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JOURNAL OF BANGLADESH COLLEGE OF PHYSICIANS AND SURGEONS

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EDITORIAL

Cardiac Surgery— Its Present and Future in Bangladesh

Everything is changing in this world. So is the disease pattern. There were the epidemics of small pox and cholera. Syphillis was the fashion of the days; no symptom was unknown and no syndrome was exempt which was not attributable to the *Treponema pallidum*. With the advent of antibiotics, antifungal, antiparasitic agents, vaccines and inoculations, the infectious diseases have disappeared only to be replaced by road traffic accident, cancer and cardiovascular diseases, of which world wide statistics shows that the number one killer is the diseases of the heart. Over a million coronary by-pass surgery is done in USA alone and nearly 500,000 die every year due to cardiac events[1]. In our country, cardiovascular mortality is next to infection and poised to overtaken it in very near future. Overeating, wrong-eating, smoking, inactivity, uncontrolled hypertension or diabetes mellitus with contribution of gout, familial hypertension, duodenal ulcer all adding upon to loss of human life[2].

Since 1979, closed heart surgery are being done at the Institute of Chest Diseases and Hospital and later on, with the establishment of National Institute of Cardiovascular Diseases, Dhaka (NICVD), regularly, closed heart surgery and open heart surgery are performed in the department of Cardiovascular Surgery, NICVD since 1979 and 1981 respectively. Till now, more than 1,300 open heart surgeries and nearly 2,500 closed heart operations were done in NICVD, Dhaka. The diseases for which the surgery was done were congenital and acquired heart diseases (PDA, Tetralogy of Fallot, ASD, VSD, TGA, coarctation of aorta, different types of valvular diseases alone or in combination, ischaemic heart diseases etc.). We are now successfully doing coronary by-pass surgeries and more than 100 cases of CABG was done in this centre till today. Legal moves for ratification and promulgation of various laws for defination of death and organ transplantation are in progress to pave the way for cardiac transplantation. Always prevention is better than cure. Risk factors being identified by epidemiological results. Prevention of cardiovascular disease is easier and the benefit is already shown in western countries. Public smoking discouraged, taxation in cigarette increased and low density lipoprotein is not consumed. Red meats being discriminated, sugar being avoided and weight watching being fashionable, together with jogging, and the cardivascular mortality has been reduced in recent years. Together with freely and widely available coronary by-pass surgery with very high success the perfected techniques salvaging many who are already affected have also contributed significantly. To achieve similar goal we shall have to encourage health education through voluntary organizations, government and NGOs. Food imports and production of edible oil are to be monitored. Tobacco growing should be replaced by food production and development and extension of cardiovascular centres in the country. NICVD has embarked on an extended programme of by-pass surgery, complex infant and paediatric cardiac surgery. Present situation is with only one NICVD it is offering to address the problem. Now it has become obligatory to establish cardiovascular centres in all the medical colleges either government or private, and in Institute of Postgraduate Medicine and Research (IPGMR), to encourage any private efforts for establishing cardiovascular centres, to train health manpower appropriately to encourage suitable

import policy, and motivate professionals and experts in the country[3].

There is ample opportunity for the government to take the leadership and create examples for the rest to follow.

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(J Bangladesh Coll Phys Surg 1996; 14 : 92-93)

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ORIGINAL ARTICLE

Correlation of Major Risk Factors with Severity of Angiographically Documented Coronary Artery Disease in 55 Male Patients of Bangladesh

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Summary :

The study was done to see the relationship between mean coronary angiographic severity score and five major coronary risk factors in Bangladeshi patients. This would reveal whether the concept of association of risk factors and coronary artery disease (CAD) is valid for Bangladeshi patients. In this study, significant assocation of these risk factors with angiographic coronary artery lesion has been observed ($P < 0.01$). Thus persons at high risk of coronary artery disease can be effectively identified and the extent of their coronary artery disease can be predicted as the severity of atherosclerotic lesion increases with the frequency of risk factors.

(J Bangladesh Coll Phys Surg 1996; 14 : 94-97)

Introduction :

Prospective epidemiological studies conducted over last four decades have firmly established the association of several coronary risk factors with the development of clinical coronary artery disease (CAD)[1,2,3]. Some investigators, both in the field of epidemiology and that of clinical cardiology have described the concept of the risk factors and its value in identifying the high risk patients as well as extent of CAD[4]. The relationship between the presence of coronary risk factors and the development and severity of angiographic CAD is less well defined[5], particularly in Bangladeshi patients. This study was done to see whether the concept of association between the number of major risk factors and angiographically documented CAD and its severity is valid for Bangladeshi patients.

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Materials and method :

The patients who underwent coronary angiography in NICVD, Dhaka having significant CAD at least in one vessel defined by 50% or more luminal obstruction were included in this study. All patients completed a preformed questionnaire and their medical records were abstracted. CAD risk factors were defined[6] as I) smoking habits (> 10 cigarettes per day), II) high total cholesterol (≥ 200 mg/dl), III) diabetes mellitus (on hypoglycaemic medication and/or FBS > 140 mg/dl), IV) hypertension (on antihypertensive therapy and/or diastolic blood pressure > 95 mm Hg) and V) family history of ischaemic heart disease (IHD) (IHD in male first degree relative < 50 years and in female < 60 years).

Coronary angiographic findings were analyzed by one radiologist and one cardiologist by eye estimation in standard views in moving and frozen cineangiogram. The extent and severity of lesions were recorded in percentage comparing the stenosed segment with the

adjacent normal segment. The obstructive lesions were scored from one to four score which is similar to that of Hasin et al[3]. A score of one was given to a lesion which produced a maximum reduction of 10 to 50% of the diameter of an epicardial artery in any projection, a score of two was assigned for 50 to 70% reduction, a three was given for 75 to 90% reduction and a score of four was given for an reduction of more than 90% of the arterial diameter. The total score was then determined for each patient. Statistical analysis were performed by suitable test for particular events including simple linear analysis, 'r' test, student's 't' test and 'z' test. A probability (P) value of < 0.05 was considered significant.

Results :

A total of 55 patients (mean age 52.75 ± 8.95 years) were recruited for this study. Twenty eight patients (50.01%) previously had myocardial infarction. Fifteen patients (27.27%) had 1-vessel, 21 patients (38.18%) had 2-vessel and 19 patients (34.55%) had 3-vessel disease, defined by 50% or more reduction of diameter of the three main branches of the coronary tree.

Table - I shows the age distribution with highest frequency in above 50 years age group comprising 61.81%, of which 56.36% were between 51 and 65 years and 5.45% above 65 years, Only 3,64% patients lie in 20 to 35 years age range.

Table – I

Age distribution of the subjects

Age (years)	21-35	36-50	51-65	>65
No. of Patients	02	19	31	03
Percent	03.64	34.55	56.36	05.45

Table-II shows that 40 (72.00%) patients were smoker constituting the highest frequency of risk factors followed by family history of CAD (61.80%). Third position was occupied by hypercholesterolaemia (60.00%), about half of the patient had hypertension (54.54%) and diabetes mellitus was present in lowest frequency (38.18%).

Table – II

Distribution of risk factors (RF)

Risk factors	No. of cases	Percent
Smoking	40	72.00
FH	34	61.80
Cholesterol	33	60.00
HTN	30	54.54
DM	21	38.18

The patients were divided into three groups according to the distribution of risk factors. Patients having no risk factors were included in group-I. Patients having one to two risk factors and those having three or more risk factors in group-II and group-III respectively (Table-III). Out of 55 patients only 3.64% were in group I, 30.91% in group-II and 65.45% in group - III. The groups were compared with each other by 'z' test which revealed significant difference between group-II and III ($P < 0.05$) and highly significant difference between group-I and III ($P < 0.001$). Significant difference was not found between group - I and II ($P > 0.05$). This table also reveals that majority of the patients (65.45%) with significant CAD had three or more risk factors. 30.91% patients had one to two risk factors and only 3.64% had no risk factors for CAD.

Table – III

Prevalence of risk factors in angiographically documented CAD (N=55)

Group	No. of RF	No.of patients	Percent	Mean severity score
I	0	02	3.64	04
II	1 - 2	17	30.91	6.938
III	≥ 3	36	65.45	07.03

'P' value between group-I and group - II > 0.05
'P' value between group-II and group-III < 0.05
'P' value between group-I and group-III < 0.001

Correlation of the severity of coronary artery lesions with the number of CAD risk factors are tabulated in Table-IV. Mean severity score was calculated by dividing the total score by number of patients. The tabulated

Table – IV

Correlation of risk factors with severity of coronary artery lesions. (N=55)

No. of RF	No. of patients	Range of score	Mean severity	P-value
0	2	4-4	4 ±0	$\gamma = 0.70$
1	9	3-12	7 ±2.91	(significant
2	8	3-12	6.87 ± 3.34	positive
3	17	2-12	7.25 ±3.33	correlation)
4	13	0-12	6.46± 3.42	
5	6	6-10	7.66 ± 1.63	
				$P < 0.01$

data were correlated between the number of risk factors and mean severity score by using 'r' test which revealed significant positive correlation (r=0.70; $P < 0.01$) i.e., the mean severity score increased proportionately with the mumber of risk factors.

The patients having angiographically significant CAD were divided into two groups by non-invasive methods particularly by resting electrocardiogram suggested by Salel et al[5]. Group-I included those with myocardial infarction and group-II without myocardial infarction. In this series, 28 patients (50.91%) had myocardial infarction and were included in group-I. Twenty seven patients (49.09%) having no evidence of previous myocardial infarction but significant CAD, were included in group-II. Statistically significant difference of risk factors for CAD was not found between the two groups ($P > 0.50$).

Table – V

Differences in CAD risk factors in patients with CAD with or without previous myocardial infarction

RF	Group - I (With infarct)	Group - II (Without infarct)	P
0	1	1	
1	3	6	
2	5	3	> 0.50
3	10	7	(not
4	8	5	significnt)
5	1	5	
n = 6	28 (50.91%)	27 (49.09%)	

Discussion :

The relationship between the frequency of the five major risk factors (smoking, family history, hypercholesterolaemia, hypertension and diabetes mellitus) in angiographically defined coronary artery disease were investigated to evaluate the relationship of number of the risk factors with the severity of coronary atherosclerotic lesion in Bangladeshi patients.

This study was done in highly selected group of small number of patients. They were selected on clinical grounds. The patients presenting with chest pain in the form of stable or unstable angina or myocardial infarction were included. There was absence of female and inclusion of less number of diabetics in the study as CAG was not done on those patients because of their decreased prospect of CABG. It is well known that the result of CABG in females and diabetics are not particularly stisfactory as compared to male and non-diabetics. Thus this study has no epidemiological implications. Nonetheless, it does permit analysis of risk factors with several parameters of CAD. Only visual assessment of the extent of atherosclerotic obstruction was done due to lack of computerized technology.

The study has confirmed positive correlation between the frequency of these five risk factors in angiographically documented CAD. This finding is similar to that of Kannel et al[1] and Fried et al[2]. Only 3.64% of patients did not have these risk factors despite definite

coronary artery lesions. Most (90.36%) of the patients had at least one CAD risk factor. Both infarction and non-infarction patients had similar frequency of risk factors. They all had significant angiographically proved CAD. Salel et al[5] had also described similar findngs in their study.

