short inter-pregnancy intervals less than 18 months.¹ Every year, an estimated 15 million babies are born preterm (before 37 completed weeks of gestation), and this number is rising.² Among the 10 countries with the greatest number of preterm births Bangladesh is 7th about 424100 per years.² Preterm birth complications are the leading cause of infant death among children under 5 years of age, responsible for nearly 1 million deaths in 2015.³ Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born.³ Globally, prematurity is the leading cause of death in children under the age of 5. And in almost all countries with reliable data, preterm birth rates are increasing.⁴ Preterm birth occurs for a variety of reasons.⁵ Most preterm births happen spontaneously, but some are due to early induction of labour

or caesarean birth, whether for medical or non-medical reasons.⁶ Common causes of preterm birth include multiple pregnancies, infections and chronic conditions such as diabetes and high blood pressure; however, often no cause is identified. There could also be a genetic influence.⁷ A specific association between a short inter-pregnancy interval and preterm birth is biologically plausible. The control of parturition is thought to be mediated by a two-step process of activation and stimulation. Activation is defined as the up regulation of expression of a range of contraction associated proteins, such as G protein coupled receptors, in the weeks leading up to term. Stimulation is defined as the process by which synthesis and release of natural agonists for these receptors, such as prostaglandins, initiates uterine contraction. Failure to allow expression of contraction associated proteins to return to pregnancy levels may be the mechanism by which a short inter pregnancy interval predisposes to preterm birth.⁸ More than 60% of preterm births occur in Africa and South Asia, but preterm birth is truly a global problem. In the lower-income countries, on average, 12% of babies are born too early compared with 9% in higher-income countries. Within countries, poorer families are at higher risk. As paucity of the literature regarding these topics, therefore, the study was designed to estimate the effects of the duration of the preceding short IPI on occurrence of pre-term labour. There is very limited research work available for the condition pre-term birth and short inter-pregnancy interval. For this we selected this topic, "Relationship of Short Inter pregnancy interval with occurrence of preterm labour on subsequent pregnancy". Objectives of this study were to find out the relationship of short Inter-pregnancy interval with occurrence of preterm labour on subsequent pregnancy, to find out the prevalence of short inter-pregnancy interval, to find out the prevalence of pre-term labour and to establish the relationship of short inter-pregnancy interval with pre-term labour.

This study will help medical practitioners to give advice to women about how long they should wait after one pregnancy before trying to become pregnant again.

Methods:

This observational study was conducted at the department of Obstetrics & Gynecology, Dhaka Medical College

Hospital, and Dhaka from August 2017 to January 2018. A total of 100 participants were included for the study according to following inclusion and exclusion criteria. Among them 50 participants were enrolled case group and 50 participants were enrolled control group. Purposive sampling method was used. The IPI was computed as the time period between the first and second deliveries, as only the month and year of the births were available, the day was assumed to be the fifteenth day of the month in both cases for all records. Short IPIs were categorized when the interval was <18 months in two subsequent pregnancy. Births were categorized as 'late preterm' when gestational age in between 34-36 weeks, 'moderately preterm' when gestational age in between 32-34 weeks or 'very preterm' when the GA was below 32 weeks, and extremely preterm when gestational age <25 weeks, respectively. Births with a GA of 36 weeks or more were considered 'term'. Statistical analyze were done by a statistical software SPSS 20. In all cases, p value less than <.05 was considered statistically significant. Before the commencement of the study, the protocol for the following study was approved by Ethical review committee (ERC) of DMCH. This was a single center study. Sample size was small. So, the result of this study cannot reflect the whole scenario of Bangladesh.

Results:

In this study' total 50 subjects of pre-term pregnancy taken as case and another 50 subjects of term pregnancy were taken as control.

Distribution of study subjects

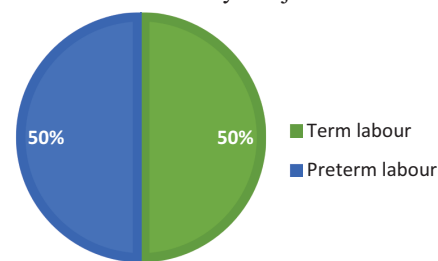


Fig.-1: Distribution of study subjects according (n=100)

Table I
Age Distribution of study population (n=100)

Variables	Pre-term labour n=50 (%)	Term labour n=50 (%)	Total n=100 (%)	P value*
Age Group in years				
≤	12(24)	11(22)	23(23)	0.001*
21-25	14(28)	29(58)	43(43)	
26-30	10(20)	9(18)	19(19)	
>30	14(28)	1(2)	15(15)	
Mean ± SD In years	25.84±5.57	23.34±3.38	24.59±4.75	0.008*
Min-Max in years	18-32	18-35	18-35	

*p determined by Chi-square test **p determined by student's t test

The mean age of all study subjects were 24.59 ± 4.75 years, ranging from 18 years to 35 years. Majority of the pregnant mother was aged between 21 to 25 years (58%) among preterm subjects ($n=50$), majority patients had two peak age 21- 25 years (28%) and >30 years (28%). Among term subjects, majority were aged between 21- 25 years. Pre-term pregnancy was significantly more frequent in older age group ($p < 0.05$). Mean age of preterm group (25.84 ± 5.57 years) was significantly higher than the subjects who had term pregnancy (23.34 ± 3.38 years).

Table II
Educational Profile of study population (n=100)

Variables	Pre-term labour n=50 (%)	Term labour n=50 (%)	Total n=100 (%)	P value*
Education				
Illiterate	20(40)	3(6)	23(23)	<0.001
Primary	12(24)	14(28)	26(26)	
SSC	14(28)	14(28)	28(28)	
HSC	4(8)	11(22)	15(15)	
Graduate and Above	0	8(16)	8(16)	

*p determined by chi-Square test

Majority of the study subjects completed SSC (28%). Illiteracy were more prevalent among pregnant mother with pre-term labour (40%) and none was graduate among them. The difference in educational profile between two groups was significant ($p < 0.001$).

Table III
Obstetric profile of study population (n=100)

Variables	Pre-term labour (n=50)	Term labour (n=50)	Total (n=100)	P value *
Para				
1	32(64)	37(74)	69(69)	0.52*
2	16(32)	11(22)	27(27)	
3	2(4)	2(4)	4(4)	
Gravida				
2	32(64)	37(74)	69(69)	0.52*
3	16(32)	11(22)	27(27)	
4	2(4)	2(4)	4(4)	
Gestational age in Weeks Mean \pm SD	33.08 ± 3.62	38.28 ± 1.01	35.68 ± 3.71	<0.001*

*p determined by chi- square test

**p determined by Student t test

Most of the study subjects had 1st para and 2nd Gravida (69%). Mean gestational age of subjects with preterm labor was 33.08 ± 3.62 weeks and of subjects with term pregnancy was 38.28 ± 1.801 weeks. This difference was significant ($p < 0.001$).

Table IV
Distribution of IPI with study population (n=100)

Labour Category	Pre-term labour (n=50)	Term labour (n=50)	Total (n=100)	P value *
Short IPI	36(72)	7(14)	43(43)	<0.001
Normal IPI	14(28)	43(86)	57(57)	

Subjects with pre-term labour had significantly higher proportion of short IPI (72% among pre-term labour) than subjects with term labour (14% among term labour, $p < 0.001$).

Table V
Pregnancy outcome of study population (n=100)

Outcome	Pre-term labour (n=50)	Term labour (n=50)	Total (n=100)	P value*
Alive	46(92)	50(100)	96(96)	0.04
Normal	38(82.6)	50(100)	88(91.7)	
Needed NICU support	8(17.4)	0	8(8.3)	
Dead	4(8)	0	4(4)	
Still born	2(50)	0	2(50)	
Early perinatal death	2(50)	0	2(50)	0.03

Total 96 babies (96%) were born alive. Among them 8(8.3%) needed NICU support. Two babies was stillborn and two babies died perinatally. All of the dead babies were born to subject with pre-term labour. This difference in pregnancy outcome between pre-term and term pregnancy was significantly ($p < 0.05$).

Table VI
Maternal and neonatal complication in pre-term labour in relation to IPI (n=100)

Complication	Pre-term labour with short IPI (n=36)	Pre-term labour with normal IPI (n=14)	Total (n=100)	p-value*
Maternal complications	8(66.7)	4(33.3)	12(100)	
PPH	4(50)	4(100)	8(66.7)	0.04
Sepsis	4(50)	0	4(33.3)	
Neonatal complication	10(71.4)	4(28.6)	14(100)	
Birth asphyxia	2(20)	2(50)	4(28.6)	0.03
Jaundice	4(40)	2(50)	6(42.9)	
ARDS	4(40)	0	4(28.6)	

Maternal and neonatal complications were more common in patients with short IPI among preterm pregnancies.

Table VII
Maternal and neonatal complication in term labour in relation to IPI (n=50)

Complication	Term labour with short IPI (n=7)	Term labour with normal IPI (n=43)	Total (n=100)	p-value*
Maternal complications	1(33.3)	2(66.7)	3(100)	
PPH	1(100)	2(100)	3(100)	NA
Sepsis	0	0	0	
Neonatal complication	1(33.3)	2(66.7)	3(100)	
Birth asphyxia	0	2(100)	2(100)	0.08
Feeding problems	1(100)	0	0	

Maternal and neonatal complications were similar in subjects with term labour in relation to IPI.

Discussion:

Fifty patients of pre-term birth were taken as case and another 50 term deliveries were taken as control. Mean age of the group of subjects with pre-term birth was 25.84 ± 5.57 years and it was higher than the subjects who had normal IPI (23.75 ± 3.91 years), implying that women with increasing age were more likely to have pre-term birth. In a large rural Bangladesh cohort⁹ it was found that increasing age of mother was associated with increased

risk of pre-term delivery.⁹ Study in Thailand found that both younger and older age was associated with higher risk of pre-term birth.¹⁰ Similarly, in India found a slightly higher mean age of pre-term delivery cases.¹¹ Women with pre-term labour were more likely to be less educated and coming from lower economic class. Confirm this finding. Subjects with pre-term labour had similar parity and gravidity with subjects having term labour. This is also supported by the study of in Iran.¹² Short IPI was defined by less than 18-month interval between two consecutive pregnancies. Short IPI was found in 43% of subjects overall. Short IPI was seen in a significantly higher proportion in pre-term labour cases than term cases ($p < 0.001$). This finding is concordant with that of studies from Sudan, UAE, USA.¹³⁻¹⁸ Those studies showed that a very short birth interval less than 21 months (birth-to-pregnancy of less than 12 months when pregnancy is carried to term) is associated with an increased risk of adverse pregnancy outcomes, but intervals of 24-32 months (birth-to-pregnancy interval of 12-23 months when pregnancy is carried to term) and 33-44 months (birth-to-pregnancy interval of 24-35 months) do not appear to be.¹³⁻¹⁸ So they commented that World Health Organization's recommendation to wait two years after a live birth before attempting a next pregnancy, and the Government of Bangladesh's recommended birth-to-pregnancy interval of 3 years, may be overly cautious as far as perinatal outcomes are concerned. On the other hand, longer IPI was found to be associated with higher risks of preterm birth. Other studies found that infants conceived 18 to 23 months after a live birth had the lowest risks of low birth weight, preterm birth, and small size for gestational age. Several studies have shown that short IPI was associated with higher infant, neonatal and perinatal mortality, low birth weight and small size for gestational age.¹⁹ Longer IPI was not considered in the present study. Further studies in the context of Bangladesh should be carried out to address long IPI alongside short IPI in the perinatal. The outcome for the recommendation of appropriate interval between pregnancies. Pre-term labour was associated with significantly higher neonatal mortality ($p < 0.05$). Who showed a clear relationship between lower gestational age at delivery with higher neonatal mortality.²⁰ Besides, among pre-term delivery, very short birth-to-pregnancy interval of 18 months or less were also found to be associated with elevated risk of neonatal complications. On the other hand number of maternal and neonatal complications among term delivery patients had similar distribution suggesting that complications associated with short IPI is more likely to have link with pre-term birth and vice-versa.

Conclusion:

Short interpregnancy intervals may influence the incidence of premature births which was observed in several studies. To summarize, results of this study indicate that mother's age at first birth, mother's education status and parity had impact on gestational age at delivery and short IPI is significantly associated with pre-term labour and adverse perinatal outcomes. Our findings, in conjunction with those of other studies on the relationship between the inter-pregnancy interval and preterm birth, strongly suggest that a short inter-pregnancy interval is a causal factor for spontaneous preterm birth. This information could be used for raising awareness of the mother. Policy maker could use this as an evidence during program design and implementation of family planning methods. Further large cohort study is recommended.

