with other usual food items from September 1924. By December 1942, eight hundred inmates began showing manifestation of lathyrism.

Mechanism of neurotoxicity:

ODAP—an usual free amino acid is capable of inducing

a) convulsion in experimental animal treated systematically,

b) hind limb paralysis after injection into CSF surrounding spinal cord and

c) circumventricular neuronal damage when administered in large single doses to rodent[9].

Recently it has been demonstrated that ODAP has access to the brain and spinal cord of adult squirrel monkeys and mice[10]. It may be transported into brain via carrier for dicarboxylic acid[11]. Acute toxicity of ODAP to animals with mature blood brain barrier emphasises human susceptibility to chronic intoxication[12].

In past few years, research have yielded evidence for excitatory amino acid (EAA) receptor diversity. EAA receptors are grouped into two broad types - inotropic and metabotropic. The inotropic receptors consist of at least four subtypes. N-methy1-D-aspartate (NMDA) and Kinate (KA) subtypes are well documented. NMDA receptor is distributed in mammalian central nervous system and is linked to Na^+, Ca_2^+, Mg^{++} and Zn^{++} ions. Glutamate is found to exert its neurotoxic effect through NMDA receptors. Its action can be blocked by cis-2, 3-piperidine dicarboxylic acid (PDA).

ODAP is chemically and neuropharmacologically related to glutamate and aspartate-the neuroexicitatory transmitters. So, ODAP may work by 1) stimulating post synaptic glutamate receptors, 2) inhibiting synaptic re-uptake of excitatory transmitter so that transport of neuroactive amino acid (GABA, glycine, glutamate etc.) is depressed. By these or other mechamism, extracelllular ODAP causes an influx of sodium and chloride into the target nerve cell and a progressive retention of water that results in cell oedema and neuronal degeneration[13, 14]. Immature brain shows more affinity to ODAP because of lack in blood-brain barrier.

Recently, zinc has gained some importance in the aetiology of some chronic neurological disorders like amyotrophic lateral sclerosis, cerebellar degeneration, multiple sclerosis[15,16]. The activity of glutamate dehydrogenase is inhibited by agents which form stable complexes with zinc. High concentration of ODAP in the diet coming from lathyrus can form stable complexes with zinc. Bangladeshis are already deficient in zinc. High ODAP in diet and blood can cause unavailability of zinc by making stable complexes and thereby inhibiting glutamate dehydrogenase. So, high endogenous glutamate coupled with glutamate agonist, ODAP in blood can damage the nerve.

Pathological change:

Human pathology of lathyrism is not fully known but is supposed to damage the corticospinal pathway, specially in cervical and dorsal column. Many reports claim damage in posterior column also. Acute neurotoxicity is associated with a specific and selective pattern of oedematous nerve cell damage in experimental animal, within minutes of exposure to mouse spinal cord cultures.

ODAP induce post synaptic vacuolation and dark shrunken neurons[17]. For understanding the pathology of lathyrism, human autopsy is required . When human lathyrism will be fully understood, a road would be opened towards understanding the aetiopathology of many degenerative neurological problems. Autopsy report by Streifler and coworkers[18] on a 67 year old lathyrism patient revealed loss of axon and myelin in pyramidal tract in lumbar spinal cord. Hirano et al and coworkers[19] reported presence of cytoplasmic inclusion bodies in anterior horn cells. Cohn and coworkers[20] showed segmental demyelination and other alteration of myelin sheath such as irregular

thickenings in the sural nerve of lathyrism patients.

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Psychological Sequelae of Treatment of Cancer

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Summary :

One hundred cancer patients after surgery were studied by a two stage screening technique first to determine psychiatric morbidity using General Health Questionnaire, then the psychiatric diagnoses were made according to DSM-III-R. Sixty seven percent of this patient population were found to have psychiatric symptoms or illness, depressive disorder being the commonest followed by anxiety disorder. Significant number of psychiatrically ill patients (79.10%) were married. More than half of the patients (53.73%) were literate and 79.10% came from middle socio-economic background. No significant relationship was found between postoperative psychiatric morbidity and level of education and place of residence. No significant difference was observed when the duration of illness, duration of postoperative period or type of treatment was considered. Similarly, no relationship could be established between the site of cancer and the development of psychiatric illness. Almost half of the patients did not receive adequate information about the nature of their illness, its treatment and outcome. None of the patients were referred for psychiatric consultation before the initial interview.

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Introduction :

A crucial problem central to all psychosomatic research remains to be established in the direction of observed association between psychological factors and organic disease. However, like in many other organic conditions, the idea of possible link between cancer and psychological factors has ancient origin beginning in the second century[1]. A variety of hypotheses have been offered to reveal any significant association between stressful life events or psychodynamic conflict and development of neoplastic diseases. In most of the cases, investigations yielded contradictory results, some of those supporting the association and others failing to show any significant correlation[2,3,4]. Nevertheless, depressive states preceding the clinical onset could be symptoms of early undetected malignant disease[5,6]. Treatment of cancer which includes surgery, radiotherapy and chemotherapy alone or in combination may have some impact on psychological reaction of patients to the disease process. Consequently, the question whether a changed circumstances in a therapeutic environment could influence the psychological state of patients merits further searching inquiry.

Although the incidence of body image problems associated with amputation of limb and head and neck surgery is yet to be established, it is likely that patients undergoing these procedures experience considerable problems[7]. Importantly, there is a strong correlation between body image problems and the development of affective disorders and sexual dysfunctions. At least one in five patients who undergo mastectomy develop body image problem. The incidence of anxiety state and depressive illness among those patients is quite high (33%)[8]. One in five patients undergoing colostomy found difficulty to cope as they felt their stoma looked hideous and loss of control over bowel function caused social embarrassment. Sexual problem is also common after mastectomy and colostomy[9,10]. For reasons yet to be determined, greater morbidity was reported when radiotherapy and chemotherapy followed surgery[9]. Even

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malignant conditions with better prognosis cause a considerable psychological morbidity like anxiety state or depression[11]. The morbidity is greater when radiotherapy or chemotherapy is used. Radiation to the upper body has been linked to greater psychiatric morbidity in patient with Hodgkin's and non-Hodking's lymphoma[9]. Cancer, in general, usually perceived to be a terminal illness. Following treatment a patient may frequently feel that he is not fully cured or his disease may recur although in many cases of cancer the treatment is curative and recurrence is rare. However, positive outcome of treatment may also influence one's psychological well being. In our everyday practice physicians may encounter postoperative cancer patients who often develop psychiatric problems. It is thus wise to search for possibility of an aetiological relationship of treatment itself and subsequent psychiatric disorder.

The aim of the present study was to determine whether treatment of malignant condition did have any impact on psychological well being of the patients.

Materials and method :

One hundred patients with established diagnosis of cancer who underwent diffferent types of surgery in the Cancer Institute and Research Hospital and the Radiotherapy Department of Dhaka Medical College Hospital were included in this study. The patients were randomly selected during May to August, 1992. In addition to surgery, many of the patients were receiving radiotherapy and /or chemotherapy. The patients were selected only when the duration of postoperative period was at least one month and the patients with psychotic features were excluded. The interview of the patients was carried out in two stages. First, the patients completed the General Health Questionnaire (GHQ) of 60 item version[12]. Patients who scored 12 or above, that is within the range of "probable psychiatric morbidity" were interviewed by a trained psychiatrist. All patients were interviewed in isolation, their anonymity was strictly preserved and their consent was taken after thorough explanation of the aims of the study. Relevant socio-demographic data and information about the types of cancer, site, duration, type of operation, duration of postoperative period, associated other physical illness, other treatment, type of psychiatric symptoms or illness and history of any psychiatric referral were recorded.

The diagnosis of different types of psychiatric illness was made on the basis of DSM-111- R (Diagnostic and Statistical Manual, revised, 3rd edition)[13].

Information was also collected about the perception of the patient about the nature of their illness and its outcome.

Results :

Important features of this study findings are shown in tabular form and descriptive information are provided about findings on other relevant parameters. As told earlier, the initial screening was done on the basis of GHQ response in which 67 percent of study population scored 12 or more (Table-I). Table -II shows different types of psychiatric illness diagnosed after formal psychiatric interview in postoperative cancer patients. According to DSM-111-R, 35% patients were found to suffer from depressive disorders, 10% from anxiety disorders and rest (22%) from conditions like adjustment disorder, dream-anxiety disorder and hypo-active sexual disorder. However, there were a few patients in whom prominent anxiety, depressive and obsessive symptoms were detected but diagnostic labelling were not possible.

Table - I

Distribution of cancer patients according to their score on GHQ (n=100)

Score	Postoperative cancer patients	
	Number	Percentage
1-11	33	33
12 and above	67	67

Table - II

Distribution of psychiatric illness in postoperative cancer patients (n=100)

Psychiatric illness	No. of patients
Depressive disorder	35
Anxiety disorder	10
Other illnesses :	
Anxiety symptoms	9
Depressive symptoms	6
Obsessive symptoms	1
Adjustment disorder	2
Dream-anxiety disorder	1
Hypoactive sexual disorder	3
Absence of psychiatric illness	33

According to history provided by the patients, 43% had been experiencing the symptoms before surgery but 24% developed the symptoms after surgery (Table-III). Although the patients reported development of symptoms significantly more ($p<0.001$) before surgical treatment than after it, retrospective reporting of patients about the time of onset of illness is always subject to controversy.

Table-III

Distribution of patients according to the time of onset of psychiatric illness

Onset of psychiatric illness	Name of Psychiatric illness (%)			
	Depressive disorder	Anxiety disorder	Other disorders	Total
Before surgery	29 (67.45)	8 (18.60)	6 (13.95)	43
After surgery	6 (25)	2 (8.33)	16 (66.67)	24

X^2=9.43, df=2, $p<0.001$

In this patient population the common sites of cancer were gastrointestinal tract and reproductive system (Table-IV), but no significant relationship was found between the site of cancer and relevant surgery and development of psychiatric illness. Although most of the patients (81%) in this study was in their early postoperative period, no significant relationship was found between duration of postoperative convalescence period and development of psychological symptoms

Table - IV

Distribution of patients according to their site of cancer (n=100)

Sites	Number of patients (%)		
	Psychiatric illness present	Psychiatric illness absent	Total
GI tract and hepatobiliary system	20 (76.92)	6 (23.08)	26
Reproductive system	15 (55.56)	12 (44.44)	27
Skin	9 (69.23)	4 (0.77)	13
Musculo-skeletal system	8 (57.14)	6 (42.86)	14
Respiratory system	9 (0)	1 (10)	10
Blood and lymphatic system	5 (55.56)	4 (44.44)	9
Nervous system	1 (100)	0 (0)	1

X^2=6.819, df=6, $p>0.05$

Table–V

Distribution of patients according to the length of time after operation and presence of psychiatric illness

Length of time after operation (month)	Number of patients (%)		
	Psychiatric illness present	Psychiatric illness absent	Total
1-10	55 (67.90)	26 (32.10)	81
11-20	5 (62.50)	3 (37.50)	8
21-30	2 (66.67)	1 (33.33)	3
31-40	2 (50)	2 (50)	4
41-50	3 (75)	1 (25)	4

Range of postoperative period = 1-50 months, mean period =9.7 months, sd=10.11, X^2=0.7413, df=4, $p<0.05$

(Table-V). Similarly, no significant relationship was found between duration of maligancy and development of psychological problems (Table-VI).