Patients having more severe coronary artery lesions have increased number of risk factors. When these risk factors are given numerical weighing, they correlate well with severity of angiographically determined CAD. Similar importance of these risk factor has also been found by Kannel et al[1], Hasin et al[3] and Salel et al[5]. The most important finding of this study is the steady and progressive increase in the number of risk factors which is associated with progressive increase in severity of disease, as defined by scoring. This outcome confirms the result described by Salel et al[5].

This study findings indicate that patients with higher risk of CAD can also be detected on the basis of these easily measured five factors in Bangladeshi patients. Detection of these risk factors can provide penetrating insight into the presence and severity of CAD and help us with statistical probability in clinical assessment in a given patient.

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Determination of Gastric Emptying Time by Radionuclide Method in Normal Subjects

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Summary :

Scintigraphic method for solid gastric emptying was used to study normal pattern in 25 volunteers. The study was carried out for 1.5 hours in each subject. The gastric emptying half time (T1/2) as well as percentage retention at 60 minutes was noted. The time - activity curve was also corrected for tissue attenuation. Results indicated normal average solid emptying T 1/2 to be 95 minutes with a S.D. of 10 minutes.

(J Bangladesh Coll Phys Surg 1996; 14 : 98-102)

Introduction :

Various methods have been used in the study of gastric emptying ranging from intubation tests[1] (e. g., saline load, serial intubation and aspiration, multiple sampling, multilumen tube perfusion, aspiration etc.) to roentgenographic tests etc.[1] prior to the currently used radionuclide method which was first introduced by Griffith in 1966[2]. He used a Cr-51 label mixed with porridge and external probe for quantitation. Since then, a variety of radionuclide and radiopharmaceuticals and equipment ranging from simple probe, rectilinear scanner, dual scanner, gamma camera have been used by different investigators in assessing gastric emptying.

Depending on radionuclide methods, the rate of gastric emptying can be expressed as the half-life of the meal in stomach, ($T_{1/2}$)[2], or gastric emptying time is expressed as the time necessary for 50% of the initial radioactivity to leave the stomach[3]. Because of its non-invasiveness, low radiation exposure, ease in preparation of the test meal, gastric emptying studies using a radioisotopically labeled meal is increasingly recognized as an important clinical technique[4], and also the isotope emptying studies are 'gold standard' for demonstrating impaired emptying[5] especially in the evaluation of patients with disorders such as, diabetic gastroparesis[6], post-gastrectomy gastroparesis[7], gastric outlet obstruction, normal gastric physiology in human being etc.[8]. The purpose of this study was to establish the normal range of gastric emptying time in healthy individiuals by using an easily prepared radionuclide test meal. The study was limited to solid meal emptying only.

Materials and method :

The study was done in the Institute of Nuclear Medicine, Dhaka and Nuclear Medicine Center at Dhaka Medical College Hospital.

Subjects :

A total of 25 healthy volunteers with ages ranging from 20 to 40, were involved in the study. None of them had pre-existing gastrointestinal symptoms or were on any form of medication for any other illness. Necessay informed consent was taken from each of the volunteers.

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Test meals :

Two slices of bread (weighing about 60 gm) and two eggs (weighing about 80 gm) were used. After breaking the shell 2 mCi of Tc-99m sulfur colloid was injected by a 1 cc disposable syringe into the egg yolks and then well mixed to form the radionuclide egg and then fried with vegetable oil. Bread slices were toasted.

Image procedure :

Siemens Orbiter ZLC and MEDX (Type LF -61) large field of view gamma cameras with low energy general purpose parallel hole collimator were used for the study. The energy window was set at 20% of the 140 keV photopeak of Tc-99m. The volunteers were sitting on a chair with gamma camera head placed in front of subject's abdomen in contact with the abdominal wall. Imaging was started immediately after the subject had completed the test meal. The subject had to keep still throughout the study. A 60-second static left lateral image of the upper abdomen was taken at the end of the study.

Data acquisition :

Dynamic acquisitions were obtained by Icon Quadra 95 and NIC - 2000 computers interfaced with the gamma cameras. A 64 X 64 word mode matrix was selected with a frame rate of 60 seconds per frame. The total duration of study was 5400 seconds.

Data analysis :

The data acquired consisted of 90 frames of 60 second images. The images were then summed in order to obtain the entire outline of the stomach. Regions of interest (ROI) were then drawn on the summed images and by using a pre-defined soft ware programme, the time activity curve was then generated. The time activity curve was further normalized to obtain the percentage emptying time activity curve. The composite emptying curve shows a linear pattern and therefore through linear extrapolation, the emptying half time ($T_{1/2}$) was obtained, or the percentage remaining in the stomach at 60 minutes was derived.

Method used to correct tissue attenuation :

For attenuation correction the lateral image method introduced by Collins[9] was followed. Using the lateral images, the distance from the mid-point of the stomach to the body surface (in cm) was calculated at three levels, namely, fundus, body, and antrum. Correction factors (F) were generated by using he mathematical formula, $F = e^{-ux}$, where u is the tissue attenuation coefficient (0.12 /cm for Tc-99m).

Three ROIs were drawn on the anterior image of the stomach to cover i) funds, ii) body and iii) antrum and pylorus. The respective distances from the mid-point of these three regions to the body surface were obtained using the lateral image of the stomach taken with point Tc-99m markers with about 1 cm intervals in a flexible capillary tube placed at the body surface, namely X1, X2, and X3 respectively (Fig.-1).

Fig.-1 : *Methods used to correct tissue attenuation*

Results :
Among the 24 volunteers the obtained solid emptying time varied from 74 to 108 minutes (Table-I). One subject (no. 9) was excluded from the study as the result was unusually low. The mean solid emptying half time was 95 minutes with a s. d. ± of 10 minutes.

Table – I

Distribution of age, sex and gastric emptying time of 25 subjects

Serial no.	age/sex	$T_{1/2}$
01	30/m	90
02	24/m	96
03	40/m	74
04	22/f	95
05	32/f	99
06	35/f	76
07	28/m	106
08	33/f	108
09	40/m	36.25
10	22/m	81
11	31/m	106
12	32/f	86
13	21/f	100
14	25/m	101
15	24/f	97
16	24/m	105
17	23/m	103
18	24/m	78
19	31/m	97
20	31/m	107
21	31/f	99
22	23/f	96
23	20/f	107
24	34/f	91
25	31/f	86

m = male
f = female

The above figures are from tissue attenuation corrected curves. During emptying study, the tissue attenuation effects were found less significant, with an average increase of about 2% in tissue attenuation un-corrected curves compared to the attenuation corrected $T_{1/2}$s. The study also looked at the results of the emptying studies from the perspective of percentage retention at a specified time. Analysis of the initial lag-phase before emptying begins revealed a range of 08-18 minutes with an average of 14 minutes. The 100% retention is therefore obtained at an average time of 14 minutes. A comparison of these results with corresponding $T_{1/2}$s is presented in Table-II.

Table – II

Summary of solid emptying times

% retention at 60 minutes			Lag-phase		$T_{1/2}$ (TAC) minutes		
Range	mean	s.d.	range	mean	range	mean	s.d
60-78	75	5.2	08-18	14	74-108	95	10

The attenuation corrected time activity curve for each ROI was obtained by multiplying the correction factor (F) to individual curves F1 X C1, F2 X C2, and F3 X C3, where C1, C2 and C3 are the curves for fundus, body and antrum respectively. Finally, the summation of these three attenuation corrected curves would then result in the actual gastric- emptying time-activity curve, corrected for tissue attenuation. (Figs. 2 and 3).

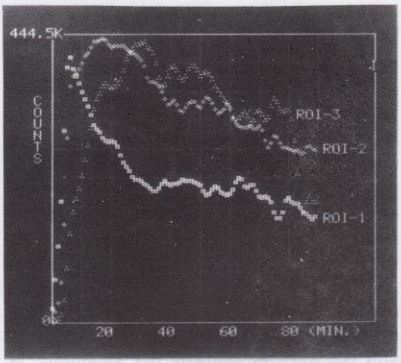

Fig.-2 : *Time activity curves of various ROIs of the stomach*

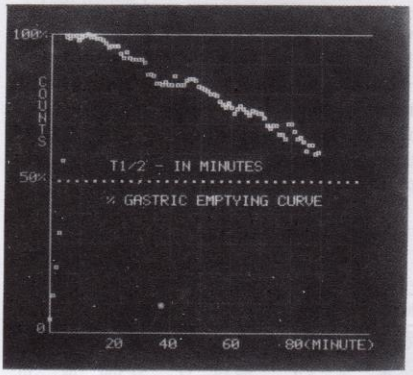

Fig.-3 : *Solid gastric emptying curves*

Discussion :

It is essential to understand the physiology of gastric emptying before its application to the study on patients with disorders of gastric emptying. Anatomically, the stomach can be divided into cardia, fundus, body, antrum and pylorus. Food passes through the oesophagus and through the lower oesophageal sphincter and is received and stored by the stomach where it is mechanically mixed with gastric secretions and passes into the duodenum in an orderly fashion.

Basically, gastric motility is regulated by two mechanisms, namely i) neural and ii) humoral. Regularly slow contractions in the fundus and peristaltic waves in the body propel food towards the antrum, where the weaker waves fade but stronger waves results in contractions of the antrum and coordinated duodenal muscular activity. The pylorus functions as the point of resistance between the stomach and duodenum and may serve as an antireflux control device in humans. Generally, the fundus controls the emptying rates of liquids and the antrum controls the emptying of solids, although antral contractions triggered by solids may play a role in emptying the liquids. Gastric emptying of liquids is also dependent upon the gastroduodenal pressure gradient. Additionally, electric activity and the characteristics of the meal itself affect the rate of gastric emptying[10,11].

Since the use of Cr-51 sodium chromate labeled test meal by Griffith in 1966[2], several isotopes have been used in gastric emptying studies, these include I-131, In -111, In-113m and Tc-99m. Among these In-111 and Tc-99m are the more commonly used isotopes. Tc-99m was used as the radionuclide in this study because of its low energy, 140 keV; short half life, six hours; and easy availability from Tc-99m generator. The radiation dose to the whole body and to the vital organs are considerably small. Various radioactive test meals have been used by different investigators in the study of gastric emptying. The ideal agent used in the study should be non-adsorbale, and homogeneously distributed in the meal. Tc-99m colloid labeled egg sandwich was chosen as solid test meal because of the ease in preparation and expected high binding efficiency[8].

Standardization of the test meal size and its composition are of vital importance in gastric emptying studies. Christian et al[12] found that heavier the test meal, the longer the emptying half life. As posture of subjects will alter the gastric emptying rate, a standard position and posture has to be maintained during the study. In this study the sitting position with anterior imaging was chosen for the volunteers. In order to obtain accurate results, correction for tissue attenuation has to be done in the study of gastric emptying. Various workers had demonstrated the effect of geometric changes on gastric emptying rates. Tothill et al[13] showed that anterior imaging along underestimated emptying rate by an average of 26% and Christian et al[12] also demonstrated overestimation of emptying half life by 10% when using anterior imaging with a 300 gm test meal. In this study, anterior and lateral image with a 140 gm solid test meal was used as it was simple.