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References:

- Gemmill A, Lindberg LD. Short inter-pregnancy intervals in the United States. *Obstetrics and gynecology*. 2013 Jul; 122(1):64.
- Mercer BM. Perivable birth and the shifting limit of viability. *Clinics in Perinatology*. 2017 Jun 1;44 (2):283-6.
- Khoshnood B, Lee KS, Wall S, Hsieh HL, Mittendorf R. Short inter-pregnancy intervals and the risk of adverse birth outcomes among five racial/ethnic groups in the United States. *Am J Epidemiol* 1998; 148: 798-805?
- Hosain GM, Chatterjee N, Begum A, Saha SC. Factors associated with low birth weight in rural Bangladesh. *J Trop Pediatr* 2006; 52:87—91.
- Kallan JE. Reexamination of inter-pregnancy intervals and subsequent birth outcomes: evidence from U.S. linked birth/infant death records. *Soc Biol* 1997;44:205-12
- Zimmer BG. Consequences of the number, and spacing of pregnancies on outcome, and of pregnancy outcome on spacing. *Soc Biol* 1979; 26: 161—78.
- Conde-Agudelo A, Belizan JM, Breman R, Brockman SC, Rosas-Bermudez A. Effect of the inter-pregnancy interval after an abortion on maternal and perinatal health in Latin America. *International Journal of Gynecology & Obstetrics*. 2005 Apr 1; 89:S34-40.
- Smith GCS, Pell JP, Dobbie R. Inter-pregnancy interval and risk of preterm birth and neonatal death: retrospective cohort study. *BMJ*. 2003; 327:313.
- Shah R, Mullany CC, Darmstadt GL, Mannan I, Rahman SM, Talukder RR, et al. Incidence and risk factors of preterm birth in a rural Bangladeshi cohort. *BMC Pediatr*.2014; 14(1):1-11.
- Ip M, Peyman E, Lohsoonthorn V, Williams MA. A case—control study of preterm delivery risk factors according to clinical subtypes and severity. *J Obstet Gynaecol Res*.2010; 36(1):34-44.
- Rao CR, de Ruiter LEE, Bhat P, Kamath V, Kamath A, Bhat V. A case-control study on risk factors for preterm deliveries in a secondary care hospital, southern India. *ISRN Obstet Gynecol*.2014; 935982.
- Bukair A, Al-Saqladi A-W, Al-Sadeeq A. Inter pregnancy interval and the risk of preterm birth: a case-control study of infants born at Al-sadaqa general teaching hospital, Aden, Yemen. *Int J Reprod Contraception, Obstet Gynecol*. 2016; 5(4):1181-6.
- Adam I, Ismail MH, Nasr AM, Prins MH, Smits LJM. Low birth weight, preterm birth and short inter pregnancy interval in Sudan. *J Matern Neonatal Med*.2009; 22(11) 1068-71.
- Al-Jasmi F, Al-Mansoor F, Alsheiba A, Carter AO, Carter TP, Moshaddeque Hossain M. Effect of inter pregnancy interval on risk of spontaneous preterm birth in Emirati women, United Arab Emirates. *Bull World Health Organ*.2002; 80(11):871-5.
- DeFranco EA, Stamilio DM, Boslaugh SE, Gross GA, Muglia LJ. A short inter pregnancy interval is a risk factor for preterm birth and its recurrence. *Am J Obstet Gynecol*. 2007; 197(3).
- Fuentes-Afflick E, Hessol NA. Inter pregnancy interval and the risk of premature infants. *Obstet Gynecol*. 2000; 95(3):383—90.
- DaVanzo J, Hale L, Razzaque A, Rahman M: Effects of inter pregnancy interval and outcome of the preceding pregnancy on. *Pregnancy outcomes in Matlab, Bangladesh*. *BJOG* 2007, 1 14:1079-1087.
- de Jonge HCC, Azad K, Seward N, Kuddus A, Shaha S, Beard J, et al. Determinants and consequences of short birth interval in rural Bangladesh: A cross-sectional study. *BMC Pregnancy Childbirth*. 2014; 14(1):1—7.
- Zhu B-P, Rolfs RT, Nangle BE, Horan JM. Effect of the Interval between Pregnancies on Perinatal Outcomes. *N Engl J Med*. 1999; 340(8):589—94.
- Lubchenco LO, Searls D, Brazie J V. Neonatal mortality rate: Relationship to birth weight and gestational age. *J Pediatr*. 1972; 81 (4):8 14—22.

Experience of Online Classes among Medical Students of a Non-Government Medical College

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Abstract

Introduction: Online learning has emerged as a new method of teaching to maintain the continuity of medical education during the COVID-19 pandemic related closure of educational institutions in Bangladesh.

Methods: This cross sectional study was carried out in Green Life Medical College (GMC) aims to evaluate the experiences of online classes among the students of GMC (Phase I, Phase II & Phase IV). Data were collected using self administered semi-structured questionnaire through online Google Form (URL link: <https://forms.gle/84uZzEhqitrD8LFG8>).

Results: A total of 228 students of GMC participated in this study, including 65.4% female & 34.6% male, belonging 51.8% from Phase I, 32.5% from Phase II and 15.8% from Phase IV. Maximum students were able to do online class for more than 4 months and the duration of class was more than 15 hours per week. About two third (71.9%) of the students said that online classes were effective in helping them reach the learning objectives and near half of them had reached their expectation. Images and text in the classes were clearly visible and sounds were clearly audible, said 73.7% and 69.7% students respectively. Maximum of the students (80%) were satisfied with the strictly maintained schedules. One third that is 33.3% and 27.6% of the students got interruption in online classes for technical problems every day and twice a week accordingly. Seventy two percent students' expenditure due to internet setup had increased and among them more than half (62.5%) student's expenditure increased by 50%-70%. Two third (65.8%) of the students from study phases refused to agree that there was enough interactivity in comparison to regular classes and 93.9% shared negative experience that online class was lacking of practice based learning. Half of the total students (51.8%) rated online class as not good not bad, 20.6% rated bad, 14.9% rated good, 9.2% rated worst and only 3.5% rated best.

Conclusion: Online classes were effective to some extent but it was lacking of practice based learning. Understanding technological, financial, institutional, and student barriers are essential for the successful implementation of online learning in medical education.

Key words: Online class, COVID 19, Practice based learning

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Introduction:

Since the end of 2019, a new type of respiratory tract infection first reported in China, with the ability to cause severe pneumonia, respiratory failure and death has begun to impact the way of life throughout the world.¹ The disease was designated as coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO) in February 2020 and declared as a pandemic disease on March 11th, 2020.^{2,3}

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The numbers of infected patients worldwide increase rapidly. Globally, on upto 15th April, 2021, there have been 139,026,076 confirmed cases of COVID-19, including 2,989,137 deaths, reported to WHO.⁴ Similarly, in Bangladesh 1st COVID case was found on 8th march, 2020 and 1st death on 18th March 2020. Since then there have been 707,362 confirmed cases of COVID-19 with 10,081 deaths.⁵

As with many countries and regions worldwide, the COVID-19 pandemic has altered the daily life of students in Bangladesh. All of the country's educational institutions have closed since the outbreak of the virus here on March 8.⁶ Meanwhile, on April 27, 2020 Honorable Prime Minister Sheikh Hasina hinted that school, college and other institutions might remain closed till September 2020, upon the COVID-19 situation.⁷

At a virtual meeting, the Ministry of Education and University Grand Commission (UGC) together reached six decisions to ensure universities to run their academic activities online properly, including exams and admissions.⁷ Students, as a result, had been attending online classes from their homes and socializing remotely as their daily lives had to adjust due to the effects of the pandemic.⁶

Medical education has many long established pedagogical approaches to learn including face to face lectures in classrooms - via a teacher-centered model.⁸ Online learning has emerged as a new method of teaching to maintain the continuity of medical education during the COVID- 19 pandemic related closure of educational institutions.⁹

As described by Howlett et al “Electronic (e) or online learning can be defined as the use of electronic technology and media to deliver, support and enhance both learning and teaching and involves communication between learners and teachers utilizing online content”.¹⁰

The availability of essential infrastructures and efficient institutional strategies represent a major challenge for integrating distance learning in medical education.¹¹ Some elements that cause hurdles to online learning efficacy include administrative concerns, social interaction, academic skills, technical skills, learner motivation, time and support for studies, technical problems, cost and access to the internet. Other factors could result in low-quality online learning, for example an ineffective design and arrangement of multimedia materials.¹²

The evaluation of online and face to face teaching in medical education, therefore, should depend on a comprehensive consideration of how they are used across groups. It should all be assessed including types of students, the learning goals, design properties of the learning materials, evaluation of learning outcomes, etc.^{13,14,15}

The information about the effective online learning is for undergraduate medical education remains unknown in Bangladesh. Knowing about the effectiveness of Internet-based, interactive online learning approaches and this information is also important for policymakers and practitioners to design appropriate conditions or improvements in educational practices under which online learning is effective.

Methods:

The study was carried out in Green Life Medical College from October 2020 to February 2021 among the students of GMC (Phase I, Phase II & Phase IV). Data were collected using semi structured questionnaire by online Google Form

and the method was self administration through online link to estionnairethat qu (URL link: <https://forms.gle/84uZzEhqitrD8LFG8>). Ethical consideration was followed strictly. Objectives and goals were explained at the beginning of the questionnaire to all participating students and they enrolled after they gave consent to participate in the study. After completion of data collection, those were checked, verified, edited for consistency and rechecked. Data were analyzed using the statistical package for the social sciences (SPSS) version 23.

Results:

A total of 228 students participated in this study, including 65.4% female & 34.6% male, belonging 118 (51.8%) from Phase I, 74(32.5%) from Phase II and 36 (15.8%) from Phase IV. Majority that is 82.9% were doing online class more than 4 months and the highest duration of the classes were more than 15 hours per week attended by 44.7% of the students.

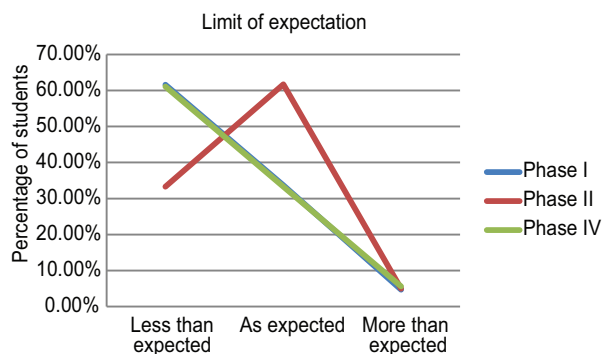


Fig.-1: Expectation limits for effectiveness of Online Class in helping to reach the learning objectives (n=164)

Most of the students (71.9%) from study phases said that online classes were effective in helping them to reach their learning objectives. Among them, expectation limits for Phases I and IV were reported as almost equal percentages (33.7% & 33.3%), as expected but most of the students from Phase II (61.7%) said as expected.

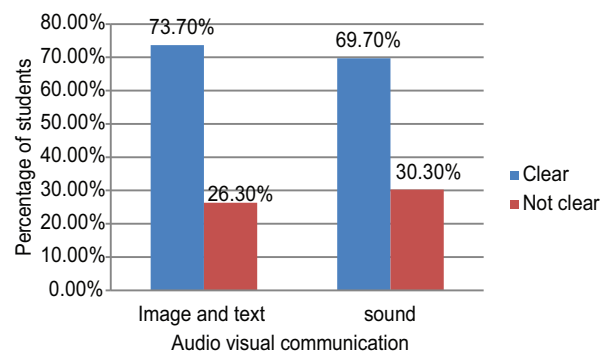


Fig.-2: Information about audio-visual communication

Among 228 students most of them that is 73.7% and 69.7% stated that images and text in the classes clearly visible and sounds in the classes clearly audible accordingly.

Visual attraction for online classes

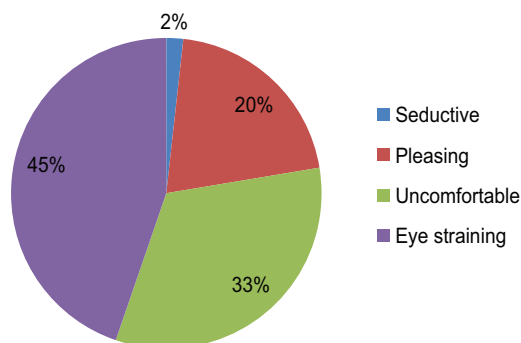


Fig.-3: Feelings of visual attraction for online classes

Near about half that is 102 (44.7%) had eye straining, 75 (32.9%) felt uncomfortable, 47 (20.6%) felt pleasing and only 4 (1.8%) felt seductive during attending online classes.

About 80% students of study phases state that class schedule were strictly maintained, teachers appeared enthusiastic and interested while taking classes and effectively present the tools as for example materials, skills, and techniques which needed to extend the content. Only 60.5% said that the contents of the class easily understandable through online class. Most of the students (77.6%) said that further guidance offered from teacher where content was complex. Two third (75.4%) of the students were also satisfied and said that teachers taking sufficient feedback from them. More than half 58.8% (134) of the students said that they had been informed about the learning objectives / contents of the class beforehand.

