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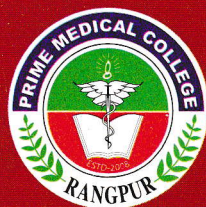
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Informations about Prime Medical College, Rangpur

Prime Medical College is one of the best and largest private medical college in Bangladesh. It was established in 2008. The ideas of establishing this Medical College is to provide standard Medical Education and Health Services to the people at an affordable cost.

The objectives of the institute are :

- | To promote and provide education in Medical Science and to Provide training in different discipline of medicine recognized by the postgraduate institutes and universities.
- | To conduct research work on the diseases prevalent in the country.
- | To conduct research on medical education with the aim of uplifting the quality and standard of medical education in the country.
- | To produce and provide skilled manpower in the medical, nursing and paramedical fields.
- | To provide quality medical care and health services to the people at reasonable cost.

The first and foremost objective of establishment of this medical college is to offer MBBS degree under Rajshahi University of Bangladesh and to provide good quality medical graduates, who can fulfill the need of health care prevailing in the country.

Editorial

Breast Cancer: a hidden cancer epidemic for Bangladeshi women.

Bangladesh is one of the densely populated countries in the world, where the number of female has become more than male in recent years¹. Therefore, the health of women has a great impact on their families and communities². Breast cancer is the second most common cancer in women around the world. The incidence is also rising in women of our country³.

The National Institute of Cancer Research and Hospital (NICRH) is the only hospital that register new cancer cases and according to NICRH during period of 2005- 2010, 5255 breast cancer cases were diagnosed^{4,5}. But In 2012, according to GLOBOCAN estimates 14836 new breast cancer cases were diagnosed and among them 50% women died due to breast cancer. The age standardized incidence rate (ASR) of breast cancer has increased to 21.4 per 100,000³.

According to NICRH the mean age of breast cancer patient was 41.8 years (age range 15- 94 years) and 56% cases were women of reproductive age (15-44 yrs)^{4,5}. Bangladesh, having 45 million women at reproductive age and 13.5 million are over 50 years of age¹. Therefore, this may be the reason of increased ASR of breast cancer of our country.

The risk factors of breast cancer are hormone replacement therapy, late menopause, parity, duration of breast feeding, early menarche and duration of breast feeding etc^{6,7}. However, Bangladeshi women are in safe side due to increase parity, longer duration of breast feeding and older age at menarche. However, due to rapid urbanization scenario might change in near future⁸.

The incidence of breast cancer is rising in

women of South Asian countries, and the number of which has become more than cervical cancer³. However, in Bangladesh, one of the South Asian countries, there is less information available regarding breast cancer. Moreover, for cancer treatment about 120 oncologist are there to provide radiation and medical oncology services⁹. There are only two specialized hospitals for cancer treatment in Bangladesh and 14 oncology units in public teaching hospitals and few private hospitals for all cancer patients of Bangladesh, which is certainly insufficient in the current perspective of breast cancer in our country. For treating all cancer patients of Bangladesh the International Atomic Energy Agency (IAEA) recommended about 300 radiotherapy centers¹⁰.

Currently there is no screening program for early detection of breast cancer in our country. In developing countries mammography screening are practiced for early detection of asymptomatic breast cancer. Though this method has false positive result but it reduces breast cancer mortality by 19% and early detection has crucial impact in overall treatment out comes¹¹. However, due to high cost of mammography National Comprehensive Cancer Network (NCCN) has recommended clinical down-staging program such as screening by Clinical Breast Examination (CBE) and Breast Self Examination (BSE) for developing countries¹². Although there is no evidence on the effect of screening through BSE, practice of BSE is just to empower women, taking responsibility for their own health and in this way raising awareness among the women at risk¹³. Mammography screening, though costly, but it is beneficial for both menopausal women aged 50 years and the women of young age group, aged between 39-49 years¹⁴.

Therefore, we need an organized, systematic Breast screening program in our country to help women of our country in early detection of asymptomatic breast cancer in order to improve breast cancer outcome and increase survival rate.

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Original article

Effect of cotton dust exposure on Peak Expiratory Flow Rate (PEFR) in female cotton dust workers in Rangpur district.

Md. Abul Hasanat¹, Chandra Rani Sarkar², and A.T.M Zoadur Rahim Zahid³

ABSTRACT

BACKGROUND: Exposure to cotton dust in working environment is a major threat to the pulmonary functional status of the workers. In many of the cotton and textile factories, workers are largely exposed to fine cotton dusts. They suffer varying degrees of pulmonary functions impairment. Workers exposed to cotton dust are at risk for occupational pulmonary diseases, which leads to serious irreversible changes in pulmonary functions. **OBJECTIVES:** To observe the effects of cotton dust exposure on Peak Expiratory Flow Rate (PEFR) in female cotton dust workers. **METHODS:** This cross-sectional study was carried out in the Department of Physiology, Rangpur Medical College, Rangpur from July' 2014 to June' 2015. Total 25 apparently healthy non-smoker female workers aged 20-40 years, exposed to cotton dust for at least 6 months, were selected from different fabric weaving and cotton ginning factories of Rangpur district. 25 age & BMI matched apparently healthy female subjects, not exposed to cotton dusts were taken as control. PEFR values of all subjects were recorded by using a digital spirometer. For statistical analysis, unpaired student's 't'-test was performed. **RESULTS:** The mean observed PEFR of cotton dust exposed female workers were significantly lower ($p < 0.001$) than those of control. **CONCLUSION:** From this study it can be concluded that the decline in PEFR of female workers are due to the effects of exposure of cotton dust.

Key words: Cotton dust workers, pulmonary functions, Peak Expiratory Flow Rate.

INTRODUCTION

Occupation is the one in which person not only earn his daily bread but also spend one third of the average adult life. Health hazards due to a particular occupation are yet to gain importance in public health measures¹. Occupational pulmonary diseases are more

widespread and more disabling than any other group of occupational diseases. The lung has extensive surface area, high blood flow and thin alveolar epithelium. It is an important site of contact with the substances present in the environment. Hence, the inhalation of dust over periods of time leads to proliferation and fibrotic changes in lungs². Cotton dust is a colourless, odourless solid. It may contain substances such as: non-cotton matter, bacteria, fungi, pesticides and soil. Workers exposed to cotton dust particles, are in the sizes from 0.1 to 150 microns. The particles more than 10 microns settles down from the air rapidly while smaller particles remain suspended indefinitely. The particles smaller than 5 microns are directly inhaled into lungs and are retained there³.

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The occurrence of respiratory symptoms represents the earliest response to cotton dust exposure, followed by lung function changes⁴. The pulmonary function test (PFT) have opened a new era towards scientific approach in diagnosis, prognosis and management of pulmonary disorders. The normal value ranges for pulmonary function tests (PFT's) are adjusted for the subject's age, height, sex and sometimes race. Pulmonary ventilation can be studied by many pulmonary function tests (PFT's)^{2,5}.

Rationale:

There is consistent evidence from epidemiologic studies that never smoker can also develop chronic airflow limitation, despite smoking is the most commonly studied risk factor for variable airflow limitation. Occupational exposure to organic dusts (cotton dust) is considered as an unappreciated risk factor for pulmonary function impairment. A few studies have been conducted in cotton ginning & weaving factory in our country and enough emphasis has not been given on the epidemiological aspects of chronic airflow limitation among the workers of those factories. The results of this study may be helpful for increasing awareness about adverse pulmonary effects of cotton dust and it will help to reduce morbidity & mortality of workers dealing with cotton in different forms. The present study was undertaken to evaluate and compare dynamic pulmonary function i.e. PEFR among subjects exposed to cotton dust with those who are not exposed to it.

