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Editorial Office:

Editor in Chief
Dept of Community Medicine
Tairunnessa Memorial Medical College
Kunia (Targach), Board Bazar
Gazipur-1704, Bangladesh
Phone: +880-(0)1787028828; (0)1929493646
Fax: +880(0)2-8316332
E-mail: tmmcj.asma@gmail.com;
tmmch@citechco.net

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TAIRUNNESSA MEMORIAL MEDICAL COLLEGE & HOSPITAL AT A GLANCE

The college is housed in a 10 storied building. It has a floor space of 1,07,550 Sq-ft which accommodates 8 departments with laboratories and 6 lecture galleries facilitated with multimedia facilities. Due importance was given to Anatomy Dissection Hall and Museum which are situated on the second floor of the academic building. Total number of full time teachers in the college is 140; among them 11 Professors, 14 Associate Professors and 17 Assistant Professors. Academic activities of the college began in the session 2003-2004. So far 400 students completed MBBS course from TMMC. Total number of students at present is 520. A state of art medical library is housed on the 5th floor with 4000 books, 1500 journals and magazines. A rich computer laboratory, 10 computers with internet connection to facilitate students and faculties, is located next to the library. Para-clinical students undertake field visits round the year as demanded by the curriculum. A 500-bed hospital is situated within 200 yards of the college. Gynecology and Obstetrics, Medicine and Surgery departments run with their allied subjects in this premise. In each department 2 beds are reserved for poor patients. On Mondays, all specialists provide free service for poor patients and patients also receive discount on investigation. Free medical camp comprising of Ophthalmology, Gynecology and Obstetrics and Surgery specialitis are arranged on regular basis. The Expanded Programme on Immunization (EPI) is conducted in the premises on Mondays and Thursdays of the week. A cafeteria 'Niloy' is housed in the newly constructed facilities next to the college building, managed by the college authority, ensures availability of snacks and small meals for all in TMMC&H and it buzzes with students during their break. A 250 separate bedded girls' hostel is situated within the campus. A 250 bedded boys' hostel is located within one kilometer of the campus. The hostels are taken care of by superintendents as assigned from the faculties. Students commute between the college and hostel by bus operated by the college management.

Location

The college is situated on Dhaka Mymensingh Highway at Konia (Targach), Board Bazar, Gazipur. It is 14 km from Hazrat Shahjalal International Airport, Dhaka.

Objective

The objective of the Tairunnessa Memorial Medical College is to produce world class physicians who through their discourse will attempt to produce a forum for the medical teachers and administrators to share their creativity and ideas which can in future envision the future of the health care system.

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RISK OF ZIKA VIRUS INFECTION IN BANGLADESH

Asma Kabir

Zika virus infection is an emerging viral disease transmitted through infected female *Aedes* species mosquito bite which is also the vector of dengue, chikungunya and yellow fever. The virus will likely to reach all countries where *Aedes* mosquitoes are found.¹ People can also get Zika through sexual contact. Placental transmission of virus from mother to fetus was also observed. The most common symptoms of Zika virus infection are fever, rash, joint pain and conjunctivitis. Most people infected with Zika virus have few or no symptoms and may be unaware that they are infected with the virus.² Zika virus belongs to flavivirus genus of flaviviridae family, is an enveloped single stranded RNA virus. According to WHO there is a scientific consensus that Zika can cause birth defect called microcephaly and it could cause Guillain-Barre syndrome. Recent studies have shown evidence of Zika virus in amniotic fluid, placenta and foetal brain tissue.^{1,2} Zika virus was first discovered in 1947 in rhesus monkeys. It was named after the Zika forest in Uganda. In 1952, the first human cases of zika were detected and since then, outbreaks of zika has been reported in tropical Africa, South-East Asia and the Pacific Islands. Before 2007 at least 14 cases of Zika have been documented. In 2015 there was an outbreak of Zika virus infection in Brazil and a large part of Latin American countries were affected. In February 1, 2016 WHO declared Zika virus is a public health emergency of International concern.³ The Zika virus is of concern in South -East Asia region as the *Aedes aegypti* mosquito is responsible for its spread and there is no evidence of immunity to the Zika virus in this region. There is no specific

treatment or vaccine for Zika infection. Efforts to control the spread of the virus focus on eliminating mosquito breeding sites and taking precautions against mosquito bites such as using insect repellent and mosquito nets.¹ Bangladesh confirmed first case of Zika virus on 22nd March, 2016 in an 67 years old man who had not been overseas.⁴ Since India has the mosquito and poor vector control could lead to a possible outbreak in this region. Singapore, Thailand, Malaysia, Indonesia confirmed cases of Zika infection.^{5,6,7} The world is facing a pandemic in progress, named Zika virus.⁸ Still there is no clinical guideline regarding diagnosis and its management. In the absence of vaccine and anti viral drug, the main strategy for protection is to take precaution to avoid mosquito bite, aware pregnant women and taking mosquito control program.

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EVALUATION OF PRINCIPLE- AND INFORMATION-BASED KNOWLEDGE OF MEDICAL STUDENTS ON GROSS AND REGIONAL ANATOMY: A PILOT STUDY

Farida Yeasmin^{1,#}, Shahana Hossain², Mohammed Iqbal³, Latifa Nishat⁴
Ferdous Aara Begum⁵, Razia Sultana⁶, Md Shah Alam⁷

ABSTRACT

Background and Aim: Curricula in medical education, like other disciplines in education, is updated time to time to train students develop necessary skills during their courses. The present study was undertaken to evaluate the principle- and information-based knowledge on Gross and Regional anatomy of recently promoted third year MBBS students. **Material and Methods:** Total 102 students just passed first professional examination from two non-government medical colleges participated in the study. Participants have been briefed about the non-government and procedure of the study for 10 min. After a break of 10 min the study was conducted on voluntarily consented participants. Study tool consisted of principle- and information-based questionnaire developed based on Gross and Regional anatomy content in the present curricula using Anatomy text books recommend in different colleges of Bangladesh. Absolute score obtained converted to percentage. Data were expressed as mean \pm SD and number (percent) as applicable. Unpaired student's t-test and Z test were performed as appropriate. Data were managed by statistical package for social science (SPSS) for Windows Version 15. P value <0.05 was taken as level of significance. **Results:** For cumulative score of principle based question about 70% and 30% participants scored <60 and 60-84 respectively. For cumulative score of information based question about 15%, 45% and 40% of the participants scored between <60 , 60-84 and ≥ 85 respectively. Percent students scored <60 for principle based question was significantly high compared to the information based questions (70% vs 14%; $p<0.001$). Percent participants scored 60-84 for information based question did not show statistically significant difference compared to principle based question (45% vs 30%; $p>0.05$). **Conclusions:** Data suggest that participant's principle based knowledge is relatively poor compared to their information based knowledge as judged by the facts that 85% of them scored >60 for information based question against 30% for principle based question. The findings of the study, however, need to be validated by further study for its usefulness in the evaluation process and improve the quality of medical education in the country.

Key Words: Gross and regional anatomy, information based knowledge, principle based knowledge.

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Author's Affiliation

¹Assistant Professor, ²Associate Professor (cc), ⁶Assistant Professor, Dept of Anatomy, Tairunnessa Memorial Medical College, Gazipur; ³Associate Professor, Dept of Anatomy, Monno Medical College, Manikgonj; ⁴Assistant Professor, Dept of Anatomy, Bangabandhu Sheikh Mujib Medical University, Dhaka; ⁵Associate Professor (cc), Dept of Biochemistry, Tairunnessa Memorial Medical College, Gazipur; ⁷Medical Officer, Dept of Skin & VD, Dhaka Medical College, Dhaka.

#Address for Correspondence

Dr Farida Yeasmin, Assistant Professor, Department of Anatomy, Tairunnessa Memorial Medical College, Kunia, Board Bazar, Gazipur-1704, E-mail: faridayeasmin.shelly@yahoo.com

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Introduction

Anatomy is one of the basic science subjects in medical curriculum. There is erroneous belief that anatomy study is largely content-based and not skilled-based.^{1,2,3} The curricula is usually revised time to time to keep it updated with evolving knowledge, advances in teaching methods and meet the demand of excellence of the medical profession.^{4,5} Problem based learning (PBL) and competency based medical education (CBME) have been introduced in different countries. Of the two PBL found to be not covering embryology, histology and osteology adequately through clinical problems⁶, however, the CBME models showed promise in equipping the graduates with knowledge, skills, and attitudes of the students.⁷ In our country medical teaching is traditionally didactic. Usual method of the student's assessment is end-course 'written and oral-practical' examination which is usually recollection type that relatively lacks scope to evaluate their knowledge and skill of interpretation.

Anatomy teaching is endorsed to Gross or topological 'study of the normal structure seen in necked eyes' and Regional 'arrangements into system and regions' anatomy.^{8,9} It is understood to be descriptive- textbooks and other learning materials on the subject contain quite large volume of information, which often deter student's interests and they mostly try to memorise without understanding and found to be unable to correlate when required. Learning broad principle, rather than focus on details suggests acclaiming higher acceptance and retention of information.¹⁰ Principle represents a general idea derived or inferred from specific instances or occurrences. It attributes to the essential characteristics or reflecting the systems designed purpose and the effective operation or use of which would be impossible if any one of the principles was to be ignored.^{11,12} A principle regarding typical long bone is attributed that it

has presenting parts- upper and lower end, and the shaft. A statement describing features of long bones in inferior extremity is applicable for the counterpart bones of the upper extremity. Information can be derived from a single 'principle'. On the other hand several information together can represent a single principle. Sutural joints appear between those bones which ossify in membrane. This statement depicts one principle and contains two information- joint between two parital bone is sagital suture and joint between two parital and occipital bone is lamboid suture.^{13,14}

When students understand any 'principle' they would plausibly become able to communicate to questions and make correct interpretation. Studies are scarce which looked into the evaluation of student's knowledge and skill developed after the end of the course and feedback from teachers, postgraduate students regarding course content and teaching in terms of the perspectives. Principle- and information-based knowledge on Neuro anatomy was evaluated on third year MBBS students in one study. It demonstrated relatively poor score obtained by the participants on principle-based question compared to information based question.¹⁵ In one study so far could be retrieved, found to focus on feedback from teachers and postgraduate students on anatomy component of MD Gastroenterology discipline in BSMMU. It has been observed that 85% of the respondents felt about the lacking of problem-based approach in the curse. About 56% respondents felt the course catered more recall level knowledge. However, the same study demonstrated that about ~75% respondents felt about customization of the course content and, usefulness of teaching and assessment quality.¹⁶

Considering the fact of necessity to meet the demand of skills and knowledge for future medical graduates the last revision in medical and dentistry curriculum in Bangladesh was

done 2012.¹⁷ The present study was undertaken to evaluate the ability of newly promoted third year MBBS students to respond regarding 'principle and information' based questions on gross and regional anatomy and more specifically look in to participants principle and information based knowledge and qualify on the basis of standard cut-off core and compare between two propositions.