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Chronic Aortic Regurgitation : A Perspective of Surgical Intervention in Bangladesh

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Summary :

Forty-eight consecutive patients undergoing aortic valve replacement (AVR) for isolated aortic regurgitation (AR) were studied prospectively by radiology, electrocardiography (ECG) and echocardiography. All patients were symptomatic with common clinical findings, and 75% of them were of rheumatic origin. Patients were divided into two groups based on pre-operative echocardiographic findings : Group - I, left ventricular internal dimension at the end of systole (LVIDS) < 55 mm with fractional shortening (FS) >25%; Group - II, LVIDS > 55 mm with FS < 25%. Radiographic and ECG data indicated pre-operative cardiac enlargement with left ventricular (LV) hypertrophy in all cases, with more marked in group - II. Group - II were at high risk of congestive heart failure (CHF) and perioperative death (64%) than group - I (3%). Early and late post-operative evaluation showed good and rapid improvement in all patients of group- I with normalisation of all parameters, whereas group-II failed to show any significant improvement. It is concluded that in chronic AR, AVR should be done before the development of massive damage of LV function.

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Introduction :

Most patients who undergo aortic valve replacement (AVR) for chronic aortic regurgitation survive operation and have sustained relief of symptoms for many years. Others survive operation but later develop progressive symptoms of congestive heart failure (CHF) and die months to years after AVR. It is usually assumed that irreversible left ventricular (LV) dysfunction occured before operation in these patients and produced symptoms of CHF despite technically successful valve replacement[1,2]. Because the mortality and morbidity of AVR in patients with chronic AR are not negligible and risk of post-operative problems is substantial, operation is usually deferred until justified by the development of significantly incapacitating symptoms[3]. On the other hand, since post-operative results are influenced by the degree of pre-operative LV dysfunction, the challenge lies in timing surgery just before irreversible LV damage. Guidelines to determine the timing of AVR have been few and sometimes contradictory[4]. Among patients of AR, 50% mortality was reported five years after the development of angina and two years after the development of CHF[4]. Patients having a wide pulse pressure, an LV "strain" pattern ECG and moderate cardiac enlargement are in high risk[5]. There is a close correlation between the pre-operative heart size and the post-operative survival curve[6]. When the cardiothoracic ratio (CTR) was less than 0.56, the five years survival was 84%. In contrast, if the CTR was greater than 0.61, the five year survival was reduced to 46%[4].

Pre-operative echocardiographic data can be used to predict the likelihood of a good or poor post-operative result. Left ventricular internal dimension at the end of systole (LVIDs) greater than 55 mm and fractional shortening (FS) 25% or less before operation were identified a group at high risk for early and late death due to heart failure after operation[3].

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The purpose of this study was to :

1. identify pre-operative variables that are associated with high risk of mortality at operation or post-operative period and classify patient population into high and low risk groups based on these variables;
2. determine the optimum time for surgical intervention that can achieve maximum benefit with minimum risk;
3. evaluate the outcome of surgical management of AR in Bangladesh and formulate a database for the future works in this field.

Materials and method :

The patient population consisted of all patients of chronic isolated AR who had AVR between July 1987 to June 1992 at the National Institute of Cardiovascular Diseases (NICVD), Bangladesh. Patients with significant aortic stenosis (AS), other valvular lesions, previously performed valve surgery or any associated cardiac anomalies were excluded.

There were 48 patients (44 men, four women), ranging in age from 14 to 52 years (mean 24.08 ±8.11 years). The aetiology of AR in these patients was rheumatic fever in 36 (75%) and unknown in 12 (25%) cases. All patients had severe palpitation, exertional dyspnoea and other complains indicating overt evidence of LV dysfunction. Virtually all common physical findings of chronic AR were present in every case.

All patients were evaluated pre-operatively by history, physical examination, radiology (chest x-ray), 12 lead ECG and echocardiogram. Cardiac catheterization was done in few cases to exclude the significant AS. Pre-operative NYHA functional classes and the presence and absence of those symptoms commonly associated with chronic AR were recorded.

Patients were divided into two groups according to their pre-operative LVIDs and FS.

Group-I : Consists of 34 patients who had LVIDs < 55 mm and FS > 25% ;

Group - II : Consists of 14 patients having LVIDs > 55 mm and FS < 25%.

Preoperatively, 32 (94%) of the patients in the group - I were in NYHA functional class -II and two patients (6%) were in class-III. In group-II, 10 patients (71%) were in class -III and four cases (29%) were in class -IV.

A standard six-foot posterio-anterior chest radiograph was taken. The heart size is expressed by the CTR which was calculated by dividing the maximal frontal width of the heart excluding the apical fat pad by internal width of the chest at the diaphragmatic level.

The pre-operative CTR ranged from 0.51 to 0.71 and was more than 0.60 in 16 patients. In group-I, the mean ± SE of CTR was 0.56 ± 0.02 (ranged from 0.51 to 0.61) and in group - II, the value was 0.65 ±0.03 (ranged from 0.60 to 0.71).

Twelve lead ECG was done in every patient before operation. Criteria for LV hypertrophy were fulfilled in all patients at the time of initial evaluation. All patients had tall QRS voltage ($SV_1 + RV_5 \geq 35$ mm) and in some cases (6/14 of group-II) there was a mild degree of S-T segment depression with upright T-waves. The mean ±SE of $SV_1 + RV_5$ were 49.76 ±0.7 mm and 60.57 ±0.67 mm in group -I and group - II respectively.

Echocardiograms were done in all patients. The LV measurements were made according to the recommendations of the American Society of Echocardiography by means of the leading-edge method[3]. The LVIDd an LVIDs were taken as the maximum and minimum distance between the left side of the ventricular septum and endocardium of the LV posterior free wall. FS of the LV was calculated as the ratio of the difference between the LVIDd and LVIDs to LVIDd. LV-EF was the ratio of the difference of LV end diastolic volume (LVEDV) and endsystolic volume (LVESV) to LVEDV. Pre-operatively the values of LVIDd, LVIDs,

LV-FS and LV-EF were 69.47 ± 0.85 mm, 50.06 ± 0.94 mm, 27.59 ± 0.85% and 44.12 ± 0.87% in group-I. In group-II, the values were 76.45±2.58 mm, 59.43±2.42 mm, 22±0.85% and 36.86± 0.55% respectively.

The surgical approach was through a median sternotomy. Extracorporeal perfusion was employed using membrane oxygenators with moderate systemic hypothermia (core temperature, 28° to 30°C). The method of myocardial protection was cold (4°C) crystalloid hyperkalemic cardioplegia injected into the coronary ostia after cross -clamp and continuous topical cooling with cold saline. Cardioplegia was repeated after 20 to 25 minutes interval. Perfusion flow rates were maintained between 1.8 and 2.8 L/min/ m^2 with mean arterial presssure between 50 and 70 mm of Hg. Cardiac vent was routinely employed. The following types of prosthetic valves were inserted : Metronic Hall Kaster-22, St. Jude Valve-20, Star - Edward 4 and Bjork-Shiley 2.

The duration of cardio-pulmonary by-pass and aortic cross clamping were 89.75±13.76 minutes and 60.12±13.40 minutes, with a range of 60 to 114 minutes and 37 to 86 minutes respectively. The operative procedure was performed by the same group of surgeons using similar techniques. Antibiotic prophylaxis was given pre-operatively and for seven days post-operatively. Excised valve tissue was sent for histopathological study in every case.

All cases were subjected to long-term anticoagulation with warfarin sodium beginning immediately after chest tube removal. Dose of the anticoagulant was adjusted by interval analysis of the prothrombin index, which was kept at 1.5 times the control value.

All survivors were followed up with serial visits to the follow-up clinic, which included physical examination, X-ray chest, 12 lead ECG and echocardiography. Functional classification was judged according to the criteria of NYHA class in every visit. Follow-up studies were performed in 36 (33+3) patients three to six months (mean 125 days) after operation (early post-operative study) and late follow-up evaluation was done on 35 (33+2) patients nine to 15 months (mean 12 months) post-operatively. Prosthetic valve related complication was cautiously observed. Valve-related complications include any evidence of valvular regurgitation, haemodynamically confirmed valvular stenosis, thrombo-embolism, anticoagulation related bleeding, prosthetic endocarditis or sudden death without obvious cause.

The data yielded from this study was analysed by standard statistical procedure.

Results :

Operative mortality :

The operative mortality rate (30 days) was 20.83 percent for the entire series. In group-I, out of 34 patients one died on the twelfth post-operative day. In group-II, out of 14 patients four died in the intensive care unit (ICU) within the tenth post-operative day and other five patients died within twentieth day after operation. Operative mortality rate was higher (64.29%) in patients of group - II than in patients of group-I (2.94%). Myocardial failure producing low cardiac output syndrome (LOS) accounted for approximaty 80% of early deaths and primary ventricular arrhythmias were responsible for 20% of deaths.

Early post-operative complications :

LOS (8/48,16%), supraventricular arrhythmias (6/48,12%), and ventricular arrhythmias (5/48,10%) constituted the most frequent complications during the first 30 post-operative days. Other complications included heart block requiring temporary pacing (94%) and wound infection in 2% case. The average duration of hospital stay was 14 ±11 days for the entire group. There was no significant differences among the sub-groups.

Late post-operative morbidity and mortality :

At the time of follow-up evaluation, two patients of group-II who had survived 30 post-operative days had subsequently died due to CHF within three months. Valve relatated complication was the cause of late death in one patient at ninth month post-operatively and it was a sudden death. This patient was also from group-II. Prosthetic valve endocarditis developed in one patient of group-I followed by paravalvular leak, who underwent replacement of the prosthesis and had long-term survival.

Functional status :

At the time of this study there were 36 (33+3) survivors out of the orginal 48 patients. Pre-operative functional impairment in terms of NYHA classification was more marked in group-II than group-I. Out of 33 peri-operative survivors of group-I, 28(85%) became almost asymptomatic, 23 (67%) returned to full-time work and five (15%) to part-time work. Four patients improved by NYHA class-II to mildly symptomatic (class-I). But one patient who developed paravalvular leaks, deteriorated to class-IV in the early follow-up, ultimately after replacement of prosthetic valve, the patient became asymtomatic during the late follow-up. Of the five peri-operative survivors of group-II, two died before early follow-up. Functional class had improved in two patients from class-III to class -II, one patient was in class-III who died at ninth month post-operatively.

Early and late post-operative radiological, ECG and echocardiographic data for the two sub-groups of patients are presented in Table-I and compared with pre-operative values.

Table – I

Radiological, ECG and echocardiographic data in pre-, early and late post- operative periods

Variables	Group	Pre-operative	Post-operative	
			Early	Late
		n1=34	n1=33	n1=33
		n2=14	n2=3	n2=2
CTR	I	0.56±0.02	0.50±0.02*	0.48±0.02
	II	0.65±0.03	0.64±0.26	0.63±0.03
SV_1+RV_5 (mm)	I	49.76±0.07	33.00±1.64**	30.00±0.88**
	II	60.57±0.67	50.33±5.10	49.62±5.20
LVIDd (mm)	I	69.47±0.85	54.81±1.08**	52.80±1.20**
	II	76.45±2.58	68.33±3.85	67.30±3.50
LVIDs (mm)	I	50.06±0.94	34.69±1.23**	32.55±1.20**
	II	59.43±2.42	48.33±6.12	46.30±6.40
FS (%)	I	27.59±0.85	37.03±1.46**	38.34±1.24
	II	22.00±0.58	28.00±2.88	28.34±3.14
EF (%)	I	44.12±0.87	60.56±1.59**	63.00±2.10**
	II	36.86±0.55	45.33±4.18	46.30±4.40

n1 = Number of patients in group-I
n2 = Number of patients in group-II
Values are the mean ± SEM
* P<0.05; ** P <0.005 as compared to that of pre-operative data

Discussion :

The results of this prospective study show that the mean age of the patients was 24.08 ±8.11 years with a range of 14 to 52 years, which is in sharp contrast to that of the western studies, where mean age was more than 40 years with a range of 17 to 76 years[3,7,9]. Segal et al suggested that AR below the age of 40 was more likely of rheumatic origin[9]. Rheumatic fever in the young age group in developing countries produces severe valvular lesions. Majority of the patients in this series belong to low socio-economic group living in unhygienic condition in a overcrowded environment, ill nourished and did not get proper medical care. Almost all of these factors may be responsible for the causation of rheumatic fever in early age and rapid progress of the disease in Bangladesh. Seventy five percent of the patients had positive history of rheumatic fever. Segal et al identified the rheumatic fever as the principal (83%) cause of AR[9]. But others found only 36-53% of AR were of rheumatic origin[3,10]. Aetiological factors could not be found out in 25% cases. AR due to unknown cause was reported by different workers[3,4]. In this series, male predominate over female in a ratio of 23:1. From different studies, it is clear that males are major victims of AR [9,11,12].