METHODS

This cross-sectional study was conducted in the Department of Physiology, Rangpur Medical College, Rangpur from July 2014 to June' 2015. Total 25 apparently healthy non-smoker female workers exposed to cotton dust (CD-EW) for at least 6 months, age ranged 20-40 years, were taken as study group. They were selected from different fabric weaving and cotton ginning factories of Rangpur district. Another 25 apparently healthy, age and BMI matched female cotton dust non-exposed workers (CD-NEW) were also included as control for comparison. All the

subjects belonged to lower socioeconomic status. After selection of the subjects the objective, perspective, benefits and risk of this study were briefed in detail to the study subjects. An informed written consent was taken from all the participants. Ethical committee and thesis protocol review committee of Rangpur Medical College approved the study protocol. A detailed medical and family history of all subjects was recorded in a preformed questionnaire. Thorough physical examination of study subjects were done and documented. Subjects with clinical abnormalities of the neuromuscular diseases, known case of Diabetes mellitus, Hypertension, Pulmonary TB, Bronchial Asthma, COPD and malignancy were excluded from the study. Obesity, Pregnancy, Subjects with chest deformities were also excluded from the study. Height and weight of each subjects was measured for calculation of BMI. PEFR values of all subjects were recorded by using a digital spirometer. For statistical analysis, unpaired 't'-test was performed by SPSS version 17 for windows. p value <0.05 was considered as significant.

RESULTS

Demographic data of all subjects are presented in Table I.

Mean (\pm SD) percentage of predicted value were 81.48 ± 7.315 L/sec in Cotton dust non-exposed workers, 54.16 ± 10.403 L/sec in Cotton dust exposed workers and the difference was statistically ($p < 0.001$) significant (Table II).

Table I: Age and BMI in both groups (N=50).

| Parameters | CD-NEW (n=25) | CD-EW (n=25) |
|-------------------------|---------------------|---------------------|
| Age (Years) | 30.12 ± 5.11794 | 30.36 ± 3.63868 |
| BMI (Kg/m^2) | 23.74 ± 1.42143 | 23.06 ± 1.77672 |

Data are expressed as mean \pm SD. Statistical analysis was done by unpaired student's 't' test

n=Total number of subjects. CD-EW= Cotton dust exposed workers, CD-NEW= Cotton dust non-exposed workers.

Table II: Mean percentage of predicted value of PEFR in both groups (N=50)

| Parameters | CD-NEW (n=25) | CD-EW (n=25) |
|--------------|-------------------|-----------------------|
| PEFR (L/sec) | 81.48 \pm 7.315 | 54.16 \pm 10.403*** |

Data are expressed as mean \pm SD. Statistical analysis was done by unpaired student's 't' test.

N=Total number of subjects. n= number of subjects in respective group.

CD-EW= Cotton dust exposed workers

CD-NEW= Cotton dust non-exposed workers

***= P<0.001.

The mean (\pm SD) measured PEFR in cotton dust exposed workers (CD-EW) was 2.91 \pm 1.06021 L/sec and in cotton dust non exposed workers (CD-NEW) was 4.59 \pm 1.24582 L/sec. The difference was significantly lower (p<0.001) in cotton dust exposed workers than cotton dust non exposed workers (Table III).

Table III: The mean observed PEFR value in both groups (n=50).

| Parameter | CD-NEW (n=25) | CD-EW (n=25) |
|-----------------|--------------------|-----------------------|
| PEFR (L/sec) | 4.59 \pm 1.24582 | 2.91 \pm 1.06021*** |

Data are expressed as mean \pm SD. Statistical analysis was done by unpaired student's 't' test.

n=Total number of subjects. n= number of subjects in respective group.

CD-EW= Cotton dust exposed workers

CD-NEW= Cotton dust non-exposed workers

***= P<0.001.

DISCUSSION

In our study mean percentage of predicted value of Peak Expiratory Flow Rate (PEFR) was significantly lower (p<0.001) as compared to unexposed controls. The result was supported by many other researchers, who also got similar findings^{2,3&6-11}. It has been observed that prolong exposure to cotton dust causes accumulation of dust particles in peribronchial lymphoid and connective tissues along with varying degrees of wall thickening and remodeling in terminal and respiratory bronchioles. Bronchiolar walls with marked

thickening are associated with increase in collagen and interstitial inflammatory cells including dust-laden macrophages^{1,2}. Moreover workplace exposure to organic dust (cotton dust) cause respiratory inflammation and thereby leads to ventilatory dysfunction¹². In addition to these, cotton dust induces histamine release or immunological reaction mediated by endotoxin. Histamine also causes increase airway mucus secretion. Irritation of mucosal cells, increased mucous secretion and formation of mucosal plugs cleads to obstruction to air passage and decreased PEFR. Moreover, cotton dust contains Gram-negative bacterial endotoxin, which is a possible causative agent of respiratory symptoms and pulmonary functional loss (decrease) among workers exposed to cotton dust^{3,13,14}.

CONCLUSION

Therefore from this study, it may be concluded that the continued exposure to cotton dust cause impairment of lung function and adversely affect the parameter like PEFR value.

LIMITATIONS

There are some limitations in our study. First, dust concentration & composition measurements were not performed because of technical & financial inabilities. So, we could not document the level of exposure. Moreover, we could not measure the eosinophil count & IgE level in blood to exclude atopy. In addition we had limited number of workers in our study.

RECOMMENDATIONS

The following recommendations were suggested for controlling the pulmonary health hazards caused by cotton dust at work places.

1. Periodic health surveillance to be made essential
2. Effective dust control measures to be

adopted

3. Awareness to be created among the proprietors and the workers

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Conflict of interest: None

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Original article

Cytomorphological pattern of breast lump FNAC: A Study on 100 cases at a tertiary care hospital in Rangpur.

Asma Ul Hosna¹, Shahina Akther², Tammana-e-Nur³, Muhammed Imran Uddin⁴, Sultana Tahmina Haq⁵, Afroz Shirin⁶

ABSTRACT

BACKGROUND: The incidence and mortality of Breast Cancer in Bangladesh are increasing at alarming rate and already reached an unexpected level. Fine needle aspiration cytology (FNAC) is an inexpensive, simple and highly accurate means of diagnosing both benign and malignant breast lesions. **OBJECTIVE:** The objective of this study was to observed the various cytomorphological patterns of breast lumps among the individual attending the Department of Pathology at Prime Medical College Hospital, Rangpur. **METHODS:** This was a retrospective study conducted from 1st January 2013 to June 2014. 100 patients presenting with breast lump who were advised for FNAC, were included in this study. FNAC was performed and the smears were also categorized into neoplastic and non-neoplastic lesions and neoplastic lesions were further categorized into benign and malignant lesions. Numbers of benign and malignant lesions in various age groups were also observed. **RESULTS:** Out of 100 cases Neoplastic lesions accounted for 70 cases. Among neoplastic lesion Ductal carcinoma was the most common malignant lesions 55 cases. All malignant lesions were observed in older age between 41-50 years. **CONCLUSION:** From this study it can be concluded that FNAC is a simple and reliable method for diagnosis of both benign and malignant lesions of breast. Though it cannot categorize the lesion in some cases but it can rule out malignancy in most of the cases. Sometimes further histopathological study is needed to confirm the accuracy of FNAC in the diagnosis of breast lesion.

KEY BOARD: Breast lump, FNAC, Fibroadenoma, Ductal carcinoma.

INTRODUCTION

The incidence of breast cancer is increasing in alarming rate. It has been estimated in South

Asia like India, Bangladesh, Nepal, Myanmar, Pakistan, and Tibet etc. 76,000 women die of breast cancer in a year¹. Although there is no national cancer registry in Bangladesh but it was estimated that 30,000 women died for breast cancer. It is holding 2nd position in the world among 100 different types of cancer. Bangladesh stays at top rank for breast cancer in South Asian countries². Again in United States Breast cancer is the leading cause of morbidity and mortality among women, and the second most common cause of cancer death^{3,4}. Increase in number of breast cancer cases are related to late marriage, birth of child in the later age, shorter period of breast feeding and null parity or low parity. Clinically, the diseases of breast usually present with lump in breast or nipple discharge. Mass in breast, whether benign or malignant is a cause of anxiety to the patient & her family members.