Type of treatment given whether surgery alone or surgery followed by other modes of treatment had no bearing on the psychological status of the patients. Table-VII shows the nature of psychiatric illness in patients receiving different types and combinations of treatment. Most of the patients were married and 67% of married population were psychologically ill. Patients of other marital status were too low to get statistical strength. Patients of midlevel family income were found to have significantly more psychiatric illness than upper and lower income group. However, patients of later two income groups were relatively low in number in this sample. No difference was found in the development of psychiatric illness in patients when their literacy status was considered. Similarly, no difference was found among the literate patients when their educational level was taken into consideration. Most of the patients in this sample were from rural areas (78%). However, the place of residence was not found to be a factor in determining psychological status of cancer patients and that after surgery.

Table–VI

Distribution of patients according to the duration of cancer and presence of psychiatric illness (n=100)

Duration of malignancy (months)	Number of patients (%)		
	Psychiatric illness present	Psychiatric illness absent	Total
5-14	34 (65.38)	18 (34.62)	52
15-24	14 (66.67)	7 (33.33)	21
25-34	5 (71.43)	2 (28.57)	7
35-44	6 (75)	2 (25)	8
45-54	2 (66.67)	1 (33.33)	3
55-64	6 (66.67)	3 (33.33)	9

Range of duration=5-64 months, mean duration=21.10 months, sd=16.10, X^2=0.354, df=5, p>0.05

Table–VII

Distribution of patients according to the method of physical treatment and presence of pyshiatric illness (n=100)

Method of physical treatment	Number of patients (%)		
	Psychiatric illness present	Psychiatric illness absent	Total
Operation only	28 (71.79)	11 (28.21)	39
Operation + Chemotherapy	22 (70.92)	9 (29.08)	31
Operation + Radiotherapy	7 (43.25)	9 (56.75)	16
Operation, chemtherapy & radiotherapy	10 (71.43)	4 (28.57)	14

X^2=4.37, df=3, p>0.05

Discussion :

Prevalence of psychiatric illness among hospitalized postoperative cancer patients was found consistent with previous findings of similar condition among inpatient population in general hospitals[14]. This reflects, to some extent, the similarity of emotional response of patients of terminal illness and those suffering from other conditions to their illness irrespective of the type of illness they have. One should also take into account the uniformity and lack of ambiguity in the behaviour of care givers towards the sick in our current cultural attitude and belief, whatever may be the nature of illness. The fact is also reflected when individual psychiatric condition is considered. Predominance of depressive disorder is also observed in postoperative cancer population as found in general hospital population[8,14,15,16,17]. Craig and Abelof reported a high level of depression in half and elevated level of anxiety in one third of cancer patients[18]. Some of the studies, however, found lower prevalence of psychiatric

illness in cancer patients[19]. This may be due to exclusion of minor emotional disorders present in the target population. Nevertheless, more recent studies showed 53% patients suffering from depression alone following diagnosis of cancer[20]. Present study revealed that significantly more patients developed symptoms before surgery than after it. However, the time of onset reported by the patients has always subjective ambiguity. It is very difficult to say whether the onset after surgery is the consequence of cancer itself or that of its treatment.

Surgery for malignant conditions, in most of the cases, involve total or partial removal of affected organ(s). Consequently, patients undergoing such procedures may experience considerable body image problem[7]. There is a strong correlation between body image problem and development of affective disorders and sexual dysfunction. Except for a overvalued organ like breast in women and other cosmetic vestiges, association between body image problem and amputative surgery is yet to be established. Present study did not find any significant relationship between the site of cancer and consequent surgery and development of psychiatric illness. Shakelle et al reported similar findings about 12 years back[21].

No significant difference was observed between the patients treated by surgery only and those treated by combination of surgery and chemotherapy, or surgery, chemotherapy and radiotherapy together. However, patients who were treated by combination of surgery and radiotherapy were somehow found to have less psychiatric problem. The finding is very difficult to explain. Further replication of the study may confirm whether mode of treatment has any particular impact on the mental state of terminally ill patients. There are reports that in comparison with chemotherapy, mantle radiotherapy may be less toxic so that psychiatric morbidity would be less[22]. But radiotherapy to the upper body gives rise to more psychiatric morbidity. Chemotherapy by cytotoxic drugs cause unplesant side effects such as nausea, vomiting, alopecia, etc. These drugs also produce conditioned response to sound, smell or sight which reminds the patients of treatment and cause reflex panic, nausea and vomiting. Sometimes the conditioning may become so severe that the patients face awful dilemma. The drugs can also cause amenorrhoea, premature menopause, sterility or impotence through adverse hormonal change. Toxicity of treatment is also associated with psychiatric morbidity[22,23]. So, these adverse effects are mediated in three ways to produce psychiatric illness[24] :

1. The continuous strain of enduring unpleasant side effects;
2. The patient misattributing the side effects to disease progression or recurrence;
3. A direct biological effect on mood (e.g. biological symptoms of depression after radiotherapy).

The strong relationship between the toxicity of treatment and psychiatric morbidity however suggests that attempts to reduce toxicity would also reduce this morbidity. Symptoms of anxiety and depression that develop during treatment is also resolved once the patients have been given a clear account of their diagnosis and treatment and a more hopeful prognosis[22].

It is generally believed that chronicity of illness may have tremendous impact on the psychological well-being of the patients. But it is appeared from the current study that the duration even of mostly progressive illness like cancer has very little effect on the mental state of the patients. Similarly, no significant relationship was found between duration of postoperative convalescence period and development of psychological symptoms, even in those who could clearly describe the onset of their symptoms after surgery. The reason for this lack of influence of duration of illness on psychodynamics can not be adequately explained. However, efforts may be taken to explain the findings on the ground of defence

mechanisms and the process of adaptation and coping abilities. Physical illness may activate psychological defence mechanisms. The commonest of those is probably denial. As a temporary defence against anxiety denial is valuable [25] and if the illness becomes more chronic the psychological process of adaptation becomes more appropriate. Therefore, as the time passes the patient tries to accept the facts and makes realistic adjustment to his illness, with altered goals in life. Moreover, contribution of family integrity and support system can hardly be ignored.

Married and unmarried population were affected equally although most of the cancer patients included in this study were married (79%). During interview, the married patients were found more preoccupied with thoughts of impending loss of family and friends even where treatment outcome was quite favorable. They were also concerned about their own future and uncertainty of their spouse, offsprings and other dependent relatives. On the other hand, unmarried patients were relatively young and their anxiety about their families were less. In addition, in many of these cases the treatment outcome should be better. The lack of difference here may be due to unequai presentation of two groups. May be, the quality of care and amount of support, which are very crucial in determining development of psychiatric symptoms, were present in both groups with equal warmth and intensity.

There is a positive correlation between socio-economic status and mental health and consequently, people of higher socio-economic status have better mental health than those of low socio-economic status[26]. In western studies, prevalence of psychiatric disorders was found higher in lower socio-economic population. Middle economic group reported more in this randomly collected hospital population and psychiatric symptoms were found significantly more prevalent among this group of patients. The reason the middle economic group represented more in this sample may be that this group of people are privileged and can reach treatment facilities more easily. Affluent people, that is the upper economy group avail more private facilities than public hospitals. Even though there is under-representation of other two groups in this study sample, high prevalence of psychiatric illness and symptoms among middle economy group deserves some explanation. The classification made here about the socio-economic status is quite arbitrary. Middle class characteristics of family structure, relationship and psychological reaction to distress may have some contributory role here.

Literate population in this study is over represented compared to our general census figure. Similarly, there is little over-representation of urban population. This may be due to the fact that institutions selected are situated in city centres and urban population has more access to these treatment facilities. Although it is expected that educated people having urban background are more aware of the nature of illness, its prognosis, nature of treatment and its outcome, they should react differently to the disease and its treatment, no such difference was observed in this study. Causes may be quite subtle and needs further exploration.

An interesting but alarming finding was noted in this study that none of patients were referred for psychiatric consultation during their hospital stay before or after surgery. Medical staff probably failed to recognize, treat or refer many of those patients who might benefit from psychiatric help. Similar trend was noted in other studies also[19]. It is unrealistic to suggest all patients having psychiatric symptoms should be referred for psychiatric consultation. Instead, psychiartists engaged in consulting and liaison work should better concentrate on different task of distinguishing psychiatric problems most usefully referred to them. Most of the patients should better be dealt with by treating physicians and medical staff.

Finally, attention should be drawn to some limitations of the study. To know the real impact of treatment, both positive and negative aspects should be given equal attention and inclusion of comparative groups of untreated cases and those treated for nonmalignant illnesses is also necessary. Some mechanisms should be found out to pinpoint the time of onset of psychiatric syndrome or symptoms.

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Study of the Association of Human Papilloma Virus with Cervical Cancer and Precancerous Lesions in a Group of Bangladeshi Women

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Summary:

Human papilloma virus (HPV) is suspected to be etiologically related to cervical cancer for many years. This study had been designed to find out the histological and immunohistochemical evidence of HPV infection in cervical cancer and precancerous lesions in Bangladeshi women. Histologically koilocytosis and immunohistochemically (Peroxidase Anti-Peroxidase method, PAP) intranuclear rose-red stain was taken as the criterion for HPV positivity. One hundred and four biopsies of squamous cell carcinoma of cervix and precancerous lesions were processed by conventional histopathological technique. Cervical intraepithelial neoplasia (CIN) was found in 10 cases and all others were invasive cancers. Histological evidence of HPV infection i.e., koilocytosis was found in 60 cases (57.5%). Of all CIN, 90% (eight out of 10) showed koilocytic changes. Forty cases (10 cases of CIN, 24 Grade-I and six Grade-II invasive carcinoma) were stained by PAP method. HPV antigen was detected in eight cases (20%), where five cases were of CIN and three cases were of Grade-I invasive cancer. Fifteen biopsies from nonspecific mild inflammation of cervix were taken as control and stained by both H and E and immunostain. Nine cases showed koilocytic change but none were positive for HPV antigen. Overall association of HPV with cervical carcinoma and precancerous lesions in this series was 20%. This observation indicates that in Bangladesh, a certain percentage of cervical cancer may result from HPV infection and also emphasizes on the proper follow up of those with cervical HPV infection.