In chronic AR the volume overload imposed on the LV is usually well tolerated for a long period before the development of heart failure[13,14]. Patients with rheumatic AR may remain asymptomatic for years, but once they become symptomatic they usually follow a rapid downhill course leading to death in a few years[5]. All the patients of this series were symptomatic for five years (average). The time interval between the first onset of symptoms and the arrival at the hospital was 3.47±2.2 years and 6.31±3.2 years in group-I and group-II respectively. Symptomatic period was relatively higher in group-II which may be one of the factors causing irreversible damage of LV. Clinical manifestation of AR in this series are quite similar in patients of other series[9,10,11]. The LV enlargement as seen in all the cases of this series, is also supported by other authors[5,9,13,15,16]. Enlargement was more marked in group-II, indicating massive pre-operative dilatation of LV. The ECG findings in this study was similar to those observed by other authors[5,9,11,13]. Echocardiographic study is very useful not only for assessing the LV function pre-operatively but it also helped post-operatively during follow-up of the patients to analyse the results of surgery. In almost all the cases in this study, echocardiographic findings were very much correlated with the clinical status of the patients. LVIDd and LVIDs was increased in all the cases but it was more higher in group-II. Similarly LV-EF and FS was more decreased in group-II in comparison to group-I. Echocardiographic findings were almost similar to those observed by others[3,17,18]. Taking into consideration all those factors it is clear that patients were distinctly divided in low risk (group-I) and high risk (group-II) groups. AVR was done in all patients irrespective of groups and there was no marked untoward effects during operation. Among the post-operative complications, LOS headed the list and all of the eight patients died later on. The incidence of LOS was similar to other findings[11,12]. Those patients who developed LOS belonged to group-II and vigorous treatment was initiated but they did not improve. This may be due to irreversible damage of the heart by the time[12]. Other post-operative complications were successfully tackled except in two patients who died due to arrhythmia. One of those patients was in group-I. After initial discharge from the hospital, two patients died of CHF, may be due to pre-operative myocardial depression[19]. Virtually all of the patients of group-II who died had pre-operative evidence of depressed myocardial function. The operative mortility of group-II was extremely high but mortality of group - I was low, a finding supported by other studies[20,21]. Most of the patients of group-I, who were pre-operatively in NYHA

class-II, improved to class-I at follow up. There was no death from class-II. From group-II, all the four patients of NYHA class-IV and eight patients of class-III died at different period after AVR, indicating a high mortality. This finding is correlated with those of others[11,22].

The patients of group-II failed to show marked decrease of CTR during follow up. Moreover, 12 patients died out of 14. The patients of group-II were considered as risky group due to severe hypertrophy of LV and group-I was considered mild type. The findings appear similar to the findings of Smith et al[23]. After 12 months of AVR, patients of group-I showed marked improvement, indicating a normal or near normal LV-mass. But patients of group-II failed to show such change. The degree of pre-operative hypertrophy influences the extent to which hypertrophy regresses[2,4]. Echocardiogrophic assessment of LVIDs and FS identifies patients at high risk for developing CHF and dying after operation despite successful AVR, which was true for group-II[1]. In this series, patients of group-I had a decrease in LVIDd of at least 10 mm, at the early post-operative period but patients of group-II had a little decrease. This finding is similar to those of other workers[1]. Previous studies indicate that patients with persistent LV dilatation after AVR, are at risk of death from CHF[1,24]. Improvement of LVIDs, LV-EF and FS in group-I was excellent during follow up but group-II failed to show such improvement (Table-I). Moreover, it was also reported by others[1] that the large and poorly functioning LV may be more susceptable to operative damage, which may be true for patients of group-II in this series where pre-operative values were LVIDs>55 mm, FS <25%, LVIDd >75 mm and EF <40% indicating large and poorly functioning LV.

In chronic AR, the result of AVR is rewarding if surgery is done in due time as happened in group-I patients . But although AVR is done with utmost caution in high risk patients (e.g. group-II), after the development of massive irreversible damage of the LV function manifested by : i) patients in NYHA class-III and IV; ii) chest pain; iii) CTR > 0.65 ± 0.03 ; iv) $SV_1 + RV_5 > 60.57 \pm 0.61$ mm; v) LVIDd > 76.46 ±2.58 mm ; vi) LVIDs > 59.43 ± 2.42 mm; vii) FS < 22.00±0.58%; viii) EF < 36.86 ± 0.55%, operative result is not accetable. So, surgery should be done earlier than changes that happened in group - II. Further studies are neccessary to validate the suggestion.

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Midline Abdominal Incisions and Single Layer Closure with Monofilament Fishing Nylon – A Personal Experience

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Summary :

Midline abdominal incisions are popular for commonly performed abdominal operations. Two hundred and seventy one patients who had laparotomy through midline incision for either elective or emergency procedures were observed in respect to their quality of wound healing. It included operations on stomach, biliary tree, small and large intestines, the mesentery and the pelvic organs. All were closed with monofilament fishing nylon using linea alba as single layer. Peritoneum was excluded from suturing. It was concluded that midline abdominal incisions were most easily and quickly performed laparotomy procedure with minimum tissue damage and bleeding. It is also very convenient and gives adequate exposure for all commonly performed abdominal operations. When single layer closure with monofilament fishing nylon is used, it becomes the cheapest, strongest, most easily performed and versatile laparotomy closure with minimum complications.

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Introduction :

Midline abdominal incisions cut through skin, subcutis, linea alba and peritoneum. Minimum fascial and museular planes are opened, bleeding is scanty and tissue handling is also least. It is the most easily performed laparotomy incision and can be closed comfortably even in difficult situations as linea alba gives a tough hold to the sutures while other softer layers could have given way. Some may think that operations on gallbladder and biliary tree may be difficult through this line. But these are quite easily accessible as the areas of surgical importance like the junction of the cystic duct with common bile duct (CBD) and the CBD itself are almost midline structures.

Ready to use packed suture materials are costly and not always easily available in peripheral areas. Most of the hospitals in our country are over burdened with patients. Wound failure and infections increase hospital stay. This problem is more associated with commonly used absorbable sutures like catgut and with incisions where more tissue planes are opened[1].

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Many studies have shown that tissue reaction to nylon and daxon was minimal in comparison to other suture materials. Tissue response to nylon when used for abdominal closure has been shown to have usual cellular response to any foreign material in the first week, but in a less severe form. Histiocytes and fibroblasts predominate with few lymphocytes and neutrophils. After six to 12 weeks cellular reaction is minimal, most sutures are firmly encased in a thin scar, others with a few inflammatory cells. Little change occurs in two years period[2].

Tensile strength determination shows that synthetic nonabsorbable sutures like nylon loose little or no strength over two years[3]. Experimental studies have shown that one year after laparotomy the abdominal fascia retains about 70% of its original strength which means that the fascia preferably needs a long lasting supporting suture[4].

Materials and method :

Response of 271 patients who had laparotomy by midline abdominal incisions and mass closure with monofilament fishing nylon in a 100 bed district hospital during the period 1989 to 1991 were observed. The patients were adult males and females undergoing emergency or elective surgery. Initially incisions were made above or below the umbilicus and when necessary extended

around it either upwards or downwards. The wounds were closed with monofilament fishing nylon of size similr to no. 1 or 0 sutures. They were sterilised by autoclaving or by boiling.

A continuous suture taking linea alba was used and knots on either end were burried. Nonabsorbable nylon needs more than four knots to fix it which subsequently might form an undesirable palpable subcutenous knot unless burried deep to linea alba. Skin was closed with interrupted silk sutures. All wounds could be assessed for early complications like infections, partial or complete dehisence. Long term follow-up was difficult as most of the patients did not turn up unless there was problem. Those who turned up even after two years with wound problems were recorded to have long term complications, though this does not represent the true picture.

Results :

There were 195 male and 76 female patients with age varying from 18 to75 years. The different types of operations done are shown in table-I. All patients could be observed for early problems and the date of discharge was taken into account (Tables-II and III). Although patients having residence very close to hospital were encouraged to leave on the fourth or fifth post-operative day, many of them were afraid and reluctant to do so. Those without any complications were discharged on the seventh post-operative day. Ten patients needed secondary sutures for wound gaping. Though all the patients were not brought under long-term follow-up, those presented with late complications were recorded (Table-IV).

Table – I

Types of operation (n=271)

Operations	Number
Gastroduodenal	122
Biliary	55
Small bowel	35
Large bowel	28
Overian and Uterine	13
Miscellaneous	17

Table – II

Post-operative hospital stay (n-171)

Date of discharge	Number	%
Within 7th post-operative day	229	84.50
Within 10th post-operative day	23	08.50
> 2 weeks after operation	19	07.00

Table – III

Early post-operative complication (n-27)

Complications	Number	%
Infections	17	6.3
Wound dehisence (partial)	07	2.5
Wound dehisence (complete)	03	1.1

Table – IV

*Type of late complications **

Complications	Number
1. Incisional hernia	02
2. Palpable suture knot	05
3. Suture pain	29
4. Suture sinus	00

* Only those who came for follow-up

Discussion :

Most of the common abdominal operations can be done through midline incisions as it gives a very wide exposure. Incisions are made either above or below the umbilicus and can be extended at will when needed. It is performed most easily and quickly with minimum bleeding and tissue handling and least number of tissue planes are opened. Hough et al in their study have shown and recommended that separate suture of peritoneum is not necessary in midline surgical abdominal wounds[5]. If adequate depth of linea

alba is taken (1.50 cm) peritoneum spontaneously comes into apposition as it is very closely adherent to deeper layer of linea alba. Unlike upper abdomen, linea alba below the umbilicus is quite frequently opened as two layers due to anatomical reasons. Both can be closed as single layer.

Closure of midline incisions with nylon is easier and quicker than others even in difficult situations when softer layers could have given way. But linea alba gives a tough hold for the sutures. Fishing nylon is very cheap and is most easily available all over the country. It can be sterilised by autoclaving or by boiling and one laparotomy closure costs less than Taka 2.00. Infection and incidene of wound failure is less in comparison to conventional absorbable sutures, 85% patients could be discharged within a week of operation and this is very important for an overcrowded hospital. In this study, infection occurred in 6.30% cases . Majid in his study of abdominal wound closure with fishing nylon found 6.60% infection rate[6]. Wissing et al in their comparative study of different nonabsorbable sutures like nylon, polydeoxanone (PDS), polypropylin (PPL) found 8.60% infection and 2.30% wound dehiscence[4]. Different studies have shown these synthetic materials to have a little edge over nylon in respect to infection and wound dehiscence but incidence of incisional hernia was least with nylon[1,3]. PDS and PPL are costlier and not readily available. Wissine et al reported that there were a few disadvantages of nylon sutures like more wound pain (16.70%), suture awareness and suture sinuses (7.70%)[4]. In this study wound pain was the commonest complain (10.70%) and in some cases took time to settle. No special treatment was necessary. Assurance and analgesics helped solve the problem.