Materials and Methods

This cross-sectional study was carried out during June 2014 to December 2014. The participants (n=102) consisted of newly promoted third year medical students of two non-government medical colleges on the outskirts of the Dhaka city. The students were approached through the teachers of the department. They have been briefed about the nature and procedure of the study for 10 min. After a break of 10 min the study was conducted on voluntarily consented participants. Institutional approval was obtained prior to the start of the study.

A study material consisted of five questions constructed for the study that covered the topics of Gross and Regional Anatomy according to present curricula¹⁵ recommended by the Bangladesh Medical and Dental Council in 2012. Both text- and illustration-based questions, that incorporate principle and information regarding gross and regional anatomy, were prepared for the study based on the textbooks recommended for Bangladeshi undergraduate medical students.

Principle refers to fundamental truth on given facts on gross and regional anatomy¹⁸ and information are statements derived from any principle.^{19,20} Bones of membranous ossification are joined by sutural joint refers a principle. Information regarding sutural joints refers to the facts that joint between two parital bones is

Sagittal suture and between two parital and occipital bone lambdoid suture. Here information like types of the joint 'sutural' and origin of bone 'membranous' refers to information of principle regarding joints.^{13,14} In the present study principle and information based questions, text and illustrations were aimed to depict Principle and Information on Gross and Regional anatomical facts and participants responded as per to the merit of the questioner.

Statistical Methods

Results were expressed as mean \pm SD and number (percent) as appropriate. Test for mean difference and proportion, as applicable, were carried out to calculate statistical difference and association. Data were managed by using statistical package for social science (SPSS) for Windows Version 15. A $p < 0.05$ was taken as level of significance.

Results

Absolute and percent (mean \pm SD) score for each question was shown in table 1. Distribution of number (percent) of participants on the basis percent score for cut-off < 60 , 60-84 and ≥ 85 for each question was also shown in table 1.

In question 1 absolute and percent score (mean \pm SD) was 1.6 ± 1.7 and 26.3 ± 28.7 respectively for identification of principle based text. Distribution (number-percent) of participants on the basis of percent cut-off score (< 60 , 60-84 and ≥ 85) was 43 (42.15%), 33 (32.35) and 26 (25.49) respectively. For identification of information based text total absolute and percent score (mean \pm SD) was 1.1 ± 1.2 and 28.3 ± 31.1 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score were as 37 (36.27%), 53 (51.96) and 26 (25.49) respectively (Table 1).

In question 2 for the separation of principle oriented text total absolute and percent

(mean \pm SD) score was 12.51 ± 10.11 and 30.50 ± 24.64 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 58 (56.86), 44 (43.13) and 0% respectively (Table 1). For separation of information based text total absolute and percent score (mean \pm SD) was 17.48 ± 10.87 and 14.82 ± 27.87 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 5 (4.90), 23 (22.54) and 74 (72.54) respectively (Table 1).

In question 3 for picking up information based text from principle based text total absolute and percent score (mean \pm SD) was 1.12 ± 1.14 and 23.03 ± 28.7 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 98 (96.07), 4 (3.92) and 1 (0.98) respectively (Table 1).

In question 4 for construction of principle based text from two information based text total absolute and percent score (mean \pm SD) was 1.12 ± 1.07 and 18.62 ± 17.90 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 99 (97.05), 2 (1.96) and 1 (0.98) respectively (Table 1).

Table-1: Participants response to the assessment tool of the study

Ques No	Types of questions	Score for question	Score obtained	Percent score	Percent score obtained In different cut off levels		
			Mean \pm SD (range)	Mean \pm SD (range)	< 60 N (%)	60-84 N (%)	\geq 85 N (%)
Q 1.	Identification of						
a)	Principle-based text	4	1.6 ± 1.7 (0 - 4)	26.3 ± 28.6 (0 - 100)	43 (42.15)	33 (32.35)	26 (25.49)
b)	Information-based text	6	1.1 ± 1.2 (0 - 6)	28.3 ± 31.1 (0 - 100)	72 (70.58)	24 (23.52)	6 (5.88)
Q 2.	Separation of						
a)	Principle-based text	47	12.5 ± 10.1 (6- 31)	30.5 ± 24.7 (12.8-65.9)	58 (56.86)	44 (43.13)	-
b)	Information-based text	43	17.5 ± 10.9 (16 - 43)	14.8 ± 27.9 (7.7-97.4)	5 (4.90)	23 (22.54)	74 (72.54)
Q 3.	Picking information text from principle text	6	1.2 ± 1.1 (0 -6)	23.1 ± 28.7 (0 -100)	97 (96.07)	4 (3.92)	1 (0.98)
Q 4.	Principle based text construction from information based text	6	1.2 ± 1.1 (0 - 6)	18.6 ± 17.9 (0 - 100)	99 (97.05)	2 (1.96)	1 (0.98)
Q 5.	Identification from illustration of						
a)	Principle text	3	1.2 ± 1.0 (0 - 3)	38.7 ± 33.2 (0-100)	60 (58.82)	28 (27.45)	14 (13.72)
b)	Information text	2	0.7 ± 0.8 (0 - 2)	35.2 ± 39.5 (0-100)	75 (73.52.47)	-	27 (26.47)

Results were expressed as mean \pm SD and number (percent) as appropriate.

Percent cut-off (< 60, 60-84 and \geq 85) of marks was considered following the guidelines of Curriculum 2010 (13).

Table-2: Overall performance of the participants regarding the principle and information based questions

Types of questions	Distribution of participants on the basis of percent cut-off score of question			Total percent score obtained	Range	
	< 60	60 - 84	≥85		Minimum	Maximum
Principle-based	71(69.6) ^a	31 (30.4) ^c	-	44.77±15.7 ^e	13.33	68.33
Information-based	15 (14.7) ^b	46 (45.19) ^c	41 (40.2)	77.8±14.4 ^f	29.92	96.49

Results were expressed as mean±SD and number (percent) as appropriate.

Percent cut-off (< 60, 60-84 and ≥85) of marks was considered following the guidelines of Curriculum 2010 (13).

Tests for proportion and mean difference were performed as applicable. P<0.05 was taken as level of significance.

In question 5 for identification of principle based text from illustration absolute and percent score (mean±SD) were 1.2±1.0 and 38.7±33.1 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 60 (58.82), 28 (27.45) and 14 (13.72) respectively and identification of Information based text absolute and percent (mean±SD) score was 0.70±0.79 and 35.2±39.5 respectively. Distribution (number-percent) of participants on the basis of percent cut-off score was 75 (73.52), 0 and 27 (26.47) (Table 1).

For principle- and information based question percent overall score (mean±SD) obtained was 44.8±15.6 and 77.8±14.4 respectively (Table 2). Total percent score obtained for principle- and information based text was statistically significant different (t=7.731; p<0.001). Distribution (number-percent) of participants on the basis of percent cut-off of total score for principle based question was 71 (69.6%), 31 (30.4) and 0 respectively and information based question 15 (14.7%), 46 (45.1%) and 41 (40.2%) respectively (Table 2). Number of participants had total percent score <60 for principle-oriented text was significantly higher compared to that of information-based text (Z=3.944; p<0.001).

Number of participants had total percent score 60-84 for principle- and information based text did not show statistical significant difference (p=1.25). For information based question about 85% participants had overall score ≥60, for principle based question it was 30%.

Discussion

Speed of learning claimed to depend on the way one formulates the material and the same material can be learned many times faster if well formulated. The first three of the 20 rules of formulating knowledge in learning have been described as: (i) do not learn if you do not

understand, (ii) learn before you memorise, and (iii) build upon the basics.²¹ The number of 'principles' would understandably be fewer than the number of respective 'information'. Norman and Schmidt²² also advocated in favour of teaching the basic principles of biomedical science, often with examples of their application.

Evaluation of student's knowledge and capability to interpretation is important to find out the effectiveness of teaching, tools used and the contents covered. This in other way may help the faculties to work on required improvement in their approach. In terms of medical education

it is important to equip the students with adequate knowledge to meet the demand in their practical life. There is no exception in the teaching anatomy of these students.

In the present study principle- and information based knowledge on gross and regional anatomy were recently promoted third year students in two private medical college students. It was interesting to note that inability of the students to identify principle- and information based text and separate of the either was relatively high (Table 1). When overall performance was considered 69.9% participants students had score <60 for principle based question in contrast to 14.7% for information based question (Table 2) which has been reflected in their total percent score for the two component 44.77 ± 15.7 vs 77.8 ± 14.4 respectively. It was interesting to note that 40% of the participants achieved >85% score for information based questions against none for principle based questions (Table 2). However, this result might not be taken as absolute scenario. There is lack of comparison with their academic achievements in the first professional examination and among the respondents relatively poor achievers might have been included inadvertently.

The findings in terms of relatively poor score regarding principle based question compared to the information based question is consistent with a previous study that covered Neuroanatomy content.¹⁵ This consistency in the two studies possibly highlights the facts of relatively poor principle based knowledge of these students.

