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## Hepatitis E

Epidemic and sporadic viral hepatitis is a common health problem in Bangladesh. This leads to morbidity and mortality in a large number of population. There are epidemics of viral hepatitis almost twice in every year in the months of March to May and September-October. The largest epidemic occurred in 1988 after a heavy flood. A recent study showed that one third of the adult epidemic jaundice in our country is caused by Hepatitis E Virus (HEV), whereas in the rest two third of the cases the virus is not yet identified<sup>1</sup>.

HEV causes a self limited, enterically transmitted ecologically determined acute viral hepatitis<sup>2,3</sup>. This disease was first recognised from an epidemic hepatitis in Kashmir, India in 1978<sup>2</sup>. HEV infection is a common disease in Indian sub continent, Asia and Africa. Unlike other viral hepatitis, HEV occurs in unimodal outbreaks which has a highly compressed curve of incidence or more prolonged epidemics with multiple peaks of incidence<sup>4,5</sup>. Nonetheless sporadic cases are found in between the epidemics.

This recently identified virus has a single strand RNA genome with a particle size of 32-34 nm. Hepatitis E occurs as a result of contamination of food and drinks with faecal particles frequently after rainy season or after flood. Several epidemics of HEV have been documented in the literature<sup>4-8</sup>.

HEV frequently affects adults between 15 and 45 years of age with lesser attack rate in children and elderly. Acute icteric disease is similar to those of hepatitis A. The onset of jaundice is usually accompanied by malaise, anorexia, abdominal discomfort and enlargement of liver.

About half of the patients develop fever and two-thirds complain of arthralgia. Liver function tests are suggestive of hepatocellular necrosis. The serum bilirubin and transaminase rise are

similar to that of acute hepatitis B. Transaminase elevation is monophasic, however cholestasis is a predominant feature in about 20% cases and should be differentiated from large bile duct obstruction<sup>2</sup>. Subclinical hepatitis may occur. There is no supporting evidence of chronic liver disease and persistent viraemia after acute HEV infection<sup>9</sup>. However, approximately 20% of the HEV infected pregnant women die in their third trimester<sup>10</sup>. The reason for this high mortality is not yet clear<sup>11</sup>. On the other hand, in non fatal cases complete clinical recovery is the eventual outcome.

The diagnosis of HEV until recently was done by exclusion of hepatitis A, B and C and epidemiological features. However, several methods have been developed which are immune electron microscopy, immune-fluorescence method, polymerase chain reaction and enzyme linked immunosorbent assay. All the tests are used as a research tool except the last one. ELISA kits are now commercially available. IgM antibody to HEV in a single serum sample is diagnostic of acute HEV hepatitis. However, presence of IgG anti-HEV alone in a specimen from acute viral hepatitis patient may be taken as a presumptive marker for the hepatitis E. This is because the overall seroprevalence of anti-HEV in the general population has been found to be very low.

The control of HEV depends upon improvement of sanitation, proper sewerage disposal and supply of safe drinking water. Besides, mass education and public awareness is the cornerstone for control of HEV infection. The vaccine of HEV is as yet not available. Moreover the HEV immunoglobulin was not found to be useful to control infection.

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The control of HBV depends upon improvement of sanitation, proper sewage disposal and supply of safe drinking water. Besides, mass education and public awareness are the cornerstone for control of HBV infection. The vaccine of HBV is as yet not available. Moreover the HBV immunoglobulin was not found to be useful to control infection.

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## Effects of *Emblca Officinalis* (Amlaki) and Vitamin C on Cholesterol Induced Atherosclerosis in Rabbits

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### Summary:

The effects of amlaki (1.5 gm/kg body weight daily) and vitamin C (6.75 mg/kg body weight daily) were studied for 12 weeks on cholesterol induced hypercholesterolemia and atherosclerosis in rabbits. The serum lipids (cholesterol, LDL, HDL and triglyceride) were estimated and aortic sudanophilia was determined. Oil Red-O and HE stained aortic sections were also studied. Both amlaki and vitamin C administration (separately) to cholesterol fed rabbits significantly reduced serum cholesterol, LDL and triglyceride levels in comparison to the cholesterol fed control rabbits. There was also significant rise in HDL levels in amlaki and vitamin C fed rabbits. But there was no significant difference in lipid levels between amlaki and vitamin C treated rabbits. Aortic sudanophilia was maximum in rabbits fed with cholesterol only (64%  $\pm$  8) and minimum in the group fed with

cholesterol and treated with amlaki (39%  $\pm$  7). Cholesterol fed and vitamin C treated rabbits showed intermediate degree of sudanophilia (48%  $\pm$  4). At the same time aortic lipid accumulation and foam cell population were decreased in amlaki treated rabbits. Thus whilst amlaki and vitamin C could reduce the serum lipid levels, amlaki had more significant anti-atherogenic effect. Vitamin C in fruits have a relatively short life. Since the amlaki used in this study was collected from fruit vendors, it is quite likely that the vitamin C content dwindled. Therefore, it may be speculated that in addition to vitamin C, there could be other anti-atherogenic ingredient(s) present in amlaki, which is responsible for its beneficial effects on induced atherosclerosis in rabbits. This study suggests that in addition to vitamin C, there could be other anti-atherogenic ingredient(s) present in amlaki.

(*J Bangladesh Coll Phys Surg 1994; 12: 3-7*)

### Introduction :

Since the time elevated plasma cholesterol level was recognized as a major risk factor of atherosclerosis (AS), attempts are being taken to find out safe and effective dietary factors which could reduce serum cholesterol level. Many investigators reported beneficial effects of vitamin C in this direction<sup>1,2,3</sup>, while others did not find hypocholesterolemic effect of vitamin C in humans<sup>4,5</sup>. This controversial issue need to be further reevaluated. Recently, amlaki has been shown to be promising in its potential

anti-atherogenic effect<sup>6</sup>. Ayurvedic and Yunani physicians use this fruit in the treatment of heart diseases<sup>7</sup>. It contains significant amount of vitamin C<sup>8</sup>. In Bangladesh, amlaki is readily available. So an animal model was designed to study the effects of this fruit. The experiment has been carried out on the hypothesis that amlaki inhibits AS and its anti-atherogenic effect is mediated not by its vitamin C content alone. There are possibly other factor(s) present in amlaki which bring about the changes.

### Materials and Method :

A total of 30 New Zealand white rabbits of either sex weighing 1.2 to 2 kg and aged six to eight months were used in this experiment. The animals were divided into five equal groups consisting of six animals each. Distribution of the animals in different groups with corresponding diets are shown in table - I. Basal laboratory diet was supplied to group- I and group -V rabbits. Atherogenic diet was prepared

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in the laboratory by adding 1% cholesterol plus 6% coconut oil to basal laboratory diet. Powdered cholesterol (LOBA, India) was dissolved in coconut oil and it was then mixed with normal diet pellets. Atherogenic diet was provided to group-II, group -III and group -IV rabbits for 12 weeks. Group -III and group -V rabbits were given amlaki orally at a dose of 1.5 gm/kg body weight daily for 12 weeks. Fresh pulp of amlaki was used for this experiment. The pulp was homogenized with the help of blender and watery suspension of these homogenates was administered orally. Group-IV rabbits were treated with vitamin C at a dose of 6.75 mg/kg body weight daily i.e., equivalent to vitamin C content of 1.5 gm amlaki (1 gm amlaki contain 4.50 mg vit C).

Several parameters were studied in this experiment. These were serum lipid profile, aortic sudanophilia and histological examination of the aortic lesions. Blood samples from each of the rabbits were collected at the starting and at the end of the experiment. Serum cholesterol, LDL, HDL and triglyceride levels were estimated. Serum cholesterol was measured directly by the cholesterol enzymatic PAP method, using a commercial kit (Bio Merieux; cat. no. 61225). HDL cholesterol was assayed by the same procedure after the removal of lipoproteins of lower density i.e., chylomicrons, LDL and VLDL from the serum by the addition of precipitant (phosphotungstic acid in presence of magnesium ions). Similarly, LDL cholesterol was measured from the precipitates of serum by using LDL precipitating reagent with the help of commercial kit (Bio Merieux; cat. no. 61532). Serum triglyceride was measured directly by the periodochrom triglyceride GPO-PAP method with the help of commercial kit (Boeringer Mannheim; cat. no. 701882).

At the end of 12 weeks, all the animals were sacrificed by air embolism. At autopsy, each aorta was dissected out from its commencement to the bifurcation of the common iliac artery. The aorta was grossly stained with Sudan-IV

solution. The percentage of sudanophilic patches were determined by planimetry<sup>2</sup>. From each aorta, small representative parts of the plaques were cut and snap frozen and cryostat sections were stained with Oil Red-O. Others were fixed in 10% formalin and processed for conventional H and E staining.

For statistical analysis, mean lipid and lipoprotein values and mean sudanophilic lesions for each group was calculated. Statistical significance was tested using analysis of variance and students 'T' test.

**Table-I**

*Distribution of animals in different groups*

Group	Total no. of rabbits	Diet
I (Normal control)	6	Basal laboratory diet
II (Atherosclerotic control)	6	Atherogenic diet
III (Amlaki)	6	Atherogenic diet + Amlaki
IV (Vitamin C)	6	Atherogenic diet + Vit C
V (Amlaki fed)	6	Basal lab diet + Amlaki

### Results :

All the animals remained apparently healthy throughout the experiment and progressively gained weight. None of the animals showed any adverse effect and no incidence of death was recorded.

*Serum lipid levels :* Mean serum lipid levels in different groups of rabbits at the beginning of the experiment are shown in table -II. There was no significant difference in lipid levels among the groups. Average serum lipid levels in different groups of rabbits at the end of the experiment are shown in table -III. Group -II rabbits showed maximum levels of serum cholesterol, LDL and triglyceride values. A significant lowered values of serum cholesterol, LDL and triglyceride levels

were seen in amlaki and vit C treated rabbits in comparison to the atherosclerotic control group. Amlaki and vit C treated rabbits also showed significant higher levels of HDL in comparison to atherosclerotic control group ( $p < .001$ ). But no significant difference in lipid levels were found between amlaki and vit C treated rabbits. Normal control and Group-V rabbits showed no remarkable change in lipid levels at the end of experiment in comparison to their initial values.

**Table—II**

Mean lipid levels (mg/dl) in different groups of rabbits at the beginning of the experiment (Mean  $\pm$  SEM)

Group	Total chol	Triglyceride	HDL-chol	LDL-chol
I	100 $\pm$ 9.73	113 $\pm$ 6.63	33 $\pm$ 5.74	61 $\pm$ 4.12
II	108 $\pm$ 10.4	109 $\pm$ 6.48	35 $\pm$ 3.94	62 $\pm$ 4.09
III	105 $\pm$ 9.19	115 $\pm$ 6.53	34 $\pm$ 3.82	60 $\pm$ 6.03
IV	97 $\pm$ 10.27	106 $\pm$ 4.28	30 $\pm$ 4.12	57 $\pm$ 4.56
V	104 $\pm$ 11.4	108 $\pm$ 7.43	32 $\pm$ 3.68	59 $\pm$ 7.00

**Table—III**

Average serum lipid levels (mg/dl) in different groups of rabbits at the end of experiment (Mean  $\pm$  SEM).