Long term follow-up could not be done because of difficult patient communication and compliance. Those reported with wound problems within two years of operation have shown with incisional hernia (2) and suture knots (5). Studies elsewhere have shown the incidence of incisional hernia is least with nylon in comparison to any other suture material[7]. Palpable subcutaneous suture knots do not disturb much but are undesirable and can be avoided easily by burrying the knots deep to linea alba. Though nylon can be used for closure of other abdominal incisions with safety, combination of midline incisions and single layer closure with fishing nylon appears to be very satisfactory.

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REVIEW ARTICLE

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Maternal Weight Gain and Foetal Size

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Introduction :

Foetal growth in utero is influenced by maternal, placental, foetal, nutritional and environmental factors. Amongst them, maternal nutritional status before and during pregnancy are very important as they can be assessed and intervened easily. High level of low birth weight (LBW) in our country and high prevalence of malnutrition amongst mothers may suggest relationship amongst them.

Maternal nutrition and food supplementation during pregnancy to improve maternal health as well as foetal health has attracted researcher for long. Recently, there is a resurgence of that interest and different national and international organisations are taking actions in this respect. The Bangladesh National Nutrition Council has launched a programme called Bangladesh Integrated Nutrition Project (BINP), sponsored by the World Bank, and one of its intervention component is to provide nutritional supplement to the pregnant and lactating women.

In recent years, certain cautionary notes have been expressed by some of the experts regarding food supplementation. The argument is that increased birth weight in a mother may result in increased obstructed labour and necessity of operative delivery due to increased size of the newborn[1]. The morbidity related to obstructed delivery means morbidity to both mother and newborn. The maternal morbidity would include vesico-vaginal or recto-vaginal fistula, vaginal stenosis in addition to more common perineal tear and genitourinary prolapse. All these carry mild to devastating effect on the victim's personal and family life. Thus, it is urgent to consider the alternative of maternal food supplementation. The present review will try to give evidence for and against, so far published, which may help the planner in targeting the supplementation programme.

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Physiology and anatomy of child birth and foetal weight :

In developed nations, a normal healthy term new-born is about 50 cm in length, 3200-3500 gm in weight, with bi-parietal diameter of head of about 9.50 cm. In the same population ultrasonographic studies showed that foetal head size do not cross the limit of 9.50 cm at term[2] (unless the mother is obese or diabetic). The normal pelvic true conjugate is 11.43 cm (minimum 10.80 cm). But the average value of obstetric conjugate varies from 11.20 cm to 11.80 cm. The transvrse diameter of the brim varies from 12.60 cm to 12.90 cm. The interspinous diameter is 10 cm to 10.80 cm[2]. In Bangladesh, the average birth weight is 2667 to 2860 gm[3]. The incidence of low birth weight is 26.70% and that of very low birth weight is 0.90%[3]. About the pelvic measurement, there are no cross sectional data from Bangladeshi community but experience suggest that 'true contracted pelvis' conditions are very rare.

'Starvation' and 'protein turnover' studies suggest that it is not easy to cross the limits of foetal anthropometric measurements beyond their normal limits by increasing only the materal nutrition[4]. Foetus uses calories primarily for maintenance, rather than growth. The caloric intake of the foetus has two components- 'building block or growth component' and 'heat production component'.

It was also seen in comparable animal studies that one third of maternal glucose is used by uterus and utero-placental tissue. On the foetal side, its brain is an obligatory consumer of glucose and the metabolism of human brain is very active during perinatal period. The distribution of maternal weight gain in pregnancy is such that about two thirds of the weight gain is related to absolute factors like the uterus, placenta and liquor amnii. In a 12.50 kg weight gain of pregnancy, 4.00 kg is therefore her obligatory weight gain. Of the rest, 5.20 kg is her actual weight gain in the form of fat and extracellular fluid[4], and only 3.30 kg is the foetal weight (Table-I).

Table – I

Breakdown of maternal weight gain

For the poor (An appeal)		For the rich (A must)
Foetus	2,500 gm	3,300 gm
Placenta	500 gm	650 gm
Liquor amnii	700 gm	800 gm
Uterus	800 gm	900 gm
Manna	300 gm	405 gm
Maternal blood	1,000 gm	1,550 gm
Total	5,800 gm	7,605 gm
Fat and ECF	4,000 gm	5,200 gm
Grand Total	9,800 gm (9.80 kg)	12,805 gm (12.80 kg)

The importance of foetal birth weight :

Foetal weight gain is far from a simple issue. There are many known and as yet unknown factors that influence foetal weight. It is now established for years that there is a strong positive correlation between maternal weight gain and foetal birth weight. Birth weight increases with maternal weight gain. If gestational age is held constant, maternal pre-pregnancy weight and pregnancy weight gain are the primary determinants of foetal weight[5]. Obviously, this increase is not unlimited. It was observed that infant birth weight reached a plateau at a higher level of maternal weight gain for underweight, black, adolescent, smoker and anaemic mothers than for other mothers[6]. On the other hand, inadequate maternal weight gain is associated with foetal growth retardation. It is now an established fact that low birth weight is an important cause of perinatal death. It has been seen that neonatal mortality is least when birth weight is between 3500-3999 gm[7]. Neonatal mortality rises more sharply as the birth weight decreases. In addition to the reduction in the survival rate of underweight neonates, those who survive may show higher prevalence of morbidity into their adult life[8].

It was seen in follow up studies that incidence of growth failure ranges from 10-40% when very low birth weight (<1500 gm) infants are seen at follow up[9].

On the other hand, autopsy study for perinatal mortality shows that death due to cerebral haemorrhage decreases significantly as the birth weight increases[10].

Some other factors influencing birth weight :

Though maternal weight gain is very important factor for foetal weight gain, there are other factors that interact. The increase in foetal weight is not only related to nutrition. It was seen in African studies that antenatal care also contributes to increased foetal weight[11,12].

Maternal weight gain and foetal weight is also related to work load. A study in Ethiopia concludes that women engaged in heavy work had a weight gain of 3.30 kg in pregnancy, leading to their children's birth weight of 3060 gm on an average, and inactive women gained 5.90 kg leading to their children's birth weight of 3270 gm on an average[13]. Such relationship was found in India also[14].

Maternal nutritional requirements and related situation in Bangladesh :

The pregnant woman in Europe and the United States gains 10 to 12 kg in pregnancy. Studies in several low income countries report average pregnancy weight gains of only 2-7 kg. In

countries like Bangladesh and India, women in preganancy and lactation receive only a fraction of FAO/WHO/UNU recommended diet[15].

At present, the American College of Obstetricians and Gynecologists recommends a weight gain of 10 to 12 kg (22 to 27 lb) during pregnancy. Underweight women may need to gain more, while obese women are recommended to gain not more than 6-9 kg. The average women weighing 58 kg has a normal dietary intake of 2300 Kcal/day in USA. An additional 300 Kcal/day is recommended during pregnancy and 500 Kcal /day during lactation[16].

The amount of maternal weight gain which is associated with maximum infant survival is known as 'optimal maternal weight gain'. Based on studies, this is accepted as 20 to 30 lb (9-14 kg) for non-smoking white adults of average built[5]. In Bangladesh, calorie intake for women is 29% lower than men. Mean weight and height for Bangladeshi women are 40 kg and 147.50 cm respectively. Their average weight gain during pregnancy is 4.70 kg (range 4-6 kg) only, which means that they are actually loosing 1-2 kg of their own weight during pregnancy[17].

Seventy percent of pregannt women suffer from malnutrition in Bangladesh. Sixty percent of them are anaemic. About 50% of girls are given to marriage before the age of 18 years. More than 80% of these girls become pregnant by the age of 18 years. The one very important effect of this poor maternal nutritional situation is reflected in the fetal birth weight. Mean birth weight in Bangladesh is 2667 gm. The incidence of low birght weight neonate is 26.70%, and that of very low birth weight is 0.90%[18].

The issue of food supplementation :

The idea of supplementary feeding in Bangladesh is to try to provide the minimum required levels of calorie, or a level close to it, to undernourished women. It has been reported in a comparative analysis of the nutritional effectiveness of food subsidies and other food related interventions that a programme is commonly intended to improve growth or decrease mortality, including the improvement of the outcome of pregnancy. It was also suggested in the study that the critical months for interventions are the last trimester of pregancy and first 36 months of an infant's life[19].

It appears from the Tamil Nadu Integrated Nutrition Project (TINP) that supplementary feeding in pregancy should start at second trimester to make it effective. There is some evidence that inadequate maternal weight gain is specially detrimental during the third trimester of pregnancy. But pattern of tissue growth during pregnancy suggests that poor weight gain early in pregnancy has the potential to compromise maternal plasma volume expansion and development of uteroplacental vascular bed[5]. These ideas are also supported by the fact that undernourishment in early embryonic and infant life effects both the skeletal and brain growth in experimental animals and in human being[20,21].

It was seen in a randomized controlled trial in East Java that the children whose mothers were provided with high energy food supplementation in pregnancy were significantly heavier for two years and taller for five years in relation to those whose mothers received low energy food supplementation[22]. But some of the experts have suggested caution, because they think that criteria of 'maximum foetal birth weight' is not synonymous with that of 'maximal infant survival'[6]. They have, therefore, suggested further investigation of the relationship between maternal weight gain and infant outcomes other than the 'birth weight'.

There is substance in Garners observation that 'supplementation should primarily be targeted to maternal malnutrition, not primarily to increase the foetal birth weight'. This is definitely a more rational approach

from all aspects as long as it is understood that satisfactory increase in foetal weight may be only one of the outcomes of a satisfactory maternal nutrition. Increasing the maternal nutrition, where it is not needed, is not needed at all.

The supporters of 'eating down' in pregnancy have suggested that supplementing nonpregnant adolescent girl is 'the solution'. The idea of supplementary feeding to adolescent girl is most welcome. But adolescent pregnant women should need even more so. In the 'Zaria series', teenage pregnant women under 16 years age grew upto 16 cm during pregnancy. Those who took iron and folic acid (and antimalarial drugs) grew most[23].

The result was a better pregnancy outcome in every respect. The number of pelvic contraction and disproportion were less. Foetal size was larger, but there was much less need of operative delivery. Harrison, therfore, declares, "even if we cannot eliminate the harsher form of mass poverty and deprivation, the possiblity now exists to reduce the death and injuries from obstructed labour by dietary supplementation and maternal chemoprophylaxis during pregnancy"[24]. But this view has been challenged by others. It is also reported by one study that too much of weight gain currently suggested (30 to 40lb), in adolescent mothers, has been associated with increased perinatal mortality among white mothers. In fact, the foetal weight gain and pattern of weight gain necessary to assure 'optimal intrauterine growth' during adolescent pregnancy is unknown[6].