It is understood no particular tool is full proof to achieve the target goal. Problem based learning has shown that teaching/ learning in basic science suffer.⁶ We still follow the traditional recall methods in teaching and there is little scope bringing in students for interactive sessions. Possibly that has been reflected in the findings of the present study. Often teaching is judged from student's point of view which

reflects the quality and impact of teaching. In one study it is shown that 50% of students reported about adequate anatomy teaching. Among other 28% said teaching is too long compared to 22% mention inadequate.²³ The finding highlights heterogeneous ability of participating students in their skill and knowledge. Objective of teaching is to encompass all the students that they achieve acceptable level of skill about the courses. A medical curriculum is constantly modified considering the need of changing demands of the professional life and findings of the relevant research in the field.^{24,25} Our undergraduate curriculum is believed to be clinically oriented. However, there is lack of substantial data which unearth the weakness in it and set the platform for bringing about necessary changes to provide up to date education to our students. Study involving intern-doctors and postgraduate students of Neurology, Neurosurgery and Psychiatry demonstrated weakness in neuroanatomy aspects and stressed the need for redesigning teaching-learning at the undergraduate and postgraduate levels.²⁶ The present study demonstrated the weakness in the knowledge and skill of gross and regional aspects of the just passed first professional examination. The study lacks the merit to make conclusive comment(s) on the issue. However, it has provided the base line data and opened up the need for further study and encourage the teachers and authorities to look into the issue and take appropriate measures to improve the quality of medical education in the country.

Conclusions

Principle based knowledge on gross and regional anatomical aspects of the study participants appeared to be relatively poor compared to their information based knowledge which has been attributed by the fact that 85% of the students

scored >60 regarding information based questions against 30% participants in case of principle based questions. The finding, however, needs to be substantiated by further studies for its usefulness in the evaluation process and improve the quality of medical education in the country. Taking in consideration of findings of the present study it may be recommended that attention need to be paid to ensure that students develop necessary skill and optimal knowledge in respective courses.

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OLIGOHYDRAMNIOS AND PREVIOUS UTERINE SURGERIES ACCOUNT FOR THE MAJOR INDICATIONS OF CESAREAN SECTIONS IN A NON-GOVERNMENT MEDICAL COLLEGE HOSPITAL ON THE OUTSKIRTS OF DHAKA CITY

Rowshan Ara Begum^{1, #}, Naireen Sultana², Nahid Sultana³

ABSTRACT

Background and Aim: There is erroneous belief among people about the practice of cesarean sections in the country. The present study was undertaken to evaluate the indications of caesarean section and maternal and neonatal outcome. **Materials and Methods:** This observational study included 100 cases of caesarean sections consecutively carried out in the Department of Obstetrics & Gynaecology, Tairunnessa Memorial Medical College & Hospital for a period of six months. Data were expressed as number and percent and managed by statistical package for social science (SPSS) for Windows Version 15. **Results:** Of the 100 cases 57% pregnant women were in 20-30 years of age. Oligohydramnios was major (36%) indication for cesarean section. Second common (27%) cause was previous cesarean section. Presence of preeclampsia, eclampsia and obstructed labor accounted for 32% cases. In 9% cases it was patient's choice to have baby by cesarean section. Fetal distress was the reason for 6% cases. Postoperative events consisted of urinary tract infection (17%), wound infection (11%), post-partum hemorrhage (8%) and eclampsia (4%). **Conclusions:** The data revealed that oligohydramnios and previous cesarean secretion accounted for 63% of the cesarean sections in the study and obstetrical issues like preeclampsia, eclampsia and obstructed labor were the reason for 32% cases. This finding highlighted the justified decisions for cesarean sections carried in this hospital. The data also demonstrated relatively low post-operative events presumably reflected rational patient care practice in the hospital.

Key Word: Caesarean section, indication, complications

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Authors Affiliation

¹Assistant Professor, ²Associate Professor, ³Professor, Department of Obs & Gynae, Tairunnessa Memorial Medical College

#Address of Correspondence

Dr Rowshan Ara Begum, Assistant Professor, Dept of Obs & Gynae, Tairunnessa Memorial Medical College
Kunia, Board Bazar, Gazipur-1704, E-mail: drrowshanbegum@gmail.com

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Introduction

Delivery mechanism is a spontaneous process which does not need any intervention.¹ Birth technology in the form of cesarean section (C-section) and inducement, however, are adopted when certain complications arise during pregnancy and labor.² Cesarean section is a major operation and associated with immediate and perinatal risk and thought to have implications in future pregnancies.³⁻⁵ Dramatic rise in rate of cesarean section has been observed in the recent past in middle- and high income countries throughout the world.⁶ World wide over all rate of cesarean section found to be 18%, ranging from 6-27.2% in the least and most developed countries.⁷ The same study has demonstrated the rapid rise of C-section in one decade in various regions; Latin America and the Caribbean region show to have the highest cesarean section rates (40.5%), followed by Northern America (32.3%), Oceania (31.1%), Europe (25%), Asia (19.2%) and Africa (7.3%). Between 1990 and 2014, based on data from 121 countries, the global rise of cesarean section rate increased by 12.4% with an average annual rate of 4.4%. In Latin America and the Caribbean the increase was 19.4%, followed by Asia (15.1%), America (10%) and Africa (4.5%). The overall rate of cesarean section remarkably high compared to the WHO recommended target of 10-15% in most of the countries.⁷ There is, however, lack of evidence about additional maternal and perinatal benefits with higher C-section rate than a certain threshold.^{8,9}

Reports suggest women worldwide prefer vaginal delivery in very high percentage and at the same time would consent for C-section when necessary.¹⁰ In addition awareness and, perception attitude towards cesarean section found to vary among antenatal care seekers

across the different regions of the world.^{10,11} There is similar trend about rate of C-section in Bangladesh. The rate was reported to be 23% in 2014 which showed sharp rise from 3.5% in 2004.^{12,13} Report demonstrated staggering high rate of cesarean section in privet clinic and charitable facilities.¹³ The authors have also suggested about the preferences for caesarean among highly educated women, and that of individual- and provider-level factors interacting in driving caesarean rates higher. In the last decade indications of cesarean sections in a apex hospital in the Dhaka city attributed to previous cesarean section and fetal distresses to be 42%, presentation of the fetus 5%, pre- and eclamsia and bad obstratric history 23%.¹⁴ Considering the facts of very high rates of caesarean section in the private sector it is necessary to evaluate the common indications and complications of cesarean section, because it is associated with high maternal and neonatal risk, which would lay the platform towards achieving good clinical practice in the hospital.

Methods and Materials

This cross-sectional study was carried out in the Dept of Obstetrics and Gynecology, Tairunnessa Memorial Medical College & Hospital, during the period of November 2013 to April 2014 which involved cesarean section cases taken place in the hospital. A total 100 cases, fulfilled the inclusion criteria and voluntarily consented, were consecutively recruited in the study. Preterm pregnancies (n=19) during the study period presented in the hospital were excluded due to non-availability of NICU facility in TMMC&H. Variable of interests were recorded in a predesigned case record form. Indication of caesarean sections was assessed antenatally and intranatally and recorded. Operation findings and complication, if any, were recorded. Puerperal period up to the end

of the day of discharge was observed. Patients came for post natal-check up after seven days. Data were expressed as mean \pm SD and number (percent) as appropriate. Statistical analyses were carried by using statistical package for social science (SPSS) for Windows Version 15. A $p < 0.05$ was considered as significant.

Result

Age distribution of the subjects was shown in table 1. Of the 100 cases 26% and 31% cases belong to age group 20-25 and 26-30 years respectively. Among the study subjects 43% were primigravid and 49% multi-gravid. Only 8% of the subjects were grand multigravid (Table 2).

Indications for cesarean section were summarized in table 3. Oligohydramnios was the indication for the procedure in 36% case. This follows previous caesarean section, fetal and maternal distress in 27%, 23% and 16% respectively. Failure of the labor to progress was present in 16% cases. Presence of severe preeclampsia, eclampsia and obstructed labor was the cause 15%, 11% and 6% cases respectively. Abruptio placenta and placenta praevia were present in 9% and 7% cases respectively. Individual's choice was the reason in 9% cases (Table 3).

Out of the 100 caesarean sections in 74% the babies were healthy. Low birth weight and fetal asphyxia were present in 13% and 7% cases respectively. Bad fetal outcome, early neonatal death and fetal distress, was present in 4% and 2% cases respectively (Table 4).

Of the 100 caesarean section UTI and wound infection developed in 17% and 11% cases respectively. Post-partum hemorrhage and eclampsia were observed in 8% and 4% cases respectively (Table 5).

In 86% of the cases hospital stay was < 5 days. Duration between 5-10 days and > 10 days was in 12% and 2% cases respectively (Table 6).

Table-1: Distribution of patients according to age (n=100)

Age Group (yrs)	Number	Percentage
< 20	12	12
20-25	26	26
26-30	31	31
31-35	18	18
36-40	13	13

Results were expressed as number (percent).

Table-2: Distribution of patients according to number of parity (n=100)

Parity	Number	Percentage
Primi gravid	43	43
Multi gravid	49	49
Grand multi gravid	8	8

Results were expressed as number (percent)

Table-3: Distribution of patients according to indication of caesarean section (n=100)

Indications	Number	Percentage
Oligohydroamnios	36	36
Previous caesarean section	27	27
Fetal distress	23	23
Mal presentation	17	17
Failed progress of labour including failed induction	16	16
Severe pre eclampsia	15	15
Obstructed labour	11	11
Elective caesarean section	9	9
Abruptio placenta	9	9
Placenta praevia	7	7
Eclampsia	6	6

Results were expressed as number (percent)

Table-4: Distribution of patients according to fetal outcome (n=100)

Condition of the Newborn	Number	Percentage
Healthy	74	74
Low birth weight	13	13
Birth asphyxia	7	7
Early neonatal death	4	4
Still Birth	2	2

Results were expressed as number (percent).

Table-5: Distribution of patients according maternal complication after caesarean section (n=100)

Complications	Number	Percentage
UTI	17	17
Wound Infection	11	11
PPH	8	8
Post partum eclampsia	4	4
Wound dehiscence	1	1
Maternal death	1	1

Results were expressed as number (percent).

UTI, urinary tract infection; PPH, post partum hemorrhage.

Table-6: Distribution of patients according to hospital stay (n=100)

Hospital stay (Days)	Percentage
<5 days	86
5-10 days	12
> 10 days	2

Results were expressed as number (percent).