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FNAC of breast lumps is an important part of triple assessment (clinical examination, imaging, and FNAC). A variety of inflammatory lesions can be seen in breast. Some of them are as a result of infectious agents while others do not have well understood etiology. Tuberculosis of the breast occurs very rarely. It is documented that only 3-4.5% tuberculosis has been observed in developing countries like India⁵. Due to increasing awareness, there has been a recent increase in the number of fine needle aspiration cytology (FNAC) of breast. Triple test has good sensitivity and specificity in the evaluation of breast lumps^{6,7}. The primary goal of aspiration cytology is to separate from benign to malignant lesions. Benign lesions of the breast lump include inflammatory lesions, epithelial and stromal proliferative lesions and neoplasms. The incidence of benign breast diseases begins to rise in the second decade and peaks in the fourth and fifth decade of life⁸. Among the benign lesion proliferative breast disease without atypia and with atypia confers mild and moderate risk respectively, whereas carcinoma in situ is associated with substantial risk if untreated⁹. Other diagnostic tool includes core needle biopsy. There are different preoperative diagnostic modalities for breast pathology. FNAC is sensitive, simple, cost-effective, less traumatic and rapid method. FNAC may be used for palpable or non-palpable benign or malignant breast lesions. Palpable lesions may be either solid or cystic and non-palpable lesions are detected by radio imaging study⁵. Like other South Asian countries, breast cancer is the most common malignancy among women in Bangladesh¹⁰. Unlike women in high-income countries, more women in South Asian countries (including Bangladesh) are diagnosed with breast cancer

before menopause¹¹. A very few study has been conducted regarding FNAC in Bangladesh. The objective of this study was to find out the various cytomorphological patterns of breast lumps among the individual attending the Department of pathology at Prime Medical College Hospital, Rangpur.

METHODS

This Retrospective study was conducted at Prime Medical College Hospital, Rangpur, from 1st January 2013 to June 2014. The study was conducted after approval from the ethical review committee of Prime Medical College. For this total 100 patients presenting with breast lump who were advised for FNAC, were included in this study. FNAC was performed with 21 gage needle as per the standard guideline. Five Smears were made and stained with Pap stain as per the standard guidelines. Smears were also categorized into neoplastic and non-neoplastic lesions and neoplastic lesions were further categorized into benign and malignant lesions. Number of benign and malignant lesions in various age groups was also observed. All data were inserted in to SPSS 17 software and were analyzed.

RESULTS

The most common age group affected in our study was 31-40 years. Table I show detailed age distribution of neoplastic and non-neoplastic lesion among 100 cases. Among 100 cases 70 cases were neoplastic and 30 cases were non-neoplastic. Among the neoplastic lesion most of the cases were malignant 55 and 15 cases were benign. Most of the malignant lesion was in 41-50 years age group. Among non-neoplastic lesion most of the cases were in the age group 31-40 years.

Table I: Distribution of Neoplastic and Non neoplastic cases according to age (n=100).

| Age (Years) | Non-neoplastic Lesion (n=30) | Neoplastic lesion (n=70) | |
|-----------------------|----------------------------------|--------------------------|-----------|
| | | Benign | Malignant |
| 0 – 10 | 0 | 0 | 0 |
| 11 – 20 | 1 | 1 | 0 |
| 21 – 30 | 10 | 10 | 7 |
| 31 – 40 | 13 | 4 | 14 |
| 41 – 50 | 6 | 0 | 21 |
| 51 – 60 | 0 | 0 | 8 |
| 61 – 70 | 0 | 0 | 4 |
| 71 – 80 | 0 | 0 | 1 |
| Total (n) =100 | 30 | 15 | 55 |

Among the 100 cases left breast was involved in 55 cases and right breast was involved 40 cases. Bilateral involvement was in 5 cases. (Figure 1) Showed the site of involvement among 100 cases.

Among the clinical features 100% cases presented with the breast lump. Among neoplastic cases most of the malignant 47% cases presented with hard lump and most of the benign 23% cases presented with mobile lump. Among neoplastic lesion 15 cases presented with nipple retraction and 5 cases presented with axillary lymphadenopathy. Among non-neoplastic lesion most of the cases 30% presented with mobile lump, 22% cases presented with pain, 8% cases presented with nipple discharge. Table II showed detailed signs and symptoms of 100 cases.

Table II: Distribution of neoplastic and non-neoplastic lesion according to sign and symptom in 100 Cases.

| Sign and Symptom | Non-neoplastic | Neoplastic |
|--------------------------|----------------|------------|
| Lump | 30 | 70 |
| Pain | 22 | 8 |
| Hard Lump | 0 | 47 |
| Mobile Lump | 30 | 23 |
| Nipple discharge | 08 | 00 |
| Nipple retraction | 0 | 15 |
| Fever | 8 | 05 |
| Axillary Lymphadenopathy | 0 | 05 |

According to FNAC category different neoplastic and non-neoplastic lesion were identified. Non-neoplastic lesions accounted for (30%) and neoplastic lesions consisted of (70%). The prevalence of various non-neoplastic and neoplastic categories is shown in Table III and Table IV respectively. Non-neoplastic cases observed in this study were chronic non-specific mastitis (n=5), chronic granulomatous mastitis (n=6), epidermoid cyst (n=1), benign cystic lesion (n=2), fat necrosis (n=1), mammary duct ectasia (n=1), fibrocystic change (n=6), fibrocystic change with epithelial hyperplasia (n=14), atypical epithelial hyperplasia (n=4). Among non-neoplastic lesion most 46.6% cases was fibrocystic changes with epithelial hyperplasia.

Table III: Distribution of FNAC pattern among non-neoplastic lesion (n=30).

| FNAC diagnosis | No of cases | Percentage |
|------------------------------------------------|-------------|-------------|
| Chronic nonspecific mastitis | 5 | 16.6% |
| Chronic Granulomatous mastitis | 6 | 20% |
| Epidermoid cyst | 1 | 3.3% |
| Benign cystic lesion | 2 | 6.6% |
| Fat Necrosis | 1 | 3.3% |
| Mammary duct ectasia | 1 | 3.3% |
| Fibrocystic change | 6 | 20% |
| Fibrocystic change with epithelial hyperplasia | 14 | 46.6% |
| Atypical epithelial hyperplasia | 4 | 13.3% |
| (Total) | 30 | 100% |

Similarly the neoplastic cases observed in this study were fibroadenoma (n=15) ductal carcinoma (n=50), ductal carcinoma with lymphnode metastasis (n=5). Among neoplastic lesion the most common lesion was ductal carcinoma 55 (71.43%).

Table IV : Distribution of FNAC diagnosis among neoplastic lesion (n=70).

| FNAC diagnosis | No of cases | Percentage (%) |
|--------------------------------------------|-------------|----------------|
| Fibroadenoma | 15 | 21.43% |
| Ductal carcinoma | 50 | 71.43% |
| Ductal carcinoma with lymphnode metastasis | 5 | 7.14% |
| Total | 70 | 100% |

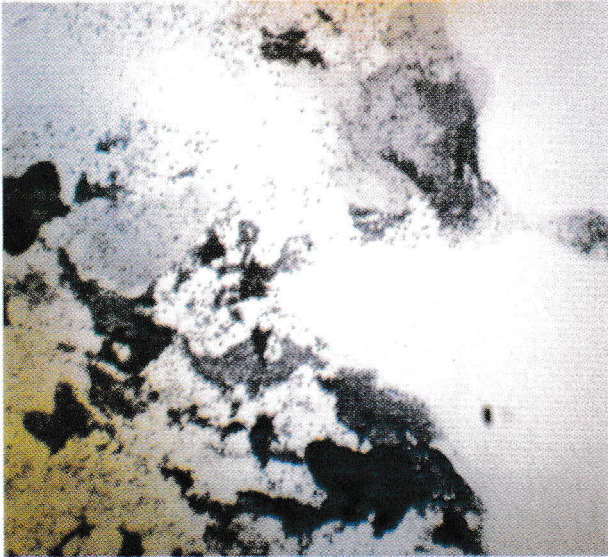


Figure 1: Photomicrograph of hypercellular smear with monolayered sheets of ductal cells and stromal fragments in fibroadenoma, Pap, 10x

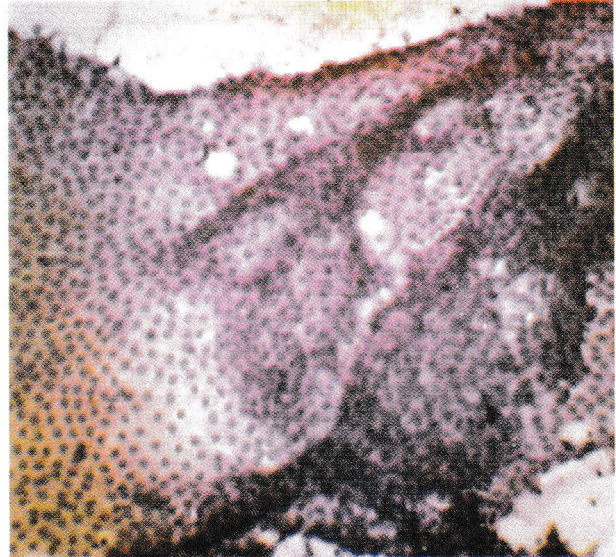


Figure 2: Photomicrograph showing monolayer sheets of duct cell in epithelial hyperplasia, Pap, 10x.