Cultural belief :

Cultural beliefs about 'eating down' in pregnancy present in many population all over the world[15] exists in Bangladesh also. Diametrically opposite idea exists in some of the Arab countries (where one of the authors have worked for five years), where maternal mortality and morbidity undoubtedly is very low. Wishing to eat less during pregnancy is one of those cultural beliefs that are based on ignorance. While 'thin is beautiful' norm in western culture is beginning to draw serious research attention[25], due to some of its health impacts, diametrically opposite 'fat is beautiful' concept is still widespread almost all over Arab countries, where there is very little research attention is given as yet. Considering the fact that, clinically, the Arab female appears to be immune from the usual ill effects of obestiy, it would be most interesting to study them.

Paul Garner and co-authors, who are against supplementation, argues themselves, "if pregnant women living in an endemic area for malaria were aware that antimalarial prophylaxis can also increase foetal growth, they might regard the advise to take such drug as suspect too". Surprisingly, Garner did not suggest that chemoprophylais against malaria should be stopped too[1].

Jelliffe advised nutritionists in public health years ago to reinforce cultural beliefs and practices that are ' positive' for nutrition to leave neutral practice alone and to change out those beliefs and practices that are negative[25].

The argument which upto now the proponents of reducing foetal birth weight are advancing in favour of the cultural beliefs is this, "that it is difficult to refute the perception of people that restricting diet will decrease difficulties in child birth on the basis of existing evidence from controlled experiments"[1].

One can conclude from such argument that upto now there is no specific evidence to support the view that restriction of 'maternal nutrition' reduces difficulties in childbirth. On the other hand, we have enough evidence to conclude that restriction of maternal nutrition is harmful both for the child and the mother[25].

Obstructed labour in relation to birth weight :

Obstructed labour as a cause of maternal death is reported to be 6.2-11% by different

authors in Bangladesh[26]. Globally, according to WHO estimates, the incidence of obstructed labour and percentage of maternal death stands at five and eight percent respectively in 1993[27].

Obstructed labour is not always caused by CPD. The majortiy of obstructed labour in our country are possibly due to malpresentations, cervical dystocia and mismanagement[28]. It is also known that the diagnosis of contracted pelvis is often wantonly made in order to explain difficulties encountered in forceps delivery which are more often due to faulty technique or a tight pelvic floor, and this type of faulty diagnosis is considered as one of the components with which patients are admitted to hospitals after a failed attempt at forceps delivery in UK[2]. CPD does not depend on these measurements alone. Shape of the pelvis, it's angle of inclination, any other deformity of pelvis, even deformities of lower limbs or spine may lead to CPD or obstructed labour. Even a smaller head may not be able to negotiate such problems. A true conjugate of 8.90 cm or less represents gross pelvic contraction and according to Donald, a baby small enough to negotiate such straits is often too fragile to do so in safety[2].

It may be mentioned here that induction of premature labour is a standard procedure in the management of CPD in some very selected situations. But the price of prematurity may be heavy to pay. Since prematurity is defined both by gestational period and birth weight of baby, those babies that are deliberately kept under weight by restricting maternal nutrition below that normal requirements, will also have to pay the price of prematurity accordingly.

In an analysis of 20,119 deliveries at Dhaka Medical College Hospital, Dhaka, 21.07% had caesarean section. Dystocia (4.86%) and malpresentations (3.42%) were the causes of the majority of the caesarean sections. Surprisingly, no cephalopelvic disproportion was reported. Outlet contraction as an indication of forceps delivery was only 0.17% of total deliveries[28]. Similarly, in a 'perinatal mortality' study in rural India on 1,065 pregnant mothers, in special reference to high risk pregnancy, 17.11% mothers were found to have undergone prolonged labour. But unfortunately, no data was shown on CPD or obstructed labour in this study[23].

The available data in Bangladesh up to now indicates that, epidemiologically, CPD is not likely to be a significant cause of maternal mortality or morbidity in Bangladesh. In this relation it is interesting to see that, in the UNICEF study, most of the low birth weights (LBW) are at 'early' and 'late' ages of the mothers[7]. Obstructed labour also affects mostly these ages. This observation is strongly corroborated by the fact that almost all victims of vaginal fistulae in Bangladesh are inflicted with the curse at a very early age, usually when they are in their teens. In our hospitals, most of the rupture uterus are also seen at the two extremes of ages.

But it is necessary to control maternal weight to a certain extent. Macrosomia is related to maternal obesity, postmaturity, diabetes etc. But even in these cases there is no evidence of excessive increase in the foetal head size[2]. It is the body mass which increases excessively, leading to increased number of shoulder dystocia. This in turn, leads to 6% to 23.6% perineal trauma compared to 0.30% to 1% in controls; and failure of progress, leading to neglected obstructed labour, caesarean section etc. It is also considered that the incidence of shoulder dystocia correlates not only with progressive foetal weight, but also with increased chest to head circumference[4].

On the other hand, there is plenty of evidence to prove that proper maternal nutrition leads to a generation of healthier children and healthier mothers leading ultimately to better obstetric outcome. Such outcome is also destined to bring down the incidences of vaginal fistula in the population. Speaking epidemiologically, it is therefore obvious from

the evidence that improving maternal nutrition, where it is required, instead of causing vaginal fistula, will decrease them.

'Zaria study' has shown that, for a given maternal height, the 'operative delivery rate' increases with increasing foetal birth weight. It was also concluded that, with increased nutrition, infants of adolescent mothers will be better grown and pregnant mothers will give birth to larger babies, leading to some increase in operative delivery. This is so because these pregnant women usually will not increase in height and their pelvis will not enlarge within these few months of her present pregnancy. But their well nourished babies, if allowed to born healthy, will develop proper, roomier pelvis in course of time[29].

WHO concludes that the prevention of obstructed labour and its sequelae requires action on both medical and sociocultural level. In the context, first and foremost is the need to reduce the proportion of women with pelvic contraction in the child bearing population[29].

In this respect, it has already been found that administration of folic acid and antimalarial drug during pregnancy reduces CPD by promoting maternal (as well as foetal) growth in teen age pregnancy[30].

The concept of 'maternal depletion syndrome' was introduced in 1960 to refer to the interaction of several social and biological factors that collectively produce a clinical syndrome of physical depletion. The factors, among others, include effects of closely spaced cycles of pregnancy and lactation, age, parity etc. There was no proper assessment in relation to some of these fctors and other social and biological factors. All these show that there is much yet to understand about maternal nutrition and depletion through more careful study[15].

The physiological relationship between maternal calorie intake, weight gain and birth weight is not yet fully understood. These need further study.

Studies so far done in Bangladesh could not substantiate that the maternal mortality and morbidity have any significant relationship with increased maternal nutrition or even with CPD. Cephalopelvic disproportion exists. But we do not know its incidence in Bangladesh. Is it high ? Europe used to suffer high inciednce of CPD due to rickets in the past. Sunshine in Bangladesh always prevents high incidence of rickets.

Some of the arguments may be used by the supporters of 'eating down in pregnancy', since there would always be some cases of obstructed labour and its consequences in the absence of 'operative delivery'. But it is also known that during an 'epidemiological transition phase', deterioration in some of the parameters are usual after an intervention before it peaks up[15]. The solution does not lie in perpetuating the vicious cycle of 'maternal malnutrition --low birth weight-- stunted growth--and deliberate maternal malnutrition'. The solution obviously is lying in the increased 'operative delivery' which again will come down once the mothers are taller[15]. Fortunately, a targeted food programme will automatically screen out stunted or CPD cases, which then could be subjected to operative delivery. The present controversy is about obstructed labour and its consequences. There can be no objection to 'operative delivery'.

For the adolescent pregnant mother, supplementation is supposed to be even more helpful. It may even reduce CPD. But there is need for further investigation into various factors related to the adolescent pregnancy and their interactions before maximum weight gain advisable for adolescent pregnancy is agreed. These factors may include reproductive immaturity, incomplete maternal growth, diminished maternal body size, nutritional deficiencies, socio-economic and behavioral factors, maternal emotional stress etc. Adolescent mothers transfer a smaller fraction of the weight they gain during pregnancy to the foetus than do the adult mothers[6]. Solution

of some of these related problems may improve the foetal birth weight of the adolescent pregnant mothers by itself. It may still be a long way to fully understand the complex relationship between maternal factors, evironment and offspring; but majority evidence are still suggesting that if we follow the logic of achieving a satisfactory level of lifestyle, including of nutrition, we have more to gain than of loosing.

Conclusion :

It may be concluded that it is harmful to restrict the nutrition of pregnant mother below it's normal requirements, since such restrictions contribute to maternal and perinatal losses in addition to producing a stunted population. Preventing foetal weight gain for fear of obstructed labour is a negative attitude towards health and nutrition. At the most, it is the increased operative rate (which is also debatable) which can be an area of concern. The solution of obstructed labour is operative delivery, not decreasing foetal size. The question of restricting maternal food to reduce the foetal head size from 9.50 cm at term to something like nine or 8.50 cm is definitely unwise. It is like cutting the toes off to fit a smaller shoe.

In relation to the concept of 'optimal weight gain', one may conclude that, epidemiologically, the question of maximum weight gain does not yet arise in Bangladesh. We have not even arrived at the minimum weight gain level.

Finally, therefore, it is concluded that increasing maternal nutrition through food supplementation or some such other approach is not harmful for the mother or child provided that the increased nutrition is primarily directed towards alleviating maternal malnutrition. Further research in this regard needs to be done urgently in our population to confirm or contradict the conclusion.

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CASE REPORTS

Hand-Schuller-Christian Syndrome - A Case Report

MA HANNAN, FCPS

Summary :

A case of Hand-Schuller - Christian Syndrome – the rarest variant of Langerhan's cell granulomatosis is presented. For the first time this syndrome is followed up for more than three and a half years in Bangladesh. The patient had typical triad of multiple osteolytic lesions, proptosis and diabetes insipidus of cranial type. Histopathology of lesions revealed eosinophilic granuloma. The patient was treated with methotrexate every alternate day for about six months which produced no side effect. She showed clinical and radiological improvement following chemotherapy. She can be stated to be cured as she has showed no relapse after discontinuation of chemotherapy for about three years. At present, she is leading a normal life with normal growth except mild degree of diabetes insipidus which may be due to irreversible partial damage of posterior pituitary or hypothalamus.

(J Bangladesh Coll Phys Surg 1996; 14 : 121-125)

Introduction :

Hand-Schuller-Christian Syndrome is the rarest variant of Langerhan's cell (eosinophilic) granulomatosis. Histiocytosis X is the outmoded term of Langerhan's cell granulomatosis. These are a group of uncommon disorders of unknown aetiology which include unifocal Langerhan's cell (eosinophilic) graulomatosis, multifocal eosinophilic granuloma, Hand-Schuller-Christian syndrome and Letterer-Siwe disease. Letterer-Siwe diseases is now considered as an unusual form of malignant lymphoma which occurs in infants. Other conditions usually run a benign course. Histopathologically, Langerhan's cell granulomatosis consists of aggregation of mature eosinophilic and Langerhan's cells. Langerhan's cells are specialized bone marrow derived cells normally found among epidermal cells of skin and rarely in B-cell areas of lymph node and medulla of thymus. They contain distinct cytoplasmic granules (Birbeck granules), adenosine triphosphatase and alpha naphthyl acetate esterase. Surface markers of Langerhan's cell include class-II major histocompatibitily antigens and CDI antigens.

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The classic triad of Hand -Schuller-Christian syndrome (exophthalmos, diabetes insipidus and destructive bone lesions) occur in 25% cases of multifocal eosinophilic granuloma. But it may also occur in malignant lymphoma and carcinoma. There is no specific laboratory abnormality for the diagnosis of Langerhan's cell granulomatosis. It is to be confirmad by biopsy of the lesion. The cases should be followed up at six months intervals for about three years as they may relapse[1].