Discussion

Caesarean section is the most common obstetrical operation, The rate of caesarean section is gradually increasing throughout the world, possibly taking advantage of modern fetal monitoring technique and with the advent of modern anesthesia and antibiotics. Obstetricians fear of litigation in case of failed trial for normal delivery and rather opting quick option of cesarean section and pushing its rate towards high which then increase in bad outcomes of low risk pregnancies.⁸ Analysis of the age group of the patients showed that 82% were at the age group of maximum fertility and lowest 12% in late fertility group. Caesarean section carried out more in multipara with the history of previous caesarean section and lowest in grand multipara. In this institute major indications of caesarean section was found to be fetal distress with severe oligohydramnios of which maximum babies were meconium stained with birth asphyxia. The lowest indication was elective caesarean section and most of them under went caesarean section to avoid stress of vaginal delivery. The present study demonstrated that there was only 2% still birth. Most of the patients left hospital with healthy baby. The incidence of maternal morbidity following caesarean section was found to be low. Of all the postoperative complications UTI was 17%, wound infection 8% and of this only one had developed wound dehiscence. One patient expired after caesarean section due to disseminated intravascular coagulation. In that case caesarean section was done for abruptio placenta. Cesarean section in the first pregnancy pushing the procedure further high in subsequent pregnancies. The increasing rise in cesarean section is assumed to be explained by the fact that majority of obstetricians do not like to go for trial for normal vaginal delivery in a patient with previous caesarean section and possibly pushing

cesarean section rate higher than the WHO recommended limit of 10-15%.⁷ The present study looked into the indication, age, parity, maternal and fetal outcome of caesarean section. Though this study is not representing the whole population, but has provided some facts. It has come out that decision for caesarean sections mainly accounted for previous caesarean section and oligohydramnios which justifies logical reason the decision. In the event of delayed or in extreme situation for not going for the cesarean section fetus and mothers might have been put on unforeseen morbidity and unexpected mortality of either baby or mother or both in spite of the procedure at later stage. Findings of the present study regarding the indications for cesarean section and prenatal outcome found to be consistent with the findings of a previous study carried out in of the tertiary care hospital of the Dhaka city¹⁴ and highlighting the nature of clinical practice in the TMMC Hospital. Previous cesarean section in the present study appeared to be similar to a study carried in a public hospital in a rural set up¹⁵ which clearly nullify the erroneous belief running across public sentiment about the ill motive of the service providers. At the same time it contradicts the scenario recently published article¹⁵ which demonstrated the huge differences about rate of cesarean sections in public and private facilities in different regions of Pakistan.¹⁶

For the present study there was no scope to find out the perception and attitude of the patients regarding the cesarean section they had underwent and could not be compared with facts revealed in abroad.¹⁰ It is important to inform properly about the nature and need for the procedure which might help erase the erroneous belief of the medical care seekers and improve their satisfaction. There were, however, issues to address and most importantly patients and their attendant need to be educated about the

postoperative cleanness to avoid any unexpected wound infection(s) and resultant complications. It was also appeared that primi-gravid women need to be informed about proper antenatal care for an uneventful delivery. To ensure quality medical services in the twenty first century there needs to be standardized protocol and time to time its internal review.

The present study revealed that oligohydramnios and previous cesarean section accounted for 63% cesarean sections during the period of the study and cumulative frequency for obstetrical issues like preeclampsia, eclampsia and obstructed labor was 32%. The findings of the study highlighted the justified decision for cesarean sections carried in the hospital. Relatively low post-operative events of the studies subjects supported the possibly rational care practice in the hospital.

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PATTERN OF CONGENITAL MALFORMATIONS AND NEONATAL OUTCOME IN A TERTIARY CARE HOSPITAL IN DHAKA

Mirza Md Ziaul Islam^{1, #}, Md Abbas Uddin Khan², M Monir Hossain³, SM Khalid Mahmud⁴

ABSTRACT

Background and Aim: Major congenital malformations are structural anomalies present at birth which has a significant effect on morbidity and mortality of infants. The present study was aimed to determine the pattern of major congenital malformations and their outcome during neonatal period. **Materials and Methods:** This cross-sectional study was done in the neonatology ward of Dhaka Shishu (children) Hospital, Dhaka, Bangladesh on 408 neonates enrolled from November 2014 to October 2015. Diagnosis of congenital malformation was based on clinical evaluation of neonates by experienced pediatricians and followed up to their neonatal period. **Results:** A total of 408 neonates were subjected to full clinical examination. The malformed neonates were classified into six groups according to the system affected using World Health Organization (WHO) classification of congenital malformations. The anomalies found in descending order are: central nervous system 5 (35.71%), cleft lip and cleft palate 2 (14.28%), gastro-intestinal system 1 (7.14%), ear, face and neck 1 (7.14%) and more than one system affected 4 (28.57%). The number of death among the malformed neonates was 3 (21.41%). **Conclusion:** Overall rate of malformation observed was 3.4% which indicated that hospital based surveillance and monitoring of congenital malformations is important for identifying pattern of anomalies and neonatal outcome.

Key Words: Congenital malformation; Neonatal outcome.

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Introduction

Congenital malformations are morphologic defects that originate in the prenatal period as a result of genetic mutation, chromosomal aberrations and/or adverse intra-uterine environment.¹ The term 'major malformations' subsumes all singular and combined structural defects, syndromes, sequences, and associations.² The prevalence of major malformations has been variously reported

Author's Affiliation

¹Assistant Professor, Bangladesh Institute of Child Health, Dhaka Shishu (Children) Hospital, Dhaka; ²Professor, Head, Dept of Pediatrics and Neonatology, Tairunnessa Memorial Medical College, Gazipur; ³Professor, Pediatric Critical Care Unit, Bangladesh Institute of Child Health, Dhaka Shishu (Children) Hospital; ⁴Resident Medical Officer, Bangladesh Institute of Child Health, Dhaka Shishu (Children) Hospital, Dhaka

#Address for Correspondence

Dr Mirza Md Ziaul Islam, Assistant Professor, Bangladesh Institute of Child Health
Dhaka Shishu (Children) Hospital, Mohammadpur, Dhaka-1207. Email: mirzamd.ziaulislam@yahoo.com

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as 3-4% of all neonates (in passive surveillance system) or 6-8% of all neonates (in active surveillance system). Approximately one fifth of all such malformations are severe and life threatening.^{3,4} For more than two decades congenital anomalies have been the leading cause of infant mortality in US.⁵ The morbidity and disability experienced by surviving children also has a major public health problem.⁶ In 2007 at BSMMU Hospital out of 1630 deliveries 60 found to have congenital anomalies (3.68%) of which neural defect was found to be commonest (33.3%) type of deformities.⁷ Limited data are available on the incidence pattern and neonatal outcome of congenital malformations in Bangladesh. However, with improvements in the national strategies of newborn care in Bangladesh, the problem of congenital malformations and associated complications are getting surfaced and corrective measures taken could be early and giving child better future. This study was, therefore, undertaken in a tertiary care hospital to determine the pattern of major congenital malformations and their outcome in the neonatal period.

Materials and Methods

This was observational cross sectional study. It was carried out during November 2014 to December 2015 in Dhaka Shishu (Children) Hospital. The study population was all the neonates (n=408) admitted in the neonatal ward for neonatal problems. The neonates were examined by neonatologists and congenital anomalies were detected clinically as well as by imaging and ultrasonography either at birth or before birth. Relevant history including antenatal records with maternal age, gestational age, previous history of congenital anomalous baby, sex and birth weight of the baby,

significant maternal illness like diabetes mellitus, hypertension, hypothyroidism, toxoplasma, rubella, cytomegalovirus and herpes simplex virus (TORCH) infection, exposure to radiation and smoking during antenatal period were included. Malformations were classified into major and minor anomalies. Major anomalies attributed to anomalies or malformations that create significant medical problems for the patients or require immediate specific surgical or medical managements and minor anomalies included features that are most commonly seen in the population but do not cause increased morbidity. The study was approved by the institutional ethical committee and due consideration was given while recruiting the cases in the study. The parents were assured about the confidentiality and data generated in the study will only be used in academic purpose and in no way their identity will be revealed. Data were expressed as number percent. Statistical package for social science (SPSS) for Windows Version 15 was used to manage the data.

Results

Total 14 newborn out of 408 had malformations. Percent boys and girls had malformation was 3.68 and 3.14 of the total 217 boys and 191 girls respectively (Table 1). History of parental consanguinity was present in 9 cases of congenital malformations. Maternal and newborn related characteristics were shown in table 2. Of the 14 newborn with malformation 7 (50%) had low birth weight. Gestational age at birth between 32-37 weeks was in 10 (71.42%) cases. Maternal age <20 (yrs) was reported in 9 (64.28%) cases. In case 4 (28.57%) newborn mothers were primigravida (Table 2).

Antenatal care attendance, mode of delivery and history of birth defects in previous pregnancies were shown in table 3. Of 14 newborn babies with malformation 1 (7.14%) mother attended ANC only in First trimester, 4 (28.57%) attended at second and 9 (64.28%) at third trimester.

Mode of deliveries of those 14 babies were spontaneous, Cesarean and instrumental in 8 (57.14%), 2 (14.28%) and 4 (28.56%) cases respectively (Table 3).

Table 4 showed the distribution of different congenital malformations observed in the 14 newborn cases shown in table 4. Abnormalities of the nervous system were present in 5 (35.70%) cases. Ano-rectal malformation was observed in 1 (7.14%) case. Management protocol was initiated immediately. Three (21.4%) malformed neonates died during the course of treatment. Rest 11 (78.6%) were discharged with counseling and follow-up treatment plan.

Table-1: Congenital malformations of the total and by gender

Subjects	Cases	Malformed neonates Number (Percent)
Male	217	8 (3.68)
Female	191	6 (3.14)
Total case	408	14 (3.43)

Results were expressed as number (percent).

Table-2: Fetal and maternal characteristics of the malformed newborn babies

Characteristics	Distribution of malformed newborn	
Birth weight (Kg)	Number	Percent
<2.5	7	50.0
2.5-3.5	5	35.71
>3.5	2	14.28
Gestational age at birth (Wks)		
<37	10	71.42
37-42	4	28.58
Maternal age (yrs)		
<20	9	64.28
21-25	3	21.42
26-30	1	7.14
31-35	1	7.14
Parental consanguinity		
Absent	5	35.71
Present	9	64.29
Parity		
Primigrvida	4	28.57
Multigravida	10	71.42

Results were expressed as number (percent).