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Introduction :

Uterine cervical cancer is one of the human neoplasms whose epidemiology is well understood. The understanding of the aetiological factors is important for the successful prevention of the disease. Many research works have been carried out in different countries to delineate the etiology of the cervical cencer and the precancerous lesions. Most of the works in this field centred on the role of HPV in the genesis of carcinoma of the cervix. Though cervical cancer is one of the most important causes of deaths due to cancer in Bangladeshi women[1], no such work has been carried out here so far.

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The aetiological association of HPV with skin and genital papilloma (warts) is well established[2]. Since 1970s, it's role in the causation of cervical cercinoma has been suspected[3]. There are about 60 types of HPV, of them, only 20 have been isolated from cervical lesions[4]. Type 6 and 11 are constantly found in benign warts whereas, 16, 18 and rarely 31, 33, 35, 42 etc. have been isolated from certain percentage of cervical carcinoma[5]. The frequency of the association have already been determined in different countries. Koilocytes have been considered by most authors as the histological hallmark of HPV infection[6]. They are superfical intermediate squamous epithelial cells with large perinuclear halo. Since HPV can not be cultured *in vitro* till now, detection of the HPV genome by DNA hybridization technique and detection of HPV capsid antigen by a polyclonal antisera are the specific methods of diagnosis of HPV infection[5].

As in other countries, in Bangladesh, many other factors which are related to cervical cancer, like poverty, early age of marriage, multiple marriage, high parity etc. exists[7], but the associaiton of HPV has never been investigated here.

This study was designed in an effort of find out the frequency of association of HPV with cervical malignancy or premalignant conditions. Biopsy samples from cervical cancer and precancerous lesions were studied for the presence of koilocytes and HPV capsid antigen by immunohistochemical (Peroxidase Anti- Peroxidase) method.

Materials and method:

One hundred and fifty specimens of suspected cervical cancer and precancerous lesions were collected during the period July 1991 to January 1992 from four different institutes of Dhaka. These included both hysterectomy and excision biopsy specimen. The patients were selected irrespective of age, parity, socioeconomic and martial status.

The tissue samples were fixed in formalin and embedded in paraffin. From each specimen, one section was stained by routine Hematoxylin and Eosine (H & E) stain. The diagnosis of cervical cancer was confirmed and reviewed. Koilocytic change was also observed by this stain. Histological classification and grading was done according to Border's grading system.

Ten cases of precancerous lessions, 24 grade-I cancer and six grade-II cancer, thus a total of 40 cases, which showed maximum koilocytic change, were selected for immunostain.

Fifteen specimen of uterine cervix were collected from women suffering from mild chronic nonspecific inflammation to serve as control cases. These were processed in the same way and stained by both H and E and immunostain.

One section from each of the 40 study samples and 15 controls were stained by immunohistochemical method. The technique used was Peroxidase Anti- Peroxidase method. It is a soluble enzyme antienzyme method and is very sensitive and gives good result on formalin fixed paraffin embedded tissue [8].

For the study, DAKO PAP KIT System 40 (Code No. K-521) was used which was obtained from Ms. DAKO Corporation of Denmark. They collected the primary antibody by immunizing rabbit with bovine papilloma virus, type I (BPV-I). The unconjugated antibody is directed against viral capsid antigen, which acts against all other members of papilloma virus (PV) group. The substrate used was 3-Amino-9-Ethyl Carbazole (AEC). Positive reaction was indicated by intranuclear red rose colour.

Histological section of the human skin papilloma, processed and stained by same procedure by using primary antibody and negative control antibody was used as positive and negative control respectively for staining.

Results:

Forty five of the 150 cases were found to have chronic nonspecific inflammation and were excluded from the study. Of the remaining 105 cases, one was found to be an adenocarcinoma and was discarded. Thus 104 cases constituted the study group.

The age distribution of the patients was observed and shown in the Table–I. Maximum number of the patients were found in 40 to 50 years age group (27 cases) closely followed by 30 to 40 years ago group (26 cases).

Histological grading is shown in Table –II. Only 10 cases were found to have cervical intraepithelial neoplasia/ dysplasia and all others (94 cases) were infiltrative squamous cell carcinoma. Of the 10 cases of dysplasia, one showed mild, seven moderate and two severe dysplasia.

Koilocytes present both within the cancerous and precancerous lesions, and in adjacent healthy tissue not yet invaded by the tumour are shown in Table - III. Ninety percent

cases of CIN i.e. nine cases out of 10 showed koilocytic change where as none in grade-IV cancer showed such a change.

Table -I

Age distribution of the patients

Age group	No. of cases	Percentage
0-20 years	00	00.00
21-30 "	05	04.80
31-40 "	26	25.00
41-50 "	27	25.96
51-60 "	17	16.35
61-70 "	15	14.43
71-80 "	01	00.96
80-90 "	01	00.96
Unknown	12	11.54
Total	104	100

Of these 40 cases, immunostaining showed positive reaction in eight cases, of which five were of CIN and three were of grade-I cancer. Thus the incidence of positive cases was 20%. This is shown in table–IV.

Of the 15 control cases, although nine showed kilocytic change, none showed positive staining for viral capsid antigen by immunostain.

Table -II

Histological grading of cervical cancer studied

Histological grades	No. of cases	%
Dysplasia/CIN	10	9.62
Grade-I invasive cancer	47	45.19
Grade-II invasive cancer	29	27.88
Grade-III invasive cancer	12	11.54
Grade-IV invasive cancer	6	5.77
Total	104	100

Table- III

Scoring of koilocytes in different grades of cancers

Histological grades	Koilocytes Few	+	++	+++	Total
CIN	-	-	5	4	9
Invasive cancer					
Grade-I	22	8	2	2	34
Grade-II	6	6	-	-	12
Grade-III	4	1	-	-	05
Grade-IV	-	-	-	-	00
Total					60

Table–IV

Result of immunohistochemical study

	Immunostaining done	Positive cases	%
CIN/Dysplasia	10	5	50
Invasive cancer grade-I	24	3	12.5
Invasive cancer grade-II	6	0	0
Total	40	8	20

Table–V

Age distribution of immunostain positive cases

Number of cases	Age of the patients in years
Five cases of CIN	27 years
	35 "
	38 "
	42 "
	45 "
Three cases of grade–I cancer	32 "
	45 "
	60 "

Discussion :

The relationship between cervical cancer and HPV is one of the burning topics in the

current field of medical research. HPV and its association with cervical cancer is still unexplored in Bangladesh. Research works in this field revealed a definite but variable association in different countries. This may be due to various factors like difference in race, age of marriage, social customs, religion etc.

HPV-16 antigen positivity in cervical cancer cases was found to be 60% in Germany, 45% in England and 47% in Italy, the highest being in Africa, 66% [9].

The age distribution of the patients of the present series is in conformity with those observed by Cotran et al where age for peak incidence of occurrence of invasive cervical cancer was 40 to 45 years, and 30 years for in situ lesions[7].

Here, only 9.62% cases were of CIN, others were infiltrative squamous cell carcinoma, a finding which is almost similar to Indian report, where study carried out in five major hospitals in New Delhi showed only 5% cases of early presentation[10]. The finding indicates late presentation of cases indeveloping countries.

In our study series, koilocytosis was found in 57.5% cases. Ninety percent cases of CIN (nine out of 10) showed koilocytosis. Of the 40 cases selected for immunostaining, eight cases (20%) showed positive reaction for the presence of HPV capsid antigen. Of these eight positive cases, three were of grade-I infiltrative squamous cell carcinoma and rest five were of CIN.

Absence of HPV antigen in advanced cancer is not unexpected because viral capsid antigen is present only in productive viral infection, not in the transformed cell. This is again because during the process of transformation, viral genome become integrated with cellular DNA with loss of replicative capability[11,12,13]. Thus we did not have any immunopositive case among six cases of grade–II cancer (Table -IV).

Of the 15 control cases, although nine showed koilocytic changes, none gave positive reaction with immunostain. Here, it has to be considered that only 50-60% of the lesions caused by HPV express structural antigen.

It may therefore be concluded that a sizable number of cancer cervix cases have associated HPV infection and show koilocytic changes in the biopsy sample. Screening for cervical cancer should include simultaneous screeing for koilocytes, thus identifying the risk patiens and advising them for regular and repeated screening.

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Thyroid Uptake and Serum Levels of Thyroid Hormones in Euthyroid Patients

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Summary :

One thousand and two hundred euthyroid patients were studied prospectively. Diagnosis of thyroid status was confirmed by clinical evaluation, in vivo isotope tests and levels of T_3 and T_4 by radioimmunoassy (RIA) method, and wherever necessary TSH level was also done. This study aims at finding out the range and mean of radioactive iodine (RAI) uptake and serum thyroid hormone levels in euthyroid patients. RAI uptake in second and 24th hour were found to be 9.13±5.03% and 25.89±7.36% respectively and serum thyroxine and triiodothyronine levels were 111.75±27.08 nmol/ml and 2.08±.45 nmol/ml respectively.

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Introduction :

Thyroxine and triiodothyronine are the two principle hormones secreted from the thyroid gland. The basic functional element involved in the synthesis of thyroid hormones is the thyroid cell which captures plasmatic iodide and integrates it into thyroglobulin, a precursor of the two hormones.[1] In blood, both the hormones are strongly bound to specific transfer proteins. The free hormone fraction is considered as the biologically active form which produce the desired action[1,2]. The thyroid hormone secretion is regulated by a negative feedback chain produced by the T_3 and T_4 free fraction on the stimulating hormone of hypothalmopituitary axis[3]. A low T_4 level is characteristic of an usually primitive hypothyroidism associated with a high TSH level[4] while a high T_4 level is characteristics of a Grave's disease type of hyperthyroidism and toxic adenoma. Serum T_3 assay is particularly useful for evaluating hyperthyroidism and is sometimes the only test to confirm thyroid diseases like T_3 toxicosis, early stage of hyperthyroidism, toxic adenoma and Grave's disease[5-7]. T_3 assay is also useful in some cases of euthyroid with a high T_4 level and for diagnosis of recurrent hyperthyroidism[8,9]. The radioactive iodine uptake and related *in vivo* isotope tests are useful investigations for assessment of thyroid gland activity.[10-11] Radioimmunoassay (RIA) procedures are specific and sensitive and have largely replaced *in vivo* isotope procedures as primary tests of thyroid function[12-14]. However, in developing countries, RIA facilities are not available in all medical institutions and it is in such situations that *in vivo* isotope tests can be useful for assessing thyroid function[15].