Group	Total chol	Triglyceride	HDL-chol	LDL-chol
I	105 $\pm$ 8.87	115 $\pm$ 5.71	34 $\pm$ 4.71	62 $\pm$ 3.57
II	2116 $\pm$ 220.61	460 $\pm$ 22.45	33 $\pm$ 4.00	1778 $\pm$ 119.60
III	1443 $\pm$ 198.31	342 $\pm$ 32.42	45 $\pm$ 6.37	1142 $\pm$ 200.30
IV	1366 $\pm$ 196.11	335 $\pm$ 23.09	43 $\pm$ 5.96	1062 $\pm$ 130.20
V	102 $\pm$ 10.24	107 $\pm$ 3.93	33 $\pm$ 2.40	58 $\pm$ 6.41

P values :

II vs III	$P < .001$	$p < .01$	$p < .001$	$p < 0.1$
II vs IV	$p < .001$	$p < .001$	$p < .001$	$p < .001$
III vs IV	$p > .3$	$p > .6$	$p > .5$	$p > .4$

Group-I and group-V rabbits showed no sudanophilic lesions of the aorta. Atherosclerotic control group showed maximum percentage of aortic sudanophilic lesions (64%). Amlaki treated rabbits showed minimum lesions (39%) and vitamin C treated rabbits showed intermediate degree of aortic sudanophilia (48%). There was significant lowering of aortic sudanophilia in amlaki treated rabbits in comparison to the vit C treated rabbits ( $p < .05$ ).

**Histological studies :** No atherosclerotic lesion was found in group-I and group-V rabbits. Group-II rabbits showed maximum thickness of the aortic lesion with large number of foam cells and intra- and extracellular lipid accumulation. Amlaki treated rabbits showed marked reduction of the lesion and minimum lipid accumulation in the lesion. Also vit C treated rabbits showed diminished lipids in the lesion.

**Table—IV**

Average sudanophilic lesions in different groups of rabbits

Group	No. of animals	Percentage of lesions (mean $\pm$ SEM)
I	6	No lesion
II	6	64 $\pm$ 8.39
III	6	39 $\pm$ 7.29
IV	6	48 $\pm$ 4.09
V	6	No lesion

**p values :**

II vs III	$p < .001$
II vs IV	$p < .01$
III vs IV	$p < .05$

### Discussion :

The present study demonstrated that supplementation of amlaki can suppress the



development of AS in rabbit reared on an atherogenic diet. This finding is in congruence with the speculation that amlaki intake may have protective role against the development of AS in rabbits<sup>6</sup>.

The current study also demonstrated the anti-atherogenic effect of vit C. The results are in agreement with that of previous studies<sup>2,3,6</sup>. Anti-atherogenic effect is largely attributed to the hypocholesterolemic effect of vit C which is also observed in the present study. The results are in congruence with the cholesterol lowering effect of vit C in rabbits<sup>6,9,10</sup>, in guineapigs<sup>2,3</sup> and in man<sup>1</sup>. But the results are not in agreement with the results of some other studies<sup>4,5</sup> where they did not find hypocholesterolemic effect of vit C in human subjects. The reasons for this conflict could be explained by the fact that the results obtained in humans are more ambiguous, probably owing to the use of very divergent experimental conditions.

The possible role of vit C in the prevention of AS seems to be occupying a position of importance by virtue of its involvement in two systems: the maintenance of vascular integrity and the catabolism of cholesterol to bile acids<sup>11</sup>. Ascorbic acid could probably exert influence on the structure of arterial wall through its effect on collagen formation and the metabolism of intercellular glycosaminoglycans.

Vitamin C enhances conversion of cholesterol to bile acids. Ginter has proposed that ascorbic acid control bile acid synthesis by regulation of the rate limiting enzyme in this pathway—cholesterol 7— $\alpha$  hydroxylase<sup>12</sup>.

Some investigators have reported hypocholesterolemic effect of amlaki in hypercholesterolemic man<sup>13</sup> and in cholesterol fed rabbit<sup>14</sup>. Similar results were also obtained in the present study. However, no significant effect of amlaki was seen in the rabbits fed on basal laboratory diet.

In current study, both amlaki and vit C treated rabbits revealed almost similar reduction

of cholesterol, LDL and triglyceride levels and also there was similar rise of HDL. On the contrary, reduction of aortic sudanophilia was more marked in amlaki treated rabbits than in vit C treated rabbits. Thus whilst both amlaki and vit C (separately) could reduce serum cholesterol level, amlaki had more significant anti-atherogenic effect. The results are in congruence with the reports of Thakur and Mandol<sup>6</sup>.

The mechanism of anti-atherogenic effect of amlaki is largely unclear. Hypocholesterolemic effect of amlaki could be explained on the basis of the role of vit C content in this fruit. But vit C content of amlaki alone does not explain its anti-atherogenic effect. There could be some unknown active ingredient(s) present in this fruit that is held responsible for its anti-atherogenic effect. Thakur and Mandol have proposed that amlaki possibly inhibit the passage of cholesterol into the vessel wall<sup>6</sup>.

Finally, the utility of amlaki will have to be reviewed after studying its other constituents and in the overall context of its pharmacological action. Moreover, it will be interesting to continue more intensive studies to find out the benefit of long term dietary supplementation of amlaki in patients suffering from hypercholesterolemia.

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## Short Term Prognosis of Schizophrenia : Existence of Cultural Differences

M R KARIM, FCPS (Psych) MS (Med. Edn)

### Summary :

The course and outcome of 112 schizophrenic patients have been followed up for about 16 months. All the patients have been diagnosed and reviewed by thorough clinical examination using standard instruments. The results were compared with other studies and no significant difference was found except the rate of recurrence. Manic depressive

psychosis (MDP) has been excluded from this study, but those who developed manic features on subsequent follow up and later diagnosed to have MDP have been included and compared with findings of other studies. The suicide rate was much lower than that reported in previous studies.

(*J Bangladesh Coll Phys Surg 1994; 12: 8- 10*)

### Introduction :

There had always been a lack of concern about mental illness in developing or under developed countries due to conceptual misinterpretation of dirth of available data. The early belief of relatively lower incidence have largely been superseded by more recent epidemiological surveys, showing similar prevalence rates for schizophrenia across cultures<sup>1</sup>. Most observers recognized that the mental illness exists in all societies. Even then we find suggestions from workers in this field that the outcome of mental illness varies with cultures and more specifically, that the outcome for schizophrenia is much better in nonindustrialized than in modern industrialized societies<sup>2</sup>.

Recent World Health Organization (WHO) follow up study on schizophrenic patients living in nine different cultures showed consistently better prognosis in the "developing" than in the "developed" countries<sup>3</sup>.

The main aim of the present study was to find out the course and outcome of schizophrenia and then to compare the findings with those of other contemporary studies.

### Material and Methods :

One hundred and twelve patients attending for the first time in the out patient department of Sylhet M.A.G. Osmani Medical College Hospital during the year 1989 to 1991 were selected for the study. The diagnosis for each case was made on the basis of Research Diagnostic Criteria (RDC). Chronic schizophrenics and patients having schizophrenia with other illness like mental subnormality or epilepsy were excluded. All patients underwent a detail clinical assessment using short version of the Psychiatric and Personal History Schedule (PPHS). A structured questionnaire about their functioning at home and mental and physical health at the time of first interview was also used. All patients were put on appropriate antipsychotic treatment. Patients were reviewed every month for the progress of the disease, compliance of medication, presence of new clinical symptoms etc. The follow up progress was compared with the previous records so as to ascertain positive or negative outcome. No home visit or mailing correspondence were made during the course of the study.

### Results :

For the purpose of simplicity the patients who were included during first interview as schizophrenics and subsequently developed affective symptoms sufficient to diagnose MDP were included. Their course and outcome were

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tabulated alongwith the schizophrenics. A demographic distribution of these patients have been shown in table-I. The information were collected during first interview.

**Table—I**

*Distribution of demographic variables at first interview*

Age group	No. of pts.	Sex		Marital status			Residence	
		M	F	Never married	Married	Divorced/ Separated	Urban	Rural
15-24	60	42	18	22	33	5	18	42
25-34	36	20	16	2	28	6	8	28
35-44	16	9	7	0	16	0	6	10

The course and outcome have been shown separately.

Of these 112 schizophrenics, 20 patients developed symptoms of MDP during 16 months follow up and were categorised separately. The clinical improvement, areas of occupational and familial adjustment, social functioning and self care of remaining 92 schizophrenic patients are tabulated and shown in table-II .

**Table—II**

*Social adjustment of schizophrenic patients*

	Performance in occupation	Familial adjustment	Social functioning	Self care
Good	27	57	41	30
Average	34	9	17	43
Acceptable	7	8	12	8
Poor	24	18	22	11

*Findings on outcome in developing countries in the multicentered International Pilot Study*

on Schizophrenia at their first two years follow up period are tabulated along with the results of present study (Table -III).

At the end of 16 months, out of 92 cases of schizophrenia, 63 were found normal and 29 were in active state. Of these active sufferers, 17 patients remained continuously ill during the study period. The remaining 12 patients had two to four episodes of illness.

Out of 20 cases of manic depressive psychosis, 14 were found to be normal at the last interview. Among these 14 cases, 10 had one attack, three had two attacks and one had three attacks, of mania during 16 months follow up period. Six patients remained ill on their last interview of which one was in residual state.

Table-IV shows the outcome perceived by the key informants of both 92 schizophrenics and 20 MDP patients.

**Table—III**

*Comparative outcome of patients following treatment in developed and developing countries and present sample*

Centres	Best outcome group %	Worst outcome group %
Developed nation	39	28
Developing nation	59	13
Present study	68.5	18.5

**Table—IV**

*Outcome of schizophrenic and MDP patients as perceived by the key informants*

Patient group	Outcome		
	Recovered	Partially Recovered	Not recovered
Schizophrenia (N=92)	63	15	14
MDP ( N=20)	14	5	1



## Discussion :

Any attempt to compare the results on follow up studies of schizophrenia may give rise to certain problems due to the use of different definitions of schizophrenia by different authors, different methodology of assessing the progress and different categorisation of outcome<sup>4</sup>. Keeping the limitations in mind, the present study was conducted with caution using the standardized instrument recommended by WHO in their studies in developing countries<sup>3,5</sup>. However, we have some limitations of our own. People were not accustomed to self reporting and the chance of wrong interpretation had not been excluded. Nevertheless, information revealed by self-reporting instrument of the key informants were not significantly different from the results obtained by using standard methods.