Case report :

A girl of about six years age presented on 08.09.91 with complaints of gradual swelling in the occipital region of head followed by watery discharge for about eight months, outward bulging of right eye ball for seven months, fall of right lower first molar tooth about seven months back and increased urination accompanied by intense thirst for about six months. It was accompanied by low grade pyrexia and slight weight loss. Polydipsia was so intense that she used to drink water and to void large volume of urine after arising from sleep severel times every night. She had no complaint of headache, vomiting, convulsion, visual or aural disturbance or pain on movement of eye ball. She did not suffer from dysuria, cough, haemoptysis or chest pain. Her appetite was good and her bowel habit was regular. She was vaccinated with BCG. Her past and family history were non-contributory.

On examination, she was found anaemic with average body built. She had proptosis on right side (Fig.-1) with no restriction on eye movement. There was discharging sinus on the right side of occipital region (Fig. -2) which yielded on pressure and was non-tender. There was sign of absence of right lower first molar tooth with painless small ulceration on the tooth site. Fundoscopy was normal. There was no neurological deficit. Examination of other systems revealed no abnormality.

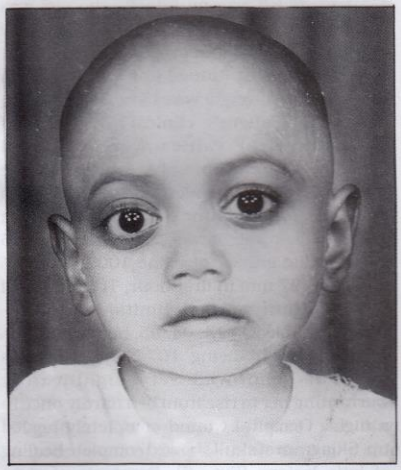

Fig-1 : *Photograph of face showing proptosis on the right side (before treatment)*

Fig-2 : *Photograph of head showing discharging sinus on the right side of occipital region (before treatment)*

Urine for routine and microscopic examination was unremarkable except specific gravity which was 1000, hoemoglobin was -58%, TC of WBC- 11, 500/cu mm, DC of WBC showed mild eosinophilia (8%), PBF-unremarkable, and ESR -65 mm in first hour. Blood sugar (random) was 5 mmol /L. Skiagram of chest showed a small round translucency in mid-zone of right lung. Skiagram of skull revealed multiple osteolytic lesions giving the appearance of geographical skull (Figs.-3a and 3b). Plain X-ray of KUB region was normal. Monteux test was negative. Serum calcium - 2.4 mmol/L, alkaline phosphatase-58 u/L, blood urea -5.6 mmol/L, creatinine-120 micromol/L, sodium-136 mmol/L, potassium

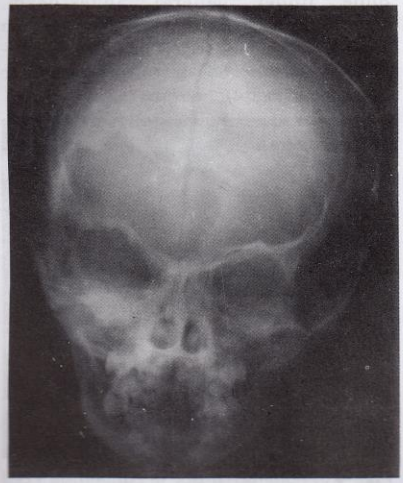

Fig-3 a : *Photograph of X-ray of skull (A/P view) showing multiple osteolytic lesions giving the appearance of geographical skull (before treatment)*

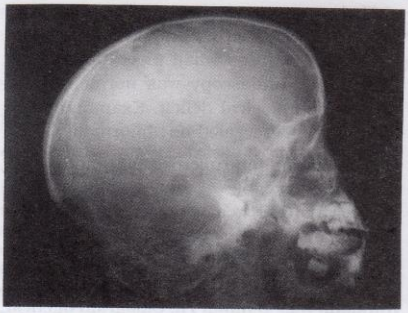

Fig. -3 b. : *Photograph of X-ray of skull (right lateral view) showing large osteolytic lesion on the occipital region (before treatment). Fall of tooth of right lower jaw is also seen*

3,7 mmol/L, chloride-101 mmol/L and TCO2-24 mmol/L. Ultrasonography of abdomen was normal. Water deprivation test revealed diabetes insipidus (cranial type). Biopsy was done under general anaesthesia. Histopathological examination of tissues from lesions of occipital region including a sub-occipital lymph node revealed eosinophilic granuloma (Fig.-4).

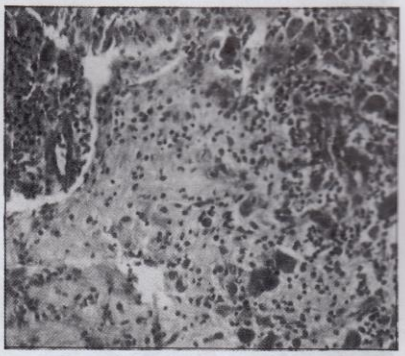

Fig. -4 : *Photomicrograph of Langerhan's cell granulomatosis showing loose granulation tissue heavily infiltrated with lymphocytes, foamy histiocytes, neutrophils and moderate number of giant cells and plasma cells*

Triad of proptosis, multiple osteolytic lesions and diabetes insipidus supported by histopathological findings confirmed the diagnosis of Hand-Schuller-Christian syndrome.

As the disease was multifocal, the girl was treated with methotrexate, 2.5 mg every alternate day. Treatment was started on 12. 11.91 and was continued upto 12.04.92. On 12. 11. 91, her weight was 15 kg, height being 102.5 cm. Patient's clinical features and haematological values were reviewed throughout the course of treatment. There was gradual improvement of diabetes insipidus, proptosis and occipital wound . On 30.11.93, her weight was 17.2 kg, height 105 cm, specific gravity of urine-1002, Hb-60% and ESR -27 mm in first hour, TC and DC of WBC- within normal limits, and PBF-unremarkable. On 14. 04. 95, her weight was 18.5 kg, height being 107.5 cm. Diabetes insipidus improved very significantly warranting her to rise from bed hardly once in a night. Occipital wound completely healed up. Skiagram of skull showed complete healing of lytic lesions (Fig. -5). Proptosis of right eyeball almost completely regressed (Fig. -6).

Fig. -5 : *Photograph of X-ray of skull (Lateral view) showing complete healing of large osteolytic lesion of the occipital region (after treatment)*

Fig.-6 : *Photograph of face showing improvement of proptosis on the right side (after treatment)*

Discussion :

Hand-Schuller-Christian syndrome is rarest among Langerhan's cell granulomatosis although unifocal Langerhan's cell granulomatosis is reported[2]. Mackenzie et al reviewed 48 patients of eosinophilic granuloma but none had Hand-Schuller-Christian syndrome[3]. There were multiple lytic lesions in the skull sparing the temporal bone in the present case. Hadjigeorgie et al reported six cases of eosinophilic granuloma which presented with chronic otorrhoea due to involvement of the temporal bone[4]. This may be confused with aural infection or neoplasm. Unusually, bloody diarrhoea may be initial feature of Langerhan's cell granulomatosis. Lee et al described such a case in an infant which was diagnosed by rectal biospy[5]. In the present case, there was no diplopia although the patient had marked proptosis on the right side. Maccumber et al narrated a case of aggressive histiocytosis *X* with proptosis and diplopia[6]. Osteolytic lesions of the skull resolved completely after about four years in this case. Von-Essen et al found a case of histiocytosis *X* with extensive pulmonary involvement which resolved after three years[7]. Affection of lower jaw is in congruity with the observaion of Artzi et al who observed that lower jaw was significantly more affected (79%) than the upper jaw in this disease[8]. Dunger et al observed that diabetes insipidus occurred almost exclusively in Langerhan's cell granulomatosis with multisystem involvement and specially with proptosis[9].

The present case was treated with methotrexate which yielded very significant improvement without any side effect. She was followed up for more than three and half years. She showed no relapse. At present she may be considered to be cured except mild degree of residual diabetes insipidus which may be due to irreversible partial damage of posterior pituitary or hypothalamus.

Acknowledgement :

I express my utmost gratitude to Prof. K.M. Nazrul Islam, Professor of Pathology (Retd.), IPGMR for carrying out the arduous task of histopathological examination and for his valuable suggestions.

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Myositis Ossificans Progressiva

MKD CHOWDHURY, FCPS

Summary :

Myositis ossificans progressiva (MOP) was diagnosed incidentally in a boy of eight years who was admitted in paediatric surgery unit of Rajshahi Medical College Hospital for correction of congenital hypospedius. This is a very rare crippling condition of childhood caused by progressive ossification of skeletal muscles with resulting fusion of joints. The aetiology is still obscure. Spontaneous onset of the progressive process in early childhood without antecedent trauma established the diagnosis of the unusual condition in the reported case.

(J Bangladesh Coll Phys Surg 1996; 14 : 126-128)

Introduction :

Myositis ossificans progressiva (MOP) is fortunately a very rare congenital progressive disease which commences in childhood and slowly kills the victim. The first lesion takes the form of doughy and sometimes painful swellings particularly in muscles of back and neck. These swellings subside leaving areas of fibrosis in which bone is gradually formed [1,2]. In MOP, in fact, muscles are only secondarily involved in ossification, the nature of which is obscure. It is inherited as dominent characteristics and starts without antecedent trauma before or shortly after birth. On progressive calcification the interphalangeal joints of thumb, large toes and the spine are liable to fuse. All joint motions are finally lost. The patient dies of intercurrent infection[3].

Extreme rarity of the condition ever reported in our national literature is the reason of present reporting of the case.

Case report :

The eight years old boy was admitted in paediatric surgery ward of Rajshahi Medical College Hospital for the treatment of congenital proximal hypospedius. Prominent bony ridges were discovered incidentally on his back (Fig.-1).

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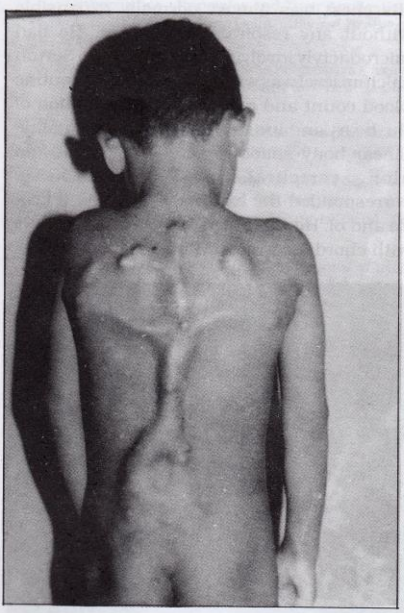

Fig- 1 : *Bony disfiguration of the patient*

The condition appeared spontaneously without any traumatic insult firstly at scapular region as slightly painful doughy sewlling at three years of age and then spreaded downwrds along paravertebral region. Subsequent joint stiffness resulted in ankylosis of the spine and restricted movement of shoulder. Pressure sore was noted in the back over the bony

prominence. He could manitain squatting, walk freely with limited speed, open his mouth quite to full extent and move head around. There was gross atrophy of back muscles.