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Materials and method :

One thousand and two hundred patients were investigated prospectively during the period of March 1991 to June 1993 in Nuclear Medicine Centre, Rajshahi. Out of 1200 patients, 754 were female with mean age of 25.67±5.38 years and 436 were male with mean age of 29±6.5 years. Patients were initially assessed clinically and a detailed history was taken, specially that of intake of iodine containing food or other medications. Patients clinically appearing to have hypo-or hyper-functioning thyroid gland and who were known to be suffering from hypothyroidism or thyrotoxicosis were excluded from the study.

Blood (3cc each) was taken from the patients and then each of them was given a dose of 30-50 uci of ^{131}I. An initial second hour uptake was assured and was followed by a 24th hour uptake. In suspected cases a 48th hour uptake was also assessed. The principle

of the assay was based on competition between iodine ^{125}I labelled thyroid hormones (thyroxine and triiodothyronine individually), and thyroid hormones contained in specimens to be assayed for a fixed and limited number of antibody binding sites.

Results :

Age and sex distribution of 1200 patients is shown in fig-1. Mean Radioactive iodine uptake in second hour were 8.94±4.37% in male and 9.30±3.98% in female while 24th hour uptake were 25.67±4.76% and 27.58±6.51% respectively. Mean serum T_3 and T_4 level in male were 2.14±.56 nmol/ml and 112.20±25.55 nmol/ml and the corresponding values in female were 2.05±.46 nmol/ml and 111.35±25.04 nmol/ml respectively (Table -I).

Table—I

RAI uptake in second and 24th hour and serum level of thyroid hormones

Sex	Uptake value		Serum levels of hormones	
	2nd h	24th h	T_3 level	T_4 level
Male	8.94±4.37	25.67±4.76	2.14±56	112.20±25.55
Female	9.30±3.98	27.58±6.51	2.05±46	111.35±25.04

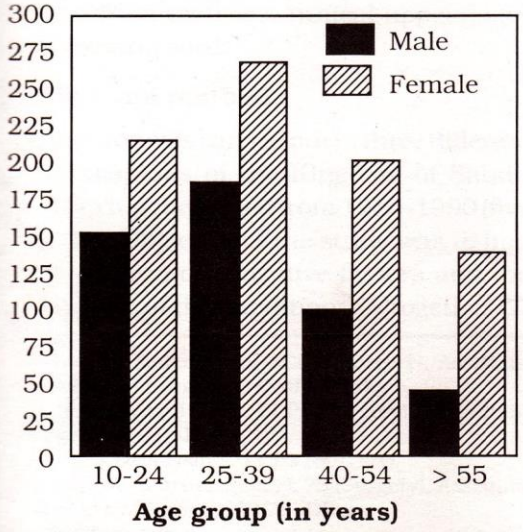

Fig-1: *Age and sex destribution of the patiets*

Discussion :

Functional assessment of thyroid is often needed. Radioactive iodine uptake tests and scanning and estimation of serum levels of T_3 or T_4 along with TSH level are done for such assessment. However, none of these tests are free from errors. In this study the second hour uptake showed great variation (1.49%-27.89%) and none of the euthyroid patients had a peak in second hour and this uptake assessment is not useful in assessing thyroid function excepting cases of hyperthy-roidism.[15] The mean 24th hour uptake irrespective of sex was 25.89±7.36% (12.76%-44.34%) whcih was slightly lower than the findings of Poshyachianda et al[16] and this was probably due an on going campaign for using iodized salt. This value was higher as compared to that in the United States where the corresponding value is 5%-30%[17]. RAI uptake was slightly more in female which was possibly due to normal physiological variation of demand. Mean serum T_3 level was 2.08±.45 nmol/ml (0.77 nmol-3.2 nmol) and T_4 111.75±27.08 nmol/ml (68.00 nmol-158.93 nmol/) which correlates well with other studies[17,18]. Thyroid hormones were again slightly more in male which correlates with the radioactive iodine uptake tests.

This study gives a range and mean (±sd) of RAI uptake and serum thyroid hormone levels in euthyroid patients in a difined Bangladeshi population and we hope that this will help our understanding of thyroid functional status more reliably specially when both types of assessments are combined.

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Acute Scrotum : A Study of Diagnosis and Management

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Summary :

Experience with 51 cases of acute scrotum is described here. The acute scrotum generates a long list of differential diagnoses. In endemic areas *Brucella orchitis* must be entertained. In certain cases diagnosis may be difficult. In doubtful cases, ultrasound scanning and radionuclide scanning may increase the accuracy of diagnosis but its limited availability limits its routine use. Acute scrotum is a surgical emergency. Testicular salvage rate is directly related to the time lapse between the onset of symptoms and surgery. Immediate exploration is the only means of testicular salvage in case of testicular torsion.

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Introduction :

Acute scrotum, the sudden onset of painful swelling of the scrotum or its contents, is not an uncommon surgical problem. Patients may present for causes in the scrotum itself or in the testicles, its tunica and appendages, and in the spermatic cord. Torsion of spermatic cord was first described in 1933[1], and its differentiation from epididymoorchitis was described by Chen[2], and Tiptaft described the differentiation of testicular neoplasms presenting acutely from other possibilities[3]. In our study we have discussed the diagnosis and management of acute scrotal conditions resulting from testicles, tunical appendages and spermatic cord.

Materials and method :

The study was carried out in three different district hospitals of the KIngdom of Saudi-Arabia during the period from 1985-1990 (five years). The Objective of the study was to find out the pattern of causative factors and the usual course of the conditions. Altogether 51 cases were treated during the period in the above hospitals. Their age distribution was noted and presentation recorded. Complete blood count and routine urinalysis was done in every case. Brucella titre and urine culture were done when indicated. Their aetiology and operative findings were observed.

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Results :

Patients were of ages between three months to 49 years, the commonest being in the age group of 11-20 years and the lowest was in 41-50 years age range. Distribution of age is shown in Table–I.

Table–I

Age distribution of patients

Age	Number of cases	%
3 months-10 years	6	11.76
11 years-20 years	22	43.14
21 years-30 years	14	27.26
31 years-40 years	8	15.68
41 years - 50 years	1	1.96
Total	51	100

Most of the cases in this series presented as acute epididymo-orchitis. Among them those due to brucellosis headed the list (22 cases) and trauma with injury to the spermatic

cord was at the bottom. Other causes included torsion of the testes, torsion of testicular appendage, adult hernia and miscellanceous conditions. Only those cases of acute groin hernia were included which could not be diagnosed short of exploration. Table-II shows the presentation and aetiology.

Table—II

Clinical conditions and aetiology of acute scrotum

Clinical condition	No	%	Aetiology	No.
Epididymo-orchitis	28	54.90	Brucellosis	22
			Associated with UTI	3
			Without UTI	2
			Mumps	1
Torison of the Testis	9	17.68	Cord	6
			Intravaginal	2
			Neonatal	1
Torsion of testicular appendages	2	3.92		
Trauma	5	9.80	Rupture of tunica	4
			Injury to cord	1
Acute adult hernia	2	1.96		
Others	6	11.76		

All the patients had mild polymorphonuclear leucocytosis and no abnormality was detected in routine urinalysis. Out of 51 cases only 16 cases were explored. On exploration, infarction of testes was present in seven cases, rupture of the tunica in four cases and torison of testicular appendages in two cases. Doubtful findings were observed in two cases and injury to the spermatic cord in one case. Operative findings and the surgical management done are shown in Table -III.

Table-III

Exploratory findings and surgical procedures followed

Exploratory findings	Surgical procedures	No of cases
Infarcted testes	Orchidectomy and contralateral orchidopexy	7
Doubtful	Orchidopexy	2
Torsion of hydatid of Morgagni	Excision	2
Repture of tunica	Excision of herniated seminiferous tubules and repair	4
Cord injury	Repair and haemostasis	1

Discussion:

Patients of all age groups may present with acute scrotum as it happened in present series, the lowest age being three months and the highest 49 years. Common age group recorded in our series was 11- 20 years. This also matches with previous findings. But in this series, the causative factor was a surprise,acute epididymo-orchitis associated with brucellosis, a hitherto reported rare cause, emerged as the commonest causative factor. In all other series testicular torsion was the commonest cause[5,6] and torsion of one of the testicular appendages was the second commonest cause.

Series	Total	No. of torison	%
Anderson and Willie Jorgerson[5]	111	64	57.65%
Benchain et al[6]	71	67	94.36%
Present series	51	9	17.64%

Brucellosis is endemic in Saudi Arabia. Clinical suspicion, complete blood count and Brucella serology in addition to careful history

taking and physical examination is probably enough to reach the diagnosis. In patients above 35 years of age *E.coli* is the commonest cause of epididymo-orchitis and *Chlamydia* is claimed to be the commonest causative agent below 35 years. In patients with epididymo-orchitis without any evidence of urinary tract infection (UTI), the spread may be through blood or lymphatics and in this group of patients, culture of aspirate from the inflamed epididymis may grow the culprit organism[8]. All of our three patients of nonbrucella epididymo-orchitis were above 40 years of age. In one of them the causative agent was *Klebsiella* and in others it was *E.coli*. Bladder outlet obstruction and urethral instrumentation are considered to be predisposing factors for acute epididymo-orchitis. Epididymitis should be considered as a likely alternative after puberty but in prepubertal boys epididymo-orchitis is exceedingly unlikely. They only occur with urinary infection in presence of a ureteric or urethral anomaly[9].

In the treatment of acute epididymo-orchitis, systemic antibiotics, bed rest, scrotal support and ample fluids are enough in most of the cases. Post-pubertal male has fibrous tunica albuginea which resists expansion, so incision may be needed in some patients to release tension in order to save the testes. All these patients of epididymo-orchitis were asked to report for follow up, but only seven cases turned up after two months and only three at the end of six months. In one patient, the testis was soft and smaller and he had brucella epididymo-orchitis.

Torsion of the testes represents 20 % of all acute scrotum[10]. Testicular salvage rate is directly related to the time interval between the onset of symptoms and surgery. Approximately 80 % of testes are saved if the time is less then five hours. If more than 10 hours elapse, only 20% are saved and after 24 hours virtually all testes are lost[11]. These figures illustrate all too clearly the need for rapid diagnosis and timed surgical management. The harm caused by delay or mistaken diagnosis is castration by neglect. The slogan that it is a torsion until proved otherwise should always be remembered in the differential diagnosis of acute scrotum and should be treated as such. It is far better to explore a doubtful testis because little harm comes from operating upon a patient with epididymitis, so no prepubertal boy should be treated with antibiotic for a presumed diagnosis of epididymo-orchitis without urgent referral to the hospital.

Isotope and ultrasound scanning of the scrotum is a valuable adjunct to clinical assessment. Accuracy rate of radionuclide scintigraphy has been reported as 92-100%. A photopenic area usually appears in torsion in contrast to epididymo-orchitis where there is usually evidence of hyperperfusion during the dynamic phase. However, the routine use of radioisotope scanning in clinical practice is limited because of non-availability, needless delay and unjustifiable expenses[12]. Colour doppler ultrasonogram has been advocated as a useful tool in the evaluation of acute scrotum.