The present study revealed that 68.5% of schizophrenics had recovered completely during 16 months follow up, while 31.5% remained in active stage. When looking at the course, only 18.5% of schizophrenics remained continuously ill during the study period, rest were either completely recovered (68.5%) or relapsed intermittently (13%).

The rate of recovery of first admission schizophrenic patients varied widely between 66% and 40% at 20 and five years follow up period<sup>6</sup>. A five years recovery rate in Agra<sup>6</sup> and in Srilanka<sup>1</sup> were reported to be 46% and 53% respectively. Twelve years follow up by Murphy et al in Mauritius found that 60% were functioning normally<sup>2</sup>. Sartorius et al while working with IPSS found that 66% had recovered completely<sup>5</sup>.

Eighteen percent of patients were diagnosed subsequently as suffering from MDP though they were diagnosed as cases of schizophrenia at first interview. Warner<sup>7</sup> and also Dube<sup>6</sup> reported subsequent changed diagnosis of MDP in about 18% cases after two years follow up period.

Seventy percent of the MDP patients did not have any more episode, 25% had recurrent attacks while five percent remained in a residual state. There were only one residual manic in 16 month follow up study. There were little

difference seen in the outcome between schizophrenia and MDP.

According to the perception of key informants, 63% of schizophrenics completely recovered and 15% only partially, the rest did not recover at all. The percentage of schizophrenia cases reported as recovered by the key informants was not statistically different from that assessed by the use of relevant instruments. No report of suicide was reported probably due to relatively shorter duration of follow up period.

The IPSS study done by WHO in nine centres<sup>3</sup> gives a clear cross cultural difference between developed and developing nations. Present short term follow up study also corroborates with the results of several studies done in developing countries like India, Srilanka, Mauritius suggesting cultural differences.

The difference in the outcome may be due to higher presence of affective features, less complex environment or comparatively better community support inherent in the culture. These may simplify social and family adjustment and promote better prognosis.

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## Ultrasound in the Evaluation of Solitary Thyroid Nodule

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### Summary :

Fifty patients with clinical diagnosis of solitary thyroid nodule were investigated by ultrasound and scintigraphy. Nodules were categorized as cystic, solid and solid with

cystic changes. Out of 50 cases, 28 were solid, 10 showed solid with cystic components and 12 cases were cystic. Ultrasound and scintigraphic findings were correlated.

(*J Bangladesh Coll Phys Surg 1994; 12: 11-13*)

### Introduction :

The evaluation and management of solitary thyroid nodule remains an area of controversy. Ultrasonography in thyroid assessment is not popular. Though practised over several years in Bangladesh, role of this noninvasive and promising method of investigation was never evaluated. In Nuclear Medicine Centre (NMC), Rajshahi, sonography of thyroid gland has been selectively done in patients with solitary thyroid nodule. Obviously the patients were clinically assessed before selection. The aim of this study was to bring this popular and less time consuming method of investigation into focus, and to reveal its importance in the evaluation and management of solitary thyroid nodule. We have reported in our previous study that solitary thyroid nodule comprises 23.85% of total thyroid disorders<sup>1</sup>.

### Materials and Method :

Fifty patients were investigated in this centre during the period of September, '91 to March, '92. Of 50 cases, 37 were female and 13 male. Age of the patients varied from seven to 65 years with mean of 31.90 years in male and 22.57 years in female with a male female ratio of 1:3.

An initial sonography was done by placing patients in supine position with the head

extended and the neck hyperextended over a pillow. During examination the patients head was turned slightly away from the side being examined to make scanning platform more suitable for transducer application. Scanning was performed by direct contact using a curvilinear transducer of 3.5 MHz. Whenever necessary a saline filled bag was placed in between the neck and the transducer. Because of variations in patients anatomy it was necessary to examine with different degrees of angulation of both the transducer and the patients head.

Transverse scans were performed first, beginning at the lower pole of either the right or the left thyroid lobe and continuing upward until its top had been reached. Once an entire lobe had been scanned into short axis, longitudinal scan was performed from the medial surface of the thyroid to its lateral boundaries.

Later, thyroid scintigraphy was done on the patients where thyroid nodules were found either solid or solid with cystic changes. Patients underwent scintigraphic examination using<sup>131</sup>I as a tracer with standard technique.

### Results :

In table-I sonographic findings are presented where 28 cases were found solid, 10 cases were solid with cystic components and 12 were cystic.

In scintigraphic examination all cases appeared as solitary cold nodular goiter excepting one which appeared warm and serum T<sub>3</sub> and T<sub>4</sub> level was done to confirm the diagnosis (Table- II).

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**Table—I***Ultrasonographic findings of thyroid nodule*

Diagnosis	Male	Female	Total	%
Solid	5	23	28	56
Solid with cystic change	5	05	10	20
Cystic	3	09	12	24

**Table—II***Scintigraphic findings of solitary nodule*

Diagnosis	Male	Female	Total	%
Cold nodular goiter (including partially cold nodule)	13	36	49	98
Warm nodular goiter	00	01	01	02

**Discussion:**

In our previous study we found that 25% of thyroid disorders were solitary nodule<sup>1</sup>. Previously the routine procedure was <sup>131</sup>I planner scintigram. Since it is a two dimensional procedure, it has following limitations : (i) it offers only physiological information about the gland, (ii) the superimposition of abnormal nodular tissue and normally functioning thyroid tissue<sup>4</sup>, (iii) nodular tissue may distort thyroid architecture, resulting in a focal increased anteroposterior dimension of normal thyroid tissue which may then appear warm on scan<sup>4</sup>, (iv) smaller nodules less than 2 cm present as a filling defect in one third of scintigram whereas two third appear as normal<sup>5</sup> and (v) the spatial resolution of rectilinear scan varies between 8 mm and 12 mm with <sup>99m</sup>Tc and <sup>131</sup>I respectively. When Gamma camera is the choice using pinhole collimator, spatial resolution varies from 3.5 mm to 7.5 mm for hole diameter of 3 mm to 6 mm at distance of 5-10 cm. Even resolution achieved by single proton emission computerized

tomography (SPECT) is of 10 mm at best and with positron emission tomography (PET) a spatial resolution of 5 mm to 7 mm can be achieved with a high sensitivity system<sup>6</sup>.

Fine needle aspiration biopsy is more desirable technique in the diagnosis of thyroid disorders but it has several disadvantages : (i) it requires expertise in obtaining, preparing and interpreting the specimen, (ii) patients may be extremely apprehensive regarding biopsy procedure and (iii) 20% result remains indeterminate<sup>4</sup>.

As ultrasonography provides better anatomic definition (but not functional), an initial sonography may define the site and nature of the nodule better than thyroid scintigraphy<sup>7</sup>. In our study, 56% nodule appeared solid, 24% cystic and 20% solid with cystic components. It is well correlated as approximately 20% of cold nodules detected on isotope examination are thyroid cyst<sup>8</sup>. Thyroid nodules are usually solid and true thyroid cyst is rare<sup>2</sup>. Almost all cyst represent degeneration or hemorrhage of associated solid lesion and many such lesions are complex<sup>2,3</sup>. With high frequency transducer it is possible to reveal lesions as small as 2mm<sup>2,3</sup>. It was noted that in dealing with six small lesions of between 2 mm and 6 mm which were detected by ultrasound and removed, only half were detected by radioisotope scintigraphy<sup>2</sup>. Other authors have commented on the failure of scintigraphic images to detect lesions identified by ultrasound<sup>8</sup>. With a resolution of 2mm, ultrasound has led to the discovery of nodules in otherwise normal thyroid gland, occurring in 19% in a series of 300 patients<sup>10</sup>. Other reports have documented the failure of scintigraphy to detect lesions of less than 1.5 cm<sup>11</sup>. In solid group, a hypoechoic lesion is more likely to be malignant but in one of the studies discrimination was modest with only 63% of hypoechoic lesions representing malignancy. While hyperechoic lesions were found more likely to be benign, 4% of such lesions were found malignant<sup>7</sup>. Cystic lesions are mainly



benign. Only 0-2% of such lesions are malignant<sup>12</sup>.

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## Clinical Profile and Outcome of Labour in Primigravidae

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### Summary :

A prospective study was done on one hundred consecutive full term primigravidae, admitted in Maternity Unit-I of Dhaka Medical College Hospital. A data sheet and partogram were filled in for every patient during their labour. The findings revealed that age group safest for first delivery was 20 to 24 years. In primigravidae at or below the height 144 cm more operative deliveries were needed and labour was longer; in comparison labour was easier and shorter at or above 155 cm height. Women with weight below 44 kg and above 65 kg had more operations and longer labours. Patients with risk factors were younger in age, heavier in weight, needed earlier intervention and more operations and had increased perinatal mortality than nonrisk group. Preeclamptic

toxaemia, gestational proteinuria, gestational hypertension, malpresentations (breech and shoulder) and Rh negative blood group condition were other obstetric risk factors. The non-obstetric risk factors were jaundice (HBsAg negative) and pyrexia. Recommendations are to encourage women to have their first child between 20 and 24 years of age. Primigravidae with height at or below 144 cm and grossly underweight and overweight, should deliver in a hospital where obstetricians and facilities for operation are available. Partogram should be used in all labours. Similar but broad based study is recommended to identify the norms of labour and risk factors for the population at large.

(*J Bangladesh Coll Phys Surg 1994; 12: 14- 22*)

### Introduction :

Labour is unpredictable, especially in primigravidae. Many factors influence labour. However, there is no known study done to identify these factors in the context of Bangladeshi women. As such the clinical presentation, the nature of labour, duration of different stages, outcome and complication in Bangladeshi primigravidae in labour are unknown.

Women of Bangladesh have a different physical structure. Their average height and weight are lower than the primis in other countries. Most of them have suffered from malnutrition in childhood or in intrauterine life. This affects their height and capacity of the pelvis. The size and shape of pelvis is related to general physique and is determined by both genetic and environmental factors. In several ethnic groups, short stature has been shown

to be related to low socioeconomic status<sup>1</sup> and women of short stature, despite having smaller babies, have a higher incidence of difficult labour than taller women<sup>2</sup>, and thus have a high perinatal mortality and morbidity, which may lead to birth injury and its sequelae in the form of cerebral palsy or other handicaps etc. in the surviving child.

According to WHO, approximately half a million women lose their lives because of complications of pregnancy every year and about 99% of those occur in developing countries<sup>3</sup>. The risk of pregnancy in women in developing countries can be as high as fifty to hundred times than in women in Western Europe or North America. Whilst the direct consequences of prolonged and obstructed labour i.e. maternal dehydration, exhaustion and uterine rupture have been widely disseminated, the less direct but more common consequences of prolonged labour, maternal sepsis, postpartum haemorrhage and neonatal infection are often not recognised. Early detection of abnormal progress of labour and prevention of prolonged labour can significantly reduce the risk of postpartum haemorrhage and sepsis and eliminate obstructed labour and ruptured uterus.