Half of them (52.2%) felt more engaged with learning materials from safe, comforting spaces like home environment and 73.7% made their learning environment as per their convenience (e.g. home/outdoor setup, sitting arrangement, with taking tea/meal).

Information related to technical issues:

One third that is 33.3% students got interruption in online classes for technical problems every day, 27.6% twice a week and very few students (3.5%) never faced any problem.

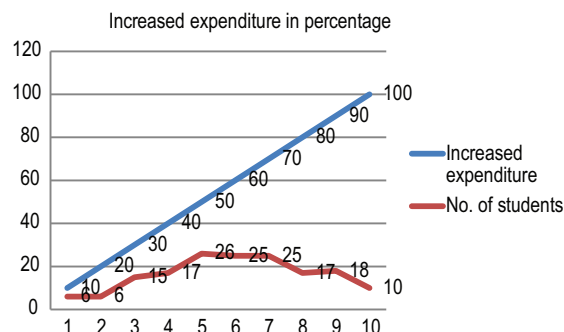


Fig.-4: Amount of expenditure for internet setup in percentage (n=165)

More than half of the students (64.9%) had appropriate internet setup before online classes started. About two third (72.4%) of the student’s expenditure increased due to new internet setup and maximum (62.5%) remained within the range of 50%-70%. About 80%-90% expenditure had increased in case of 21.1% students and up to 100% for 6.1% students.

Experiences regarding online classes:

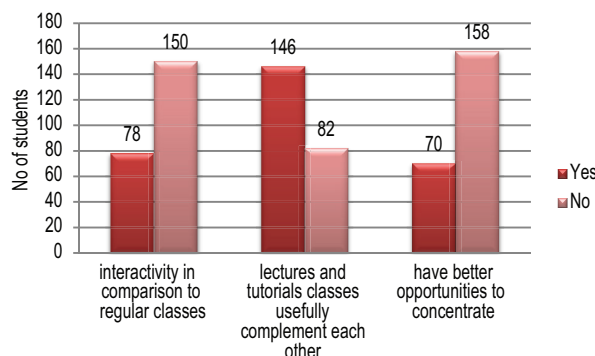


Fig.-5: Information about interactivity and opportunity to concentrate in online class

Table I
Information related to learning procedure

	Yes		No		Total
	f	%	f	%	
Strictly maintained class schedule	185	81.1	43	18.9	228(100%)
Teachers appear enthusiastic and interested	193	84.6	35	15.4	
Teachers effectively present the tools	180	78.9	48	21.1	
Content easily understandable	138	60.5	90	39.5	
Further guidance offered	177	77.6	51	22.4	
Taking sufficient feedback	172	75.4	56	24.6	

Maximum (65.8%) students from all study phases refused to agree that there was enough interactivity in comparison to regular classes but on the other hand 64% students stated that lectures and tutorials classes usefully complement each other. Maximum students felt that they did not get better opportunities to concentrate in online classes. Majority (93.9%) thought that online class is lacking of practice based learning.

Improvement of self practice

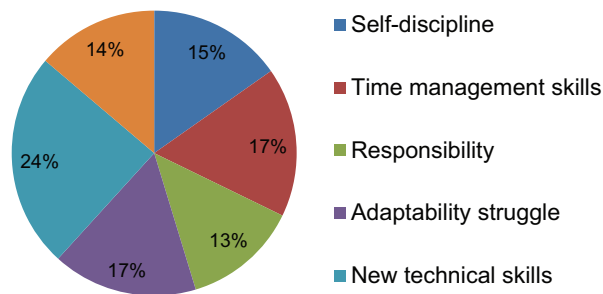


Fig.-6: Improvement of self practice due to online class

Attending the online class, led them to improve self practice in terms of time management skills (17%), self-discipline (15%), adaptability struggle (17%), responsibility (13%), new technical skills (24%) and only 14% had no improvement.

Effect of Online Class

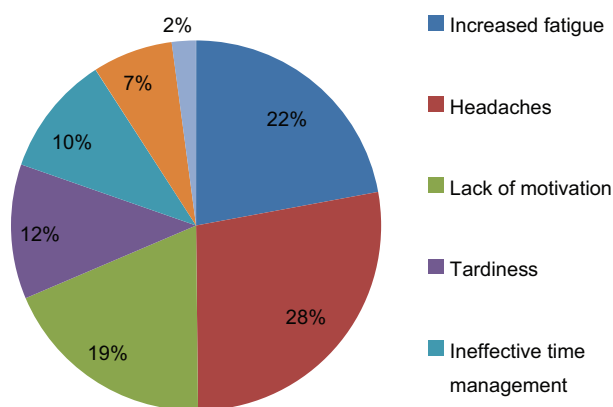


Fig.-7: Effect after attending online classes

Among 228 students of all study phases 22% had increased fatigue, 28% had headaches, 19% felt lack of motivation, 12% felt tardiness, 10% had ineffective time management and 7% had feelings of isolation quite often, after attending online classes

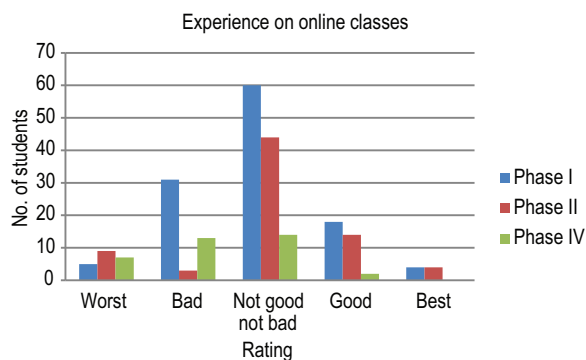


Fig.-8: Experience on online classes by rating

Students rated online class as not good not bad (51.8%), 20.6% rated bad, 14.9% rated good, 9.2% rated worst and only 3.5% rated best.

Opinion of the students regarding online classes:

Strength:

More comfortable and safer during this pandemic situation and getting opportunities to attend in classes from homely environment & helped them get more time to review study materials, free up time for other activities which they did not have before. It is mostly helping them to stay connected with teachers, friends and also with their studies.

Weakness:

Internet issues, electricity issues, attendance issues, exam pressures, sometimes longer duration of class made them tired and at some point they felt annoyed because of headache & eye straining, sometimes ear pain due to wearing headphones. Mainly students from first and final phase faced problem due to lack of practice. Another drawback was teachers could not monitor at a time all students' attentiveness, so there was a chance of being inattentive in the class.

Suggestion:

Most of the students suggested to reduce class time that is 3 or 4 days in a week. Classes should be more interactive and teachers should give assignment strictly. They thought that expenditure for internet classes can be provided to all students from a centralized body (either DU or BMDC) as they need high speed internet.

Discussion:

After taking decision by academic council, Green life Medical College decided to take online classes for all phases of MBBS students from 12th July, 2020 following a structured schedule. The results of this survey evaluate the experiences of online classes of 228 medical students,

118 from Phase I, 74 from Phase II and 36 from Phase IV including 65.4% (149) female & 34.6% (79) male which is acceptable response for any survey. Maximum students were able to do online class more than 4 months and the duration of class was more than 15 hours per week.

While looking at the result closely, it revealed that maximum students (71.9%) stated that online classes effective more in helping them to reach in learning objectives and near half of them have reached their expectation level. In Romania, they noticed that among 459 medical students maximum accepted remote lectures and other learning activities due to the higher risk of contamination.¹⁷ But another study in Bangladesh showed mixed responses for the effectiveness of the online classes. 51% perceived online class effective while their counterparts marked it as ineffective.¹⁸

In this study regarding audio visual communication, 73.7% and 69.7% stated that images and text in the classes clearly visible and sounds clearly audible accordingly. But very few felt visual attraction like pleasing and seductive but most of them had eye straining and uncomfortable. In Chattagram International Medical College, near about half students, both pre-clinical and clinical stated that sound and visibility of class was clear sometimes.^{19, 23}

Notably, according to phase II and phase IV above 94% students were satisfy with their strictly maintained schedule and in phase I 66.1% were satisfy with this. But another study in Bangladesh stated that only $37\% \pm 23.5\%$ pre-clinical students' felt timing was well maintained in most of the classes and $46.8\% \pm 7.6\%$ clinical students felt timing was well maintained sometimes.^{19, 23}

About 80% students of all study phases stated that teachers appeared enthusiastic and interested and effectively present the tools. But half of them had been informed about the learning objectives / contents of the class beforehand. Most of the students satisfied with the matter of contents of the class easily understandable, further guidance offered from teacher where content is complex and teachers taking sufficient feedback from the students. Almost same findings came from a study conducted in chattagram that is $40\% \pm 10.5\%$ pre-clinical and $54.4\% \pm 9.4\%$ clinical students sometimes interacted with the teacher in the online class.¹² In Nepal 67% of the respondents rated the online classes were interactive.²⁰

Almost same percentage of students that is 33.3% and 27.6% got interrupted of online classes for technical problems every day and twice a week accordingly. Similar findings was found a study conducted in Nepal.¹⁹ A study

conducted in different universities of Bangladesh demonstrated that 49% of the students faced electricity problems while 75% of students don't have stable internet connection during class time.²⁰ In Poland 54% felt technical problem with IT equipments as the main disadvantages of e-learning.^{21, 23} In Jordan, Internet streaming quality and coverage was one of the main challenge that was reported by 69.1% of students.²⁴

In this study 64.9% had appropriate internet setup prior online classes had started and two third of the student's expenditure had increased due to internet setup and maximum remain within the range of 50%-70%. The cause behind these issues might be the location of the students (maximum stay at their home outside Dhaka) as well as their financial support.

The most striking finding came out with the question that is there was enough interactivity in comparison to regular classes. Maximum students from all phases refused to agree with that statement. Almost all (93.9%) of the students from three phases shared negative experience that online class is lacking practice based learning. This findings coincide with a study finding where pre-clinical students ($73.5\% \pm 7.2\%$) and clinical phase ($71\% \pm 13.1\%$) never felt online class could be as a good substitute of 'front-to-front' class.^{17, 19} Similar study in Poland showed that learning was considered less effective than face-to-face learning in terms of increasing skills ($p < .001$).¹⁵ The reason might be there had been gaps in replacing practical classes and clinical placements.

Attending the online class, led them to improve self practice in terms of time management skills, self-discipline, adaptability struggle, responsibility, new technical skills. On the other hand there were some adverse effect during or after attending online classes like increased fatigue, headaches, lack of motivation, tardiness, ineffective time management, feelings of isolation.

The interesting finding is half of total students (51.8%) rated online class as not good not bad, 20.6% rated bad, 14.9% rated good, 9.2% rated worst and 3.5% rated best. In Jordan, the overall satisfaction rate in medical distance learning was 26.8%.¹⁷ Online classes were found sometimes effective by pre-clinical ($40.9 \pm 10.7\%$) and clinical ($38.6\% \pm 9.8\%$) students respectively. The response was 'never' effective $38\% \pm 18.4\%$ and $35.8\% \pm 18.5\%$ for pre clinical and clinical students respectively.¹³ But in Nepal 77.51% of respondents rated that the online classes were not effective.^{10, 22, 23}

Conclusion:

By attending the online classes, students were able to improve self-care practice and it was effective in helping students to reach their learning objectives. Online classes were lacking of practice based learning and students faced some technical problems. To take challenge of creating real-life picture in online classes, it needs to be more interactive, simulation-based classes, specially for clinical students to bring out an effective outcome. High speed and reliable internet connection as well as quality devices and accessories need to be ensured for clear sound and visibility during the online classes. The results of this study done on students' perspective might be useful in planning whether adoption to online classes in COVID time might continue to persist post pandemic.