Testicular torsion is an emergency. Operation as soon as possible and always within five hours of onset of pain is mandatory. The best and surest way could be described as a "belt and braces" procedure. As the tendency to torsion is bilateral, it is essential to fix the opposite testis at the same time and in a similar fashion in order to avoid metachronous torsion of the contralateral testis.

Infarcted testis may provoke immune response to antigenic sperm because of loss of blood-sperm barrier. Thus infarcted testis should be removed to minimize immune stimulation[14]. If, however, there is reasonable doubt about the future viability of the testis, it should be left *in situ*.

Torsion of an appendage of testis, the commonest being the Hydatid of Morgagni, is often a more benign illness. There is usually

considerable hydrocoele formation and the black nodule of tissue may be felt or seen of transillumination. As the recovery is generally quicker after excision of the appendage, it is best to operate and thus the differential diagnosis with testicular torsion is less important.

A tumour is unlikely to be as tender as torsion and would be more obvious on palpation under anaesthesia. An inguinal incision is mandatory if there is any real doubt. Localised segmental infarction and testicular malignancy is often a surprise finding after exploration.

A strangulated hernia needs as urgent an operation as a torsion. So an incorrect diagnosis is not disastrous since the mistake would soon be appreciated at operation.

Finally, the strange condition of idiopathic scrotal oedema occasionally leads to confusion but the lack of pain and normality of the underlying testes easily excludes torsion.

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Kupffer Cell and its Role in Diseases

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Introduction :

Kupffer cells are hepatic macrophages constituting 2.1% of the parenchymal volume in adult rat liver[1]. They are named after C von Kupffer who was the first to recognise these non-parenchymal cells. They are found within the sinusoids, near the sinusoidal junctions and are most frequent in periportal zones[2]. They are in close contact with endothelial cells as well as with lipocytes (Stellate cell, Perisinusoidal cell- PSC, Fat storing cell - FSC) in the space of Disse and hepatocytes through their processes penetrating through the endothelial fenestration (Fig - 1). They can be identified easily if there is phagocytosis, otherwise can be identified by histochemical and immunological demonstration of non-specific esterase,peroxidase, alpha-1 antitrypsin or muramidase, positive immunological staining using monoclonal antibodies[3] or electron microscopy[4]. By scanning electron microscopy, Kupffer cells can easily be recognised as they bulge into the sinusoidal lumen with numerous microvilli and filopodia and are easily distinguishable from the fenestrated endothelial cells on which they lie. Techniques for isolating and distinguishing individual sinusoidal cells have been well established[5,6].

Kupffer cells show both morphological and functional heterogeneity. Morphological heterogeneity can be confirmed by the fact that three different populations of macrophages can be isolated by different centrifugal elutriation as described by Bautista et al[7]. This heterogeneity is also seen in their functional aspect whereby cells in periportal region endocytose more actively and possess larger lysosomes and morphologically they are the largest Kupffer cells.

The origin and kinetic of Kupffer cells are still controversial. Evidence suggests both local maintenance and proliferation as well as recruitment and replacement from bone marrow. It is opined that Kupffer cells are stable, self-maintaining population of macrophages in liver[2] and capable of rapid proliferation but rapidly reinforced by recruitment from bone marrow when required[8,9]. Repopulation of liver from bone marrow following both liver and bone marrow transplantation are the examples of the later[10].

Kuffer cells have a vital role in the defence mechanism of the body[11,12]. Their periportal location means that they are the first cells of the mononuclear phagocyte system to be exposed to particulate and immune reactive materials absorbed from the gastrointestinal tract. Specific receptor mediated pinocytotic and phagocytotic property enable them to clear the endotoxins and immune complexes very efficiently[12]. Current evidence indicates

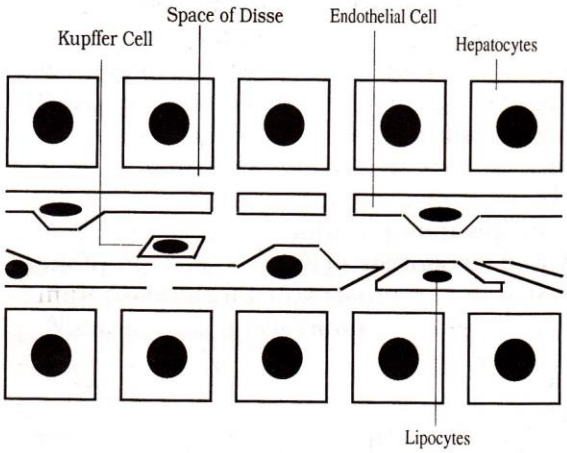

Fig-1: *Schematic representation of the liver sinusoids*

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that they are involved in the pathogenesis of liver disease through a variety of mechanisms, which will be discussed in this article. In the initial pages the article will inform about the different functions of Kupffer cells and in the later section these functions will be related to pathogenesis of different liver associated diseases.

Function of Kupffer cells :

Kupffer cells are liver specific tissue macrophages and like other macrophages have three main functions-

Endocytosis—Pinocytosis and Phagocytosis;
Antigen presentation or immune modulatory functions; and Secretory function.

These confer many specific functions, including-Clearance and destruction of bacteria, yeast, parasite, endotoxin, tumour cell and particulate debris;
Defence against viruses;

Modulation of immune and inflammatory responses;
Tissue and matrix remodelling;
Control of hepatocyte function;
Metabolism of iron and bilirubin (erythrocyte destruction);
Regulation of hematopoiesis and clotting etc.
Each of these functions will be discussed in detail below.

Endocytosis :

Kupffer cells and endothelial cells in liver have the capacity to endocytose large quantities of materials from the circulation. It is done either by pinocytosis - for very small particles, and phagocytosis - for larger particles which is a very specific property of the Kupffer cells.

Pronounced endocytic capacity has allowed recognition of Kupffer cells by uptake of different particulate substances like 0.8 µm latex beads [13,14], flourescent latex beads[15], yeast[4] etc.

Pinocytosis :

It is a normal function of Kupffer cells and endothelial cells. These cells pinocytose plasma continuously in normal situation. Rat Kupffer cells pinocytose at the rate of 15 ml of plasma per gram of cellular protein per day estimated by using ^{125}I labelled polyvinyl pyrrolidon (PVP) as a marker of fluid phase pinocytosis. Pinocytosis process requires energy, probably through glycolysis[11]. There is also receptor mediated pinocytosis and Kupffer cells have receptors for growth hormone and carcinoembryonic antigens[11].

Phagocytosis :

This specific function of Kupffer cells is initiated by recognition of particulate material and its attachment to the cell surface. The phagocytosed material may be degraded by reactive oxygen intermediates, nitric oxide and via fusion with lysosomes, depending on its composition. Products of lysosomal digestion may be reutilized or excreted, undigested material may be stored in lysosomes or extruded from the cell by reverse endocytosis[11].

Recognition of phagocytosable material is critical to phagocytosis. In general, tissue debris, effete endogenous particulate materials and many infectious agents are phagocytosed. Recognition occurs both in the circulation and at the cellular level. In circulation, there are recognition factors or opsonins that are either nonimmunospecific, such as fibronectin, or immunospecific, such as immunoglobulin (Ig). Receptors on Kupffer cells recognise particle coated with fibronectin, IgG or IgM and complement and phagocytose it. There may be other recognition systems too. Phagocytosis depends on the size of the particulate material. Sizes of less than 10nm diameter are not phagocytosed until they are agglutinated. Phagocytosis requires energy and probably this comes from oxidative phosphorylation.

Factors influencing the phagocyting capacity of Kupffer cells include their functional status, the humoral components of phagocytic clearance and hepatic blood flow[11]. Adequate perfusion of the sinusoids with portal venous blood rather than arterial blood is a pre-requisite for efficient

phagocytosis[11]. Perfusion of sinusoids by portal blood is sufficiently slow to allow adequate time for phagocytosis and in normal situation basal rate of phagocytosis is much lower than maximal capability.

The phagocytic function of Kupffer cells can be modified experimentally. Phagocytable materials, like colloid, if given in a amount excess to the phagocyting capacity will result in inhibition of phagocytosis by Kupffer cells. Factors like alcohol, traumatic shock[17], sepsis[18], neoplastic diseases[19], irradiation[20] etc. results in depression of Kupffer cell function including phagocytosis. Whereas, factors like zymosan[21], C parvum[22], endotoxin[23], hepatitis virus[24] results in stimulation of Kupffer cell function including phagocytosis.

Kupffer cells and formed elements of blood :

Kupffer cells play an important role in clearance of senescent erythrocytes, degradation of haemoglobin and storage and release of iron. This function of Kupffer cell is an example of its phagocytic property. Though there is debate on the mechanism of this process but it is probable that terminal sialic acid residue of glycoprotein on the surface membrane of formed elements of blood may be removed as a consequence of exposure to neuraminidase–a normal body constituent and also available from some pathogens[25]. This may result in exposure of some receptors, which may be recognised by Kupffer cells or by IgG and secondarily taken up by Kupffer cells through Fc receptor for phagocytosis [11]. Tumour surveillance is another example of utilisation of phagocytic function of Kupffer cells for the body, which will be discussed later.

Kupffer cells and antigen processing :

Kupffer cells are important in immunological response. They can modulate the immune and inflammatory response via the secretory product like eicosanoids or cytokines and by altering the distribution of the antigen. For example, cell mediated immunity, assessed by ear swelling 24 hours after intra-auricular injection of antigen, did not occur in animals sensitised with antigen via the portal vein, but did occur if they were sensitised via the inferior vena cava[26]. Furthermore, portacaval anastomosis or blockade of Kupffer cell phagocytosis prevents immune tolerance[27]. This suggests that Kupffer cells are such effective scavengers that they remove all immunogenic antigens before they reach the peripheral lymphoid tissue.

Kupffer cells may also express class II major histocompatability complex (MHC) (Ia) antigens which are known to modulate the immune response by processing the antigen and presenting them to immunocompetent cells. In animal model, both immune stimulation and non-specific stimulation like CCl_4 induced liver injury have shown induction of class II MHC[28]. In human liver disease, there is evidence of increased number of antigen presenting Kupffer cells indicating role of Kupffer cells in autoimmune phenomenon of chronic liver disease[11].