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In this study a sample of primigravidae was closely supervised on selected parameters to understand the following :

1. The age group safest for first pregnancy;
2. Risk factors for primigravidae;
3. Outcome of labour in relation to height, weight, age and risk factors in primigravidae; and
4. The socio-economic and educational factors associated with various parameters and outcome of labour in primigravidae.

#### **Materials and Method :**

One hundred primigravidae were followed up prospectively. The cases were consecutive admissions, with full term pregnancy of 38 weeks to 42 weeks duration, coming to the hospital in labour or starting labour in hospital. Premature labour, antepartum haemorrhage, eclampsia, cases chosen for elective caesarean section, elderly primi and postmaturity were excluded. A data collection instrument was developed and included relevant history, general examination, obstetrical examination, mode of delivery and progress of labour monitored using a partograph. It also included information on the newborn.

All the primigravidae coming to the hospital in labour or starting labour in hospital were included. Labour was diagnosed on the basis of regular, recurrent painful uterine contractions, cervical dilatation, show and rupture of membrane. A partogram was started on all primigravidae in labour. Examination per vagina was done at interval of three hours and more frequently in the later part of active stage of cervical dilatation. Foetal monitoring was done by auscultating foetal heart sound by stethoscope and observing colour of the liquor. Foetal heart sound was heard immediately after a contraction at an interval of 30 minutes in first stage and 5-10 minutes interval in the second stage. Blood pressure was recorded at intervals of four hours (30 minutes in PET). If the head was engaged, patient was allowed to be

up and about. She was asked to evacuate her bladder frequently. Enema was given at the beginning if bowels had not opened on that day. The patient was allowed to take liquid diet. An I.V. fluid was started in cases of longer labour. Contractions were recorded in numbers per 10 minutes, severity and duration was also noted. Any query was answered and apprehension alleviated. A female relative was allowed to stay with the woman during first stage of labour. Injection pethidine and injection hyoscine were used as pain killers.

If the progress was not satisfactory or the contractions were not good enough, acceleration of labour by oxytocin was done. Initial dilution of 5 I.U. of oxytocin in 500 ml of 5% dextrose in aqua was started at the rate of 20 drops/minute, and the drop rate was increased by five drops half hourly until there was effective contraction (maximum up to 60 drops/minute) provided the foetal heart rate was within normal limits. All cases were monitored by close and careful clinical observation and a partograph was maintained in each case to ensure correct management. The official partograph of Dhaka Medical College Hospital was used. The labour was managed in the standard way.

#### **Results :**

During the period of this study (1st July 1990 to 15th September 1990) 287 patients delivered in Maternity Unit-I of Dhaka Medical College Hospital. Out of them 136 (47.38%) were primigravidae and 151 (52.61%) multipara. The study included 100 consecutive cases from only the former group.

*Socio-demographic characteristics of the study population :* In the 100 patients in this study age ranged from 16 to 30 years (mean 21.45 SD  $\pm$  3.25 years). However, nine cases were excluded during final analysis of data due to various reasons. Majority of the patients (55%) were in the age group of 20-24 years. Most of the patients had height of 145 to 154 cm. The mean height of the patients in this series was 150.52  $\pm$  4.97 cm (59.26"  $\pm$  1.96).

Most of the patients weighed between 45 and 54 kg. Mean weight was  $52.09 \pm 6.55$  kg. Sixty six percent patients came from urban non-slum areas, 22% urban slums and only 12% came from rural areas. Twenty one percent patients and 14% of their husbands were illiterate. Seven percent of the patients and 12% of their husbands could only write their names. Twenty eight percent of the patients had income of less than 2000 taka and 34% earned 2000-4000 taka per month. The rest earned about 4000 taka monthly. Seventy four percent of the patients were housewives and only 20% were employed.

*Antenatal Check-up and relevant information:* Eighty two percent of the couples did not use any contraceptives. Only 18% used different contraceptive methods before current pregnancy. Mean marriage pregnancy interval in 100 primigravidae was 16.30 months. Fifty seven percent patients had conceived within one year of marriage and 75% had conceived within two years. Majority of the patients had regular antenatal check up (52%). Most of the patients had gone for antenatal check up at least for once (80%). Ninety three percent of women were completely immunized against tetanus. It was interesting to find that even those patients who had never gone for antenatal check up had taken injections for tetanus immunization. The prime reason was the general belief that it helps against any disease with convulsions (including eclampsia).

*Clinical Findings :* Blood pressure measurements : Mean systolic blood pressure (SBP) of all primigravidae was 117.80 mm Hg and diastolic (DBP) 77.3 mm Hg. In normotensive patients mean SBP was 114.09 and DBP 74.12 mm Hg and in hypertensives mean SBP and DBP were 145.00 and 100.8 mm Hg respectively.

Risk factors in the selected primigravidae : Various risk factors were found in 23% primigravidae. In addition, all the patients were mildly anaemic. Risk factors specifically affecting the subjects were severe PET (4%), mild PET

(5%), proteinuria (1%), hypertension (1%), breech presentation (3%), shoulder presentation (1%), Rh negativity (3%), mild jaundice (2%) and pyrexia (3%).

*Presentation and position of the presenting part :* Ninety five percent fetuses presented by vertex (85% occipitoanterior and 10% occipitoposterior), 3% by breech, 1% by face and 1% had shoulder presentation.

*Outcome of labour :* Mode of delivery : Sixty four percent patients had normal vaginal delivery, 16% had forceps delivery and 1% had internal podalic version with breech extraction. In all, 81% patients were delivered vaginally and 19% needed abdominal delivery (Fig. 1).

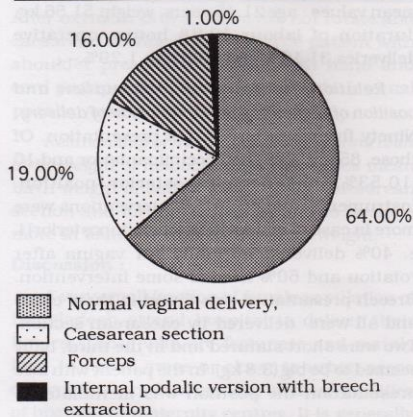
*Labour produce :* Ninety five percent of the babies were live births and 3% still births. The causes of still birth were hand and cord prolapse in a patient with shoulder presentation, prolonged labour in one patient and prolonged labour with pyrexia in another patient.

*Birth weight of newborns :* Thirty percent were below 2.5 kg weight.

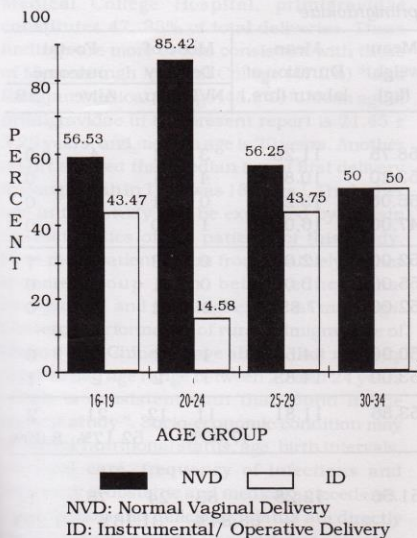
*Relationship between age and mode of delivery :* In women between 30-34 years, 50% patients had normal vaginal deliveries and 50% needed instrumental or surgical intervention. In the age groups 16-19 and 25-29 the percentage of normal vaginal delivery and instrumental or surgical deliveries are similar i.e. 56.53%, 56.25% and 43.47%, 43.75% respectively (Fig. 1). Of the patients aged between 20 and 24 years, 85.41% had normal vaginal delivery and only 14.58% needed instrumental or surgical intervention. Though in this series most patients of all age groups had normal vaginal deliveries, deliveries of primigravidae were easiest between age 20 & 24 years (Fig. 2).

*Relationship between height and mode of delivery :* Table—I shows the relationship between height and mode of delivery in primigravidae. It was found that deliveries were easier in mothers with greater height. In primigravidae at or below the height of 144 cm,





**Fig-1:** Distribution of 100 primigravidae by mode of delivery



**Fig-2:** Relationship between age and mode of delivery in primigravidae

**Table-I**

*Relationship between height and mode of delivery in primigravidae*

Height in cm	Total No. of patients	Normal vaginal delivery		Instrumental or operational delivery		
		No.	%	No.	%	
141-144	21	12	57.15	9	42.85	
145-149	29	20	68.97	9	31.03	
150-154	26	21	80.76	5	19.24	
155-159	14	13	92.85	1	7.15	
160-164	1	1	100.00	0	0	
< 144	21	23.07	12	57.15	9	42.85
>145	70	76.92	55	78.57	15	21.42

57.15% had normal vaginal delivery and 42.85% needed instrumental or operative delivery, whereas above that height the figure is 78.57% and 21.43% respectively.

**Relationship between weight and mode of delivery :** Deliveries were more difficult in patients who weighed more, especially over 55 kg. In the group weighing 40-44 kg, more patients had difficult labour. But the general pattern of findings was not maintained in the weight group 60-64 kg. A possible explanation was that these women were, on an average, of greater height than others and therefore intervention was done in lesser number of women (Table - II) .

**Influence of risk factors :** Table -III shows the interrelationship between risk and non-risk group of primigravidae with age, weight, mode of delivery and foetal outcome. Patients with risk factors were heavier in weight (mean weight 53.86 kg especially with PET and proteinuria), younger in age (mean age 21.30 years), required more time to deliver (mean 14.17 hours), had more operative deliveries (52.17%) and had stillborn babies (i.e. 8.69% of babies). In contrast, patients without any risk factor had following

**Table—II**

*Relationship between weight and mode of delivery in primigravidae*

Weight in kg	Total No. of patients	Normal vaginal delivery		Instrumental or operative delivery	
		No.	%	No.	%
40-44	5	4	80.00	1	20.00
45-49	27	24	88.88	3	11.12
50-54	28	22	78.57	6	21.43
55-59	19	8	42.10	11	57.90
60-64	7	5	71.42	2	28.58
65-69	3	1	33.34	2	66.66
70-74	2	1	50.00	1	50.00

mean values : age 21.45 years, weight 51.56 kg, duration of labour 12.28 hours, operative deliveries 31.16% and stillbirth 1.29%.

*Relationship between presentation and position of presenting part with mode of delivery:* Ninety five cases had vertex presentation. Of those, 85 (89.47%) had occipitoanterior and 10 (10.53%) had occipitoposterior position. Instrumental and operative interventions were more in case of malposition (occipitoposterior) i. e. 40% delivered normally per vagina after rotation and 60% needed some intervention. Breech presentation was found in three cases and all were delivered by caesarean section. Two were short statured and in the third, baby seemed to be big (3.8 kg). In the patient with face presentation the position was mentolateral.