Figure 3: Photomicrograph of apocrine cells with granular Cytoplasm in fibrocystic change Pap, 40x.

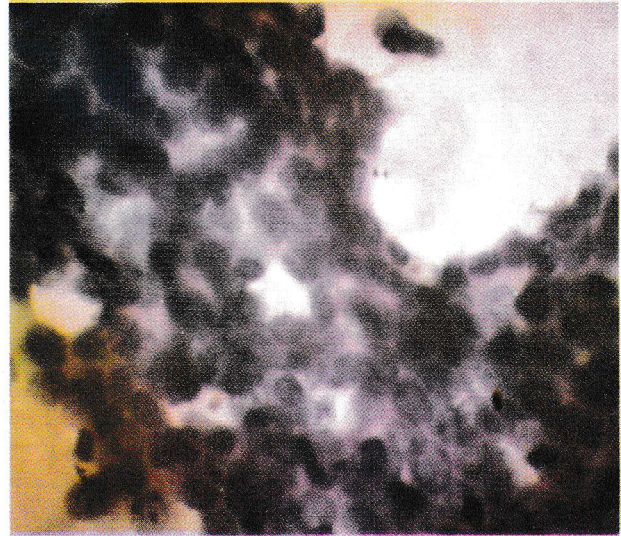


Figure 4: Photomicrograph shhets of duct cell with cytologic atypia in atypical epithelial hyperplasia, Pap, 10x.

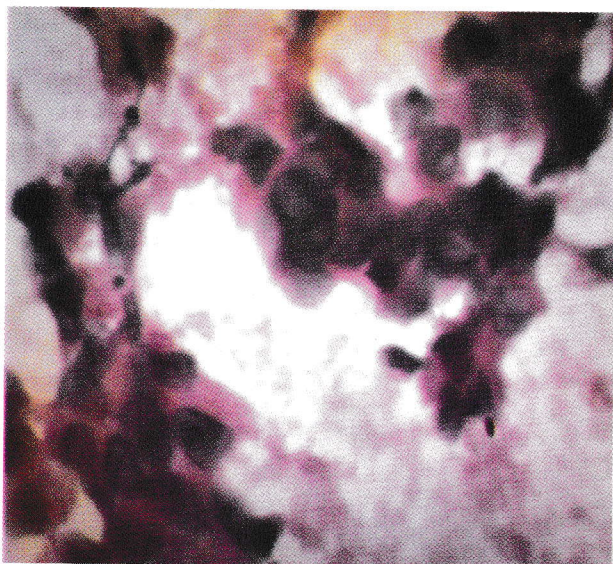


Figure 5: Photomicrograph of malignant duct epithelial cell with hyperchromatic nuclei having abundant cytoplasm with prominent nucleoli in ductal carcinoma, Pap, 40x.

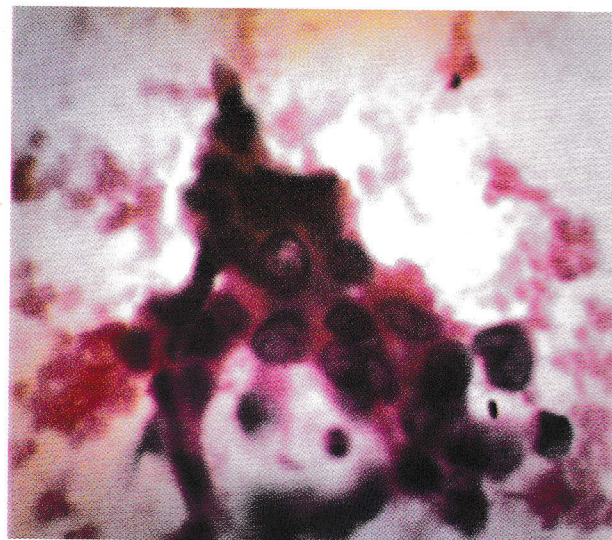


Figure 6: Photomicrograph of malignant duct epithelial cell having hyperchromatic nuclei abundant cytoplasm with prominent nucleoli in ductal carcinoma, Pap, 40x.

DISCUSSION

Lump in the breast can be benign and malignant. Different studies have shown that the most common lesions are benign and needs only reassurance^{12,13,14}. Therefore early diagnosis of breast lesions and categorization into different groups of breast pathology is important. This can be helpful in accurate management of breast cancer patients. Thereby, to prevent patient discomfort and anxiety^{15,16}. Breast lump is a common clinical presentation for which a cytological study is often sought. It is a necessary diagnostic tool and adjunct to the clinical examination. Cytological (FNAC) study has further many advantages including easiness, cost effectiveness and accuracy^{17,18}. In our study breast lump as a clinical presentation was found in 100 cases. Similar observations were made by other authors^{14,19,20}. In our study most (70%) of the breast lumps were neoplastic in origin which was similar to the other study¹⁸. In present study among benign lesion fibroadenoma is the commonest benign lesion. Majority of the patients of fibroadenoma in our study were in the 2nd and 3rd decade of their life. This result was consistent with others who observed that fibroadenoma occurs before the age of 25.

Inflammatory lesions in our study were 22. Several studies also found similar findings^{21,23}. Chronic granulomatous mastitis in our study were 6 which was in accordance with other studies^{22,23}. Ductal carcinoma was the most common type of malignant breast lesion (55/70 cases; 78.57%) which was also found by others^{14,24}. Many study also reported that invasive ductal carcinoma is the commonest breast malignancy and found in the age group of 41-60 years of age^{14,20,24}. The present study shows similar findings, the ductal carcinoma being the most common breast malignancy in the age group of 41-50 year of age. Regarding clinical features all the patients presented with lump in the breast. Among neoplastic lesion most 47 cases presented with hard lump, and 15 cases presented with nipple retraction. Nipple discharge was observed in 8 cases of chronic nonspecific mastitis and mammary duct ectasia. Axillary lymphadenopathy was observed in 5 patients who were subsequently diagnosed as ductal carcinoma with lymphnode metastasis on FNAC. Similar findings were correlate by others¹⁹. This study has highlighted the several potential benefits of the breast FNAC. Due to its feasibility, FNAC has become the first diagnostic tool in the investigation of a breast lump. Success of

FNAC is contingent upon several important contributing factors like aspirator's experience, skillful cytological interpretation and a rational analysis based upon correlation of cytological and clinical information of the patient.

CONCLUSION

From this study it can be concluded that FNAC is a simple and reliable method for diagnosis of both benign and malignant lesions of breast. Though it cannot categorize the lesion in some cases but it can rule out malignancy in most of the cases. Sometimes further histopathological study is needed to confirm the accuracy of FNAC in the diagnosis of breast lesion.

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Original article

Study of insertion of human umbilical cord and branching patterns of umbilical vessels in pregnancy complicated with hypertension.

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ABSTRACT

CONTEXT: Clinically the adverse effects of hypertensive pregnancy are well established. Hypertensive pregnancies changes morphological structures of umbilical cord which produce fetal and maternal complications. The present study was done to see insertion of umbilical cord & branching patterns of umbilical vessels in pregnancies complicated with hypertension. This cross sectional study with some analytical components was done in Department of Anatomy, Rangpur Medical College, Rangpur from July 2014 to June 2015. **MATERIALS AND METHOD:** The study was carried out on 60 (sixty) human umbilical cord with placenta, 30 from normotensive mothers (control group) and 30 from hypertensive mothers (hypertensive group). The umbilical cords were selected from obstetric ward of gynaecology and obstetrics Department, Rangpur Medical College Hospital, Rangpur after taking written permission. This study was done Umbilical cords with placenta were collected in a fresh state in each group using standard procedure. Insertion of umbilical cord was noted by proper inspection. Branching patterns of umbilical vessels was noted and classified as disperse type and magistral type. Statistical significance of difference between two groups was calculated by Chi Square test as applicable. The difference was regarded statistically significant if the p- value is equal to or less than 0.05. **RESULT:** The site of insertion of the umbilical cords in case of hypertensive group was central (3.33%), eccentric (83.33%), marginal (10%) and velamentous (3.33%). Branching pattern of umbilical vessels were disperse (66.69%) and magistral (33.33%) in hypertensive group. **CONCLUSION:** Our study revealed that fetal weight was reduced in marginal and velamentous insertion. Early detection and intervention can improve pregnancy outcome.