Secretory function of Kupffer cells :

Metabolically Kupffer cells are very active cells. At least 50 compounds of peptidic nature that are synthesised and secreted by stimulated macrophage have been identified[29]. They include fibronectin, apolipoprotein E, alpha-2 macroglobulin, plasminogen activator inhibitor,numerous enzymes (including collagenase/gelatinase, elastase, lysozyme, lipoprotein lipase etc.), eicosanoids and cytokine - signal polypeptides[29] (a list is shown in Table-I). These products, as the list suggests, have varieties of functions. Eicosanoids are synthesized by activated Kupffer cells. PGD_2 is the predominant product but PGE_2, PGF_2, thromboxane and prostacycline are also produced[30]. PGE_2 prduced in resonse to interferon, endotoxin and some viruses are largely hepatoprotective[27]. A long list of ever increasing cytokines are secreted by Kupffer cells of which Interleukin–1 (IL-1), Interleukin–

6 (IL-6), Tumor necrosis factor (TNF) and interferon alpha or beta are well defined products of Kupffer cells. There is considerable overlapping of functions of these cytokines and are inter-regulated in a complex manner. Research with these mediators has been greatly facilitated by the availability of recombinant cytokines and monoclonal antibodies.

IL-1, formerly known as lymphocyte-activating factor or as endogenous pyrogen, is a mediator of inflammation and pain. It is a 14 KDa polypeptide whose secretion is significantly enhanced by treating with lipopolysaccharides[29]. IL-1 is central to T-lymphocyte responses and induce acute phase response and autoactivation of Kupffer cells[27].

IL-6, formerly known as B cell stimulatory factor 2 or hepatocyte stimulatory factor, has numerous physiological role and considered as a sensitive indicator of meningitis, graft rejection and rheumatoid arthritis. It is a 26 kDa polypeptide and secretion is stimulated by lipopolysaccharides (LPS), TNF and IL-1. LPS cause 300 to 400 fold increase in IL-6 production by Kupffer cells and dxamethasone inhibits that effect. IL-6 is the most potent stimulator of acute phase protein synthesis in liver [29,31] and in this respect Kupffer cells play a significant regulatory role for hepatocytes.

In rat, Kupffer cell is the main source for TNF which is thought to be the mediator of LPS effect. Recent evidence indicates that sequential release of IL-1, IL-6 and TNFα in response to endotoxin may provide the effector mechanism for septic shock[32].

The interferons mediate antiviral and antitumor activity, upregulate MHC antigen and modulate cell differentiation[29]. Interferons released from Kupffer cells are stimulated most potently by viruses and endotoxins[27]. They may also modulate secretion of other cytokines by Kupffer cells such as IL-1 and TNF[33].

Activation of Kupffer cell :

Macrophage activation, a term originally used to describe the enhanced bactericidal properties of macrophages exposed to intracellular bacteria, has taken on a broader meaning to cover all the functions discussed above. It is important to understand that macrophage effector mechanisms are not always activated in unison in response to a single stumuli. For example, in disease state phagocytic function of Kupffer cells may be depressed due to a variety of factors including reduced plasma levels of recognition factors, intrinsic dysfunction of Kupffer cells, hypoxaemia and inadequate perfusion of sinusoids with portal evenous blood. Alternatively, the function of these cells may be enhanced in disease if large quantities of particulate materials are delivered into the circulation for a long period and plasma level of recognition factors are increased[11]. So each function of Kupffer cells and the signals involved in their activation and depression should be considered separately.

Role of Kupffer cell in liver disease :

Kupffer cells are involved in both acute as well as chronic liver injury. In liver disease associated with active hepatocellular necrosis, Kupffer cells actively phagocytose cellular debris[11]. Kupffer cells may be involved in the pathogenesis of chronic hepatocellular disease in various ways. The phagocytic function may be impaired intrinsically or competitively by various antigens and fail to limit a viral infection. Impaired sequestration of immune complexes by Kupffer cells or an abnormal interaction between them and infiltrating lymphocytes may promote chronic hepatocellular disease[11]. Hepatocellular injury may even develop as a consequence of the phagocytic activity of Kupffer cells with possibility of release of autodestructive lysosomal enzymes or toxic endocytosed material with subsequent uptake by hepatocytes or toxic material may be taken up by hepatocytes directly[11].

In chronic active hepatitis or in cirrhosis, there are high titres of antibody to *Salmonella*, *Bacteroides* and *E. coli*[34,35,36]. Titre is particularly high with large portosystemic

shunt. This is due to decreased sequestration of enteric dietary and bacterial antigen by the Kupffer cells followed by augmented extrahepatic antibody response to these antigens. However, sera of chronic active hepatitis often contain very high titres of antibodies to cytomegalovirus, rubella and measles [37,38]. It has been suggested that these viruses become sequestered in Kupffer cells and impaired activity of these cells in chronic liver disease may permit continuous release of viral antigens into circulation, thereby promoting antibody response.

Kupffer cells and infections :

Kupffer cells may play a role in the pathogenesis of diseases caused by infection. Evidence supports that in hepatotrophic infection Kupffer cells are involved before parenchymal cell invasion. There may be variable effect of this infection. The Kupffer cells may fail to destroy the infecting agent causing disease (eg., murine cytomegalo virus infection), or the agent may destroy Kupffer cell releasing mediators and toxic substances (eg., Frog virus 3 infection of mice)[27]. In hepatic amoebiasis, Kupffer cells not only fail to eradicate infection but are also involved in tissue damage[27]. Similarly *Plasmodium berghei* and *Leishmania* are able to avoid Kupffer cell destruction and in case of later, proliferate within them and suppress phagocytosis and secretory functions[27].

Viruses interact in variety of ways. Kupffer cells may not take up some viruses, but once taken up, the later may be uncoated, undergo destruction, or replicate within the Kupffer ells[39] or alternatively, may be passively transferred to hepatocytes. The precise role of Kupffer cells in human viral hepatitis is unclear, but hepatitis A antigen is found in Kupffer cells during the acute phase of the disease[40]. Similarly, in fulminant and in chronic hepatitis B, HBsAg is found in the cytoplasm of both viable and necrotic Kupffer cells[27]. In chronic active hepatitis B there is relative paucity of Kupffer cells and pathogenesis appears to be mediated by T4 and T8 cells but there are increased number of antigen presenting Kupffer cells[41]. There is also impaired activation of interferon system normally mediated by Kupffer cells which may explain the continued viral replication[42]. Infection of Kupffer cells by human immunodeficiency virus (HIV) may play a role in the pathogenesis of acquired immuno-deficiency syndrome (AIDS). HIV1 virus has been demonstrated in Kupffer cells of infected patients and Kupffer cell culture has been shown to support multiplication of HIV1 and HIV2[27].

In liver disease, impaired Kupffer cell's clearance of micro-organisms and endotoxin from portal blood explains the observed clinical phenomenon of the high incidence of gram-negative septicaemia and septic shock in patients with fulminant hepatic failure and hyperglobulinaemia associated with chronic liver disease[43]. Antibody to gut derived bacteria are dramatically raised in patients with various forms of liver disease[36].

Kupffer cells and endotoxin :

Portal venous plasma normally contains endotoxin derived from the enteric bacterial flora. Kupffer cells normally extract endotoxins from portal venous plasma and pass them on to hepatocytes for modification and excretion into bile where it is further inactivated by bile salts[44,45]. Endotoxin exposure activates Kupffer cell phagocytosis as well as synthesis of biochemically active products, including prostaglandins, thromboxanes, leukotrienes, fibronectin, IL-1, interferons, TNF-alpha, enzymes etc[27,46]. These response may be beneficial to host defence but are also implicated in endotoxin-induced liver injury. Endotoxin alone causes little damage to hepatocytes in culture[27]. Systemic endotoxaemia has been reported to be associated in high proportion with liver disease whereas in normal individual endotoxins can be detected in portal vein but not in systemic circulation[47,48]. This is probably not due to impaired Kupffer cell function but is probably

due to impaired contact with portal venous blood due to shunting[47,49,50].

Role of Kupffer cells in tissue remodelling and hepatic fibrogenesis :

The actual mechanism of liver fibrosis is yet to be identified. In liver fibrosis or cirrhosis there is excess accumulation of collagen and other matrix protein in liver. This may be due to alteration in rate of synthesis of matrix protein or change in degradation or both. There is increasing evidence suggesting a complex mechanism participated by different liver cells as well as the surrounding martix[31,51]. Current evidence indicates an important role of Kupffer cells in connective tissue remodelling and liver fibrosis. Kupffer cells may be involved in both processes through the release of different secretory products like cytokine, growth factors and other mediators that regulate other cell functions or through release of matrix metalloproteinase that alter the extracellular matrix and thus alter functions of adjoining cells[31,51].

The excess collagen in fibrosed liver is believed to be from lipocytes[31,51]. The lipocytes may become activated[52] for this excess collagen production by cytokines as well as matrix composition around its immediate surrounding (explanation is beyond the scope of this article). Kupffer cells by their secreted soluble factors lead to lipocyte proliferation and promote their synthesis of collagen[53], proteogylcan[54] and hyaluronate[55]. TGF-ß1 (tumor growth factor-ß1) from Kupffer cells causes myofibroblastic transformation of lipocytes and is a potent stimulator of collagen and other matrix components[56,57]. Excess release or expression of TGFß1 has been reported in studies in rat with alcoholic liver disease, in schistosomiasis and CCl_4-induced fibrosis[58,59]. TGF-ß1 gene expression is also increased during liver fibrosis in man[60]. Another mechanism by which lipocytes may be activated to fibrogenic phenotype is via degradation of normal subendothelial matrix by 95 kDa type IV collagenase/gelatinase from Kupffer cells[61]. However, actual role of Kupffer cells in hepatic fibrogenesis is still to be delineated clearly.

Kupffer cells and tumours :

Kupffer cells may play an important role in tumour surveillance[11] as activated Kupffer cells destroy tumour cells by phagocytosis, cytokine release and by a mechasnism involving membrane bound TNF–alpha[62]. Agents like IL2 render Kupffer cells cytotoxic to tumour cells by increasing their release of superoxide and TNF-alpha[63]. Interferon released from Kupffer cells has direct antitumour activity and also enhance TNF-alpha synthesis and activate hepatic natural killer cell (Pit cell)[27]. Avidity of this process varies with the cell line and appears to depend on tumour cell surface components[64].

The liver is a common site for blood borne metastasis specially from the gastrointestinal system. The ability of the tumour cell to metastasise in liver depends both on tumour cell factor as well as state of activation and health of the hepatic reticuloendothelial system. Animal studies have demonstrated that activation and depression of Kupffer cells affect the number and size of liver metastasis following intraportal challenge with tumour cells[27]. Treatment with inhibitors of Kupffer cell function such as silica, anti-macrophage serum, results in increased tumour growth, whereas stimulator of Kupffer cells, such as zymosan, C parvum, decrease tumour growth in the liver[27]. Recently, potential roles of Kupffer cell activation in the treatment of hepatic malignancy are being investigated.