**Table—III**

*Inter-relationship of risk factors with weight, age, duration of labour, mode of delivery and foetal outcome in 100 primigravidae*

Risk factors	No. of Patients	Mean age (yrs.)	Mean weight (kg)	Mean Duration of labour (hrs.)	Mode of Delivery		Foetal outcome		
					NVD	Op.	Alive	SB	
<b>Risk Factors Present :</b>									
PET severe *	4	21.0	58.75	11.25	3	1	4	0	
PET mild	5	20.6	53.20	10.80	4	1	5	0	
Proteinuria	1	2.2	65.00	13.25	0	1	1	0	
Hypertension	1	23.0	47.00	16.00	1	0	1	0	
Breech presentation **	3	23.66	52.00	12.00	0	3	0	1	
Shoulder presentation	1	20.00	55.00	10.00	0	1	3	0	
Rh negativity	3	20.00	52.00	7.83	1	2	3	0	
Jaundice (mild, HbsAg - ve)	2	23.50	50.00	14.50	1	1	2	0	
Pyrexia	3	20.00	53.00	14.83	1	2	2	1	
Total	23	21.30	53.86	11.81	11	12	21	2	
					47.83%		52.17%	8.69%	
<b>Risk Factor Absent :</b>									
No Risk	77	21.49	51.56	12.28	53	24	76	1	
					68.84%		31.16%	1.29%	

\* Factor specifically affecting primigravidae.

\*\* Factor not specifically affecting primigravidae.



After oxytocin drip the face did not rotate and caesarean section was done. The patient with shoulder presentation came with hand and cord prolapse and intrauterine death. Internal podalic version was done in this case.

*Relationship of mode of delivery in primi with birth weight of newborns* : In this series mean birth weight of babies was 2.68 kg. Caesarean section and forceps deliveries had to be done more in foetuses with higher birth weight.

#### Discussion :

A very small fraction of female population of Bangladesh attend hospital to deliver their babies. Those who are fortunate and mainly live in urban areas or closer to urban areas can get the benefit of modern medical facilities of hospital or maternity centres. It is generally thought that only around 6% deliveries in the country takes place in hospital<sup>4</sup>. At Dhaka Medical College Hospital, primigravidae constitutes 47.38% of total deliveries. These findings are more or less consistent with those of Mymensingh Medical College (47.2%)<sup>5</sup> and Rangpur Medical College (48.9%)<sup>6</sup>. Mean age of primigravidae in the present report is  $21.45 \pm 3.25$  years, and median age is 20 years. Another report showed that median age of first delivery in Bangladesh in 1989 was 18 years<sup>7</sup>. The higher age in this study can be explained by certain characteristics of the patients of this study. Here most patients were from relatively higher income group with better educational background and had higher age at marriage. Obstetric performance of rural primigravidae of Malays and Chinese have shown that majority of primi had age range between 20 and 24 years which is consistent with that found in the present study<sup>8</sup>. Socio-economic condition may influence nutritional status, age, birth intervals, prenatal care, frequency of infections and frequency of obstetric and medical antecedents. Malnutrition and deficiency status are directly associated with poverty. Conception at a younger age is common in lower income group. Infection due to polluted environment or lowered

resistance of malnourished mothers are also common in low socio-economic group. Inadequate health care, specially preventive care, is also a feature of poor community. They are also less informed about modern hospital facilities and also cannot avail those for financial reasons. All these acting individually or in combination influence the outcome of pregnancy and labour. In a national report, 16% of the population in the country are found to be urban<sup>9</sup>. Most of these urban people use the urban hospitals. Very small percentage of patients from rural areas avail these facilities. They prefer or are forced to take the help of traditional birth attendants and come to these urban hospitals only when condition becomes complicated. In comparison to the present study (12%) attendance of rural people in Mymensingh and Chittagong Medical Colleges is considerably higher (39.3% and 37.7% respectively)<sup>5</sup>.

The literacy rate of the country in both sexes is 40.7% in urban population and 20.6% in rural areas<sup>7</sup>. Our findings show a higher educational status in comparison to that for the whole country. This reflects that better informed and conscious people avail modern hospital facilities and this is confirmed by the fact that educational status of all patients of obstetrics department in general was also higher<sup>5</sup>.

According to Bangladesh Fertility Survey Main Report 1989, 30.8% of currently married couples used contraceptive methods, 9.6% used pills and 1.8% used condoms. Rahman et al found that only 3% of women have ever used contraceptives which is less than the present series<sup>10</sup>. According to standard text books, 80% of women with full chance of conception conceive within one year of their marriage. In this series 18% used contraceptives and husband of some patients were living abroad, as such the proportion was lower.

Rahman et al also found that first conception usually occurs, on an average, 1.7 years after marriage<sup>10</sup>. Khanam found mean marriage pregnancy interval as 1.6 years in Meternity

and Child Health Training Institute (MCHTI) Azimpur, two years in Institute of Postgraduate Medicine and Research (IPGMR) and 1.77 years in all patients<sup>11</sup>. All these values are consistent. Bangladesh Fertility Survey Main Report (1989) has shown that antenatal check up was done in 9.8% of all patients, 8% rural and 37.4% urban patients<sup>7</sup>. Tetanus toxoid in munization was received by 25.7% of all patients, 23.9% rural and 53.1% urban patients. More patients in this series had antenatal check up and tetanus immunization than the other reports. The reasons probably are (i) better educational status of the study population making them more informed and conscious and (ii) availability of facilities in urban areas.

McGilvary et al in their study have shown that mean systolic pressure between 39 and 40th week was 115.1 mm Hg and at 40 weeks was 115.7. Mean diastolic pressure at that period is 68.7 and 71.1 mm Hg respectively<sup>12</sup>. In the present series systolic pressure is similar to their findings but diastolic pressure is slightly higher.

In all, 36% of primigravidae had difficult labour (including caesarean section, forceps and internal podalic version with breech extraction). This is indeed a figure which depicts that many of the patients in the series had difficult deliveries which is usual for a large referral hospital like Dhaka Medical College Hospital. Jahan et al in their study at IPGMR found that out of 20 primigravidae, 11 (55%) delivered spontaneously by vertex and difficulties were encountered in the rest<sup>13</sup>.

Thambu in Kuntung found that in primigravidae spontaneous vaginal deliveries are higher among Indians (86.2%), Chinese (84.4%) and Malays (65.9%). The rates are higher than the present study. The study was done in a community hospital, not a referral hospital like the one where the present study was done. Incidence of forceps deliveries was 3.5% in Indians, 7.9% in Chinese and 10.6% in Malays. Caesarean section rate was 4.5% in

Indians, 4.9% in Chinese and 12.6% in Malays<sup>8</sup>. The caesarean section rate in the present study is 19% which is lower than Showkat Jahan's study<sup>13</sup> but higher than Thambu's series<sup>8</sup>. This may be due to (i) referral of complicated patients and (ii) non-exclusion of cases with cephalopelvic disproportion. Fauzia has shown in her study of caesarean section at Sylhet Medical College Hospital that primi patients topped the list (37%) of the women undergoing caesarean section<sup>14</sup>. The birth weight of the babies in this series ranges between 2.04 and 3.8 kg. Mean birth weight is 2601 gm. Khanam found mean birth weight in primigravidae in IPGMR to be 2874 gm and in MCHTI (Azimpur) 2490 gm, with overall mean of 2681 gm<sup>11</sup>. Patients of IPGMR are from an affluent society and of Azimpur are mostly from middle and lower socio-economic background. Findings of present series falls within the range. Mean birth weight in developed countries is 3300 gm while for developing countries around 2700-3000 gm. In the present study 30% of the newborns are below 2500 gm. Other studies in this country showed a lower figure<sup>15</sup>. Apart from differences in genetic makeup, other reasons include maternal nutritional status for this difference.

Relationship between age and mode of delivery in primigravidae in this series shows that the age group safest for first delivery is between 20 and 24 years, though delivery is not found very difficult at any age between 16 and 30 years, patients between 16-19 years and 25-29 years needed some instrumental assistance and operations, which is maximum at and above 30 years.

Megafo in his study on factors influencing the outcome of labour in Nigerian primigravidae found that the younger the patient, the more favourable the outcome<sup>10</sup>. His patients were between 17 and 40 years. He suggested, however, that the prospect of vaginal delivery, spontaneous or assisted, is still good in Nigerian patients up to the age of 30. Molly Thomson have shown in her study that below 24 years,



difficult labour is less in high risk referral hospitals but more in community hospitals; between 24-28 years though difficult labour in community hospitals is less (14%), but more (25%) in referral hospitals; above 28 years rate of difficult labour is high in both places<sup>17</sup>. Pernoll and Benson have stated that women aged 20-29 have the lowest rates of maternal and infant mortality and morbidity, younger and older women have higher rates<sup>18</sup>. Ojo and Oronsaye in a retrospective study on primigravidae found that the 20-24 years age group showed least incidence of pregnancy and labour complications<sup>19</sup> which is significantly increased in both adolescent (below 20) and 25-29 years age range.

Height of the mother influences the child birth, more the height of the patient easier and shorter is the labour, but exceptions are there. From observation of the present study, one should be more cautious and should vigilantly supervise while conducting delivery of the primigravida with height equal to or less than 147 cm and especially so at or below 144 cm. This finding is consistent with the statements of standard text books of this subcontinent regarding the screening of the height of women at high risk<sup>20</sup>. Megafu have shown in Nigerian primigravidae that patients measuring less than 1.5 meter are more likely to have prolonged labour ending in delivery by caesarean section<sup>16</sup>. The outcome of labour is on the whole good when the woman's height is 152 cm or more. The labour is especially difficult at or below the height 1.45 meter. This data on Nigerian primigravidae corresponds more or less with that of the present study. Molly Thomson in Montreal, Canada has found that labour is difficult below the height 1.58 meter<sup>17</sup>. Everette found definite relationship between short stature and severe disproportion in Dar-es-Salam<sup>2</sup>. Thus she commented that maternal height in that area has some value as a screening test. She found that this height for their women in Wazararo was 143.5 cm. Barnard in a

prospective study in Scotland, in tall women over 164 cm (5'5") in height, showed that there was no difficulty in labour due to cephalopelvic disproportion, whereas in 100 short women under 151 cm (5') in height major mechanical difficulties occurred<sup>21</sup>. From the above observations it is found that screening height varies according to average height of the population. Of the physical variables in the current study, short maternal height consistently led to difficult labour. Bird reported association between short maternal height and caesarean section for disproportion in Aberdeen primiparas<sup>22</sup>. Aitken<sup>11</sup> selected 60" (152.4 cm) as screening height in Segbwema Hospital, Sierra Leone, which would include 85% of those at risk of CPD<sup>23</sup>.

Influence of weight of the patient on mode of delivery and duration of labour is less clear. In the present study, the patients who weigh more had comparatively more difficult and prolonged labour. It was also true for those who weigh less than expected weight. Molly Thomson has found that patients with increasing Body Mass Index had more difficult labour<sup>19</sup>. Megafu also suggests that women who are obese are tend to have prolonged labour probably due to rigid perineum<sup>16</sup>.