KEY WORDS: Umbilical cord, hypertension, eclampsia, pre-eclampsia, placenta, Complicated pregnancy.

INTRODUCTION

The umbilical cord also referred to as Funiculus umbilicalis or birth cord, perhaps,

the only organ of the fetus that dies when life begins. It is structurally and functionally simple, yet it is the fetal 'lifeline' connecting placenta to the fetus for the supply of oxygen, nutrients and transfer of waste materials, that necessary for the growth and development of the foetus¹.

It has an organ-like property. Fetal well-being depends much on normal function and structure of the umbilical cord. Umbilical cord should be important aspects to be considered in understanding fetomaternal functional relationship and related clinical conditions².

Mode of insertion of the umbilical cord may be four types- 1. Central. 2. Marginal 3. Eccentric 4. Velamentous³. Marginal and velamentous

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insertions are more common in hypertensive pregnancies, resulting in low birth weight babies^{4, 5}, IUGR and IUD⁶.

Central and eccentric insertions account for more than 90% of cord insertions and have no clinical importance, while marginal insertion may be more susceptible to vessel rupture and has been associated with intra uterine growth restriction, still birth and neonatal death⁷.

Studies have shown an association between marginal cord insertion and increased incidence of congenital malformation⁸, neonatal asphyxia, and preterm labour⁹ while others did not find an increased incidence of above complications with marginal cord insertion¹⁰.

In velamentous insertion umbilical cord runs in the membranes which is unsupported by the placenta before the cord becomes inserted onto the placental fetal surface. Therefore the unprotected umbilical vessels will travel a certain distance before passing onto the placental surface. These membranous vessels are prone to compression, thrombosis, rupture, and haemorrhage especially if vessels are traversing across the cervical os and are ruptured with membranes during delivery, resulting into fetal morbidity and mortality (vasa praevia)^{9,11}.

The umbilical cord must carry 70 quarts of blood per day, moving at 4 miles an hour and act as an assist pump to the fetal heart¹². Two umbilical arteries that passes through umbilical cord, carries de-oxygenated blood from fetus to placenta. When they reach the fetal surface of the placenta, these vessels divided into many branches which enter the chorionic villi. Branching pattern may be two types:-

1. Disperse type. 2. Magistral type¹³

Hypertension in pregnancy reflected on umbilical cord and placenta. Their examination after delivery gives an accurate record of the infant prenatal experiences and provides

information that may be important to care of both mother and the infant¹⁴. Examination of umbilical cord and placenta showed marginal insertion and velamentous insertion and magistral type of umbilical vessels distribution¹⁵. These findings can be diagnosed during antenatal check up by available techniques like Ultrasonography and Colour Doppler¹⁴ to improve fetal outcome and reduce perinatal morbidity and mortality¹⁶. This study reveals the changes in umbilical cord structure associated with hypertensive disorders in pregnancy in northern region of Bangladesh

MATERIALS AND METHODS

This cross- sectional prospective type of study was carried out on 60 (sixty) human umbilical cords and placenta. Out of the 60 umbilical cords and placenta 30 were collected from normotensive mothers of uncomplicated pregnancies (control group) and 30 from mothers with hypertensive disorders of pregnancy (hypertensive group). Ethical clearance was taken from the Ethical Board of Rangpur Medical College. The umbilical cords were collected from Gynecology and Obstetrics Department, Rangpur Medical College Hospital, Rangpur after taking written permission. Umbilical cords of both normal vaginal and caesarian delivery were included. All samples were collected from singleton live pregnancy. Gestational period was between 35-42 weeks and maternal age within 20-45 years. An inclusion criterion for control group was umbilical cord and placenta derived from mothers having blood pressure less than 140/90 mmHg. Inclusion criteria for hypertensive disorders group was umbilical cord and placenta derived from mothers having blood pressure 140/90 mmHg and above.

Types of hypertensive group are-1. Hypertension. 2. Chronic hypertension. 3. Gestational hypertension. 4. Pre-eclampsia. 5. Eclampsia. 6. HELLP Syndrome¹⁷.

Common exclusion criteria were umbilical

cord delivered from mothers with Rh negative blood group, VDRL positive, HBsAg positive, Presence of any other known systemic pathology (diabetes mellitus, CLD, CVD, CKD and hematological disorders), Congenital anomalies of the baby.

The samples were collected immediately after delivery and were examined for completeness in recent state. Immediately after collection, placenta with the umbilical cord was placed on a tray. After then umbilical cord was cut 2 cm from the site of insertion. Then the placenta was mobbed and dried with dry cotton pad and blotting papers very gently. The minimum distance between site of insertion and margin of placenta was detected.

Site of insertion of umbilical cord:

The attachment of the umbilical cord to the placenta is usually near the center of the fetal surface of this organ, but it may attach at any point.

Central insertion is defined as the umbilical cord attached to placenta in its central in position. (Figure 1)

Eccentric insertion is defined as the umbilical cord attached to placenta in between center and margin of placenta. (Figure 1)

Marginal insertion is defined as the umbilical cord attached to placenta in its margin. (Figure 2)

Velamentous insertion is defined as the umbilical cord attached to amnion³. (Figure 2)

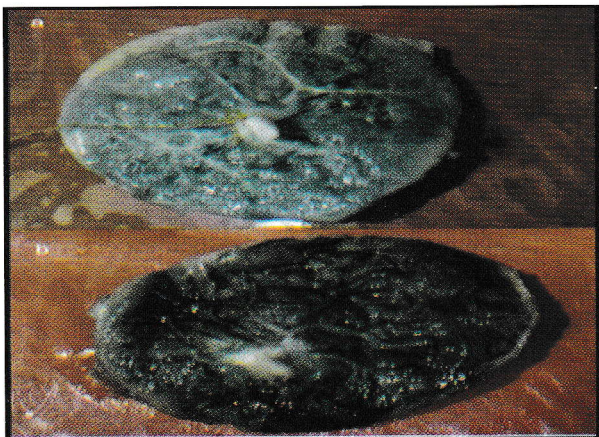


Figure 1: Photograph showing type of insertion of cord (a) Central (b) Eccentric

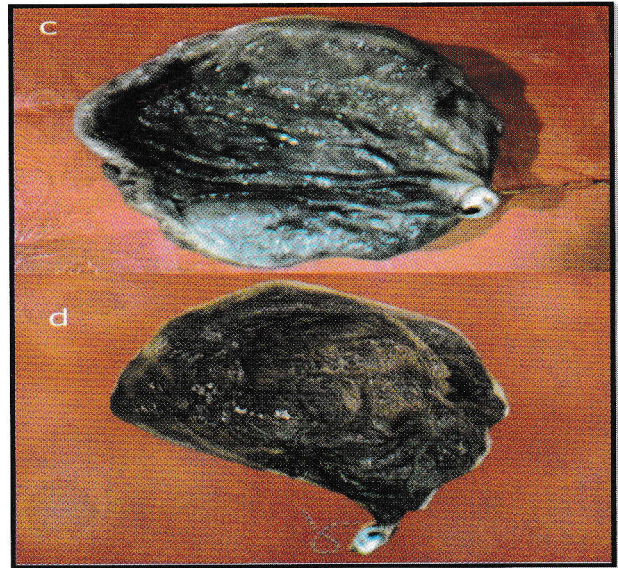


Figure 2: Photograph showing type of insertion of cord (c) Marginal, (d) Velamentous

Branching pattern of umbilical vessels:

Two types of branching pattern of umbilical vessels were found:

1) Disperse type- umbilical arteries undergo a succession of dichotomous divisions and rapidly diminish its caliber. (Figure 3)

2) Magistral type- Arteries give off small side branches and reach the placental margin before marked reduction in their size¹³. (Figure 4)



Figure 3: Photograph showing disperse type of distribution



Figure 4: Photograph showing magistral type of distribution

RESULT

Table I shows the site of insertion of umbilical cord in placentae in both hypertensive and control groups. The common site of insertion of umbilical cord in both groups was eccentric. Central insertion was found in 13 cases (43.33%) in the control group as compared to only 1 case (3.33%) placentae in the hypertensive group.