Kupffer cells and alcoholic liver disease :

Overall importance of Kupffer cells in alcoholic liver injury remains to be determined. However, there is no doubt that alcohol depresses phagocytic function, lysosomal enzyme activity and endotoxin induced reactive oxygen intermediates (ROI) production of Kupffer cells[27]. On the other hand, increased number of Kupffer cells in portal tract has been identified in acute and chronic human alcoholic liver disease[27]. In mice, acute alcohol ingestion causes increased Kupffer cells with

Table–I

*Secretory products of Kupffer cells**

A. Products involved in protein degradation and tissue remodelling :		
	Lysosomal enzymes	Cathepsin, Peroxidase, Esterase, Acetylases
	Neutral Proteinases	Plasminogen activator, 95 kDa type IV collagenase/gelatinase, interstitial collagenase
	Proteoglycans	
	Fibronectin	
	Lipocyte stimulating factor	
B.	Modulators of cell functions :	
	Eicosanoids	Prostaglandins, Leukotrienes
	Platelet activating factor	
	Cytokines	IL-1, IL-6, TNF-α, Interferon - α and β, TGF -β
C.	Defence mechanisms and cytotoxicity :	
	Complement components	
	Reactive oxygen intermediates	Superoxide, Hydrogen peroxide,
	Nitric oxide	Hydroxyl radical
	Lysozyme	
D.	Other enzymes :	
	Apolipoprotein E	
	Phospholipase A_2	

*This table is not intended to be comprehensive and obtained from Winwood et al. [27]

features of activation and Kupffer cells isolated from alcohol fed rat shows increased secretion of IL-1 and TNFα [65,66]. Thus, although some functions of Kupffer cells are inhibited by alcohol, some others are stimulated and may play a role in liver injury.

Kupffer cells and liver transplantation :

Liver allograft rejection is thought to be initiated through antigen recognition by T lymphocytes with effector mechanisms involving cytotoxic T cells, B cells, neutrophils and macrophages. Information regarding the role of Kupffer cells as antigen presenting cells in rejection is now emerging. In human, the replacement of donor Kupffer cells by host cells is increased during the episode of rejection suggesting its role[27].

Generation of ROI by Kupffer cells may also play an important role in ischaemia-reperfusion injury[67]. Ultrastructural studies have shown morphological features of Kupffer cell activation associated with endothaelial change during reperfusion of liver[68]. The presently used liver preservation storage fluids contain substances which act as inhibitors of ROI reaction[68]. All these findings suggest important role of Kupffer cells in liver transplantation.

Kupffer cells and other disease :

Enhanced Kupffer cell activity may be seen in autoimmune chronic active hepatitis and primary biliary cirrhosis (PBC)[69]. However, in late stage of PBC, there is paucity of Kupffer cells with impaired receptor mediated endocytosis which may in part account for associated raised IgM levels[27]. Kupffer cells have also been implicated in immune complex disease and with granulomatous reaction in the liver. They may also play a role in iron storage diseases. Kupffer cell transferrin receptors are down regulated by excessive iron loading[70] suggesting a protective role in secondary haemosiderosis. Whereas, in idiopathic haemochromatosis, macrophage has impaired ability to store iron and promote parenchymal cell overload[27].

Conclusion :

Kupffer cell plays an important role in host defence both through their endocytic property as well as through immune modulatory functions. Activated Kupffer cells synthesise and secrete a wide range of substances which may be potentially harmful. Studies in animal model as well as human liver diseases indicated that Kupffer cells play an important role in pathogenesis of liver injury and fibrosis. Extensive studies are being done in the field and hopefully in near future a new dimension will be added to the role of Kupffer cells in the pathogenesis of liver diseases.

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Complete Transverse Vaginal Septum : A Case Report

F BEGUM, FCPS[a], S JAHAN, FCPS[b], S KHATUN, FRCOG[c]

Summary :

A case of two complete transverse vaginal septa, one at the junction of the middle and upper third and another at the junction of middle and lower third with functioning uterus presenting at puberty is reported. The patient was operated, the vaginal canal remained patent and the patient experienced regular cyclical menstruation.

(J Bangladesh Coll Phys Surg 1994; 12: 106–108)

Introduction :

Vaginal malformation, although not common, presents a serious gynaecological problem. Transverse vaginal septum is one of the most infrequent anomalies of the female reproductive tract[1]. Since its initial description by Delauny, only a few small series have been reported quoting an incidence of about one in 84,000[2,3].

The common site of transverse vaginal septum is at the junction of middle and upper third, rarely it may be in the lower third also. The thickness also varies, from merely a simple membrane to a septum of variable thickness (1-1.5cm)[4]. A single membrane is the rule although multiplicity has been reported[1]. The septum may be complete or incomplete with an aperture allowing menstrual blood to drain.

Case Report :

A 16 years old young unmarried girl was admitted in the Department of Obstetrics and Gynaecology of Institute of Postgraduate Medicine and Research (IPGM&R) in November 1990 with the complaints of primary amenorrhoea, a lump in lower abdomen and cyclical pain in lower abdomen for one year. No family history of similar problem could be elicited.

Physical examination showed normal breast development, body hair, fat distribution and external genitalia. There was a smooth surfaced lump in the lower abdomen measuring about 18 weeks pregnant uterine size. Per vaginal and speculum examination revealed a blind vaginal canal with a thick transverse septum at the junction of middle and lower third of the vagina. On rectal examination the abdominal lump seemed to be of uterine origin. The case was diagnosed as cryptomenorrhea with transverse septum in vagina and surgical excision of the septum was decided.

The patient was operated under general anaesthesia. The septum which was about 1cm thick was excised and the middle portion of vagina came into view but this portion also presented a blind top and there was no communication with the lump above (Figure-1). The second septum was thicker (2cm) and it was found very difficult to dissect it from below as the vaginal calibre was also narrow. So, abdominoperineal dissection was decided.

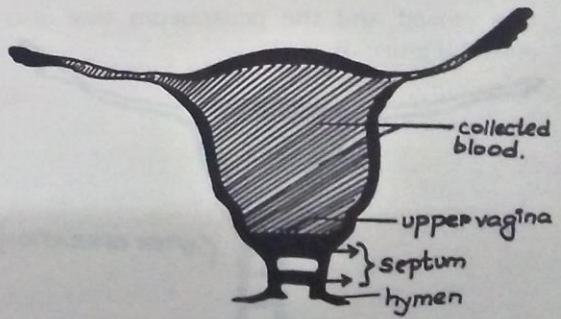

Fig-1: *Schematic presentation of vaginal septa*

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Abdomen was opened by lower midline incision. The uterus and upper vagina was found distended with collected blood. Tubes and ovaries and other abdominal organs were normal. The bladder was then separated from the front of the uterus. A longitudinal incision was made on the distended upper vagina and profuse thick chocolate coloured blood came out. Then a dilator was introduced through the longitudinal incision towards the blind middle vagina. Directed by the protruding dilator, dissection was made from below and an opening was made in the obstructing septum which was later excised. The raw area was covered by suturing the edge of the upper vaginal wall to that of the lower vagina by interrupted stitches (Figure-2).

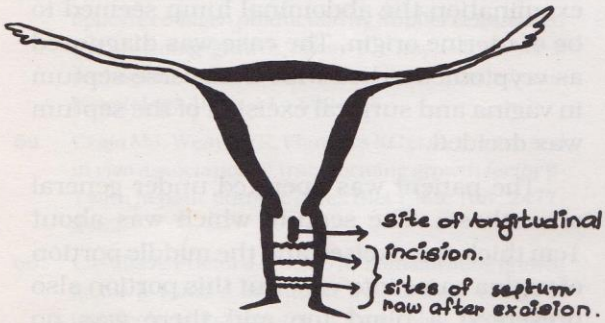

Fig-2: *Site of longitudinal incision*

A wide bore rubber tube was then kept in vagina, the upper end of which was in the upper vagina above the site of the upper septum and the lower part in the lower vagina. The longitudinal incision in the upper vagina was closed and the peritoneum was also closed (Figure-3).

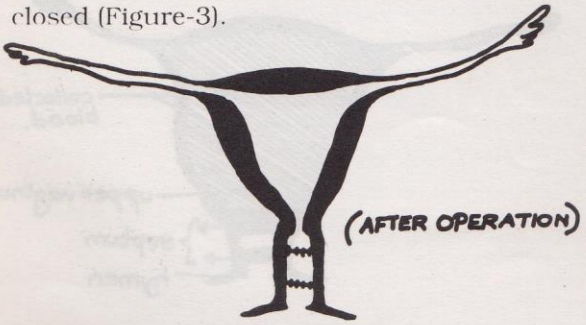

Fig-3: *Vaginal canal after surgery*

The post operative period was uneventful, the rubber tube was removed after a week and the vagina was then dilated daily with fingers moistened with vaseline.

The patient was discharged two weeks after operation and advised to come every week for one month for digital dilatation. The lower vagina admitted two fingers but the upper part was narrower, allowing only one finger. She was given a mould so that she could dilate the vagina by herself. The patient had regular cycles.

Discussion :

Failure of the normal development of the vagina may be due to an embroyological or genetic abnormality[5]. The embroyological origin of the abnormality can not be easily explained as the embryology of the vagina itself is quite controversial. According to most of the authorities of modern texts, the vagina is of composite origin, the upper portion being derived from the fused Mullerian ducts and the lower portion from the urogenital sinus[6,7].

It is postulated that transverse vaginal septum is the result of incomplete canalization of the primitive vaginal plate or failure in breakdown of the partition between the Mullerian and sinovaginal bulb contributions to the vagina[8]. Transverse vaginal septum could also arise as a result of inflammatory process, presumably as a complication of the infectious diseases of childhood or as a direct result of trauma. It may also result from a foreign body in the vagina[7].

The condition has been ascribed to be of autosomal trait inheritance in at least some of the abnormalities[9]. Congenital abnormality of the urogenital septum is said to accompany genital defects in approximately 20% of the cases[10]. An isolated transverse septum is less frequently associated with urinary tract anomalies than a longitudinal septum or atresia. Associated renal anomalies did not exist in this case.

The patients may present with different types of complaints. An incomplete membrame may cause dyspareunia, sterility or obstructed labour. Complete obstruction causes symptoms usually at puberty when the patient usually presents with primary amenorrhoea. Presentation with lower abdominal pain and lump in the lower abdomen are not very uncommon.

A complete septum may be noticed in the new born or in early infancy as hydrometrocolpos[7] or symtpoms secondary to obstruction e.g. urinary retention, hydroureter, hydronephrosis, rectal compression with constipation, lower extremity edema etc.

The septum is detected by per vaginal examination and by rectal examination. A pelvic mass representing haematocolpos or in some cases haematometra can be palpated. Ultrasonography of the pelvis may give information about pelvic contents and laparoscopy would establish the nature of internal genitalia whenever there is doubt[3,6,7].

The complete septum usually presents as an emergency problem and surgical excision followed by vaginoplasty is the treatment of choice. The raw area in the vagina are to be epithelialized either by vaginal epithelium advancing, or by suturing the upper edge to the margins of the vagina around the lower limit of obstruction or by skin graft.