The boy was the fifth of seven children of his healthy non-consanguineous parents. There was no history of such illness or disability affecting any of the brothers or sisters or distant relatives either on the maternal or paternal side. He was of average height (110 cm) and weight (17 kg), slim and intelligent. His chest was almost normally expansible without any respiratory complain. He had microdactyly involving both great toes. Serum calcium level was within normal limit. Routine blood count and radiological examination of the heart and lungs showed no abnormality. Linear bony shadows across the chest and along vertebral line on plain X-ray corresponded the external deformily (Figs.-2a and b). He was released from hospital duly with chordae correction (first stage operation).

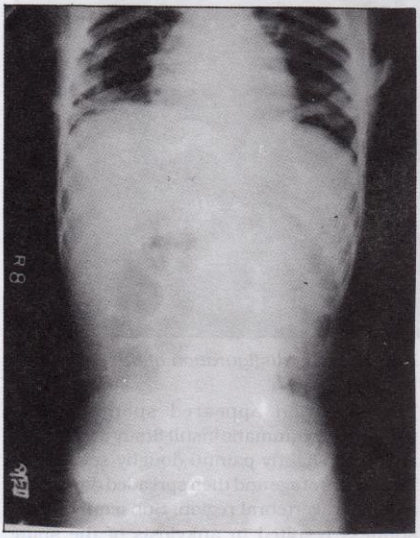

Fig-2a: *X-ray showing progressive ossification of back muscles (AP view)*

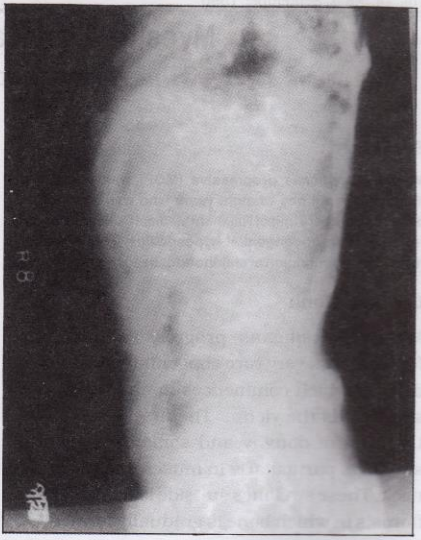

Fig-2b: *X-ray showing progressive ossification of back muscles (Lateral view)*

On subsequent hospitalisation after six months for second stage procedure (arthroplasty), restricted movement of jaw and neck was noted in addition to fibrotic involvement of myclohyoid and sternomastoid muscles on the right side. The patient returned home with successful operative result but without any help for this crippling dysplastic condition.

Discussion :

The manifestations of Myositis Ossificans Progressiva (MOP) become evident following repeated episodes of ossification[3]. The first and second reported cases from Nigeria involved children of three years and five years of age respectively[4,5]. The age of clinical manifestation is thus significant in this reported case.

Inheritence of gene is considered by some authors to be disrupted either due to inability to reproduce or limited incidence of marriage

by affected person[5]. Thus no such linkage could be sought out in the boy's family and fresh spontaneous mutation is suggested.

In addition to all typical and frequent concomitants, an occasional feature of pressure sore was evident in this reported case[2,5,6].

Spreading down of lesion signifies ongoing pathogenesis of ossification starting at upper back muscles particularly trapegius and latissimus dorsi and then involving the paravertebral muscles[3].

Partial ankylosis of the jaw on subsequent visit with gross impairment of neck movement is definitely pointing out the progression of the proccess in this case[6], and the kid is still maintaining an optimum body weight with average nutritional balance and absence of too much involvement of the systems.

The only significant laboratory findings of an occasional elevated eosinophil count is absent here. This is thought to be a marker of response to corticotrophin therapy[3].

Other conditions of ectopic calcification of muscle as myositis ossificans traumatica and non-traumatising myosites ossificans could be ruled out because of absence of history of trauma or lacalized involvement of muscles[7,8].

The associated hypospedius is quite uncommon and cannot be correlated. This unusual finding may be a coincidence.

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COLLEGE NEWS

(J Bangladesh Coll Phys Surg 1996; 14 : 129-131)

Continuing Medical Education :

8-5-96	Prof. Matiur Rahman Porfessor of Nephrology (Retd.) IPGMR, Dhaka. Delivered lecture on " Chronic renal failure " .
23-5-96	Dr. U.H. Shahera Khatun Associate Professor of Anaesthesiology National Institute of Ophthalmology, Dhaka. Delivered lecture on "Pre-anaesthetic assessment and pre-medication".
14-8-96	Dr. Laila Arjumand Banu Consultant, BIRDEM Hospital Shahbagh, Dhaka. Delivered lecture on "Pregnancy with Diabetes Mellitus".
22-8-96	Dr. S. N. Aditya Assistant Professor of Surgery Rangpur Medical College Hospital, Rangpur. Delivered lecture on "Chronic lower limb ischaemia".

Examination News :

Results of FCPS Part-I, FCPS Part-II and MCPS Examinations held in July 1996 are given below :

651 candidates appeared in FCPS Part - I Examination held in July, 1996 of which 41 candidates came out successful. Subjectwise results are as follows :

Subject	Number appeared in theory examination	Number qualified for viva-coce	Number passed
Medicine	151	20	9
Surgery	152	40	8
Paediatrics	79	17	4
Obst & Gynae	120	24	9
Ophthalmology	34	5	1
Anaesthesiology	17	2	2
ENT Diseases	21	4	3
Psychiatry	8	0	0
Radiology	12	3	2
Radiotherapy	5	2	1
Physical Medicine	5	1	0
Dermatology & Venereology	18	1	1
Haematology	22	2	1
Biochemistry	3	0	0
Microbiology	1	1	0
Histopathology	3	0	0
Total	651	122	41

127 candidates appeared in FCPS Part-II Examination in different subjects. List of canndidates who satisfied the board of examiners is as follows. :-

Roll No.	Name	Graduated from	Speciality
5.	Dr. Md. Abdul Kader Khan	Rangpur Medical College	Medicine
8.	Dr. Syed Nasir Uddin	Dhaka Medical College	Medicine
23.	Dr. Md. Abdul Mannan	Rangpur Medical College	Medicine
26.	Dr. Minhaj Rahim Choudhury	IPGMR	Medicine
29.	Dr. Mohammad Shafiqur Rahman	Dhaka Medical College	Surgery
36.	Dr. Rayhana Awwal	Dhaka Medical College	Surgery
44.	Dr. Hasan Imam Al Hadi	Dhaka Medical College	Surgery
48.	Dr. Md. Habibur Rahman	Mymensingh Medical College	Surgery
49.	Dr. Jashim Uddin Ahmed Chowdhury	Sylhed Medical College	Surgery
51.	Dr. K. G. M. Iqbal	Sylhet Medical College	Surgery
67.	Dr. Abu Hasan Md. Abdullah	Sylhet Medical College	Paediatrics
68.	Dr. Rokeya Khanam	Sylhet Medical College	Paediatrics
70.	Dr. Sayeeda Anwar	Chittagong Medical College	Paediatrics
71.	Dr. Md. Mahbubul Hoque	Mymensingh Medical College	Paediatrics
75.	Dr. Sarwar Jahan Bhuiyan	Chittagong Medical College	Paediatrics
76.	Dr. Abu Jafar Mohd. Sadeque	Chittagong Medical College	Paediatrics
78.	Dr. Shaheed Mahmood Wares Ali Sarker	Rajshahi Medical College	Paediatrics
84.	Dr. Rehana Begum Chowdhury	Sylhet Medical College	Paediatrics
90.	Dr. Mushfique Ahmed Chowdhury	Sylhet Medical College	Obst. & Gynae
91.	Dr. Shamim Fatema Nargis	Sher-e-Bangla Medical College	Obst. & Gynae
96.	Dr. Fatema Khatun	Sher-e-Bangla Medical College	Obst. & Gynae
99.	Dr. Sarwar Alam	Dhaka Medical College	Ophthalmology
102	Dr. Md. Nazmus Saadat	Sylhet Medical College	Ophthalmology
103.	Dr. G. M. Abu Zafar	Dhaka Medical College	Ophthalmology
107.	Dr. Md. Abu Hanif	Chittagong Medical College	ENT Diseases
109.	Dr. Md. Azizul Islam	Sylhet Medical College	Psychiatry
110.	Dr. Md. Habibur Rahman	Mymensingh Medical College	Psychiatry
111.	Dr. Md. Salahuddin Al-Azad	Rajshahi Medical College	Radiology
113.	Dr. Mohammad Abdur Rahman	Rangpur Medical College	Anaesthesiology
114.	Dr. Md. Shahidul Islam	Sher-e-Bangla Medical College	Anaesthesiology
120.	Dr. Md. Shahidur Rahman	Dhaka Medical College	Physical Medicine
121.	Dr. Shamsun Nahar	Chittagong Medical College	Physical Medicine
122.	Dr. Sohely Rahman	Rajshahi Medical College	Physical Medicine
126.	Dr. Selina Akhtar	Rajshahi Medical College	Histopathology

162 candidates appeared in MCPS Examination in different subjects. List of candidates who satisfied the board of examiners is as follows :

Roll No.	Name	Speciality
6.	Dr. Sushanta Kumar Ghosh	Medicine
9.	Dr. Md. Humayun Kabir	Medicine
39.	Dr. Mohammad Nurul Islam	Paediatrics
40.	Dr. Sohel Akhter	Paediatrics
47.	Dr. Md. Sharip Saiful Hasan Al Zami	Paediatrics
51.	Dr. Sherif Muhammad Alamgir	Paediatrics
54.	Dr. Shanjoy Kumar Paul	Paediatrics
55.	Dr. Md. Shafiqul Islam	Paediatrics
56.	Dr. Ashok Das	Paediatrics
59.	Dr. Wadia Begum	Paediatrics
64.	Dr. Mariam Rabeya	Obst. & Gynae
109.	Dr. Salma Yasmin	Obst. & Gynae
110.	Dr. Md. Rezaul Karim	Ophthalmology
117.	Dr. Mohammad Zakiul Islam Faruque	Ophthalmology
119.	Dr. Kamal Haider Khan	Ophthalmology
124.	Dr. Md. Nazmul Huda	ENT Diseases
126.	Dr. Md. Abdus Salam Miah	Psychiatry
129.	Dr. Nihar Ranjan Kundu	Anaesthesiology
130.	Dr. Md. Intakhab Alam	Anaesthesiology
132.	Dr. Md. Helal Uddin	Anaesthesiology
135.	Dr. Md. Abdur Rashid	Anaesthesiology
137.	Dr. S.M.A. Al-Muid	Radiology
142.	Dr. S.M. Iqbalur Rahman Sikder	Clinical Pathology
144.	Dr. Md. Fakharuddin Bhuiyan	Clinical Pathology
147.	Dr. Md. Rezaul Karim Dewan	Clinical Pathology
150.	Dr. S. M. Muneeruzzaman	Clinical Pathology
152.	Dr. Md. Habibur Rahman	Family Medicine
153.	Dr. Md. Ahsan Ullah	Family Medicine
159.	Dr. A.N.M. Naushad Khan	Family Medicine

Workshop of the College :

A Workship on the (1) Course- Curriculum, (2) System of examination and (3) Training requirements for Fellowship examination of the College was held on 25-7-96 in the auditorium of the College. A total of 34 participants including Councillors, Senior Fellows, Teachers and Examiners of the College attended the Workshop. Finally, a number of recommendations on " Course-Curriculum" " System of examination and evaluation " and "Training requirement" for Fellowship examination of the College were made in the Workshop.