References:

- Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* (London, England). 2020;395 (10223):507-13.
- World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report-83 <https://who.int>.
- Zhou P, Yang XL, Wang XG, Hu B, Zhang L, Zhang W, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 12 March 2020;579:270-273.
- Cited from: https://covid19.who.int/?gclid=Cj0KCQjwuL_8BRCXARIsAGi_C51C99R_HQp7mcjMr6Nj oCU3Fcf13d_FS3WwOzmrW43_834XfPit4jg_QaAq FDEAL_w_wcB
- Cited from <https://covid19.who.int/region/searo/country/bd>
- Bangladesh students shift to online learning, socializing remotely amid pandemic. Thursday, January 7, 2021. Source: *Xinhua* 2020-07-22 22:21:43|Editor: huaxia.
- Covid-19: Educational institutions engaging in online, virtual classes. Published at 05:00 pm May 2nd, 2020 (Dhaka Tribune).
- Doherty D, Dromey M, Loughheed J. et. al. Barriers and solutions to online learning in medical education – an integrative review. *BMC Medical Education*: 130 (2018), 7th June, 2018.
- Shachar M, Neumann Y. Differences between traditional and distance education academic performances: a meta-analytic approach. 12 Aug 2016. [Cited from: <http://www.irrodl.org/index.php/irrodl/article/view/153/704>]
- Howlett D, Vincent T, Gainsborough N, Fairclough J, Taylor N, Vincent R. Integration of a case-based online module into an undergraduate curriculum: what is involved and what is effective? *e-Learning*: 2009;6(4):372–84.
- Leisi Pei, Hongbin Wu. Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis. *Medical Education Online*. Volume 24, 2019 - Issue 1.
- Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies. U.S. Department of Education (2010).[Cited from: <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>]
- Covid-19: Educational institutions engaging in online, virtual classes. Published May 2nd, 2020 (Dhaka Tribune).
- Ahmad T B, Habibah L, et. al. Evaluation of Satisfaction Using Online Learning with Interactivity. *Elsevier, Procedia - Social and Behavioral Sciences*. Volume 171, 16 January 2015, Pages 905-911.
- Our top 5 advantages and disadvantages of online learning. [Cited from: <https://www.easy-lms.com/knowledge-center/lms-knowledge-center/advantages-and-disadvantages-of-online-learning/item12529>]
- KuiA ,Manziuc M et.al. Medical Students' Perception about Online Teaching Methods during COVID- 19 Pandemic. *Journal of Evolution of Medical and Dental Sciences*, November 2020. DOI: 10.14260/jemds/2020/799.
- Al-Amin M et.al. Status of tertiary level online class in Bangladesh: students' response on preparedness, participation and classroom activities. <https://doi.org/10.1016/j.heliyon.2021.e05943>.
- Khanom M, HoqueAet. al. How were the Online Classes in Undergraduate Medical Teaching during COVID Pandemic? Students' Views of a Non-Government Medical College in Bangladesh. *Bangladesh Journal of Medical Education Vol- 11, Issue-02, July, 2020*. ISSN: 2306-0654. DOI: <https://doi.org/10.3329/bjme.v11i2.49244>
- Tuladhar LS, Pradhan D et.al. Study on the effectiveness of online classes for undergraduate medical and dental students of Gandaki Medical College during COVID 19 pandemic period in Nepal. *Orthodontic Journal of Nepal*, Vol. 10 No. 2. COVID-19 Special Issue.
- B'czek M, B'czek ZM et al. Students' perception of online learning during the COVID-19 pandemic: a survey study of Polish medical students, 14 July 2020. PREPRINT (Version 1) available at Research Square [+<https://doi.org/10.21203/rs.3.rs-41178/v1>]
- Abbasi S, Ayoob T et.al. Perceptions of students regarding Elearning during Covid-19 at a private medical college. *Pak J Med Sci*. 2020;36 (COVID19-S4):S57-S61. doi:10.12669/pjms.36.COVID19-S4.2766
- Rajab M H, Gazal A M, Alkattan K (July 02, 2020) Challenges to Online Medical Education During the COVID-19 Pandemic. *Cureus* 12(7): e8966. DOI 10.7759/cureus.8966.
- Al-Balas et al. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and Perspectives. *BMC Medical Education* (2020) 20:341 <https://doi.org/10.1186/s12909-020-02257-4>
- Nimavat N, Singh Set.al. Online Medical Education in India – Different Challenges and Probable Solutions in the Age of COVID-19. *Advances in Medical Education and Practice* downloaded from <https://www.dovepress.com/> by 116.204.230.21 on 30-May-2021.
- NurunNaharN, Talukder et.al. Students' Perception of Educational Environment of Medical Colleges in Bangladesh *BSMMU J* 2010; 3(2): 97-102.
- Panahi P, Borna F. "Distance learning: challenges, new solution," 2014 37th International Convention on Information and Communication Technology. *Opatija: Electronics and Microelectronics (MIPRO)*; 2014. p. 653–6. <https://doi.org/10.1109/MIPRO.2014.6859648>.

The Psychological Impact of the Covid-19 Pandemic on the students of Green Life Medical College - A Cross Sectional Study

KHAN S¹, KHAN S Z², KAMRUN S³, AZIM E⁴

Abstract

Introduction: Medical students have faced an enormous disruption to their lives due to the COVID-19 pandemic which directly contributed to the development of psychological distress in them. This can lead to catastrophic consequences such as impaired academic performance, impaired competency and attrition from medical school. This study was done aimed to assess the psychological impact of COVID-19 on students of Green Life Medical College.

Methods: A descriptive type of cross sectional study was carried on students of on-going sessions of Green Life Medical College which had students from 1st year to 5th year. The study was conducted from December 2021 to February 2022 interviewing the respondents face to face with the help of pre-tested structured questionnaire by using Kessler's psychological distress scale. The data was analyzed both manually as well as on computer based software name MS Excel.

Result: According to the study, majority of the respondents were Bangladeshi (81%) and within age group of 20-22 years (66%). About 78% of the students belonged from nuclear family whereas 21% were from joint families. Throwing light on mental health issues of the students it was found that 35% of them were likely to have a severe disorder, followed by mild disorder (23%). Among the respondents, 75% were scared about the daily rise of COVID-19 cases and majority (60%) were scared about the daily rise of COVID-19 death. Insecurity regarding the availability of medical resources during the pandemic played a major role which led to 75% of students to feel so. About 77% students were scared of being infected as well. About 64% of the students showed negativity towards online classes, 58% of them said they found it difficult to arrange notes, 68% and 55% complained about the barriers faced to communicate with teachers and study mates respectively. To cope up with the numerous issues faced during the unfortunate pandemic, 22% used social media, 19% watched television and others involved them in work like religious activities (14%), cooking (10%) etc. A hopeful result was found which showed only 11.46% of the students took sessions for counseling regarding fight against corona related stress.

Conclusion: A significant proportion of students were suffering from severe psychological disorder according to Kessler psychological distress scale. On the other hand, medical students have to deal with patients. So, proper counselling to cope up with corona pandemic and maintaining proper guideline to prevent corona can reduce stress among medical students.

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Introduction:

The psychosocial effects of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), otherwise known as COVID-19 are pervasive and of significant societal concern. Indeed, it is likely that COVID-19 will not only affect the mental health of the population presently, as the pandemic spreads but that the impact may last long into the future. We would expect that many individuals will experience a rise in mental distress symptoms, such as anxiety and depression, during these unprecedented times when populations have been required to drastically change their day-to-day way of life. However, there is further concern that for some, particularly those with pre-existing

vulnerabilities, this rise in mental distress will reach clinically significant levels and in turn affect day to day functioning.¹

For students, COVID-19-related stressors may include health concerns emanating from increases in cases, sequelae of distancing or isolation strategies, and disruptions in starting classes and taking exams. These may lead to feelings of hopelessness, fear of death, and frustration that may grow among students in quarantine. Furthermore, the situation's unpredictability and volatility about when and how to manage the disease and reduce risk may be particularly challenging and demanding. While quarantined and out of the university environment and schedule, students may experience stress, anxiety, anger, boredom, loneliness, and other emotions, with both shorter and longer-term impacts.²

The key objective of this study is to determine the effect of the COVID-19 pandemic on medical students' mental health. Accordingly, it is essential to decide how prolonged college closure, social distancing, and the pandemic affect the psychological wellness status of students. Hence, this study is intended to assess mental health status of medical students and other associated factors that affect their mental health in Bangladesh. It will also attempt to provide some policy suggestions to address the mental health issues of medical students in Bangladesh in general and during crises.

Methods:

It was a cross sectional type of descriptive study conducted from December 2021 to February 2022 among the students of on-going sessions of Green Life Medical College that is from first year to fifth year. About 253 students were selected for data collection by non-probability convenient sampling technique. Data were collected by face to face interviewing of students of on-going sessions of Green Life Medical College that is from first year to fifth year using semi-structured questionnaire which was pretested before data collection. Data were collected on socio-demographic details of the students, mental health changes by using Kessler's psychological distress scale (The Kessler Psychological Distress Scale (K10) is a simple measure of psychological distress. The K10 scale involves 10 questions about emotional states each with a five-level response scale.³ Each item is scored from one "none of the time" to five "all of the time". Scores of the 10 items are then summed, yielding a minimum score of 10 and a maximum score of 50. Low scores indicate low levels of psychological distress and high scores indicate high levels of psychological distress. K10 Score: · 10 - 19

likely to be well · 20 - 24 likely to have a mild disorder 25 - 29 likely to have a moderate disorder · 30 - 50 likely to have a severe disorder)⁴. Additionally data was also collected on life style and behavior changes of students during COVID-19, any negative impact of COVID- 19 on students, perception of students on online medical education, activities and measures used by the students to improve mental wellbeing during COVID-19. After collection of data each questionnaire was checked for inconsistency. The data was analyzed both manually as well as on computer based software MS Excel.

Results:

In table I shown, more than half (66%) of the students' age was between 20 to 22 years and female students (55%), highest proportion (81%) of students were Bangladeshi and from 1st year (38%) whereas majority (78%) of the students were from nuclear family and monthly family income (36%) was between 50000 to 1 lakh taka, more than one third (41%) of the students' fathers were businessman as well as more than half (63%) of the students' mothers were homemaker.

Table-I
Distribution of respondents by socio-demographic characteristics (n= 253)

Variables	Frequency (n)	Percentage (%)
A. Age of respondents in year		
17-19	15	6
20-22	167	66
23-25	66	26
26-28	5	2
B. Gender		
Male	113	45
Female	140	55
C. Nationality status		
Bangladeshi	205	81
Indian	35	14
Nepalese	10	4
Others	3	1
D. Academic year		
1 st year	96	38
2 nd year	40	16
3 rd year	81	32
4 th year	28	11
5 th year	8	3

Table-I(Cont'd)

Distribution of respondents by socio-demographic characteristics (n= 253)

Variables	Frequency (n)	Percentage (%)
E. Type of family		
Nuclear family	197	78
Joint family	53	21
No family	3	1
F. Monthly family income in taka		
<50000	43	17
50000 to 1 lakh	91	36
1 lakh to 2 lakh	81	32
> 2 lakh	38	15
G. Fathers' occupation		
Doctor	25	10
Engineer	28	11
Service holder	66	26
Business	104	41
Others	30	12
H. Mothers' occupation		
Doctor	18	7
Engineer	3	1
Service holder	40	16
Business	8	3
Home maker	159	63
Others	25	10

In Fig-1 shown, according to kessler's psychological distress scale, 35% students had severe mental disorder as well as about 23% students had mild disorder whereas about 21% students had moderate and no disorder respectively.

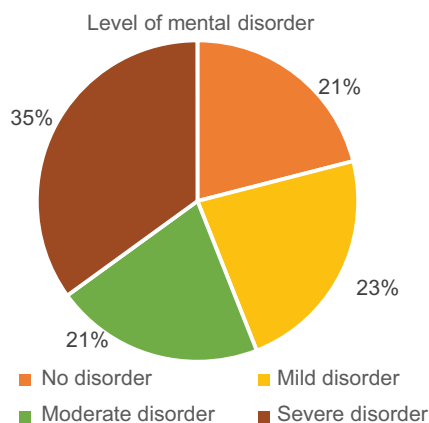


Fig-1: Level of mental disorder

In table II shown, more than half (79%) of the students' behavior was normal to their family and majority (71%) of the students had adequate sleep, highest proportion (83%) of students had good appetite furthermore more than half (76%) of the students maintained hygiene properly.

Table-II

Life style and behavior change during COVID-19 pandemic (n= 253)

Variables	Frequency (n)	Percentage (%)
A. Behavior towards their family members		
Non communicative	35	14
Normal	200	79
Aggressive	18	7
B. Sleeping habit		
Yes	180	71
No	73	29
C. Appetite		
Yes	210	83
No	43	17
D. Maintenance of hygiene		
Yes	192	76
No	10	4
Not always	51	20

In table III shown, more than half (75%) of the students were scared about daily rise of COVID-19 cases and about 60% were scared about daily rise of COVID-19 death where highest proportion (75%) of students felt insecure about availability of medical resources whereas majority (77%) of the students felt insecure about being infected as well as more than half (69%) of the students felt required modifications of strategies to stop spread of Corona virus.

Table-III

Negative impact of COVID-19 pandemic on students (n= 253)

Variables	Frequency (n)	Percentage (%)
A. Feeling about daily rise of Covid-19 case		
Yes	190	75
No	63	25
B. Feeling about daily rise of Covid-19 death		
Scared	152	60
Hopeless	56	22
Anticipate decrease of death	45	18
C. Insecurity about the availability of medical resource		
Yes	190	75
No	63	25
D. Insecurity of being infected		
Yes	195	77
No	58	23
E. Feelings about strategies implemented to stop the spread of Corona virus		
Required modifications	175	69
Adequately implemented	78	31

In table IV shown, majority (64%) of the students felt negative about online class whereas only 20% never faced difficulty in understanding online class, more than half (58%) of the students faced difficulty in collecting lecture notes as well as about 68% faced difficulty in communicating with teachers and majority (55%) of students faced difficulty in communicating with their study mates.