Table-3: Maternal characteristics and congenital malformations

Characteristics	Number (percent) malformation
ANC attendance	
First trimester	1 (7.14)
Second trimester	4 (28.56)
Third trimester	9 (64.28)
Mode of delivery	
Spontaneous	8 (57.14)
Caesarean section	2 (14.28)
Instrumental	4 (28.57)
FH of Birth defect	
Yes	1 (7.14)
No	13 (92.85)

Results were expressed as number (percent).

ANC, Antenatal care; FH of Birth defect, Family history of birth defect.

Table-4: Distribution of the different types congenital malformations and its overall proportion in the study

Category of malformation	Number (Percent)	Proportion
Central nervous system		
Meningocele	3 (21.42)	0.73
Hydrocephalus	1 (7.14)	0.24
Anencephaly	1 (7.14)	0.24
Facial/Palatal anomalies		
Cleft lip and palate	2 (14.28)	0.49
Musculoskeletal anomaly		
Club foot	1 (7.14)	0.24
Gastrointestinal anomaly		
Ano-rectal malformation	1 (7.14)	0.24
Ear and neck anomaly		
Choanal atresia	1 (7.14)	0.24
Anomalies appeared in combination		
Cleft-palate and Club foot	4 (28.57)	0.98

Results were expressed as number (percent) and proportions.

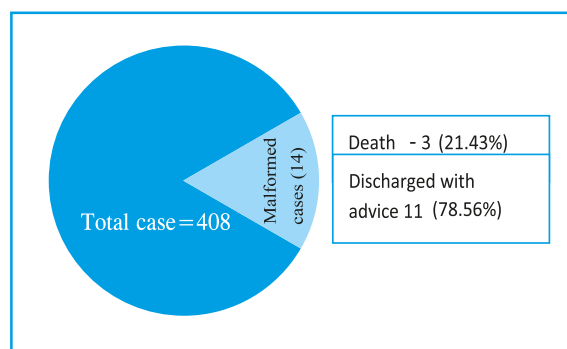


Figure-I: Total cases of anomaly observed and their outcome in the study.

Discussion

The present study revealed a bird's eye view of problem of congenital anomalies in this country. The cases included in the study account those only referred for management since it is the dedicated multidisciplinary hospital for the children. Congenital anomalies was observed in 3.4% of total admitted patients during the study period. The figure is not, however, too high compared to some other reports.⁷⁻⁹ Reported rate of malformation was between 2.2 to 3.6% in those studies.

The study demonstrated slight (1.3:1) male preponderance among congenitally malformed babies which is, however, in agreement with other reports.¹⁰ History of consanguinity was present in 9 (64.28%) cases of the present study. This feature showed consistency with other reports which demonstrated increase incidence of congenital malformations amongst babies of consanguineous marriages.^{11,12}

The present study demonstrated that mothers with ages below 20 years had more incidences of congenital malformed babies. There is, however, debate about any significant association between maternal age and congenital malformations.¹³ Of the 14 cases of congenital anomalous newborn 10 (71.42%) mothers were of multigravida pregnancies. High rate congenital malformations in multigravida mothers was also reported by other researchers.^{10,13,14} This suggests a relationship between incidence of congenital malformations and increase in birth order; however, it is still premature to conclusively comment on this issue. Failure to attend antenatal checkup might not be precipitating factor for congenital malformation(s). But seeking antenatal care and investigation(s) in suspected cases might detect major malformation(s) early in pregnancy and mothers could have received necessary

advice regarding what to refrain from and those to follow. In the present it was observed mother visited for antenatal care only at the third trimester in 9 (64.28%) cases. It is, however, not possible to correlate the incidence of congenital malformation of babies and lack of not seeking antenatal care.

In present study, central nervous system abnormalities accounted for 1.2% among all congenital malformations of all the admission in the hospital during the study period which is consistent with other studies.^{15,16} An Indian study reported CNS anomalies to be the most frequent.¹⁶ Study conducted in BSMMU demonstrated neural tube defect was the commonest (46.67%) among which proportion of hydrocephaly was the highest.⁷ They have suggested that periconceptional folic acid supplementation can lower the frequency of these neural tube anomalies. Some reported about very high incidence of abnormalities in gastrointestinal tract.^{17,18} or musculoskeletal system.^{19,20} These differences in the pattern of distribution, however, might be due to the paucity in investigative procedures and aversion for autopsy in the population.

The major weakness of the present study was recruiting only admitted patients. Of the 14 anomalous newborn 3 (21.41%) died during the course of treatment (Figure I). Apparently looking higher proportion attributed to the fact that those were all referred cases of 6 newborn had central nervous system and gastrointestinal anomalies.

Conclusions

Congenital malformations are not uncommonly found in the population as revealed by reporting of these cases in specialty hospital for necessary management. Thorough clinical examinations of newborn are required to identify congenital

anomalies and take necessary measures for better chance of survival.

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STUDY OF EJACULATORY DUCT LENGTH IN CADAVER SHOWED RELATIONSHIP WITH AGE- MEASUREMENT DONE USING AUTOCAD PROGRAM

Sultana Parvez^{1,#}, Mohammad Jubaidul Kabir², Palash Kumar Bose³, Salam Farhana⁴, Humaira Naushaba⁵

ABSTRACT

Background and Aim: The study was aimed to measure length of ejaculatory duct in male cadavers using sensitive computer bases program and evaluate its relationship with age of subjects. The study was carried out in the Department of Anatomy, SSMC, Dhaka from July 2009 to December 2010. **Materials and Methods:** Total 60 cadaveric human prostate of Bangladeshi subjects were studied. Samples harvested from the cadaver within 12-36 hours of death. Grouping of prostatic samples was done: approximate age range 10-18 yrs (Group A), 19-45 yrs (Group B) and 46-70 yrs (Group C). Collected prostate samples were washed thoroughly, wrapped with plastic sheet and fixed on wax tray. Ejaculatory duct was cut open, traced and marked with black marker. The specimen then scanned and image captured using Microsoft Photo Editor Program. Ejaculatory duct measurement was done using Computer based, AutoCAD, program. Results were expressed as mean \pm SD and minimum-maximum. Statistical difference was calculated using One-Way Analysis of Variance (ANOVA). $P < 0.05$ was taken as level of significance. Data were managed using SPSS for Windows Version 16. **Results:** Age range of the cadavers was 10 - 70 years. Mean (\pm SD) length (cm) of the right ejaculatory duct was 1.012 ± 0.120 , 1.476 ± 0.214 and 1.945 ± 0.124 in group A, group B and group C respectively which showed significant difference between groups ($p < 0.001$). The value of the left duct was 0.960 ± 0.154 , 1.530 ± 0.181 and 1.826 ± 0.126 in the three groups respectively which also showed significant difference between groups ($p < 0.001$). Both the right and left ejaculatory duct showed positive correlation with age ($r = 0.939$ and $r = 0.819$, $p < 0.001$ respectively). **Conclusions:** Data concluded that ejaculatory duct length in human cadaver demonstrated positive correlation with age and use of computer based software, Auto Cad, to measure the ejaculatory duct length appeared to be useful for researchers in delineation of small structures correctly.

Key Words: Ejaculatory duct, obstruction, prostate, cadaver.

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Author's Affiliation

¹Associate Professor, Dept of Anatomy, Shahabuddin Medical College and Hospital, Dhaka; ²Associate Professor, Dept of Forensic Medicine and Toxicology, Tairunnessa Memorial Medical College, Gazipur; ³Associate Professor, Dept of Forensic Medicine and Toxicology, Enam Medical College, Dhaka; ⁴Associate Professor, Dept of Forensic Medicine and Toxicology, Care Medical College, Dhaka; ⁵Professor, Dept of Anatomy, Sir Salimullah Medical College, Dhaka

#Address for Correspondence

Dr Sultana Parvez, Associate Professor, Dept of Anatomy, Shahabuddin Medical College and Hospital, Gulshan, Dhaka-1212. Email: jubaidul.kabir@yahoo.com

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Introduction

Ejaculatory duct is formed by the union of the vas deferens with duct of seminal vesicle. It is about two centimeters in length and pass through central zone of the prostrate into prostratic urethra.^{1,2} Along with the seminal vesicles and prostrate ejaculatory duct constitute for the functional unit which is regarded as part of the male's reproductive system since they play integral role in the fertility process.³ The ejaculatory ducts suggested to be playing important physiological role in the propulsion of semen from the seminal vesicle towards the urethra.^{3,4}

Infertility is relatively common problem which affects 7% of male population in their reproductive age due to testicular, pretesticular or post testicular problems.^{5,6} Although relatively rare but ejaculatory duct obstruction and cysts have been reported.^{6,7} In recent years there have been commendable improvements in the field of reproductive medicine. Vesiculography and vesiculectomy appeared to be options in dealing with ductal cyst and obstruction and correction of fertility.^{8,9} It is understood optimum anatomical knowledge is required in approaching these structures. However, size and volume of accessory glands reported to be associated with age of the individuals.¹⁰ The anatomical and physiological data of ejaculatory duct remained to be controversial. Data based on ethnic population are of paramount importance.^{8,11} Delineation of data of these structures is a challenge for the researchers and surgeons. With the advancement of modern techniques it is presently possible to have relatively more accurate knowledge about dimension so internal structures.

Data regarding accessory sex organs are lacking in Bangladeshi populations. The present study was aimed to determine the length of the

ejaculatory ducts of cadavers using Auto CAD program. The study was assumed to provide preliminary data regarding the ejaculatory duct length of Bangladeshi men and expand knowledge in understanding the accessory structures of male reproductive system which eventually might improve clinician's skill in dealing with internal procedures. This might also stimulate researchers to extend their research to establish a national standard which is missing like many other parameters for Bangladeshi population.