Whereas eccentric insertion was found in 25 cases (83.33%) in the hypertensive group, it was found in 16 cases (53%) in the control group. Marginal insertion was also more common 3 cases (10%) in hypertensive group as compared to 1 case (3.33%) in the control group. No case of velamentous insertion was found in the control group as compared to 3.33% cases of velamentous insertion in hypertensive group. The differences between the two groups regarding types of umbilical cord insertion were statically significant by applying chi- square test.

Table II Shows distribution of weight of the baby in different types of insertion of umbilical cord in 4 categories of hypertensive groups of the present study. It was found that fetal weight was reduced in marginal and velamentous insertion.

Figure 5 and Figure 6 shows the distribution of site of insertion of umbilical cord in two groups. The highest proportion of site of insertion of umbilical cord that were eccentric in 25 (83.33%) in hypertensive and 16 (53%) in control group.

Table I: Site of insertion of umbilical cord to placenta in control and hypertensive group (N=60)

| Site of insertion | Groups | | p value |
|---------------------------|----------------|---------------------|---------|
| | Control (n=30) | Hypertensive (n=30) | |
| Central | 43.33% (13) | 3.33% (01) | 0.046* |
| Eccentric | 53% (16) | 83.33% (25) | |
| Marginal | 3.33% (01) | 10% (03) | |
| Velamentous or Membranous | 0% | 3.33% (01) | |

Results are shown as proportions of cases

Chi- square test was done

N= total

n= no

*= Significant at $p < 0.05$

Table 2: Distribution of baby weight in relation to the site of insertion of umbilical cord in control group and hypertensive group (n=30 in each group).

| Type of insertion | Mean birth weight in kg | | | | |
|-------------------|-------------------------|--------------|---------|---------|-------------|
| | Control (30) | Gest.HTN (8) | PE (10) | Ec (7) | Chr.HTN (5) |
| Central | 2.95 | 3 | No case | No case | No case |
| Eccentric | 3.05 | 2.32 | 2.26 | 2.24 | 2.24 |
| Marginal | 3.00 | 2.20 | 2.00 | 1.50 | No case |
| Velamentous | No case | No case | No case | 2.50 | No case |

Ges. HTN: Gestational hypertension
 PE: Preeclampsia
 Ec: Eclampsia
 Chr. HTN: Chronic hypertension.

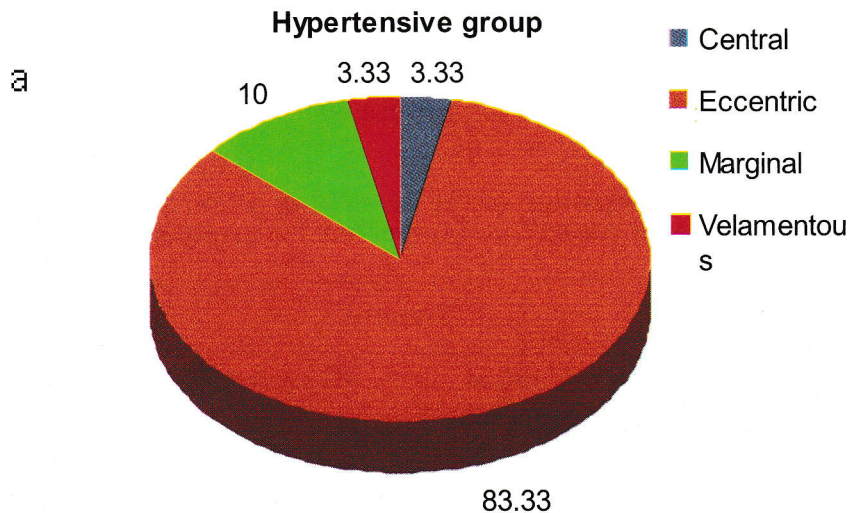


Figure 5: Distribution of different types of site of insertion of umbilical cord in hypertensive groups.

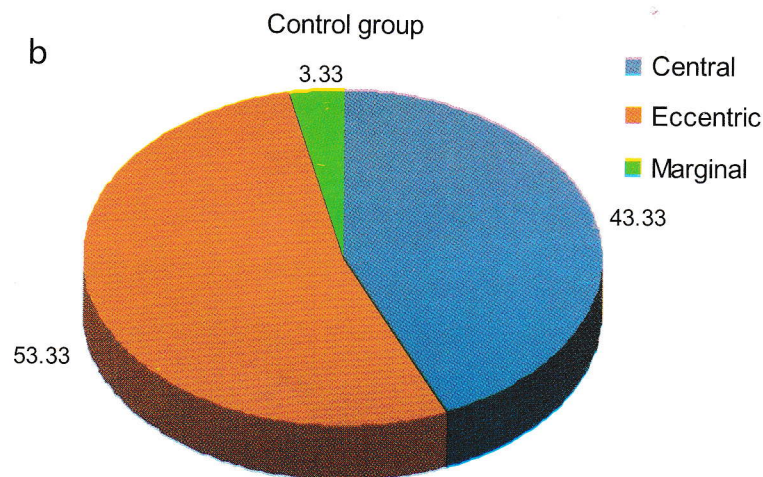


Figure 6: Distribution of different types of site of insertion of umbilical cord in control groups Branching patterns of umbilical vessels

Table III shows the branching pattern of blood vessels of umbilical cord in hypertensive and control groups. In hypertensive group, disperse type branching pattern was found in 66.67% placentae and magistral type distribution was found in 33.33% placentae that was statistically significant. In control group, only disperse type (100%) of branching pattern was found.

Table IV Shows distribution of branching pattern of umbilical vessels and baby weight in control group and different type of hypertensive group. It was found that baby weight was increased in magistral type distribution in all types of hypertensive than the disperse type.

Table III: Distribution of the branching pattern of umbilical vessels in control and hypertensive group (N=60).

| Distribution of branching pattern of Umbilical vessels | Groups | | p value |
|--------------------------------------------------------|----------------|---------------------|---------|
| | Control (n=30) | Hypertensive (n=30) | |
| Disperse type | 100% (30) | 66.67%(20) | 0.007* |
| Magistral type | 0% (0) | 33.33% (10) | |

Results are shown as proportions of cases

Chi- square test was done

N= total

n= no

*= Significant at $p < 0.05$

Table IV: Distribution of baby weight in relation to the branching pattern of umbilical vessels in control group and hypertensive group(n=30 in each group).

| Mean birth weight in kg | | | | | |
|-------------------------|-------------|-------------|--------|-------|------------|
| | Control(30) | Gest.HTN(8) | PE(10) | Ec(7) | Chr.htn(5) |
| Disperse | 3 | 2 | 2.46 | 2.37 | 1.67 |
| Magistral | No Case | 2.4 | 2.67 | 2.5 | 2.33 |

Ges.HTN: Gestational hypertension

PE: Preeclampsia

Ec: Eclampsia

Chr.htn: Chronic hypertyension.

DISCUSSION

Present study found central insertion in 43.33%, eccentric in 53% and marginal in 3.33% in our control group. There was no case of velamentous insertion in control group.

A sonographic study was conducted by Donald in 46 pregnancies, out of which 38 singletons and 8 twins for a total of 54 umbilical cord insertions. They found 70.37% central insertions, 22.22% marginal insertions and 7.41% velamentous insertions of umbilical cord¹⁸.

In present study, in hypertensive group, central insertion was found in 3.33%, eccentric in 83.33% and marginal in 10% and velamentous insertion 3.33%.

Reddy et al¹⁹ evaluated the different abnormalities in the placental insertion of umbilical cord in 110 specimens by dissection method. They found 83 cases (75.45%) normal, 18 cases (16.36%) marginal and 8 cases (7.27%) furcate and only 1 cases (0.9%) velamentous insertion. They stated that congenital anomalies are often associated with umbilical cord insertion anomalies.