Table-IV

Perception about online medical education (n= 253)

Variables	Frequency (n)	Percentages (%)
A. Feeling about the online medical classes during Covid-19 pandemic		
Positive	91	36
Negative	162	64
B. difficulty in understanding the online lecture		
Yes	101	40
No	51	20
Sometimes	101	40
C. difficulties in collecting and arranging lecture notes through electronic device		
Yes	147	58
No	106	42
D. difficulty in communicating with their teachers		
Yes	172	68
No	81	32
E. Difficulty in communicating with study mates		
Yes	139	55
No	114	45

In fig-II shown, highest proportion (22%) of the students used social media, 19% watched TV, 14% in religious activities, 10% cooking, 8% gossiping, 6% reading books and cultural activities respectively, only 4% online business, gardening and meditation where 1% learned a new language.

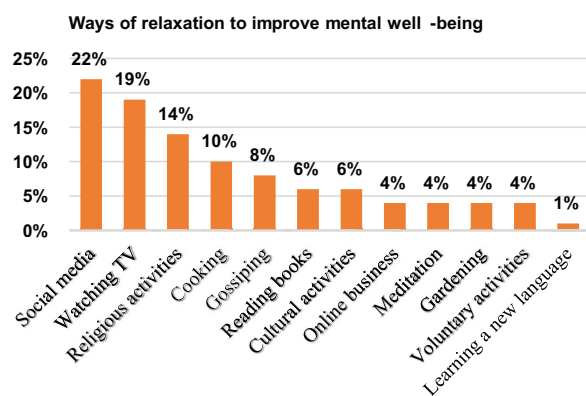


Fig-2: Way of relaxation to improve well-being

Discussion:

In this study among majority of the students were female (55%) followed by male students (45%). However a study in Jordan showed female was 59.9% and male 40.1%.⁵ In our study first year students were 38%, second year students were 16%, third year students constitute 32%. Whereas study in Pakistan showed first year students to be 23.6%, third year to be 24.2% and fifth year to be 18.8%.⁷

The psychological distress score of the students was 21% for likely to be well, 23% have mild disorder, 21% have moderate disorder and 35% have a severe disorder. The study conducted in Jordan said 13.2% for likely to be well, 16.5% have mild disorder, 20.1% have moderate disorder and 50.3% have severe disorder.⁵

As per our study, students with adequate sleep bear 71% and with inadequate sleep was 29%. A similar study carried out in Bangladesh where students who are not satisfied with sleep were 77.3%.⁶ This study had similar result as per ours. When asked about the appetite of students of Green Life Medical College the result of our survey were, students had adequate appetite constitute 83%. On contrary the similar study of Jordan stated there was a huge negative impact on eating habit which was 53.9%.⁵

Our study said that students of Green Life Medical College expressed a negative attitude towards the online classes which was 64%. Another study in Bangladesh University students had similar outcome (61.9%) towards online class during COVID-19.⁶ When asked about the barriers faced by the students of Green Life Medical College like collecting and arranging lecture notes it was 58%. On the other hand a study on students of Jordan due to difficulties in using technologies was 20.8%.⁵

When asked about measures taken to improve mental wellbeing the response was, about 22% using social media, 19% were spending time watching television, 14% were involved in religious activities, 10% did cooking, 4% were interested in meditation and online business. The study on students of Jordan had similar results of spending much time on social media (49%)⁵

Conclusion:

The outbreak of COVID-19 has taken universal toll on almost all aspects of life. First and third year students are affected most in Green Life Medical College. The study showed that a fair number of students suffered from severe psychological distress. We conclude that the anxiety & fear about the daily rise of cases & death, shortage of medical facilities being affected which led to abnormal behavior such as non-communicative as well as aggressive

in some students. This study also depicted negativity towards the online classes & most of the students faced barrier communicating with their teachers & batch mates and collecting their lectures notes. This study found that there were several measures such as meditation, cooking, gardening etc. were taken by the students to improve their mental wellbeing. These consequences of Psychological impact which could be reduced by ensuring proper government support, by increasing extracurricular activities such as cooking, gardening, meditation, reading books, cultural activities, learning a new language. Monthly or weekly online meeting could be arranged by the teacher with students to keep them busy by arranging different extracurricular activities like power point presentations, quiz program, online debate competition, online cultural program etc. from institution beside routine scheduled class, Counseling regarding mental health could be conducted by teachers, parents, friends, social workers even psychologist by online meeting.

References:

1. Cherie Armour, Emily McGlinchey, Sarah Butter, KareenaMcAloney-Kocaman& Kerri E.McPherson. The COVID-19 Psychological Wellbeing Study: Understanding the Longitudinal Psychosocial Impact of the COVID-19 Pandemic in the UK; a Methodological Overview Paper. *Journal of Psychopathology and Behavioral Assessment* (4 November, 2020)
2. Md. Saiful Islam, Md. Safaet Hossain Sujan, RafiaTasnim, Md. TajuddinSikder, Marc N. Potenza, Jim van Os .Psychological responses during the COVID-19 outbreak among university students in Bangladesh. *PLOS ONE* (31 December, 2020)
3. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry*. 2003 Feb;60(2):184-9
4. Victorian Population Health Survey. Melbourne: Department of Human Services, Victoria; 2001.
5. Khaled Seetan, Mohammad Al-Zubi, Yousef Rubbai, et al, Impact of COVID-19 on medical students mental wellbeing in Jordan
6. Md. Saiful Islam, Md Safaet Hossain Sujan, Rafia Tasnim et al., Psychological responses during the COVID-19 outbreak among university students in Bangladesh
7. Nazish Imran, Imranijaz Haider, Ali Burhan Mustafa,et al, The hidden crisis: COVID-19 and impact on mental health of medical students in Pakistan, Imran et al. *Middle east current psychiatry* [2021] 28:45

Vaccine-induced Immune Thrombotic Thrombocytopenia (VITT) Following Vaccination Against COVID-19: An Overview

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Abstract

Considering the global context, vaccine-induced immune thrombotic thrombocytopenia (VITT) is an extremely rare (likely <1 in 100,000) yet a serious condition that has been reported following certain vaccinations against COVID-19. The risk of life-threatening thrombosis from COVID-19 itself exceeds the risk of VITT from vaccination by over 100-fold. It appears to be associated more with AstraZeneca/Johnson and Johnson adenoviral vaccines than Moderna/Pfizer mRNA vaccines applied to combat the pandemic. The syndrome likely begins typically between 5 to 30 days post-vaccination. VITT shares some similarities with heparin induced thrombocytopenia (HIT) in the pathogenesis. Venous thrombosis is more commonly found. Thrombocytopenia must be present to fulfil the diagnostic criteria of VITT. There is usually positive platelet factor 4 antibody (PF4 antibody) testing and raised level of D-Dimer. Investigations are done according to the site of involvement as well as to exclude the differentials. Treatment should not be delayed if VITT is suspected. This condition warrants appropriate management soon after the diagnosis is made. Non-heparin anticoagulants and intravenous immunoglobulin (IVIg) are the mainstay of treatment. Timely taken measures bear good outcome. There is no role of doing investigation related to VITT prior to an event. Prophylaxis is not advised to avoid such occurrences. Proper monitoring is required for good prognosis in the hospitalized patients. As the benefits of vaccination against COVID-19 far outweigh the chance of developing VITT, continuing the vaccination programme running worldwide is highly recommended to limit this pandemic situation.

Keywords: VITT, Thrombosis with thrombocytopenia, Vaccination against COVID-19, Platelet Factor 4 antibody (PF4 Antibody), Cerebral Venous Sinus Thrombosis (CVST)

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Introduction:

Vaccination is considered the most promising approach for containing the coronavirus disease 2019 (COVID-19) pandemic. Available vaccines are safe, effective and with minimal adverse effects. Vaccine-induced immune thrombotic thrombocytopenia (VITT) is a novel entity that emerged in March 2021 following reports of unusual thrombosis after ChAdOx1 nCoV-19, (AstraZeneca)

vaccination.¹ Following recognition of this syndrome, multiple consensus guidelines have been released for risk stratification of the patients presenting with possible post-vaccination symptoms. All guidelines rapidly identify VITT in patients with the complete triad of thrombocytopenia, thrombosis and elevated D-dimer after this adenovirus vector-based vaccination against COVID-19. Recently, VITT is recognized as a rare but serious condition that has raised public alarm with concerns regarding the development of thrombotic events which appear similar to heparin-induced thrombocytopenia (HIT), both clinically and pathologically.² The COVID-19 pandemic has resulted in significant morbidity and mortality worldwide.^{3,4} Clinically, critically ill COVID-19 patients develop coagulation abnormalities, leading to significant thrombosis and death.⁵⁻⁸ Recent studies indicate that platelet activation by immunoglobulin G-immune complexes can activate platelets in critically ill COVID-19 patients via platelet FcγRIIa.^{9,10} Whereas in VITT, thrombosis and thrombocytopenia occur 5 to 28 days after

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administration of the vaccine. These include rare thrombotic events such as cerebral sinus vein and splanchnic vein thrombosis.^{11,12} Although data on VITT is limited, the devastating effects of COVID-19 have been found more serious than the detrimental effect of VITT.²

This clinical review focuses on the epidemiology, pathogenesis, clinical features, evaluation, investigations, management and prognosis of VITT.

Methods:

This review article is based on the evidences obtained from multiple sources such as PubMed, Science Direct, UpToDate, Wiley Online Library, MEDLINE, Cochrane databases, Google Scholar using the terms VITT, Vaccination against COVID-19, Thrombosis with thrombocytopenia, HIT, CVST, SARS-CoV-2 infection, PF4 antibody. However, searching articles focusing on the so far details of VITT following vaccination against COVID-19 was supported by the literatures, guidelines/consensus related to this topic available from January 2021 to December 2021.

Pathophysiology:

VITT is caused by immunoglobulin G (IgG) antibodies which recognize platelet factor 4 (PF4, also called CXCL4) bound to platelets and activate them which result in marked stimulation of the coagulation system and clinically significant thromboembolic consequences.

Characteristics of VITT antibodies⁻¹¹⁻¹³

- IgG class.
- Recognize PF4 bound to platelets and detectable in PF4/polyanion and PF4 enzyme-linked immunosorbent assay (ELISA).
- Cause platelet activation which is not heparin dependent.

VITT antibodies bind to platelets via an eight amino acid region of PF4 on the platelet surface, located within the heparin binding site.¹³ VITT antibody binding is blocked by heparin and VITT antibody binding to platelets is stronger than that of HIT. A series of 35 individuals with serologically confirmed VITT had repeated functional assay results over an 11-week period found that the assay became negative in 23 (66%) and 5 individuals also subsequently received their 2nd dose of vaccine while continuing anticoagulation for VITT without any further complication.¹⁴ These data support the safety of giving an mRNA vaccine if needed as a second dose or booster dose.

Mechanisms/triggers of antibody formation- Preliminary theories include the possibility that components of the vaccine bind to PF4 and generate a neoantigen.¹¹ PF4 is a positively-charged tetrameric protein that repels each other, but in the presence of negatively charged molecule, PF4 may

form higher order structures that act as neoantigens.^{15,16} DNA and RNA also have polyanionic properties and may create a neoantigen when bound to PF4.^{17,18}

The SARS-CoV-2 spike protein antigens in the vaccine do not seem to be a source of molecular mimicry. There is no antibody cross-reactivity with the SARS-CoV-2 spike protein.¹⁹

Mechanisms of thrombosis- Anti-PF4 antibodies cause “pancellular” activation, that means, besides activating platelets and coagulation reactions, the antibodies activate monocytes, neutrophils and endothelial cells. Activation of these other cell types further contributes to high thrombosis risk. Thrombosis in VITT can occur in typical sites of venous thromboembolism such as pulmonary embolism (PE) or deep vein thrombosis (DVT) in the leg; however, a distinctive feature of the syndrome is thrombosis in unusual sites involving multiple large and small vessels including the splanchnic veins, adrenal veins (risk for adrenal failure), cerebral and ophthalmic veins.^{20,21} Arterial thrombosis including ischemic stroke (often, middle cerebral artery) and peripheral arterial occlusion can occur in same individual with venous thrombosis.

Similarity to HIT- VITT most strongly resembles spontaneous HIT, triggered by an adenoviral vectored COVID-19 vaccine. The key feature that distinguishes VITT from other thrombocytopenic disorders is that anti-platelet antibodies in the non-VITT/non-HIT disorders are unable to activate platelets to cause thrombosis.