Materials and Methods

The present study was performed on cadaveric human prostates of Bangladeshi males of different age groups. The samples of human prostates were collected from the unclaimed dead bodies autopsied in the department of Forensic Medicine, Sir Salimullah Medical College (SSMC) and Dhaka Medical College (DMC), after taking approval from Institutional Ethical Committee and fulfilling necessary legal formalities. The collection was done within 12 to 36 hours of death. Cause and time of death and date of collection brought to the Department of Anatomy, Sir Salimullah Medical College (SSMC) were recorded. Then each sample was gently washed in running tap water to remove the blood and blood clots as far as possible. The samples were coded giving unique identification numbers. The sample was then fixed in 10% formol saline solution. Prostatic samples were grouped on the basis approximate age of the cadaver. The grouping was as follows: Group A, age 10-18 yrs, Group B, 19-45 yrs and Group C, 46-70 yrs.

Measurement of the length of the ejaculatory duct of the prostate

Length of the ejaculatory ducts of both sides was measured using Auto CAD program. For taking macroscopic measurement of the length of the

ejaculatory duct, a transparent plastic sheet was placed on the bisected prostate sample. The sheet was fixed on the waxed tray putting pins close to the four corners of the sample. The complete length of the ejaculatory ducts was then traced with a black OHP marker pen. The tracing was ready for computer measurement. An identical number was affixed on the transparent sheet. The traced outline on the transparent sheet was then scanned into Microsoft Photo Editor Program. The scanned tracings were then transferred to the Auto CAD Software to measure the length of the ejaculatory ducts.¹²

Statistical Methods

Results were expressed as mean \pm SD and minimum-maximum as appropriate. Statistical difference and relationship were calculated using One Way Analysis of Variance (ANOVA) and Pearson's correlation analyses as applicable. $P < 0.05$ was taken as level of significance. Data were managed using SPSP for Windows Version 16.

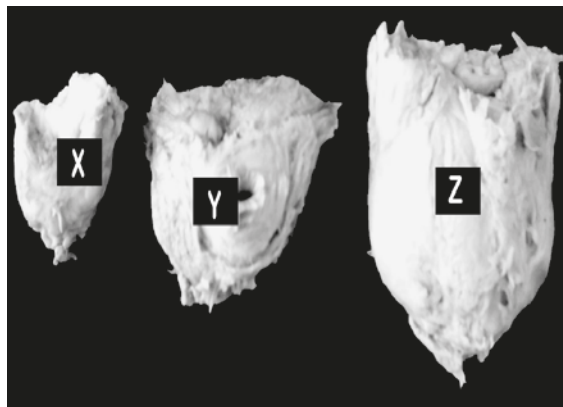


Figure-1: Photograph showing the prostate of three age groups. X, Group A (10 to 18 years); Y, Group B (19 to 45 years); Z, Group C (46 to 70 years).

Results

Distribution of the age of the cadaver was shown in table 1. The cluster was up to 18 years (group

A), between 18 - 45 (Group B) and 56-70 yrs (Group C). Of the 60 cadaver 18.3% were in younger age group 55.0% in the middle and 26.7% over age and older group.

The mean (\pm SD) length (cm) of the right ejaculatory duct was 1.012 ± 0.120 , 1.476 ± 0.214 , 1.945 ± 0.124 in Group A, Group B and Group C respectively which showed statistical significant difference between groups ($p < 0.001$). The mean (\pm SD) length (cm) of the left ejaculatory duct was 0.960 ± 0.154 , 1.530 ± 0.181 and 1.826 ± 0.126 of the three groups respectively. This distribution also showed significant difference between groups ($p < 0.001$) (Table 2).

Correlation analysis was shown in figure 2. Solid regression line depicted relationship between right ejaculatory duct and age of the cadaver. The analysis showed significant positive correlation ($r = 0.939$ and $p < 0.001$). The interrupted line indicated relationship between left duct and age. Significant positive association was demonstrated ($r = 0.819$, $p < 0.001$).

The mean (\pm SD) length (cm) of the right and left ejaculatory duct were 1.945 ± 0.124 and 1.826 ± 0.126 respectively in older age group compared to the values 1.012 ± 0.120 and 0.960 ± 0.154 respectively in the younger age group which demonstrated significant statistical difference ($p < 0.001$). Both the ejaculatory duct length showed significant positive correlation with age ($r = 0.939$, $p < 0.001$ for right and $r = 0.819$, $p < 0.001$ for left ED).

Table-1: Distribution of the study group according to age (n=60)

Study group	Age (yrs) range	Number	Percent
A	10-18	11	18.3
B	19-45	33	55.0
C	46-70	16	26.7

Results were expressed number (percent).

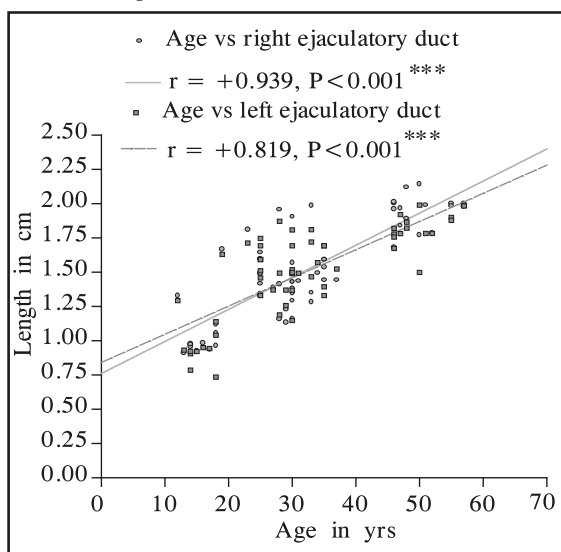
Table-2: Length of the ejaculatory duct in different age groups

Groups	Right mean \pm SD (Minimum-Maximum)	Left mean \pm SD (Minimum-Maximum)
Group A (n=11)	1.012 \pm 0.120 ^a (0.912 1.329)	0.960 \pm 0.154 ^a (0.734 1.292)
Group B (n=33)	1.476 \pm 0.214 ^b (1.132 1.984)	1.530 \pm 0.181 ^b (1.147 1.871)
Group C (n=16)	1.945 \pm 0.124 ^c (1.678 2.141)	1.826 \pm 0.126 ^c (1.498 1.989)

Results were expressed as mean \pm SD and minimum-maximum. Statistical difference was calculated by ANOVA using Statistical package for Social Science (SPSS) Version 17

Group A, Age 10 18 years; Group B, Age 19 45 years; Group C, Age 46 70 years

Different superscript in columns indicate statistical difference at $p < 0.001$.

**Figure II:** Correlation analysis between right (solid line) and left (dashed line) ejaculatory duct and age of the cadaver

Discussion

Ejaculatory duct has been suggested to play important in male reproductive physiology by propelling semen from the seminal vesicle to the

urethra owing to its spontaneous motor activity.³ However, the anatomic and physiological data of the ejaculatory ducts is still to be clearly delineated in respect to ethnic origin, age, and body build of people. It was reported that physiological data on ejaculatory duct area is variable and attributed to possible pathological situations.¹¹ Data regarding ejaculatory duct anatomy and physiology in people of Bangladeshi origin are lacking. The present study demonstrated the data on human ejaculatory duct derived from cadaver. Finding of the present study is consistent with other reports.^{9,13} Anatomical variability have been reported by Lie and his group.¹⁰ It is important to note that in all the sixty specimens anatomical abnormalities have not been observed. However, cyst in the ejaculatory duct is not uncommon.¹⁴ Considering the existing knowledge about the functional importance of ejaculatory ducts, specialists need to review the ductal status while dealing with infertile cases.^{3,15} Present data only remind the specialties about the apparent anatomical measures of the individuals and might be useful during procedures to deal with obstruction and cystic pathology of the structures.

Conclusion

Ejaculatory duct length measured in human cadaver demonstrated positive correlation with age. Use of modern tool in the study of appeared to be useful for the researchers to delineate small structures. Further studies are necessary with larger sample size from different age groups to establish a standard data for the length of the ejaculatory ducts of prostate gland of Bengali people and conclusively comment on the issue.

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AUTISM: ROLE OF NUTRITION

Sayed Riya^{1, #}, Riffat Khan Nirmeen², Masuma Begum³, Mohammad Jubaidul Kabir⁴

ABSTRACT

Autism is a neuro developmental disorder with lack of communication, socialization and repetitive stereotyped behavior that first shows signs during infancy or before the child is three years old and follows a steady course throughout life without remission. It is multifactorial with biological, maternal (antenatal, perinatal, postnatal), neonatal factors, early childhood factors, environmental factors and genetic factors playing an important role. However nutritional factors and dietary habits have a vital role in determining Autism.

Key Words: Autism, ASD, GFCF diet, Nutrients, PDD- NOS

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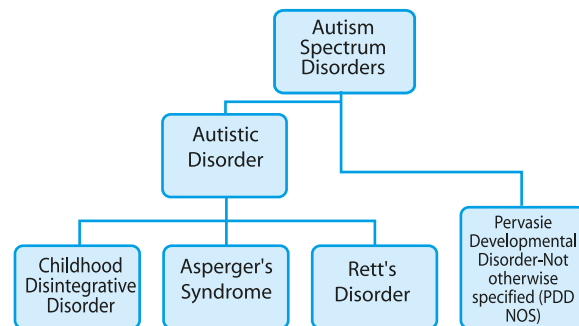
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Introduction

The word "autism" comes from the Greek word autos, meaning "self." Autism or autistic spectrum disorder (ASD) is a wide-spectrum neuro developmental disorder with impairments in social interaction, language, communication, and imaginative play. It also includes restricted, repetitive, and stereotyped patterns of behaviors, activities, and interests.¹

Symptoms of ASD usually begin before the age of 3 and continue throughout a person's life. In some infants, there are early signs of the disorder, such as not wanting to cuddle, lack of eye contact, or abnormal responses to touching and affection. Other early signs include the inability to follow objects visually, not

responding to his or her name being called, and lack of facial expressions, such as smiling. Some children with ASD develop normally until the age of 1 or 2 then stop learning new skills or lose the ones they already have learned.²



→ Degree of severity

Author's Affiliation

¹Professor (c.c), Dept of Community Medicine and, ⁴Associate Professor, Dept of Forensic Medicine and Toxicology, Tairunnessa Memorial Medical College, Gazipur; ²Associate Professor, Dept of Community Medicine, National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka; ³Associate Professor, Dept of Community Medicine, Holy Family Red Crescent Medical College, Dhaka.