Presence of risk factors in primigravidae in this series led to early intervention of labour (duration of labour was 11.81 hours), higher incidence of operative deliveries (52.17%) and increased perinatal mortality (8.69%).

In conclusion, safest age group for delivery of primigravidae is found to be between 20 and 24 years. So, women should be encouraged to have their first child at this age. Primigravidae at or below the height 144 cm (5") and grossly underweight (<44 kg) and overweight (>65 kg) should preferably deliver in a hospital where expert obstetrician and facilities for operations are available.

Educational status of the general population (of both women and men) should be raised,

which will make them more conscious and informed and will help by increasing the practice of antenatal check up, realizing the problems and using the available facilities. People should be made aware of the benefits of proper antenatal check up. Some risk factors are identified in this study. A countrywide study should be done to identify our own problems and to develop a suitable scoring system for high risk pregnancies in the context of Bangladesh.

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## Rhinosporidiosis - A Critical Review

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### Introduction :

Rhinosporidiosis is a chronic specific granulomatous mycotic disease caused by *Rhinosporidium seeberi* also known as *Rhinosporidium kinealyi* which mainly affect the skin and mucous membrane of human being and animals<sup>1,2,3</sup>. It is a tropical disease, endemic in low income group<sup>4,5</sup>. It is usually a localised disease of skin and mucous membrane principally affecting the nose, nasopharynx, other ENT regions and may affect any other part of the body<sup>6,7,8</sup>. There is report of multiple osteolytic lesion of bones<sup>9</sup>. Rhinosporidiosis in a site remaining untreated for a long time may give rise to systemic or generalised dissemination, but this is quite less frequent<sup>10,11,12</sup>. Rarely visceral dissemination to liver, lungs and spleen is reported<sup>13</sup>. Spores in blood, urine and ascitic fluid is reported in disseminated rhinosporidiosis<sup>14,15,16</sup>.

It is an occupational disease, mainly affecting the farmers and fishermen<sup>17</sup>, found more commonly among the people living in poor hygienic condition<sup>12</sup>. Rich people are usually not found to be affected<sup>18</sup>. It passes through lymphatics but lymph nodes are not involved<sup>19</sup>. It is not contagious sufficiently<sup>20</sup>.

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**Incidence :** Rhinosporidiosis is a common disease of young adults mostly in second and third decades of life. There is a predominance of males over females and ratio varies from 3 : 1 to 8 : 1. In India, it occurs in 4.7% of population<sup>21,22,23</sup>. Among nasal lesions, examined histopathologically, rhinosporidiosis was found to be the second most common disease next to nasal polyps. Sanitary condition and mode of bathing influences the incidence<sup>24,25</sup>.

**Typical lesion :** Characteristic lesion is a bleeding polypus, red or pink, vascular papillomatous, cauliflower like mass, either pedunculated or sessile, soft and friable, easily bleed on touch with granular surface having tiny white spots which represent sporangia<sup>1,4,5,8,12,15</sup>.

**Geographical Distribution :** This is a disease affecting the population all over the world but most commonly it is found in the tropical regions. It is endemic in South India, Sri Lanka and possibly in Bangladesh. The geographical factor which may contribute to its distribution are not fully understood<sup>26,27,28</sup>.

**Historical review :** The first description of the disease came from Argentina by Malbranc as early as in 1892. In 1900, Guillerimos Seeber first described from Argentina the aetiological agent of this disease as a coccidium. Later, Ashworth and Logan Turner described the life cycle of the fungus and named it *Rhinosporidium seeberi*. O'Kinealy first reported a case of rhinosporidiosis in English literature while working in Calcutta Medical College Hospital, India in 1903<sup>1,7,10,17,28</sup>.

**Aetiology :** The disease is caused by *Rhinosporidium seeberi*, a mould belonging to

the class phycomycetes which is a fungal parasite<sup>29</sup>.

**Taxonomy :** Taxonomic position of the fungus is not yet clear<sup>30</sup>.

**Koch's postulate :** It does not abide by the Koch's postulate, like viral diseases or leprosy; culture and animal inoculation experiment has yet not been successful<sup>31,32</sup>.

**Life cycle of the fungus :** Life cycle of the fungus is not completely clear but found to have two distinct phases of tissue life cycle : (i) Trophic phase and Sporulation phase. Trophic phase starts in the tissues and parasite then grows by nuclear division to sporulation phase containing spores. The mature parasite called sporangium has got germinal pore through which spores are discharged<sup>33,34,35</sup>.

**Immunology :** There is always a cell mediated immunity by delayed type hypersensitivity mechanisms, but there is no antibody mediated immunity<sup>35,36</sup>.

**Pathology :** It causes chronic specific granuloma. There is hyperplasia of nasal epithelium. The tissue reaction is similar to what is seen in coccidioidomycosis<sup>37,38,39</sup>.

- a) *Naked eye examination :* Characteristic is described before under typical lesion.
- b) *Microscopy :* Microscopy shows vasculo-fibromyxomatous and granulomatous lesion with inflammatory cells and cysts containing spores having spherical outer chitinous wall at various stages of development. Few are intact and few are broken. Lining of nasal lesion is pseudostratified columnar and ocular lesion is stratified squamous epithelium.

**Carrier and reservoir :** There is possibility that primary infection occurs in animals and man is accidental host. It is found in humans and domestic animals like horses, dogs, cattles, fishes and reptiles because affected persons frequently give history of repeated immersion in ponds or rivers which are used by animals

together. Fishes and snails are the commonest reservoir and are thought to transmit the infection to humans<sup>40,41</sup>.

**Mode of Transmission :** The disease may be water or air borne<sup>1,7</sup>.

**Spread within human body :** Extranasal sites are most likely invaded by fresh abrasion through contaminated finger nail scratching and water dissemination. Contagious spread from mucous lesion also occurs by permeation. Spread by blood, lymphatics or ascitic fluid are also being reported<sup>3,5,15</sup>.

**Clinical features :** Clinical features depend on the site affected. In case of nasal lesion the symptoms are usually nasal obstruction, recurrent epistaxis, viscid nasal discharge and occasionally extrusion of masses from the nasal cavity by blowing. There may be dysphagia or dyspnoea if the mass extends into the pharynx and hoarseness of voice if larynx is involved. The disease may present as aural polyp, polyp in the scalp, parotid cyst, cutaneous nodule and as oculosporidiosis with increased lacrimation and some times as oculosporidiosis with the features of secondary infection<sup>8,11,13,14,15</sup>.

The condition even may present with complication and like frog-face deformity, excessive bleeding, anosmia/hyposmia, septal perforation and epilepsy (if brain is affected). Association with nasal malignancy is very rare. It may present with haematuria (if urethra is involved) and wart in penis. In rectum and vagina the lesions resembles condylomata, piles or rectal polyp. Constitutional symptoms are rare<sup>5,6,17</sup>.

**Differential diagnosis :**<sup>18,21,27</sup> (1) Papilloma : arises from the nasal vestibular epithelium and skin having papillary projection which bleeds when gets torn; (2) Bleeding polypus : hemangioma of the nasal septum in Littles' area (3) Nasopharyngeal angiofibroma : fibro-vascular growth occurs in male at juvenile age having immature blood vessels with irregular



endothelium. Recurrent profuse bleeding from nose is characteristic, and the patient is usually anaemic, (4) Malignancy : of nose or nasopharynx produces epistaxis, foul smell and may present with nodal, nasal, otological, ocular and neurological manifestation.

**Investigations :** 31,37,39,42.

1. Histopathological examination : is characteristic and unmistakable (microscopy is described under pathology) .
2. Nasal smear in water examination under microscope : under cover slip is diagnostic which shows characteristic fungal spores.
3. Slit lamp examination: striking appearance on slit lamp examination is diagnostic, showing characteristic numerous spores in sporangium, some are broken and some are intact.
4. Blood, urine and ascitic fluid for smear in selected cases: may contain spores in disseminated rhinosporidiosis especially in case of hematogenous spread, which would be evident under microscope.
5. Under magnification: spores are seen, invading the pathological specimen.
6. Radiology : might give an idea about site of origin, sometimes ideas about osteolytic lesion of bones produced by it may also show features of sinusitis developed secondary to it giving rise to opacity/haziness.

**Diagnosis:** 1,7,19,37,40,41,42,43.

Diagnosis of rhinosporidiosis depends on (i) history, (ii) clinical examination and (iii) investigations. History and clinical examination findings are described under clinical features.

**Treatment :** 3,7,11,33,40,41,42,43.

Surgery and cautery in and around the base, preferably with diathermy, is the treatment of choice. Other modalities are (i) excision with cryodestruction of the base, (ii) dapson, amphotericin B and antimony can be added

after repeated surgery with cautery or cryotherapy for prevention of recurrence, (iii) treatment by steroid is also reported, and (iv) to prevent extension of the lesion following procedures are followed : (a) transpalatal approach of Wilson by which recurrent nasopharyngeal mass may be removed effectively; (b) cold well luc operation, if the lesion spreads to maxillary sinuses; (c) lateral rhinotomy, in widespread nasal cases; (d) excision by direct laryngoscopy for laryngeal lesion; and (e) excision by laryngo-fissure operation if there is chance of haemorrhage in laryngeal lesion.

**Recurrence :** 11,17,38 Recurrence is common, it may be due to (a) inadequate treatment and (b) seedling during surgical maneuver.

**Prevention of recurrence:** 31,37,40 Complete and timely adequate treatment with surgery and cautery or surgery and cautery with antimycotic therapy prevents recurrence of the condition in most of the cases.

**Discussion:**

In rhinosporidiosis males affected more frequently than females. Age of occurrence is highest in third decade in males and second decade in females. Common prevalence irrespective of sex is in second, third and fourth decades<sup>1,7,11</sup>. Females are affected more in younger age than males in endemic areas<sup>12,16</sup>. Incidence is very low in extremes of ages i.e below 10 years and above 60 years of age but no age is immune. Minimum age in males was found to be 10 years, female seven years and maximum age was 62 years and 45 years respectively . Mean age in both male and female varied in different studies. Expatriates from endemic areas are the usual sufferer in sporadic regions<sup>29,31,33</sup>.

People of poor and average income group are major sufferers and they are commonly from coastal areas. The condition is usually not found among the rich<sup>29,33</sup>. Religion has no significant influence on the disease<sup>37</sup>. It is

commonly a disease of farmers and fishermen. Teenagers suffer more where pond, river or canal water is main source of bathing<sup>34,35</sup>. Common mode of transmission seems to be stagnant water or pond bathing. Frequent exposure to domestic cattle are thought to be a predisposing factor<sup>24,33,40</sup>.