Epidemiology:

Implicated vaccines in causing VITT-

- ChAdOx1 nCoV-19 (AstraZeneca, University of Oxford, and Serum Institute of India)
- Ad26.COV2.S (Janssen; Johnson & Johnson)

Confirmed case of VITT has not been reported after the mRNA-based vaccines.

Incidence and risk factors- The incidence of VITT appears to be exceedingly rare. Most reports have described a small number of cases among tens of millions of vaccinated individuals.^{11,22} The highest incidence was reported from Norway, suggesting an incidence of 1 in 26,000, with ChAdOx1 nCoV-19.¹² An initial report from the Centers for Disease Control (CDC) in the United States identified an incidence of 1 in 533,333, with Ad26.COV2.S.²³

Risk factors for VITT are unknown.

Sex – Initial reports suggested a female predominance.^{11,12} However, in a series of 220 definite and probable cases from the United Kingdom, there was no sex preponderance.²⁴

Age – Initial reports suggested that individuals with VITT were younger (<55 or 60 years). However, cases in individuals >60 years are emerging.^{24,25}

Clinical Features:

Overview of clinical presentation- VITT likely begins in a narrow window 5 to 10 days after vaccination, but most cases are identified leading typically between 5 to 30 days following vaccination. It may begin as a flu-like syndrome which suggests an enhanced inflammatory response.^{11,26,27}

In a series of 220 patients with definite or probable VITT, the following features were noted:²⁴

- Age – Median 48 years, range 18 to 79 years.
- Sex – 55 percent female, 45 percent male.
- Time since vaccination – Median 14 days; range 5 to 48 days.
- Sites of thrombosis – Cerebral veins (including intracranial haemorrhage), deep veins of the leg, pulmonary arteries, and splanchnic vessels. More than 50% cases had thrombosis in multiple sites.
- Platelet count – Median 47,000/microL, range 6000 to 344,000/microL.

- Fibrinogen – Median 2.2 g/L (220 mg/dL), range 0.3 to 4.4 mg/dL.
- D-dimer – Median 24,000 fibrin equivalent units, range 5000 to 80,000 FEU.

Thrombocytopenia- It may be suspected based on the presence of petechiae or mucosal bleeding, or as an incidental finding. The typical platelet count range of patients with definite VITT is between 10,000 and 100,000/microL, with a median platelet count of 20,000 to 25,000/microL.¹²

Thrombosis- It has been the presenting feature in most of the initial reported cases of VITT.^{11,12,22,28} Both venous and arterial thromboses have been described. Cerebral venous sinus thrombosis and dural sinus thrombosis, which may present as intracerebral haemorrhage, appears to be the most common site of thrombosis in some series.^{22,29,30} An individual with strongly suspected VITT requires immediate treatment and continued evaluation, even if initial imaging fails to document thrombosis.³¹

Table I

Symptoms of thrombosis and their diagnostic evaluation in VITT

Site of thrombosis	Typical presenting symptoms	Diagnostic imaging
Cerebral veins and dural venous sinuses	<ul style="list-style-type: none"> • New, persistent headache • Vomiting • Visual impairment • Focal neurologic deficits or seizures • Encephalopathy 	<ul style="list-style-type: none"> • Magnetic resonance venography • Conventional angiography • MRI of Brain (CT is often normal here)
Splanchnic veins (splenic, hepatic, portal, mesenteric)	<ul style="list-style-type: none"> • Severe abdominal pain • Back pain 	<ul style="list-style-type: none"> • CT with contrast • Doppler ultrasound
DVT of the leg	<ul style="list-style-type: none"> • Leg pain • Leg swelling/oedema 	<ul style="list-style-type: none"> • Compression USG with Doppler
Pulmonary embolism	<ul style="list-style-type: none"> • Acute chest pain • Dyspnoea 	<ul style="list-style-type: none"> • CT pulmonary angiography • Ventilation/perfusion scan
Ophthalmic vein thrombosis	<ul style="list-style-type: none"> • Orbital pain • Diplopia or vision loss 	<ul style="list-style-type: none"> • MRI • MRV
Ischemic stroke	<ul style="list-style-type: none"> • Sudden onset focal neurologic deficit • Encephalopathy 	<ul style="list-style-type: none"> • Brain MRI and/or head CT • CT / magnetic resonance angiography of head and neck
Acute limb ischemia	<ul style="list-style-type: none"> • Pain • Pulseless pallor • Neurologic deficits 	<ul style="list-style-type: none"> • CT angiography • Catheter-based angiography

MRI: magnetic resonance imaging; CT: computed tomography; MRV: Magnetic resonance venography; CBC: complete blood count; PT: prothrombin time; aPTT: activated partial thromboplastin time.

Coagulation abnormalities- Disseminated intravascular coagulation (DIC).

Bleeding- Severity varies in individuals in the form of minor bleeding to severe haemorrhage.

Evaluation:

When to suspect- The mnemonic VITT can be used to codify these key features:

- Vaccine given
- Interval (5 to 30 days post-vaccine)
- Thrombosis (usually the event that draws attention to VITT)
- Thrombocytopenia

Due to the rarity of the syndrome, routine testing of platelet counts following COVID-19 vaccination is not recommended. D-dimer testing should not be considered as a screening test because of low specificity. In preliminary reports of VITT, testing for SARS-CoV-2 infection was performed and was uniformly found to be negative.^{11,12,22} Testing for infection is reasonable. However, treatment of VITT should not be delayed for the investigation results.

Urgent medical evaluation for is indicated if any of the following develop 4 to 42 days after vaccination:³²

- Severe headache
- Visual changes
- Abdominal pain
- Nausea and vomiting
- Back pain
- Shortness of breath
- Leg pain or swelling
- Petechiae, easy bruising, or bleeding

Laboratory testing- Diagnosis of VITT requires consideration of clinical and laboratory features.

- CBC- A complete blood count is needed to document thrombocytopenia and platelet counts over time should be compared too. No specific abnormalities are seen on the peripheral blood film.

The presence of severe thrombocytopenia (<30,000/uL) and/or intracranial haemorrhage was associated with the highest mortality.³²

- Coagulation testing- 1. PT and aPTT 2. Fibrinogen and D-dimer
- PF4 antibody testing – Positive testing is confirmatory. However, a positive anti-PF4 antibody test alone (without thrombocytopenia or thrombosis) is not sufficient to make the diagnosis.

ELISA – It is the recommended test in VITT.³³

SRA – Functional assays like serotonin release assay (SRA) are often positive here.

Rapid HIT assays – Mostly negative in VITT and should not be used.^{22,27,33,34}

VITT is unlikely in people with:²⁹

- No thrombocytopenia
- Thrombocytopenia without thrombosis, but normal level of D-dimer and fibrinogen, or Thrombosis without thrombocytopenia, with raised D-dimer and normal fibrinogen.

However, if a high clinical suspicion of VITT remains, following is to be considered:

- Repeating the complete blood count after 2 to 3 days or if there is any worsening of symptom or discussing the need for further investigations with a clinical haematologist.

Imaging to diagnose thrombosis- It depends on the site of involvement.

Differential diagnosis:

In a series of nearly 300 individuals evaluated for possible VITT, alternative diagnoses included metastatic cancer and chronic DIC from an aortic aneurysm.²⁴ However, other causes of thrombocytopenia and/or thrombosis should be considered as well, especially when PF4 antibody testing negative.

- COVID-19- The disease itself carries a high risk of thrombosis and coagulation abnormalities in hospitalized individuals, including severe thrombocytopenia. Unlike VITT, it usually shows a negative PF4 assay result.
- Other causes of thrombocytopenia with thrombosis- Heparin Induced Thrombocytopenia (HIT), Disseminated Intravascular Coagulation (DIC), Thrombotic Thrombocytopenia Purpura (TTP).

Management:

VITT is a potentially life-threatening disorder. Management recommendations including those listed below are rapidly evolving.

Hospitalization- Patients of VITT need to be hospitalized due to the potentially serious nature of thrombotic complications and severity of the clinical condition.

Anticoagulation- Anticoagulants in order of preference are:

- A direct oral anticoagulant (DOAC) such as a factor Xa inhibitor (apixaban, edoxaban, or rivaroxaban).
- Fondaparinux or Danaparoid.
- A parenteral direct thrombin inhibitor (argatroban or bivalirudin).

For VITT with very low platelet count (under 30×10^9 / litre), one of the following alternative anticoagulation strategies that may reduce the risk of bleeding:²⁹

A critical illness dose of argatroban, or a therapeutic dose of argatroban along with platelet transfusion.

Dose – Standard full-therapeutic dosing is appropriate, provided there is no active bleeding, with appropriate adjustments for body weight and renal function.

Duration – A reasonable approach for-

- VITT with thrombosis, anticoagulation for three months after normalization of the platelet count, as long as no further thrombosis occurs.
- VITT without thrombosis, anticoagulation until platelet count recovery and perhaps longer if tolerated (four to six weeks after platelet count recovery).

IVIG- High-dose intravenous immunoglobulin (IVIG) is recommended along with anticoagulation to interrupt VITT antibody-induced platelet activation. Unless there is a contraindication, IVIG should be used in all individuals with VITT.

A typical dose is 1 gm/kg intravenously once per day for 2 to 3 days initially, based on actual body weight. After that, if there is inadequate response to immediate treatment, a second dose of intravenous immunoglobulin (dose may be split over 2 days) is required.²⁹

Following IVIG administration, thrombocytopenia can recur (within a few days after IVIG is completed). Hence, it is important to continue to monitor the platelet count during hospitalization and following discharge from the hospital.

Corticosteroids- Adding corticosteroids can be considered if IVIg (which is the 1st line treatment for VITT whether probable or confirmed) treatment is insufficient. Short courses of high-dose steroids, such

as methylprednisolone 1 g for 3 days or dexamethasone 20 to 40 mg for 4 days, have been used in more severe cases.²⁹

Plasma exchange- Therapeutic plasma exchange (TPE) and immunosuppression have been proposed for refractory disease or disease with concerning features such as cerebral vein thrombosis (CVT) or multiple thromboses with evidence of excessive platelet activation (platelet count $<30,000/\mu\text{L}$).^{24,35,36} TPE was performed daily for 5 to 7 days. Plasma exchange with fresh frozen plasma (1 volume exchange a day) can also be considered as an alternative to a second dose of IVIg.²⁹

Rituximab is recommended for refractory VITT that has not responded to a second dose of intravenous immunoglobulin or plasma exchange. Rituximab is not safe for pregnant women. The dosage of rituximab in VITT is 4 infusions of 375 mg/m^2 of body surface area (once a week for 4 weeks).

Minimizing platelet transfusions- Platelet transfusions are generally reserved for critical or life-threatening bleeding or if there is any need for emergency surgery. Haematology and/or transfusion medicine input must be ensured in such cases.

Fibrinogen concentrate or cryoprecipitate- It can be additionally considered in patients of VITT to maintain a level of fibrinogen of at least 1.5 g/litre.

Monitoring:

Clinical monitoring for signs of thrombosis is critical.

- For hospitalized patients, platelet count should be checked daily.
- After discharge from hospital, patient is better to be kept under the care of the haematology department to assess symptoms and monitor as follows:²⁹
 - Measuring D-dimer, fibrinogen and platelet counts every 2 to 3 days for the first 2 weeks.
 - Repeating ELISA for platelet factor 4 antibodies weekly for the first 4 weeks.
 - After the initial periods noted above, monitoring tests are to be repeated monthly for the first 6 months and, if no relapses occur, frequency of testing is minimized to every 3 months.