#Address for Correspondence

Dr. Sayeda Riya. Professor (cc), Department of Community Medicine, Tairunnessa Memorial Medical College, Gazipur-1704.
E-mail : drriya11@gmail.com

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There are three main classifications of ASD and understanding the difference among them will help to better focus treatment. The first classification of ASD is autistic disorder, which is considered the classic form of autism. Patients usually have significant delays in language, social and imaginative abilities. The second form of autism is Asperger's syndrome, usually a milder form of autism. Patients still have delays in social abilities and communication skills, and have unusual behaviors and interests. People with Asperger's syndrome may spend much of their time devoted to a hobby (eg, trains, computers).³ They usually don't have language delay or intellectual development. In fact, many are intelligent, especially when it comes to their own special interests. Some experts liken patients with Asperger's to little professors in their areas of interest; they can have near genius IQs.⁴ The third form of autism is pervasive developmental disorder, not otherwise specified, (PDD NOS) or atypical autism. These individuals meet only some of the criteria for classic autism or Asperger's. They have fewer, milder symptoms and may experience delays only in the areas of social skills and communication.⁵

Nutritional deficiencies in intrauterine life and early childhood affect growth and development, health status, life expectancy and quality of child's life. Child's dietary intake and factors that contribute to overall health status determine the child's nutritional status. Malnutrition causes growth retardation. It retards children's physical and cognitive development and increases susceptibility to disease. Malnutrition may develop gradually in terms of physical size rapidly. A poor environment with inadequate nutrition can prevent an individual from reaching his genetic, potential not only in terms of cognitive development as well.

Current ASD Statistics

Recent estimates are that 1 in 88 children suffer from ASDs, indicating a 78% increase from 2002, and are almost 5 times more common among boys (1 in 54) than girls (1 in 252). The number of children diagnosed with ASD has increased almost tenfold in the last 40 years. Currently, one in every 88 children is diagnosed with ASD. Considering gender, five times more males (one in 54) than females (one in 252) are affected.⁵ These statistics indicate that ASD affects more than 2 million people in the United States and more than 10 million worldwide. In Bangladesh the prevalence is 1 in 500. ASD affects more children than diabetes, AIDS, or cancer combined. The increase in diagnosis may be due to better diagnostic tools.⁶

Nutritional Status Assessment

This can be done by anthropometric measurements, biomarkers, and dietary assessments. Research examining anthropometric measurements reveals an abnormally accelerated rate of growth among children with autism but shows inconsistent findings on the prevalence of overweight/obesity in comparison with typically growing children.⁷ Children with autism have selective eating patterns, food neophobia and limited food likes. Although inadequate micronutrient but adequate macronutrient intakes are increasingly reported, there are inconsistent results about the extent and type of nutrient deficiencies. Identification and development of nutritional assessment indicators that serve as early warning signs during routine practice beginning at birth and extending throughout the child's growth are necessary.⁸

The nutritional status reflects the degree to which physiologic needs for nutrients are being met. Optimal Nutritional status is a balance between intake and body requirement.

Nutritional status in children is most vulnerable during the weaning stages when both macro and micro nutrients may be insufficient to maintain growth and development. Protein energy malnutrition, micro nutrient under nutrition and over nutrition can occur. Nutritional deficiencies in intrauterine life and early childhood affect growth and development, health status, life expectancy and quality of child's life. In addition to nutritional inadequacy children with ASD's have the potential to be obese. In a retrospective review of charts from 1992 to 2003 in children aged 3-18 years with ASD's the prevalence rates of at risk for overweight (BMI \geq 85th percentile) and over weight (BMI \geq 95th percentile) were 35.7 % and 19.0% respectively however children with ASD's in the 12-19 years age range were reported to have 80% and 50% rates of being at risk for overweight.⁹

However, nutritional status depends not only on intake, but also on digestion, absorption, metabolic processing, and metabolic demand. More recently the focus has shifted to the relationship between relative metabolic disturbances and developmental disorders, for example those associated with Attention Deficit Disorder, learning disorders, and intellectual development. We hypothesize that nutritional insufficiency and metabolic imbalances may play a role in autism spectrum disorders (ASD). Research highlights that individuals with ASDs are nutritionally vulnerable because they exhibit a selective or picky eating pattern and sensory sensitivity that predisposes them to restricted intakes.¹⁰ This is further aggravated by dietary restrictions (such as gluten-free or casein-free diets) imposed by parents/caretakers as a therapeutic tool with the goal of improving behavior and/or gastrointestinal symptoms. Whether these individuals present malnutrition similarly or differently or more frequently than

typical individuals is inconclusive.¹¹ Because an individual's nutritional status is a result of complex mechanisms and interactions, a detailed nutritional assessment by a registered dietitian is essential for developing guidelines specific for individuals with ASDs.¹²

Nutrition Therapy and its Role in Preventing Autism

Proper nutrition is a top concern for women who are or planning to become pregnant. Diet and metabolic problems like ability to process, digest or use nutrients, vitamins, minerals or metals may contribute to autism. A number of preventable nutrition related disorders may happen between conception and delivery that cause irreversible neurological damage. Neurological development begins in the fetus and this depends on four factors: maternal nutrition, before, during and after pregnancy and child's nutrition after breast feeding is over. The rapidly ensuring malnutrition is sufficient enough to cause irreversible brain damage in as little as five to ten days.¹³ The prevalence of ASD among adults and children has increased over the last several years. Much more research on the etiology of the disorder and the different ways to treat and manage it has become available. Today there's evidence showing how nutrition therapy can play a significant role in managing various symptoms that prevent ASD patients from living products.¹⁴

Nutritional Factors and ASD

Food chemicals: It's been proven that a fetus is vulnerable to environmental chemicals during development. Examples of chemicals that, in the past, have been shown to harm fetal development include organophosphate insecticides (eg, chlorpyrifos), mercury exposure, and heavy metals.¹⁵

Food Additives: Just as problem-eating behaviors can prevent ASD patients from getting the nutrients they need, so can consistently consuming highly refined foods. Since highly refined foods may contain artificial dyes and preservatives that could be associated with aggravating behavioral symptoms in those with ASD, suggesting the family eat natural, whole foods that may be an important treatment intervention.¹⁶

Food dyes and artificial colors: These additives have been linked to hyperactivity, breathing disorders, skin eruptions, and gastrointestinal symptoms in non-ASD patients. Since many ASD patients already have these symptoms, eliminating foods that contain these substances may be helpful to assess a patient's reaction.¹⁷

High-fructose corn syrup: One of the main concerns with high-fructose corn syrup involves the manufacturing process. Research has found that mercury, one of the environmental toxins that may be responsible for the increased prevalence of ASD, is part of the refining process when making high-fructose corn syrup. Removing it from the diet whenever possible may be a helpful suggestion. A child's physical and psychosocial environment play an interrelated role in the possible causes and triggers of ASD. Such associations can be seen in the high incidence of autism in twins and genetic siblings who have the disorder.¹⁸

Artificial flavorings: Monosodium glutamate (MSG), for example, has been shown to cause headaches, muscle tightness, numbness or tingling, weakness, and flushing in people who are sensitive to it. Because of these known potential side effects, it may be appropriate for ASD patients to avoid MSG as a precautionary measure.¹⁹

Omega-3 fatty acids: Another aspect of ASD treatment involves supplementation with omega-

3 fatty acids, vitamins D and B6, magnesium, and other nutrients. Deficiencies of 2 omega fatty acids namely eicosapentaenoic acid (EPA) and docosahexaenoic (DHA) lead to autism. Therefore, the best strategy may be to start one supplement at a time for several weeks to determine whether there's an improvement in symptoms.²⁰

Multivitamins: Most practitioners who work with ASD patients agree that a good-quality multivitamin without artificial colors or flavors can help offset limited dietary preferences and poor nutritional intake. Finding the right multivitamin will depend on a patient's tolerance.²¹

Preservatives and Artificial sweeteners: Studies have indicated that artificial preservatives may cause sensitive individuals to experience headaches, behavioral/mood changes, or hyperactivity. So removing foods that contain these substances may be beneficial. Aspartame, acesulfame-K, neotame, and saccharin have been known to cause headaches, mood changes, nausea, vomiting, and diarrhea in the general populations.²²

Medications: Some medications can affect appetite and cause nausea, vomiting, constipation, hard stools, diarrhea, esophageal reflux, weight gain or loss, sedation, drooling, and sometimes dysphagia, all of which can compromise nutritional status.²³

Minerals: Another aspect of ASD treatment involves supplementation with multivitamins, vitamins D and B6, magnesium, and other nutrients. Poor nutrition leading to dietary deficiencies of zinc, and or other essential dietary nutrients such as selenium, amino acid methionine can disrupt metabolic processes and impair brain function and neuronal plasticity thus impairing learning.²⁴

Fish and fish products: Exposure to higher levels of mercury from fish led to adverse effects on child cognition. Pregnant women do not need to avoid eating fish but they need to choose varieties of fish with lower mercury concentrations.²⁵

Probiotics and Prebiotics: Parents of autistic children often report that autistic episodes are exacerbated when the children eat certain food stuffs such as dairy products, chocolates, wheat, corn, sugar, apples and bananas.²⁶

Dietary Habit and Autism

By using a 7 days food frequency questionnaire, carbohydrate, protein, fats and fruits & vegetable intake can be assessed, while using a food frequency 24 hours recall of food, different types of food taken at breakfast, midday meal, lunch, evening snack and dinner can be obtained.²⁷

Gluten free Casein free diet (GFCF diet)

It is that diet that eliminates intake of the naturally occurring proteins gluten (found in wheat, barley, rye, oats and casein (Protein found most often in milk and dairy products, butter, cheese)). These proteins often cannot be digested in Autism, so foods like rice flour are recommended.²⁸