Common site of origin of infection is anterior part of the nose including vestibule. Site of origin in order of frequency is highest in septum then in lateral wall, nasopharynx and conjunctiva in that order. Right side of the nose usually more affected than left<sup>1,9,11,17</sup>. Extranasal affection is usually uncommon<sup>41</sup>. Generalised or systemic rhinosporidiosis is rare. Bilateral nasal rhinosporidiosis is less seen. Single site of involvement is common though multiple sites may be involved. Rhinosporidiosis of the nose is thought to be usually primary and affection of other organs are secondary<sup>29,31,37</sup>.

People living in kucha and tin shed house with muddy floor is main sufferer and people living in pucca building is usually spared<sup>3,7,8,12</sup>. People of poor and average nutritional status are major sufferers whereas well nourished people are found to be less affected. Bleed on touch is characteristic and usually a constant feature<sup>2,7,17</sup>. Nasal speech, occasional headache, anosmia/ hyposmia, CSOM, nasal cold, sore throat, nonspecific lymphadenitis in the neck, sinus infection, sneezing and itching may be associated findings<sup>29,31,36</sup>.

Nasal trauma in the form of nose pricking and nasal mucosal injury may predispose the condition<sup>33</sup>. Rhinosporidiosis may present with anaemia in few cases<sup>37</sup>. Characteristic lesion, positive nasal smear for spores and histopathology is diagnostic<sup>1,9,31,38</sup>. Rhinosporidiosis is usually not found to cause any systemic symptom. Duration of the disease is indefinite varying from few weeks to 30 years. Recurrence and even multiple recurrence is a feature of the disease. Recurrence may be due to<sup>1,7,11,17</sup> (a) inadequate treatment and (b) seedling during surgical maneuver. Family

history found to be present in a number of cases<sup>2,5,17</sup>. Incidence of nasal lesion is more than ocular in endemic areas and ocular lesions are found to be more than nasal in sporadic regions. Whereas oculosporidiosis is usually secondary to nasal condition in endemic areas, oculosporidiosis in sporadic regions are usually primary<sup>13,18,21,27</sup>.

Extransal manifestations are usually missed in clinical examination<sup>3,7,11</sup>. There is scope for study of possible sex hormonal influence to age incidence in respect to sex and chemotherapeutic treatment for recurrence. Hormonal factors in female protect them from the disease i.e. presence of androgen might be susceptible to the infection in male and oestrogen may be protective for female<sup>4,8,17</sup>.

Emphasis is always given on proper history and follow-up to avert recurrence. Unless generalized or systemic dissemination occur, prognosis is good for most of the localised lesions, but disseminated lesions give trouble by bleeding and recurrence<sup>17,19,33</sup>.

As mode of infection, method of spread, life cycle and pathogenesis is not well understood, treatment modalities vary from centre to centre. However, complete surgical removal with cautery in and around the base is thought to be the most effective method of treatment. Blood may be required during excision of the lesion<sup>11,23,40,42,43</sup>.

Fungus could be a predisposing factor for malignancy. Association of rhinosporidiosis with malignancy is reported but whether it is a cause for malignant transformation is yet to be established<sup>29,31,37</sup>.

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## CASE REPORTS

# The Krukenberg Procedure in the Upper Extremity Amputee

RR KAIRY MS (ORTH)<sup>a</sup>, KMS ISLAM FRCS<sup>b</sup>

### Summary:

The Krukenberg procedure was performed on three amputee patients. The results have been remarkably rewarding to these patients. The principle of chop-sticks used by chinese people has been used. There has been

virtually no concern on the part of the patient or of the parents about the appearance of the stump. The surgical procedure is considered to be reasonably uncomplicated. Post-operative rehabilitation has been simple and rapid.

(*J Bangladesh Coll Phys Surg 1994; 12: 28-31*)

### Introduction:

The ideal rehabilitation of the upper extremity amputation is restoration of strong grasp with good sensation<sup>1,2,3</sup>. Grasp can be restored quite satisfactorily with ordinary prosthetic fillings, but lack of sensation experienced by the amputee with artificial limbs make his rehabilitation less than ideal.

Convincing outcome of Krukenber procedure done in the early seventies by Prof. Renald J Garst and his associates at Rehabilitation Institute and Hospital for Disabled (RIHD), Dhaka encouraged the authors to do the procedure in patients who have upper extremity amputation. In addition, patients with bilateral hand loss frequently need sensitive prehension which the procedure provides<sup>4,5</sup>. This report comprises three patients to whom the procedure has been done during July 1986 to June 1991 in RIHD, Dhaka. Their case histories and follow-up result regarding function of the amputated stump is presented.

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### Case Histories:

#### Case-1

Mr. AH, 26 years, had bomb blast injury involving both hands upto wrist level on left side and mid forearm level on right side in July 1986.

Krukenberg procedure was done on both sides in December 1986. At last follow up after four years in January 1991, he had 8 cm opening of the stump on both sides. He could approximate his radial and ulnar rays very strongly. He also had excellent tactile sensation on the apposing surfaces of the rays and was able to differentiate small articles. He could dress and feed himself. Currently he can write almost normally as he could do before. He has no objection regarding the cosmetic effect of limb. He does not want any prosthesis.

#### Case-2 (Fig : 1-3)

Mr. MH, an eight years old boy had bomb blast injury and lost his left hand in January 1987. He picked up a packet in the field and was trying to open the thing which blasted and injured him and his sister. Krukenberg procedure was done on him in June 1987. When he was examined in August 1991, the boy and parents informed that he had tremendous benefit from the procedure. The boy is now reading in class six. He uses his left Krukenberg stump in holding books. He can dress himself. He can even pick up very small objects from the table or from the floor.





**Fig-1:** Showing closing of Krukenberg Stump



**Fig-2:** Showing opening of Krukenberg stump.



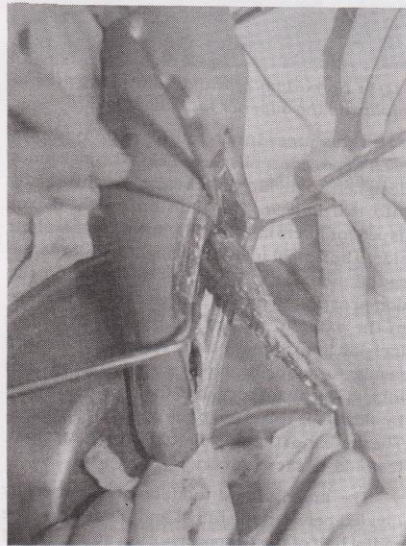
**Fig-3:** Showing how he holds pen with the stump

**Case- 3**

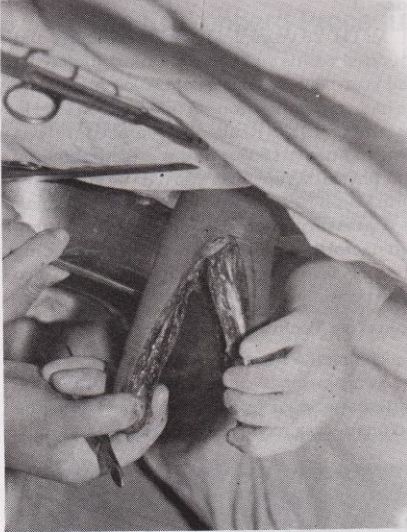
Mr I H, 28 years, had machinery injury and got crushed his right hand. Unfortunately he had post-pollio weakness of his left hand also. He had amputation done at mid forearm level in December 1987. Krukenberg procedure was done in August 1988. Wound healed primarily and physiotherapy was started. At last follow up in March 1991, he was working as a salesman in a grossary shop. He can use the stump satisfactorily in all daily activities including dressing, fastening the buttons etc. He can also write perfectly.

**Operative Technique :**

The method used in the reported cases is the Swanson modification technique<sup>6</sup>. As all the patients were of traumatic amputation, the technique was modified slightly.



**Fig-4:** Showing excision of flexor digitorum profundus muscle.



**Fig-5:** Spreading of radial and ulnar rays to subluxate the superior radioulnar joint.

In this procedure a tourniquette is always used to provide a bloodless field. The incision is designed to divide the forearm longitudinally into two halves. The incision on the flexor aspect of forearm is slightly towards the ulnar side. The dorsal incision is slightly towards the radial side. One "V" flap is designed on the dorsal aspect to provide full thickness coverage in the axilla of the forcep. Skin is divided in incision line. Skin is never separated from deep fascia to keep the blood supply of the skin intact. The distal portion of the rays are covered by skin flaps rolled on to the opposing surfaces. The dog ear of the skin should never be excised, it would retract later on.

The muscles and tendons are then easily divided between the radial and ulnar rays. The radial half of the flexor digitorum sublimis and extensor digitorum communis, the flexor carpi radialis, extensor carpi radialis brevis and

longus, the brachioradialis, palmaris longus and pronator teres go to the radial ray. The ulnar half of the flexor sublimis and the extensor communis along with flexor carpi ulnaris and extensor carpi ulnaris go to the ulnar ray. Deep muscles like pronator quadratus, flexor digitorum profundus, flexor pollicis longus, abductor pollicis longus and extensor pollicis brevis are resected to minimise the bulk of the stumps. Care is taken to avoid disturbing the pronator teres as this muscle is one of the strongest adductor of the radial ray. Its muscle belly is limiting factor in the proximal portion of the wound and forms the floor of the axilla of the forceps. The distal ends of the tendons of the retained muscles are securely sutured to the periosteum of the distal end of the radius and ulna.

Median and ulnar nerves are resected proximally to prevent neuroma formation at the



**Fig-6:** Showing the dorsal "V" flap after closure of rays.



distal end of the ray. The interosseus membrane is divided throughout its length along its ulnar periosteal attachment by a sharp scissor taking care of vessels and nerve. The ulnar and radial rays are spread about 8-10 cm depending on the length of forearm. During spread it is desirable to subluxate the superior radioulnar joint.

With the tourniquette off, skin closer is done. In all the three cases the primary closure without tension could be achieved in the ulnar ray. Split thickness skin graft was given at the bases of radial ray in all the cases. Small rubber drains were left in the wound and compression dressing applied with a cast keeping the elbow 90° flexed. The limb was usually elevated for four to five days to improve venous return. The wound healed primarily in all three cases.

A training programme is usually started within 4-5 days of operation. Abduction and adduction of the rays are the important motions to be learned. Pronation and supination of the forearm also helps in using the stumps as forceps. The major abduction motion of the stumps is accomplished by the radius moving towards or away from the relatively fixed ulna. All three patients very rapidly learned their own combination of abduction, pronation and supination to accomplish daily activities.

The patients were found less concerned about the appearance of the Krukenberg stump. They were more concerned with function. Prosthesis can be fitted in the Krukenberg stump without any difficulty.

#### Discussion :

The Krukenberg procedure is an old procedure for reconstruction of hand function in an amputee. Henry in 1928 did the procedure in two cases of congenital deficient limb and reported his results<sup>7</sup>. Square later reported result of his two cases in 1937<sup>8</sup>.