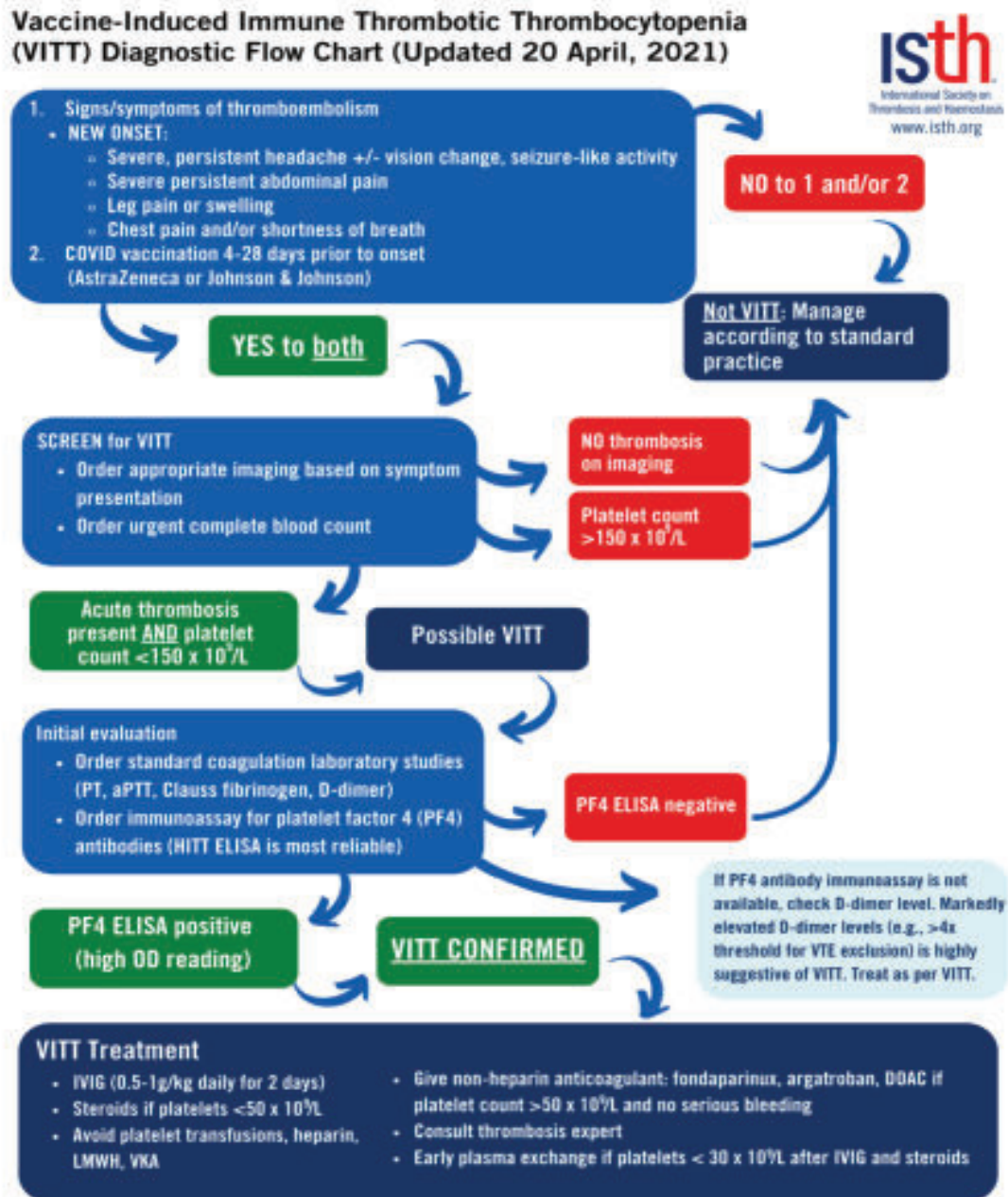


Fig.-1: Management of VITT in a nutshell.³⁷

Points for safe discharge:

The duration of acute illness in VITT is unknown. Discharge can be allowed when-

- The platelet count is more than >50,000/microL and improving for at least 2-3 days.
- The patient is on stable anticoagulation with no new or progressive thrombosis.
- There is no bleeding for at least 2-3 days.
- Appropriate follow up has been assured.

Prognosis:

It is challenging to establish and may be improving with earlier recognition of the syndrome. In a series of 220 individuals with definite or probable VITT, the mortality rate was 22%.²⁴

Risk factors for death include cerebral venous thrombosis (CVT) and more pronounced haemostatic abnormalities (more severe thrombocytopenia, higher D-dimer, and lower fibrinogen). Signs of poor prognosis include any of the following:²⁹

- Having CVST

- Having thrombosis at multiple sites
- Developing secondary bleeding
- Having very low platelet levels (less than 30,000/microL).

An intensive treatment strategy of plasma exchange and high-dose steroids is considered here.

Common questions in general:

Prophylactic role of aspirin- There is no role for aspirin in the prevention of VITT.

Decisions about vaccines-

- Thrombotic risk of COVID-19 vaccination versus COVID-19 illness – The importance of vaccination should be emphasized. The benefits of vaccination greatly outweigh the potential risks of rare vaccine side effects such as VITT.^{38,39}
- Choice of vaccine – The primary criterion for selection of a vaccine is availability.
- Individuals with thrombotic risk factors, prior thrombosis, or prior HIT- Studies have not yet demonstrated likelihood of VITT in such cases. But it is suggested that individuals with a history of HIT or thrombosis should avoid adenoviral COVID-19 vaccines and receive a different type of COVID-19 vaccine.
- Evaluation of asymptomatic individuals before or after vaccination – Any screening laboratory or imaging evaluations in asymptomatic individuals is not recommended before or after vaccination without an event of VITT.⁴⁰

Conclusion:

VITT following vaccination against COVID-19 appears to be associated more with the adenoviral vaccines. But the proven benefits of vaccination greatly outweigh the risk of developing this extremely rare side effect. Hence, vaccination should not be compromised to combat COVID-19. Any screening test or prophylaxis for VITT is not recommended prior to vaccination. However, the condition requires early recognition and measures must be taken without any delay whenever VITT is suspected.

References:

1. Lavin M, Elder PT, O’Keeffe, Enright H, Ryan E, Kelly A, et al. Vaccine-induced immune thrombotic thrombocytopenia (VITT)- a novel clinic-pathological entity with heterogenous clinical presentations. *British J Haematology* 2021; 195(1): 76-84
2. Nazy I, Sachs UJ, Arnold DM, McKenzie SE, Choi P, Althaus K, et al. Recommendations for the clinical and laboratory diagnosis of VITT against COVID-19: Communication from the ISTH SSC Subcommittee on Platelet Immunology. *J Thromb Haemost.* 2021; 19 (6): 1585-88.
3. Guan WJ, Ni ZY, Hu Y, Liang W, Ou C, He J, et al. Clinical characteristics of coronavirus disease in China. *N Engl J Med.* 2019; 2020(382): 1708- 20.
4. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020; 395: 497- 06.
5. Helms J, Tacquard C, Severac F, Lorient IL, Ohana M, Delabranche X, et al. High risk of thrombosis in patients with severe SARS-CoV-2 infection: a multicenter prospective cohort study. *Intensive Care Med.* 2020; 46: 1089- 98.
6. Klok FA, Kruip M, van der Meer NJM, Arbous MS, Gommers D, Kant KM, et al. Confirmation of the high cumulative incidence of thrombotic complications in critically ill ICU patients with COVID-19: An updated analysis. *Thromb Res.* 2020; 191: 148- 50.
7. Nahum J, Morichau-Beauchant T, Daviaud F, Echegut P, Fichet J, Maillet JM, et al. Venous thrombosis among critically ill patients with coronavirus disease 2019 (COVID-19). *JAMA Netw Open.* 2020; 3:e2010478.
8. Llitjos JF, Leclerc M, Chochois C, Monsallier JM, Ramakers M, Auvray M, et al. High incidence of venous thromboembolic events in anticoagulated severe COVID-19 patients. *J Thromb Haemost.* 2020; 18: 1743- 46.
9. Nazy I, Jevtic SD, Moore JC, Huynh A, Smith JW, Kelton JG, et al. Platelet-activating immune complexes identified in critically ill COVID-19 patients suspected of heparin-induced thrombocytopenia. *J Thromb Haemost.* 2021; 19(5): 1342-47.
10. Althaus K, Marini I, Zlamal J, Pelzl L, Singh A, Häberle H, et al. Antibody-induced procoagulant platelets in severe COVID-19 infection. *Blood.* 2021; 137(8): 1061- 71.
11. Greinacher A, Thiele T, Warkentin TE, Weisser K, Kyrle PA, Eichinger S. Thrombotic thrombocytopenia after ChAdOx1 nCov-19 vaccination. *N Engl J Med.* 2021; 384: 2092-01.
12. Schultz NH, Sørvoll IH, Michelsen AE, Munthe LA, Johansen FL, Ahlen MT, et al. Thrombosis and thrombocytopenia after ChAdOx1 nCoV-19 vaccination. *N Engl J Med.* 2021; 384: 2124-30.
13. Huynh A, Kelton JG, Arnold DM, Daka M & Nazy I. Antibody epitopes in vaccine-induced immune thrombotic thrombocytopenia. *Nature* 2021; 596: 565-69.
14. Schönborn L, Thiele T, Kaderali L, Greinacher A. Decline in Pathogenic Antibodies over Time in VITT. *N Engl J Med* 2021; 385: 1815-16.
15. Greinacher A, Gopinadhan M, Günther JU, Omer-Adam MA, Strobel U, Warkentin TE, et al. Close approximation of two platelet factor 4 tetramers by charge neutralization forms the antigens recognized by HIT antibodies. *Arterioscler Thromb Vasc Biol* 2006; 26(10): 2386-93.
16. Warkentin TE, Greinacher A. Spontaneous HIT syndrome: Knee replacement, infection, and parallels with vaccine-induced immune thrombotic thrombocytopenia. *Thromb Res* 2021; 204: 40-51.
17. Jaax ME, Krauel K, Marschall T, Brandt S, Gansler J, Füll B, et al. Complex formation with nucleic acids and aptamers

- alters the antigenic properties of platelet factor 4. *Blood* 2013; 122(2): 272-81.
18. Chong BH, Chong JJ. HIT: nucleic acid masquerading as heparin. *Blood* 2013; 122: 156-58.
 19. Greinacher A, Selleng K, Mayerle J, Palankar R, Wesche J, Reiche S, et al. Anti-platelet factor 4 antibodies causing VITT do not cross-react with SARS-CoV-2 spike protein. *Blood* 2021; 138(14): 1269-77.
 20. Gabarin N, Patterson S, Pai M, Afzaal T, Nazy I, Sheppard JAI, et al. Venous Thromboembolism and Mild Thrombocytopenia after ChAdOx1 nCoV-19 Vaccination. *Thromb Haemost* 2021; 121(12): 1677-80.
 21. Pomara C, Sessa F, Ciaccio M, Dieli F, Esposito M, Garozzo SF, et al. Post-mortem findings in vaccine-induced thrombotic thrombocytopenia. *Haematologica* 2021; 106(8): 2291-93.
 22. Scully M, Singh D, Lown R, Poles A, Solomon T, Levi M, et al. Pathologic Antibodies to Platelet Factor 4 after ChAdOx1 nCoV-19 Vaccination. *N Engl J Med* 2021; 384: 2202-11.
 23. Shimabukuro T. Thrombosis with thrombocytopenia syndrome (TTS) following Janssen COVID-19 Vaccine. CDC COVID-19 Vaccine Task Force. (April 23, 2021)
 24. Pavord S, Path FRC, Scully M, Hunt BJ, Lester W, Bagot C, et al. Clinical Features of Vaccine-Induced Immune Thrombocytopenia and Thrombosis. *N Engl J Med* 2021; 385: 1680-89.
 25. Bourguignon A, Arnold DM, Warkentin TE, Smith JW, Pannu T, Shrum JM, et al. Adjunct Immune Globulin for Vaccine-Induced Immune Thrombotic Thrombocytopenia. *N Engl J Med* 2021; 385: 720-28.
 26. Bayas A, Menacher M, Christ M, Behrens L, Rank A, Naumann M. Bilateral superior ophthalmic vein thrombosis, ischaemic stroke, and immune thrombocytopenia after ChAdOx1 nCoV-19 vaccination. *Lancet* 2021; 397: E11.
 27. Muir KL, Kallam A, Koepsell SA, Gundabolu K. Thrombotic Thrombocytopenia after Ad26.COV2.S Vaccination. *N Engl J Med* 2021; 384: 1964-65.
 28. See I, Su JR, Lale A, Woo EJ, Guh AY, Shimabukuro TT, et al. US Case Reports of Cerebral Venous Sinus Thrombosis With Thrombocytopenia After Ad26.COV2.S Vaccination, March 2 to April 21, 2021. *JAMA* 2021; 325(24): 2448-56.
 29. COVID-19 rapid guideline: vaccine-induced immune thrombocytopenia and thrombosis (VITT) <https://www.nice.org.uk/guidance/ng200>.
 30. Palaiodimou L, Stefanou MI, Katsanos AH, Sousa DA, Coutinho JM, Lagiou P, et al. Cerebral Venous Sinus Thrombosis and Thrombotic Events After Vector-Based COVID-19 Vaccines: A Systematic Review and Meta-analysis. *Neurology* 2021; 97(21): e2136-47.
 31. Salih F, Schönborn L, Kohler S, Franke C, Möckel M, Dörner T, et al. Vaccine-Induced Thrombocytopenia with Severe Headache. *N Engl J Med* 2021; 385: 2103-05.
 32. Bussel JB, Connors JM, Cines DB, Dunbar CE, Michaelis LC, Kreuziger LB, et al. Vaccine-induced Immune Thrombotic Thrombocytopenia. American Society of Hematology/ COVID-19 Resources/Thrombosis with Thrombocytopenia Syndrome. (Version 1.9; Last Updated: May 9, 2022)
 33. Platten S, Bartlett A, MacCallum P, Makris M, McDonald V, Singh D, et al. Evaluation of laboratory assays for anti-platelet factor 4 antibodies after ChAdOx1 nCoV-19 vaccination. *J Thromb Haemost* 2021; 19: 2007-13.
 34. Vayne C, Rollin J, Gruel Y, Pouplard C, Galinat H, Huet O, et al. PF4 Immunoassays in Vaccine-Induced Thrombotic Thrombocytopenia. *N Engl J Med* 2021; 385: 376-78.
 35. Rock G, Weber V, Stegmayr B. Therapeutic plasma exchange (TPE) as a plausible rescue therapy in severe vaccine-induced immune thrombotic thrombocytopenia. *Transfus Apher Sci* 2021; 60:103174.
 36. Patriquin CJ, Laroche V, Selby R, Pendergrast J, Barth D, Côté B, et al. Therapeutic Plasma Exchange in Vaccine-Induced Immune Thrombotic Thrombocytopenia. *N Engl J Med* 2021; 385: 857-59.
 37. ISTH Interim Guidance for the Diagnosis and Treatment on Vaccine-Induced Immune Thrombotic Thrombocytopenia (Updated 20 April, 2021). Available at <https://www.isth.org/news/561406/>
 38. Mahase E. AstraZeneca vaccine: Blood clots are “extremely rare” and benefits outweigh risks, regulators conclude. *BMJ* 2021; 373: n931.
 39. Hippisley-Cox J, Patone M, Mei XW, Saatci D, Dixon S, Khunti K, et al. Risk of thrombocytopenia and thromboembolism after covid-19 vaccination and SARS-CoV-2 positive testing: self-controlled case series study. *BMJ* 2021; 374: n1931.
 40. Elalamy I, Gerotziafas G, Alamowitch S, Laroche JP, Dreden PV, Ageno W, et al. SARS-CoV-2 Vaccine and Thrombosis: An Expert Consensus on Vaccine-Induced Immune Thrombotic Thrombocytopenia. *Thromb Haemost* 2021; 121: 982-91.