Methods for Assessing Nutritional Status

Nutritional assessment by a registered dietitian often includes evaluation across 5 different domains popularly known as the anthropometry, biochemical, clinical, dietary, and environmental approach. Anthropometry is analyzed by Anthro software. Although anthropometry allows the measurement of body size, composition, weight, and proportions, the biochemical assessment involves measuring nutritional markers and indicators of organ function in biological specimens (blood, urine, feces, hair, nails, and tissue samples). The nutrition-focused clinical (also known as physical) exam assesses the patient for signs and symptoms consistent with malnutrition or specific nutrient deficiencies through inspection, palpation, percussion, and auscultation.²⁸ The dietary assessment identifies the patient's usual pattern of intake, food preferences (including ethnic, cultural, and religious influences), and use of alcohol, complementary and alternative medicine, and vitamin/mineral/herbal supplements. Finally, environmental factors such as socioeconomic status, social support systems, lifestyle, and social interactions affect nutritional status and are integral to nutritional assessment. For assessing nutritional status anthropometric,

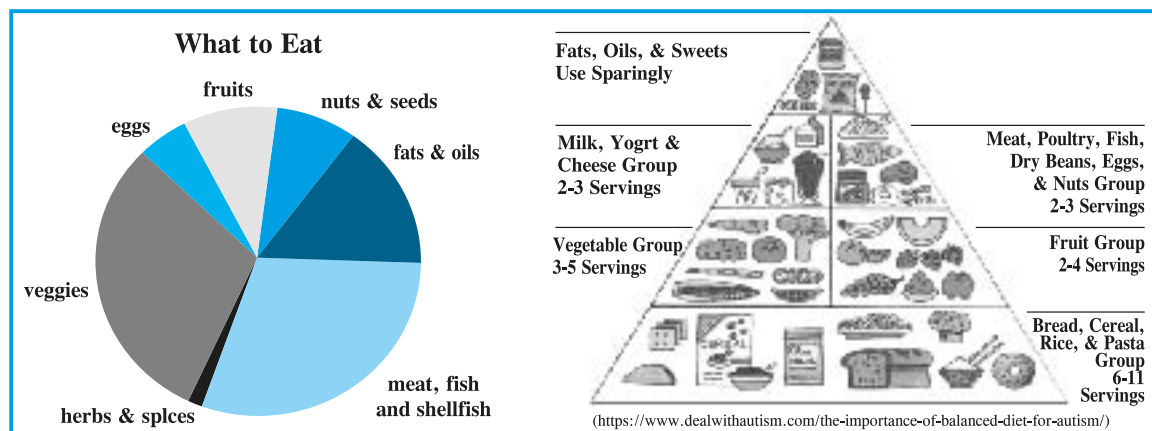


Fig: Food Pyramid recommended for Autistic children.

biochemical, and dietary assessment can be studied.²⁹ Other researchers where a retrospective review of charts from 1992 to 2003 autistic children 3-8 years, the prevalence rates of at risk for overweight (BMI \geq 85th percentile) and overweight (BMI \geq 95th percentile) were 35.7% and 41.9% respectively. Similarly several studies have reported an increased height and / or weight in ASD (van Daalen *et al* 2007, Fukumoto *et al* 2008), which suggests that growth in general population is increased in ASD, which may probably be due to genetic, environmental causes, faulty nutrition and intra uterine infection. This could probably be due to the fact that the prevalence of obesity is increasing worldwide at alarming rate in both developed and developing countries.³⁰

Conclusion

Proper nutrition including vitamins, minerals and essential amino acids are essential for human life. So low levels of these critical nutrients will impair metabolic pathways and may contribute to the developmental delays which occur in autism.

Recommendations

The prevalence of ASD among adults and children has increased over the last several years. Much more research on the etiology of the disorder and the different ways to treat and manage it has become available. Today there's evidence showing how nutrition therapy can play a significant role in managing various symptoms that prevent ASD patients from living products.

Pediatricians should routinely monitor anthropometry as part of evaluation of children with ASD'S. Abnormalities in nutritional status (wasting, stunting) or changes in growth rate

should alert the clinician to inadequate growth and inadequate calorie intake or poor nutritional quality of the diet, malabsorption or maldigestion.

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RUDIMENTARY HUMAN TAIL: A CASE REPORT

Munir Hossain^{1, #}, Sayeda Riya²

ABSTRACT

Human tail is a cosmetic stigma and presents as an appendage in the lumbosacral region. The child born with a caudal appendage resembling a tail generates an unusual amount of interest, excitement, and anxiety. There is something seemingly un human about the presence on a human infant of a "tail" like the tails found on other primates. It raises issues that involve not only teratology and embryology but also our view of ourselves and our place in evolution. It is usually associated with an underlying spina bifida occulta, a form of spinal dysraphism. A contiguous fibrolipoma can sometimes be seen extending from the subcutaneous portion of the tail into the inferior spinal cord, resulting in tethered cord syndrome. Management of such lesions includes complete neurologic examination and magnetic resonance imaging (MRI). Early diagnosis and microsurgical intervention can prevent development or progression of severe neurologic defects in later life.

Key Words: Rudimentary tail, true and false tail, Vestigial organs

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Introduction

Human tails are a rare entity. The birth of a baby with a tail causes psychological disturbance to the parents. They are usually classified as true and pseudo tails.¹ Normally a tail is present on the developing human fetus but usually regresses by the 8th week of development. The true human tail upon birth results from lack of cell destruction of the distal end of the embryonic tail.² These true human tails are composed of adipose tissue, connective tissue, muscle tissue, various nerves and blood vessels and ranging in size from 1 - 75 inch long. Majority have neither cartilage or developed vertebrae. Pseudo tails do not develop from lack of regression of embryonic

tail but rather arise from complications such as in spina bifida, various lesions or due to an elongated parasitic fetus.³ All fetuses develop an embryonic tail that is then signaled for cell death or apoptosis by the inhibition of the wnt 3a gene. The cause for the true human tail is due to the unsuccessful inhibition of the wnt 3a gene during the early stages of human development. The age range of patients varies from 3 days to 2 years. The male female ratio is 2:1. The family history did not reveal occurrence of this tail in among second and third degree relatives. Antenatal history of the mother is uneventful.⁴ There is no movement or contraction of the appendage in case of true

Author's Affiliation

¹Consultant, Paediatrician, Medinova Medical Services Limited, Uttara; ²Professor (cc), Dept of Community Medicine, Tairunnessa Memorial Medical College, Gazipur.

#Address for Correspondence

Dr. Munir Hossain, Consultant Pediatrician, Medinova Medical Services Ltd. Uttara, Dhaka.
E-mail: drmunir11@gmail.com

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tail. In the context of human evolution, human vestigiality involves those traits (such as organs or behaviors) occurring in humans that have lost all or most of their original function through evolution. Although structures called vestigial often appear functionless, a *vestigial* structure may retain lesser functions or develop minor new ones. In some cases, structures once identified as vestigial simply had an unrecognized function.⁵

The examples of human vestigiality are numerous, including the anatomical (such as the human tailbone, wisdom teeth, medial canthus of the eye, the behavioral (goose bumps and palmar grasp reflex, sensory (decreased olfaction). Many human characteristics are also vestigial in other primates and related animals.⁶ Some hold with the theory that the development of an embryo shows the stages of evolution. In other words, what first develops is fishlike, and then like a small mammal, and then like a ape, and then something we would recognize as human.⁷ Very early embryos have what look like little gill slits in the beginning of their development. At about four weeks, embryos have a little tail. At around six to twelve weeks, the white blood cells dissolve the tail, and the fetus develops into an average, tail-less baby most of the time, at least.⁶ Every now and again, we get a little extra bit of baby, in the form of a vestigial tail.⁸

Case Report

We report a case of a 2 weeks old male neonate from Mohakhali, Dhaka, who presented with a cutaneous appendage arising from lumbo sacral region since birth. The neonate was the second child, delivered vaginally.



Figure I: Types of Rudimentary True Human tails.

The mother had no history of illness, radiation exposure or drug intake or history of congenital anomalies in any of family members. On examination a 7.5 cm appendage hanging from mid sacral region that had no spontaneous movement. During palpation of mass, the neonate cried. The diagnosis was established by MRI. Surgical excision was done. Histopathological examination revealed tissue of coetaneous. Follow up of the patient was done. The parents did report any sorts of complication. Neurological examination on follow up revealed no abnormality.



Figure II: Showing the patient's truse rudimentary human tails.

Discussion

A vestigial tail describes a remnant of a structure found in embryonic life or in ancestral forms.⁹ During the 5th to 6th week of intra uterine life the human embryo has a tail with 10-12 vertebrae. By 8 weeks the human tail disappears. The persistent tail probably arises from the distal non vertebrate remnant of the embryonic tail.¹⁰ It contains adipose tissue, connective tissue, central bundles of striated muscle, blood vessels and nerves and is covered by skin. Bone, cartilage, notochord and spinal cord are lacking. It can move and contract and occurs twice in males than females. A true tail is easily removed surgically without residual effects.¹¹ Pseudotails have got superficial resemblance to true tails. They are anomalous

with prolongation of coccygeal vertebrae. Additional lesions found with pseudotails are lipomas, teratomas and gliomas. Human tail usually occurs in lumbosacral region and in some cases cervical region. Teratoma in human tail has also been reported.¹² The preoperative assessment includes a complete clinical examination including neurological examination, plain radiographs of spine and CT scan or MRI. An occult spinal lesion has been reported in 50 % cases.¹³ The human tail is a relatively rare anatomical curiosity. Once a subject of controversy concerning its evolution it remains an intriguing developmental anomaly today.¹⁴ The main clinical importance lies in the distinction of a human tail from more significant sacrococcygeal lesions, such as meningocele, sacrococcygeal glioma, and teratoma. In mice and other vertebrates, the genes that control the development of tails are the *Wnt family member 3A (WNT3A)* and *caudal type homeobox 1* genes; the inhibition of the *WNT3A* gene has been observed to induce apoptosis of the tail cells in mice.¹⁵ Therefore, it is possible that mutations resulting in increased upregulation of the *WNT3A* gene may result in retention of the embryonic tail in human newborns. However, further genetic research on this topic is necessary.

Conclusion

The current case describes a neonate who was found to have a true human tail as evidenced by the absence of bony elements or underlying spinal dysraphism. It is important that clinicians differentiate true tails from pseudotails as the latter entity is associated with underlying spinal lesions. Accordingly, MRI of the spine is crucial as it outlines the underlying pathology and helps in planning surgical options. A true human tail is a benign condition and can be treated via simple surgical excision.

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