Later Swanson in 1964 reported in detail the technique of operation and result of such three cases<sup>6</sup>. Here also the same technique was

followed with slight modification as already described. Garst and his associates did about nine cases as per record in RIHD and had very good functional result and the amputees are working in the hospital efficiently in different departments<sup>9</sup>.

All of reported three cases had very good functional limb. None of them was found concerned about their cosmetic deficiency and they did not want any prosthesis. It is said "A minimal hand should have three criterias (1) at least two digit (2) at least one is mobile and (3) good sensation". All of these three criterias can be achieved by the Krukenberg procedure. So this procedure should be extended to more and more individuals with severe handicap of bilateral hand loss and where modern prosthetic facilities are not available. Prosthetics, if available, can be fitted over the stump if necessary, for cosmetic reason and it is found that functionally the Krukenberg stumps are superior to any type of prosthesis.

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## Arrhythmogenic Right Ventricular Dysplasia—A Case Report

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MH RASHID FCPS<sup>c</sup>, M SHAJAHAN MBBS<sup>d</sup>

### Summary :

This is a case report of a patient who was suffering from almost persistent ventricular extrasystole with periodic bouts of either supraventricular or ventricular tachycardia. After thorough investigations he was found to have right ventricular dysplasia i.e. right ventricular dilatation with dyskinetic movement of apical region. He was labelled as a case of

Arrhythmogenic Right Ventricular Dysplasia. This is one of the very few cases of this kind to be diagnosed in Bangladesh Armed Forces. Patient occasionally showed severe haemodynamic embarrassment due to arrhythmia and needed cardioversion. However, he was managed ultimately with verpamil 120 mg tid.

(*J Bangladesh Coll Phys Surg; 12: 32- 34*)

### Introduction :

Arrhythmogenic Right Ventricular Dysplasia (ARVD) is not commonly diagnosed in our country although patients with different kinds of arrhythmia are not uncommon. Barring autopsy, modern tools of investigations are required for its diagnosis. With the advent of modern echocardiogram facility, cardiac anatomy can be more accurately delineated, as such more cases of ARVD could be detected in future.

### Case Report :

A 27 years old sepoy was admitted in Comilla Combined Military Hospital (CMH) on 24.4.91 with history of periodic palpitation, giddiness and atypical chest pain which he noticed four months prior to his admission. Before this, he was more or less symptom free. Once, while he was performing physical efficiency test he felt extreme giddiness and lost his consciousness for a brief period. Subsequently he had few

more attacks of palpitation and giddiness and got admitted in the CMH for further check up. He was not hypertensive, not diabetic and gave no previous history of ischaemic heart disease (IHD). Past history of illness was unremarkable.

Family history revealed that one of his fraternal uncle died suddenly in an unstated age of unknown cause. Patient is married and has one son. He is non-smoker.

On examination, he was found to be a young man of good built. He was not anaemic. No cyanosis, clubbing and koilonychia was present. There was no cutaneous stigmata suggestive of hyperlipidaemia. Examination of cardiovascular system revealed the following : Pulse- 80/min, irregular, BP-125/75 mm of Hg, JVP-not raised. No ankle oedema was noticed.

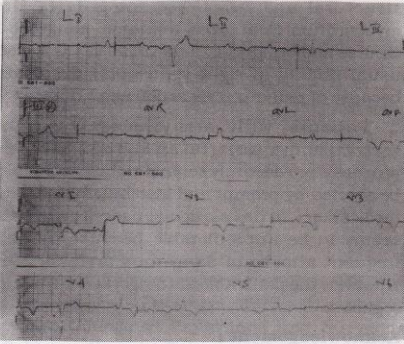
Heart : Apex beat situated in the fifth intercostal space, 11 cm from midsternum, tapping in quality  $S_1 + S_2 + S_3$  (-)  $S_4$  (-), no murmur was audible. His respiratory system, abdomen and central nervous system examination findings were unremarkable. His routine blood examination, urine examination, blood sugar and serum cholesterol revealed no abnormality. ECG showed low voltage with multifocal ectopic beats and T wave inversion in lead II, III, avF and  $V_1 - V_4$  (Fig-1). His X-ray chest was suggestive of cardiomegaly (Fig-2). The patient was transferred to cardiothoracic center, Dhaka CMH later for further evaluation. In Dhaka CMH, he underwent ETT (Bruce protocol)

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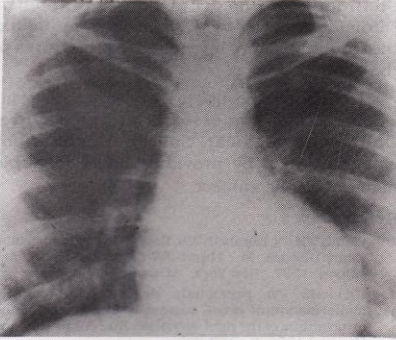
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**Fig-1:** ECG showing low voltage with VES with T wave inversion in II, III, AVF and V<sub>1-4</sub>.



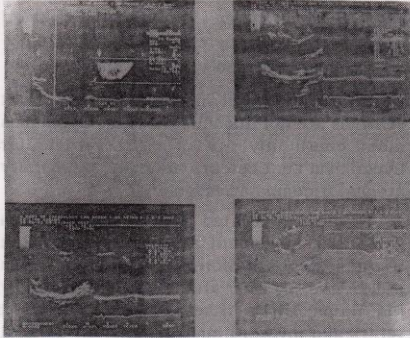
**Fig-2:** X-ray suggestive of cardiomegaly.

and echo-cardiographic examination. His exercise capability was poor as revealed by ETT. Echocardiogram showed tricuspid regurgitation gr-1 and dilated right ventricular apical region with dysplastic movement (Fig-3).

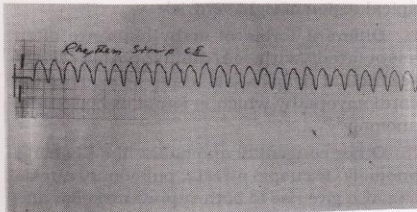
The patient was finally diagnosed as a case of arrhythmogenic right ventricular dysplasia. His arrhythmia was difficult to manage. He was put on different drugs including disopyramide, verapamil, flecainide but result was far from satisfactory. During his stay in Dhaka, he twice developed supraventricular tachycardia

(SVT) with haemodynamic embarrassment and once he was managed with cardioversion.

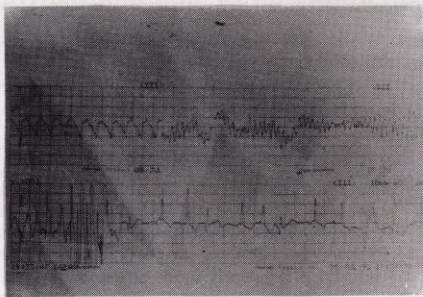
While waiting for disposal in CMH, Chittagong, he developed ventricular tachycardia (VT) (Fig-4) and also SVT with severe haemodynamic compromise. Both the time cardioversion had to be done with defibrillator. In one such occasion, after cardioversion, the patient developed ventricular failure (VF) from SVT which was again reverted to sinus-rhythm with further D-C shock with higher joules (Fig-5). Patient was ultimately put on verapamil 120 mg tid and is presently more or less symptom free.



**Fig-3:** Echocardiogram showing tricuspid regurgitation (continuous wave Doppler) and dilated right ventricle.



**Fig-4:** Ventricular tachycardia.



**Fig-5:** SVT turned into VF which again reverted to sinus rhythm.

#### Discussion :

Different forms of anomalies involving right ventricle are not uncommon. These anomalies most commonly are of right ventricular hypoplasia i.e. Ebstein's anomaly, pulmonary atresia, tricuspid atresia etc<sup>1</sup>.

Regarding dilated right ventricle with dyskinetic movement associated with frank tricuspid regurgitation, first description was put forward by Uhl<sup>2</sup> and the condition goes by his name Uhl's disease when the right ventricular myocardium is remarkably thinned often to the point of translucency. The dysplasia may involve globally the right ventricle or any part of it because morphologically right ventricle can be considered a tripartite structure, with confluent inlet, apical trabecular and subarterial outlet zone<sup>3</sup>. In this cases involvement is in the apical region of right ventricle.

Different forms of arrhythmia are often associated with cardiomyopathy. Right ventricular dysplasia is also a special type of cardiomyopathy which is found as congenital anomaly<sup>4,5</sup>.

Other congenital anomalies like Ebstein's anomaly, tricuspid atresia, pulmonary atresia can also give rise to both supraventricular and ventricular arrhythmia<sup>6</sup>. It is mostly because one can not divorce the consideration of the

structural and functional integrity of the myocardium from gross anatomic congenital cardiac malformation<sup>3</sup>. Low voltage ECG is also usual finding in right ventricular dysplasia because of reduced myocardial mass of heart<sup>7</sup>.

Patients with arrhythmogenic right ventricular dysplasia, on an average, have fair prognosis provided any serious arrhythmia could be averted by prompt and also by prophylactic medication<sup>7</sup>. In this particular patient prognosis seems to be unpredictable because he had frequent attacks of dangerous arrhythmia. However, the patient needs a rigorous follow-up regimen.

#### Acknowledgement :

We express our gratitude to Lt Col M G A Rabbani, FCPS, cardiologist, Lt Col Quazi Shafiuddin Ahmed, FCPS, cardiologist, cardiothoracic Centre, CMH, Dhaka for taking the trouble of detail investigative procedures of the case.

Thanks are due also to Dr. Momtaz Hossain, FCPS, Asstt. Professor, Cardiac Centre, Chittagong Medical College Hospital for extending help by providing some readable material on the subject.

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**Continuing Medical Education:**

30-9-93

Dr. M. A. Majid  
Professor of Surgery  
Sir Salimullah Medical College  
and Mitford Hospital, Dhaka  
delivered lecture on "The management of Colonic Volvulus".

**Congress '93:**

A Scientific Conference "Congress '93" was held from 10-14 December, 1993 at the campus of the College of Physicians and Surgeons Pakistan, Karachi, Pakistan. The Congress was jointly organized by the (1) College of Physicians and Surgeons Pakistan (2) Bangladesh College of Physicians and Surgeons and (3) International College of Surgeons (Pakistan Chapter). 1472 Participants including 179 foreign delegates from twelve countries participated in the Congress. 120 delegates from Bangladesh which had 59 senior medical teachers took part. In the

Congress the Scientific Programme consisted of six State of Art lectures which includes "Asiruddin Memorial lecture", fifty three plenary talks delivered by eminent medical personalities from different countries of the world including Bangladesh. One hundred eighty seven papers were presented in the Congress by the foreign delegates including Bangladesh. Apart from these, twelve workshops, poster and video presentation and six concurrent sessions were also organized. The Conference had something to offer to every participant member of the profession.