Giant Cell Tumor of Extensor Tendon Sheath in Middle Finger: A Case Report

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Abstract

Giant cell tumor of the tendon sheath is a rare benign soft tissue tumor of hand. Most commonly occur between the third and fifth decades of life at palmar surface. It appears as a painless, perceptible enlargement. It can mimic and make differential diagnoses with several hand tumors. Definitive diagnosis and the treatment of choice are complete resection and histopathological examination. Here we describe a case with clinical presentation like painless, slow growing soft tissue swelling at extensor tendon of middle finger over metacarpophalangeal joint.

Keywords: Giant cell tumor, Extensor tendon sheath, Hand, Excisional biopsy

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Introduction:

A giant cell tumor of the tendon sheath (GCTTS) is a rare, benign tumor which can develop in the tendon sheaths around the body.¹ It can developed anywhere in the body where there is a tendon sheath, but is most common in the hand and wrist.¹ It is the second commonest tumor of the hand.² Trauma, inflammation, metabolic disease and a neoplastic etiology are considered as etiological factors.³ A GCTTS can occur at any age, but is most common in adults and is more commonly found in women.¹ It is divided into two types based on clinical and biological manifestations: localized and diffuse forms. These can also be intra-articular and extra-articular. The benign localized type affects the hand and fingers, but the more aggressive diffuse form affects major joints.⁴ GCTTS is most commonly found around the index or long finger's distal interphalangeal joint followed by ring and little finger. The following case presents with the features suggesting GCTTS of ring finger.⁵

Case Report:

A 14-year-old boy came to the orthopedic outpatient department, CMH Bogura with a history of painless swelling over metacarpophalangeal (MCP) joint of right middle finger for four-month. The swelling was spontaneous with no history of trauma. It gradually increased in size, hampering the daily living activities of the boy.

On clinical examination, a 1cm x 1 cm firm swelling was seen on the dorsal surface of the right middle finger near MCP joint. During clinical examination there was no localized temperature or tenderness. The swelling was well defined, smooth, firm and uniform in consistency. The swelling was movable sideways with no attachment to the bone and free from over line skin. It adhered to the underlying soft tissue and hence moved with the movement of the finger. Distal neurovascular status was intact. X-ray anteroposterior (AP) and oblique view of right hand showed no abnormality. Ultrasonography was done which revealed mass attached to the underlying soft tissue on the dorsal surface of right middle finger. FNAC from the swelling showed round to oval cells with foci of osteoclastic giant cells with regular nuclei suggestive of a Giant cell tumor of tendon sheath. Other investigations like complete blood counts, chest X-ray, random blood sugar, liver function tests, and renal function tests were normal. The patient was surgically fit. Excisional biopsy of the underlying swelling was performed under local anesthesia. A longitudinal incision was given over the swelling. Soft tissue dissection was done and the tumor

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was seen adhered to the underlying extensor digitorum tendon of middle finger. Excision of tumor was easy and was excised completely. The closure was done in layers. The excised tumor was sent for histopathological examination, which showed polygonal to round histiocytes surrounded by multinucleated giant cells, fibro-fatty tissue suggestive of GCTTS. Postoperative period was uneventful. Hand was mobilized from 2nd postoperative day and stitches were off on 14th post-operative period. The patient was on regular follow up with no functional debility. The patient was on follow up for last six months. The patient was able to perform his activities of daily living with no evidence of recurrence both clinical and radiological examination.

Discussion:

Giant cell tumors of the tendon sheath in the hand are relatively uncommon. Targett first described GCTTS in 1897⁶. The reported age distribution is 8 to 80 years.⁶ Most commonly occur between 30-50 years of age⁷ with a peak incidence in those aged 40-50 years. These tumors are rarely found in patients younger than 10 years or older than 60 years of age. It is more common in female with female to male ratio is 3:2.^{8,9} These tumors may occur anywhere in the hand but more commonly present as firm lobulated masses on the lateral side of index and middle fingers of hand⁶ and commonly seen on the flexor aspect.¹⁰

Tumor classification has an important role to analyzing the recurrence pattern. GCTTS are classified into localized nodular type (common in hand) and diffuse type (common in joints) by Byers.^{11,12} Al Qattan has classified GCTTS into two types, Type-I and Type-II, where Type I- as single tumor which is round or multi lobulated, and Type II, where there are two or more distinct tumors which are not joined together.¹¹

The cause of GCTTS is unknown; however, it might be linked to an inflammatory response, a local lipid metabolic issue, or osteoclastic growth, infection or trauma.¹³ The tumor usually appears as a slowly growing, painless mass on the palmar surface of the fingers.¹⁴

Diagnostic workup includes patient history and a detailed physical examination. Plain radiographs can be helpful since GCTTS may produce erosions in the cortical bone and may invade medullary space. Magnetic resonance imaging (MRI) is the most useful diagnostic tool and is also required for surgical planning. MRI helps to classify GCTTS into type 1 and type 2 according to Al Qattan classification in which type I describes a single round or multilobulated tumor while type II describes two or more distinct, separated tumors.¹⁴

Complete local excision is the treatment of choice for giant cell tumor of the tendon sheath.⁶ The lesions are benign, but recurrence is noted in up to 40% of patients (10% to 20% more commonly reported) even after meticulous excision of the friable fragments.⁶

Risk factors for recurrence or persistence include adjacent degenerative joint disease, location at the finger distal interphalangeal and thumb interphalangeal joint, bony invasion, multifocal disease, tendon involvement, and poor surgical technique⁶. Extensile surgical approaches are frequently required, and gentle blunt dissection should be performed to minimize fragmentation of the encapsulated tumor mass. Magnified vision is helpful to discover discolored synovial tumor, which should be removed during the marginal tumor resection.⁶

Differential diagnosis of hand tumors include lipomas, hemangioma, foreign body, myxoid cyst, synovial carcinoma, tophaceous gout, glomus tumor, tuberous osteitis, epidermal cyst, fibroma, and metastasis.^{15,16}

Although the condition is routinely benign, malignant degeneration has been reported in exceptional cases¹⁶. The diffuse type can be locally aggressive, with reports of possible multiple recurrence and malignant transformation¹⁷. These data reinforce the need for early and accurate diagnosis, and proper treatment.¹⁸

Conclusion:

Our case is an example of GCTTS in a single digit of the hand. The recurrence can be prevented by accurate pre operative diagnosis with FNAC and use of magnification for complete excision with microsurgical skills. Finally, if required, the hand's function should be recreated to minimize the loss.

References:

1. Oxford University of Hospital NHS Foundation Trust (2015) Giant Cell Tumor of the Tendon Sheath, Information for patients.
2. Shirol SS, Jain A, Nimbaragi G. Giant cell tumor of extensor tendon sheath: Preventing recurrence. *Journal of the Scientific Society*. 2012 Sep 1;39(3):155.
3. Suresh SS, Zaki H. Giant cell tumor of tendon sheath: case series and review of literature. *Journal of hand and microsurgery*. 2010 Dec;2(02):67-71.
4. Jadhav S, Awasthi A, Deshpande S, Jadawala V, Salwan A, Awasthi AA, Deshpande SV, Jadawala VH. Giant cell tumor of extensor tendon sheath in ring finger: a case report. *Cureus*. 2022 Sep 26;14(9).
5. Lautenbach M, Kim S, Millrose M, Eisenschenk A. Nodular giant cell tumour of the tendon sheath of the hand: analysis of eighty-four cases—diagnostic decisions and outcome. *International orthopaedics*. 2013 Nov;37:2211-5.

6. Tumours and Tumorous conditions of the Hand. Campbell's Operative Orthopaedics. In: James H. Calandruccio, Mark T. Jobe, editors. 13th edn, Vol. 4. Philadelphia: Elsevier Health Sciences; 2008. p. 3779.
7. The Wrist and Hand. Turek's Orthopaedics: Principles and Their Application. 6th edn. Weinstein SL, Buckwalter JA, editors. Philadelphia: Lippincott Williams and Wilkins; 2005. p. 437-8.
8. Rodrigues C, Desai S, Chinoy R. Giant cell tumor of the tendon sheath: a retrospective study of 28 cases. *Journal of surgical oncology*. 1998 Jun;68(2):100-3.
9. Jaffe HL, Lichtenstein HL, Elsturo CJ. Pigmented villonodular synovitis, bursitis, and tenosynovitis. *Arch Pathol* 1941;31:731-65.
10. Kant KS, Manav AK, Kumar R, Sinha VK, Sharma A. Giant cell tumour of tendon sheath and synovial membrane: A review of 26 cases. *Journal of Clinical Orthopaedics and Trauma*. 2017 Nov 1;8:S96-9.
11. Al-Qattan MM. Giant cell tumours of tendon sheath: classification and recurrence rate. *Journal of Hand Surgery*. 2001 Feb;26(1):72-5.
12. Ikeda K, Osamura N, Tomita K. Giant cell tumour in the tendon sheath of the hand: importance of the type of lesion. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery*. 2007 Jan 1;41(3):138-42.
13. Kerfant N, Bardin T, Roulot E. Multiple giant cell tumors of the tendon sheath: separate volar and dorsal lesions involving three digits of the same hand following repetitive trauma. *Journal of Hand and Microsurgery*. 2015 Jun;7:233-5.
14. R; Ozben H, Coskun T. Giant cell tumor of tendon sheath in the hand: analysis of risk factors for recurrence in 50 cases. *BMC Musculoskeletal Disorders*. 2019 Dec;20:1-8.
15. Zeinstra JS, Kwee RM, Kavanagh EC, van Hemert WL, Adriaansen ME. Multifocal giant cell tumor of the tendon sheath: case report and literature review. *Skeletal radiology*. 2013 Mar;42:447-50.
16. Richert B, André J. Laterosubungual giant cell tumor of the tendon sheath: an unusual location. *Journal of the American Academy of Dermatology*. 1999 Aug 1;41(2):347-8.
17. Singh T, Noor S, Simons AW. Multiple localized giant cell tumor of the tendon sheath (GCTTS) affecting a single tendon: a very rare case report and review of recent cases. *Hand Surgery*. 2011;16(03):367-9.
18. Minotto R, Rodrigues CB, Grill AB, Furian R. Giant cell tumor of the tendon sheath: a rare periungual location simulating myxoid cyst. *Anais Brasileiros de Dermatologia*. 2017 Jan;92:121-3.

Academic Activities During COVID-19 Pandemic

Journal of Green Life Med. Col. 2021; 6(2): 81

Online academic activities during Pandemic

During the COVID 19 Pandemic and Nation-wide lock down, under the guidance of The Chairman, Governing Body, National Professor Shahla Khatun, a special Online Class Committee was created in early March of 2020.

The committee worked hard and sincerely to initiate and conduct online classes and examinations and Green Life Medical College was one of the institutes which started

online academic activities in the earliest time. To achieve this, the committee effortlessly worked to train the teachers, students and staffs, arrange new routines, create class moderators, buy zoom account and to communicate with the students at home and abroad. The committee also arranged several virtual meetings between faculties.

The activities of the committee continued till August, when physical classes again started to resume.

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