Muhammad et al²⁰ found that 50% marginal attachment of umbilical cords to placenta in

hypertensive group.

Kaur⁶ observed that sites of insertion were almost same in both PIH and normotensive placentae, but in PIH placentae, marginal cord insertion was related to poor fetal outcome like IUGR and IUDs. Altered distribution of fetal vessels and impaired functional capacity in the placenta to exchange gas and provide nutrients lead to IUGR and IUDs in these cases of marginal insertion in hypertensive groups.

If hypertension increases, attachment of umbilical cord moves towards the periphery. So distribution of blood flow is hampered. Fetus is already in danger in pregnancy induced hypertension and it is superadded by anomaly of umbilical cord. It is noticed that the marginal and velamentous insertion is associated with hypertension and that it can be diagnosed during antenatal check up by available technique to further strengthen the proposed precautions to be taken during and after labor¹⁵.

In the present study, baby weight was compared with site of insertion of umbilical cord. It could be revealed that baby weight was reduced in marginal cord insertion in all types of hypertensive pregnancies.

Udainia et al⁵ found central insertion in 36%, eccentric in 60% and marginal in 4% in control group. There was no case of velamentous insertion in control group. In pregnancy induced hypertension group in mild pregnancy induced hypertension, central insertion is found in 7.5%, eccentric in 82.5% and marginal in 10%. There was no case of velamentous insertion in mild pregnancy induced hypertension group. Similarly in severe pregnancy induced hypertension, central insertion is found in 17%, eccentric in 57% and marginal in 20% and velamentous insertion in 6%.

Sepulveda et al²¹ studied at 825 umbilical cord insertions by color Doppler ultra sound. They found 93.81% central insertions 5.21% marginal insertions and 0.96% velamentous insertions.

Rath et al⁴ found no significant differences for umbilical cord insertion between study and control groups and observed that marginal cord insertion results in low birth weight both in normotensive and hypertensive cases, most commonly in severe hypertensive sub-group.

Branching patterns of umbilical vessels

In the present study, only dispersal type of distribution of umbilical vessels was found in the control group. Whereas hypertensive group showed both dispersal and magistral type of distribution, dispersal type 66.69% and magistral type 33.33%.

Again It was found that baby weight was increased in magistral type than disperse type in all types of hypertensive group.

The finding of our study was in accordance with Crawford 1962 (cited by Anwar (1999)²² who described magistral type of distribution produced a better developed fetus because its arteries were larger.

Udainia et al⁵ found in the control group, only disperse type of distribution of umbilical vessels was found. Whereas PIH group showed dispersal and magistral type of distribution in mild PIH,

95% placenta showed dispersal type and 5% shows magistral type distribution. But in severe PIH 91.43% placenta showed dispersal type and 8.57% placenta show magistral type of distribution. She also compared type of distribution of umbilical vessels to baby weight and stated that baby weight became low in magistral type of distribution more so according to severity of hypertension.

CONCLUSION

Present study indicates that the commonest type of insertion of umbilical cord in hypertensive group is eccentric type. As the insertion moves towards the periphery the fetal weight reduces significantly. However, in our study the changes in weight in relation to branching pattern of umbilical cord was not statistically significant. Therefore, similar type of study with large sample size is advised to get more conclusive findings. Again, as USG reveals anomalous cord insertion during pregnancy so counseling can be done regarding USG during pregnancy.

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Case report

Lamellar ichthyosis—A rare inherited disease of new born.

Md. Ferdouse Rahman

ABSTRACT

Lamellar ichthyosis is a rare inherited skin disorder. On 14th April 2014 a one day old boy was admitted in Paediatric Department of Prime Medical College and Hospital, Rangpur with the complaints of parchment paper like skin all over the body, fish like mouth and ectropion of both eyes. The patient was given conservative management and discharged on advice for follow up.

Keywords: Lamellar Ichthyosis, ectropion, Collodion baby

INTRODUCTION

Lamellar Ichthyosis is a skin disorder characterized by the presence of excessive scaling of the skin from birth. It is also known as ichthyosis lammellaris and non-bullous congenital ichthyosis, is a rare inherited autosomal recessive skin disorder, affecting around 1 in 600,000 people¹. Affected babies are born in a collodion membrane, which is a shiny, waxy and clear sheath covering their skin. This covering sheds 10–14 days after birth, revealing the main symptom of the disease, that is generalized scales with variable redness of the skin and eye lids and lips are turned outward. With increasing age, the scaling tends to be concentrated around joints in areas such as the groin, the armpits, the inside of the elbow and the neck. The scales may be fine or plate like, resembling fish scales. Infant of this disease may suffer from infection, dehydration, electrolyte imbalance, temperature malfunction and increased sepsis risk because of a relatively severe skin damage. Therefore, morbidity and mortality rates are fairly high in these cases. These newborns should be monitored carefully in intense care

units providing a moist environment and appropriate and supportive treatment must be undertaken².

CASE REPORT

Baby of Rabeya a one-day old boy of non-consanguineous parents was admitted with the complaints of excessive amounts of dry surface scales and folding of upper eye lid and fish like mouth. Child was born by normal vaginal delivery at home without any complications. He is the second issue of the family. No one of family members is suffering from such kind of disease. On the day of admission child was abnormal in looking. On Examination respiratory rate was 38 breaths/min, heart rate 120 beats/min, temperature 98.0F, abdomen soft without any organomegaly. skin was dry scales with ectropion. With above clinical presentation the child was diagnosed as a case of lamellar Ichthyosis. During hospitalization baby was given conservative management. After improvement of the general condition baby was discharged with advice for follow up.

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DISCUSSION

Lamellar ichthyosis is an autosomal recessive genetic disorder, which means the defective gene is located on an autosome, and both

parents must carry one copy of the defective gene in order to have a child born with the disorder³.

Ichthyosis came from the Greek for 'fish' because the skin look like fish scales. In case of normal skin there is continuous shedding and re-epithelialization takes place, which lacks in ichthyosis. So the skin does not shed properly, so builds up as thick, rough areas. How much area of the body will be affected varies depending on the type of ichthyosis. In 1884, Hallopeau used the term 'Collodion baby' at first^{4,5,6}. It was used for newborns in which all the body surface was covered by thick skin sheets, so it is called "collodion membrane", Which is the result of

an epidermal developmental dysfunction. The collodion membrane is composed of thick skin sheets which resemble translucent, tight parchment paper. The skin of a Collodian baby has a shiny film that looks like a layer of Vaseline. The eyelids and mouth may have the appearance of being forced open due to the tightness of the skin. There can be associated eversion of the eyelids (ectropion). Collodion baby may suffer from various severe medical consequences, mainly because the baby lose heat and fluid through the abnormal skin. This can lead to hypothermia and dehydration⁷. Strategies to prevent these problems are the use of emollients or nursing the baby in a humidified incubator⁸.

Our patients presented with skin changes, fishlike scales with ectropion of both eyes (Fig 1 & 2).

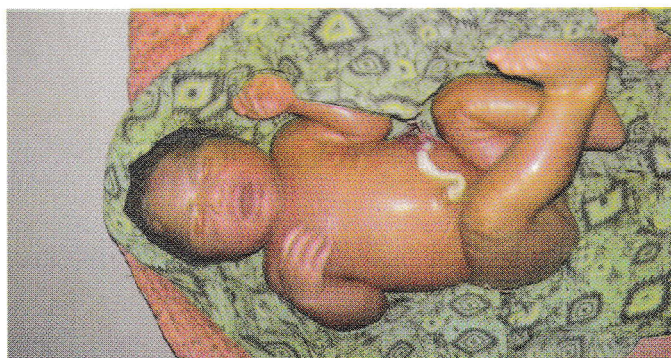


Fig 1: Showing ectropion of eye with skin change.

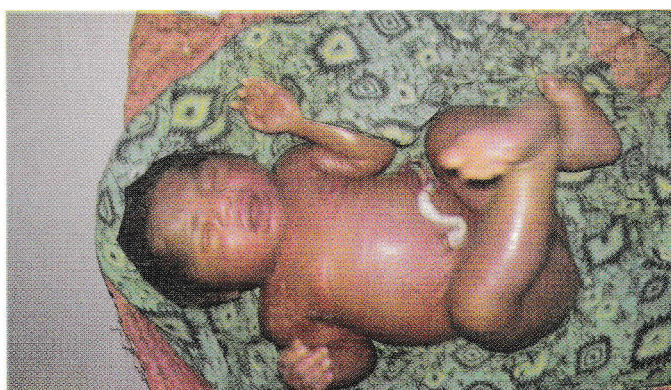


Fig 2: Fish mouth appearance with peeling of skin over neck and armpit.

CONCLUSION

Lamellar ichthyosis, one of congenital skin disorders and need extra care soon after birth. Counselling should be done and proper advice should be given to their parents about the nature of disease.

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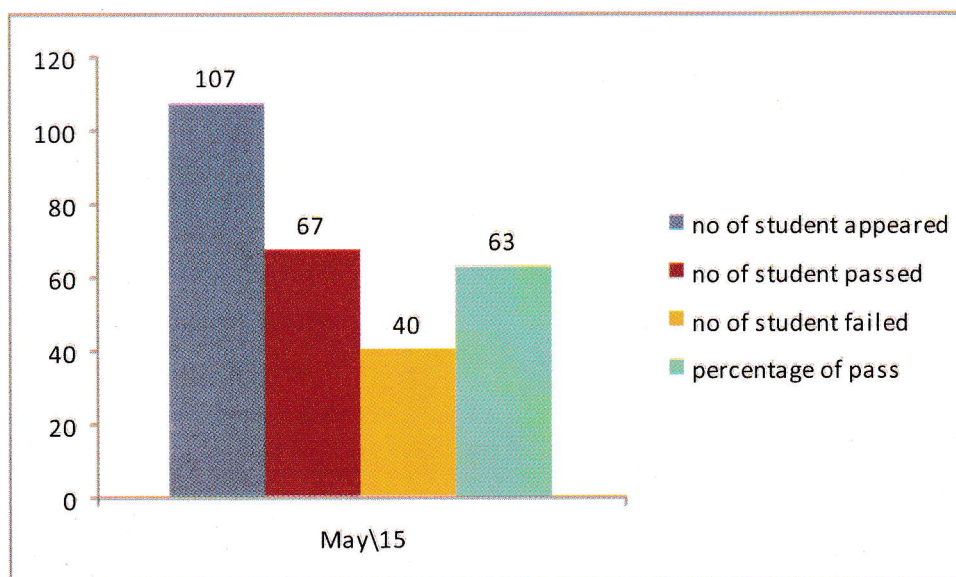
RESULTS OF PROFESSIONAL EXAMINATIONS

1st Professional MBBS Examination was held in May, 2015. The number of students appeared in; total number of students passed, total failed and percentages of pass in the 1st Professional MBBS examination is shown in the following table and figure (Table I & Figure 1).

Table I: Result of 1st Professional MBBS Examinations in May, 2015.

| Exam year | exam name | no of student appeared | no of student passed | no of student failed | percentage of passed |
|-----------|-----------|------------------------|----------------------|----------------------|----------------------|
| May/15 | 1st prof | 107 | 67 | 40 | 63% |

Figure 1: Result of 1st Professional MBBS Examinations in May, 2015.

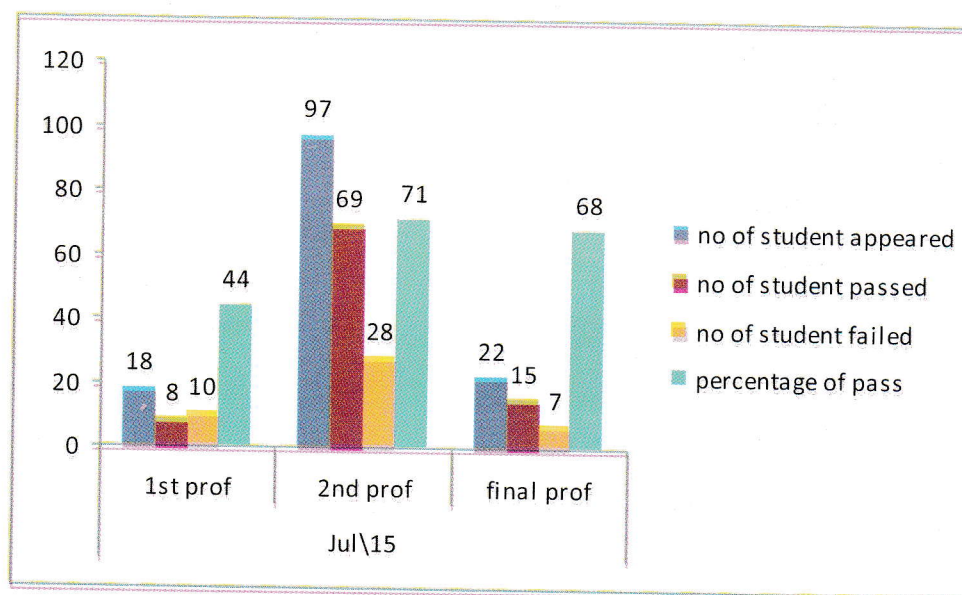


1st, 2nd and Final Professional MBBS Examination were held in July, 2015. The number of students appeared in; total number of students passed, total failed and percentages of pass in the 1st, 2nd and Final Professional MBBS examinations are shown in the following table and figure (Table II & Figure 2).

Table II: Result of 1st, 2nd and Final Professional MBBS Examinations in July, 2015.

| Exam year | exam name | no of student appeared | no of student passed | no of student failed | percentage of passed |
|-----------|------------|------------------------|----------------------|----------------------|----------------------|
| Jul/15 | 1st prof | 18 | 8 | 10 | 44% |
| | 2nd prof | 97 | 69 | 28 | 71% |
| | Final prof | 22 | 15 | 7 | 68% |

Figure 2: Result of 1st, 2nd and Final Professional MBBS Examinations in July, 2015.

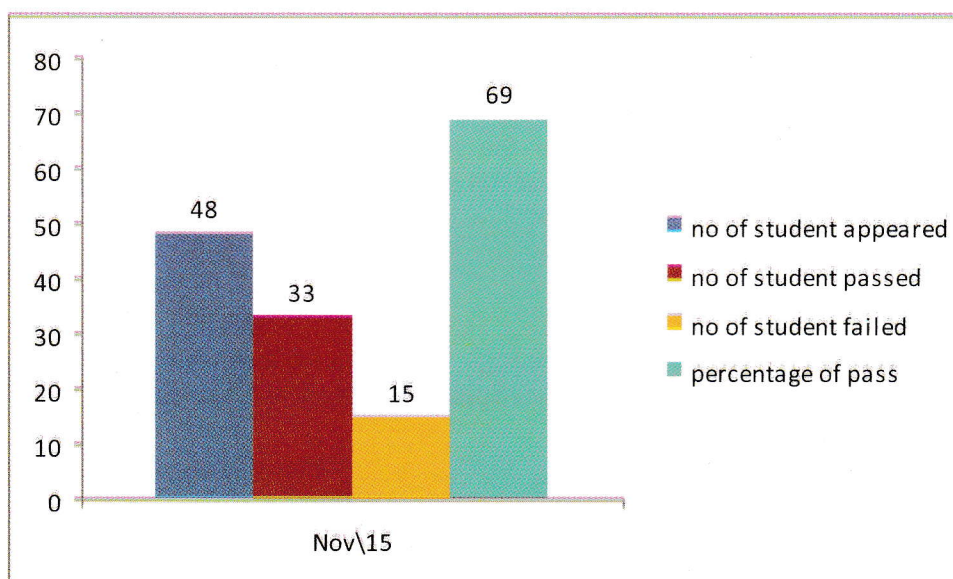


1st Professional MBBS Examination was held in November, 2015. The number of students appeared in; total number of students passed, total failed and percentages of pass in the 1st Professional MBBS examination is shown in the following table and figure (Table III & Figure 3).

**Table III: Result of 1st Professional MBBS
Examinations in November, 2015.**

| Exam year | exam name | no of student appeared | no of student passed | no of student failed | percentage of passed |
|-----------|-----------|---------------------------|-------------------------|-------------------------|-------------------------|
| Nov/15 | 1st prof | 48 | 33 | 15 | 69% |

**Figure 3: Result of 1st Professional MBBS
Examinations in November, 2015.**



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