The long term prognosis is excellent. Dysmenorrhoea or dyspareunia would be completely relieved and if marked scarring in the area of excision is absent, no significant vaginal dystocia should be expected during child birth[3,6].

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Hepatoblastoma in Children - A Case Report

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Summary :

A case of hepatoblastoma, confirmed histopathologically, in childhood is reported. Preoperative liver function test findings were within normal limit, the tumour was small in size and thickly encapasulated and was located in the inferior part of the right lobe. Only biochemical abnormality found was high serum alphafetoprotein which became nonrexistant after surgery. Partial right lobectomy was done as a treatment procedure.

(J Bangladesh Coll Phys Surg 1994; 12: 109–111)

Introduction :

Hepatoblastoma is one of the most malignant and fatal solid tumours in children with very poor prognosis. These tumours when present, should be a primary clinical concern and warrants an immediate definitive therapy as they are a real threat to life. The liver cancer study group in Japan[1] reported that the patients survived longer in resectable cases, either partial or segmental, than in nonresectable or cases requiring massive resection, and in those without cirrhosis than in those with cirrhosis. Thickly encapsulated and small size tumour cases lived longer than those with an infiltrating and large size tumour[2,3]. The case reported here is that of a hepatoblastoma in childhood, who have been responding well after a definite partial hepatic resection. So far this is the first report of such kind in this country.

Case Report :

A 13 months old female child was admitted with an asymptomatic protuberant abdominal mass in the paediatric surgery department of Institute of Postgraduate Medicine and Research Hospital, Dhaka. Abdominal examination revealed enlarged, hard and nontender liver without any other abnormal findings. Investigations disclosed the following values: total serum billirubin 15.5 µmol/L (normal : 5-17 µmol/L), SGOT 46 iu/L (normal : upto 37 iu/L), SGPT-21 iu/L (normal : upto 40 iu/L), Alkaline phosphatase (ALP)> 65 iu/dl (normal : 3-13 iu/dl), Alphafetoprotein (AFP)> 400 ng/ml. Viral antigen was negative. Liver scan showed enlarged liver with a big photon deficient area in the right lobe of the liver. Ultrasonography showed a hypoechoic encapsulated mass in the right lobe of the liver (Fig.1). The operation done was partial right lobectomy. Macroscopically the size of the tumor was 2.5 cm x 2.0 cm in diameter.

Fig-1: *Representative ultrasonographic findings of the liver before operation. A hypoechoic encapsulated mass was found in the right lobe of liver*

with 1-2 mm wide well defined capsule. Features of hepatoblastoma was confirmed

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histologically. There were no cirrhotic changes. Removed enlarged lymphnode from the portahepatis showed sinus histiocytosis and follicular hyperplasia without any neoplastic change histologically. Serum bilirubin was 8.55 µumo/L, ALP 72 iu/dl and serum AFP level was negative following five months after surgery. The patient did well without any further complains.

Discussion :

Hepatoblastoma is most common in infants and young children, while hepatocellular carcinoma is characteristically seen in older children and adults aged 40 years or above. The cases of hepatoblastoma or hepatocellular carcinoma can be diagnosed preoperatively by using various types of modern investigating tools which determine the exact location of tumour for performing the best surgical procedure which in turn influences the progosis [2,3,4]. With very limited investigations the case presented here was diagnosed preoportively, but it is necessary to do the other investigations like computed tomography, magnetic resonance imaging, selective angiography and DNA analysis to isolate the exact location of tumour, to get the information about clinial behaviour of tumour, for histological assessments, determining therapeutic strateigies as well as for assessing the prognosis. It was reported that a good preoperative liver function and presence of thick capsule around the tumour are the two most important factors in identifying the long term survivors [2]. In this case, almost all preoperative liver function tests were within normal range, the tumour was thickly encapsulated and the size of the tumour was below 5 cm in diameter. It has been found that tumour size of less than 5 cm has a better prognosis than larger tumours[3].

Fetoprotein is a normal alpha globulin produced by embryonic hepatocytes. AFP is detectable in the serum for a few weeks after birth and thereafter is generally not present. AFP is invariably found in the serum of patients with hepatoblastoma and hepatocellular carcinoma [5,6]. It was reported that AFP level was found high in large, high DNA or aneuploid tumours[7,8]. AFP appears as a valuable screening method for patients with primary liver cancer. In this case the AFP level was found very high before operation and was nil five months after definitive surgery. It shows that the resynthesis of fetoprotein by the tumour cells before operation was stopped because of complete removal of primary tumour without any recurrence. It therefore seems that AFP is a valuable screening method for patients with primary liver cancer and its recurrences following surgery. It is necessary to do the postoperative serum AFP level and ultrasonography routinely to see any recurrence of the tumour to ensure further management.

The biological behaviour of tumours with prognostic information is of great importance for evaluating the optimal treatment of the disease. To achieve an acceptable prognosis after resection, patients must survive early postoperative period without liver failure. This patient had an uneventful postoperative recovery. Excellent survival was observed following resection in this case. Tumour in the inferior part of the right lobe has a better prognosis than those in the superior part [3]. In this case the location of the tumour was in the inferior part of the right lobe of liver. This patient was assessed after five months following surgery by clinical examination, liver biochemical tests and measurement of the serum concentration of AFP level. The prognosis depends partly on the surgical resection of the tumour and the function of the remnant liver tissue. Long term follow up study in a large number of cases are necessary to evaluate the prognosis after selective surgical procedures in hepatoblastoma in childhood.

Acknowledgement

I would like to thank Drs. Shafiqul Haque, Tahmina Banu, Faiz Kabir and Motiur Rahman of the department of Paediatric Surgery, IPGM&R for their valuable advice and suggestions.

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J Bangladesh Coll Phys Surg 1994; 12: 112–1

Examination News :

Results of FCPS Part I, FCPS Part II and MCPS Examinations held in July, 1994 are give below :

497 candidates appeared in FCPS Part I Examination held in July, 1994 of which 6 candidates came out successful. Subjectwise results are as follows :

Subject	Number appear in theory examination	Number qualified for viva-voce	Number passed
Medicine	115	40	17
Surgery	129	22	10
Paediatrics	59	23	10
Obst. & Gynae	79	15	7
Ophthalmology	32	11	2
ENT Diseases	16	1	1
Psychiatry	9	3	1
Anaesthesiology	18	3	3
Radiology	8	0	0
Radiotherapy	4	1	1
Physical Medicine	6	2	0
Haematology	12	7	2
Biochemistry	4	4	4
Histopathology	1	1	1
Microbiology	5	3	3
Total =	497	136	62

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

Roll No.	Name	Graduated from	Speciality
2	Dr. Mukhlesur Rahman	Dhaka Medical College	Medicine
4	Dr. Md. Abdul Bari Miah	Rajshahi Medical College	Medicine
8	Dr. kamal Ahmed	Dhaka Medical College	Medicine
9	Dr. Kamal Sayeed Ahmed Chowdhury	Sylhet Medical College	Medicine
10	Dr. Mohammad Liaquat Ali	Rajshahi Medical College	Medicine
14	Dr. M. A. Samad	Mymensingh Medical College	Medicine
17	Dr. Gobinda Chandra Biswas	Rangpur Medical College	Medicine
20	Dr. K. M. Omar Hassan	Sir Salimullah Medical College	Medicine
21	Dr. Abdullah-Al-Mamun	Sher-e- Bangla Medical College	Medicine
36	Dr. Md Ibrahim Siddique	Dhaka Medical College	Surgery
37	Dr. Mostaque Ahmed	Dhaka Medical College	Surgery

Roll No.	Name	Graduated from	Speciality
39	Dr. Md. Ohidul Alam	Rajshahi Medical College	Surgery
43	Dr. M. H. Abdullah Zobair	Chittagong Medical College	Surgery
58	Dr. Asit Chandra Sarker	Dhaka Medical College	Surgery
60	Dr. Shaikh Abdur Razzaque	Sylhet Medical College	Paediatrics
63	Dr. Nazneen Akhter Banu	Dhaka Medical College	Paediatrics
65	Dr. Aloke Kumar Saha	Dhaka Medical College	Paediatrics
70	Dr. Neke Akhtar	Chittagong Medical College	Obst. & Gynae
71	Dr. Habiba Khatoon	Sir Salimullah Medical College	Obst. & Gynae
74	Dr. Md. Rashedul Moula	Rangpur Medical College	Ophthalmology
75	Dr. Md. Zahangir Alam Chowdhury	Chittagong Medical College	Ophthalmology
76	Dr. Md. Rafiquzzaman	Sylhet Medical College	ENT Diseases
77	Dr. Mahmudul Hassan	Chittagong Medical College	ENT Diseases
82	Dr. Md.Sajjadur Rahman	Mymensingh Medical College	Psychiatry
83	Dr. Jahangir Alam	Rangpur Medical College	Radiology
85	Dr. Md. Moarraf Hossan	Chittagong Medical College	Radiotherapy
86	Dr. Salahuddin Ahmed	Rajshahi Medical College	Radiotherapy
87	Dr. Aminuddin Ahmad Khan	Chittagong Medical College	Physical Medicine

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

Roll No.	Name	Speciality
1.	Dr. A. K. M. Mujibur Rahman	Medicine
13	Dr. Syed Shahidul Islam	Medicine
29	Dr. Sk. Golam Murtaza Reza	Surgery
34	Dr. Md. Khalequzzaman Akhter	Paediatrics
36	Dr. Musammat Sufia Akhter	Paediatrics
40	Dr. Syed Mohammad Wazed	Paediatrics
41	Dr. Abu Ahmed Martuza	Paediatrics
42	Dr. Dilder Amed Khan	Paediatrics
52	Dr. Abdul Matin	Paediatrics
56	Dr. Badrun Nesa Begum	Obst & Gynae
60	Dr. Moslema Akhtari Begum	Obst & Gynae
63	Dr. A. T. M. Zakir Hossain	Obst & Gynae
66	Dr. Halima Akhter	Obst & Gynae
69	Dr. Ayesha Akhter	Obst & Gynae
73	Dr. Farida Yasmin	Obst & Gynae
78	Dr. Molina Rani Kundu	Obst & Gynae
84	Dr. Tahmina Begum	Obst & Gynae
102	Dr. Sujata Shrestha	Obst & Gynae
108	Dr. Nahla Bari	Obst & Gynae
116	Dr. Akhtari Khanam	Obst & Gynae
119	Dr. Kamrun Nessa	Obst & Gynae
126	Dr. Abul Kalam Azad	Obst & Gynae
129	Dr. Salma Arjumand Banu	Obst & Gynae

Roll No.	Name	Speciality
139	Dr. Anthony Albert	Obst & Gynae
140	Dr. Saifuddin Ahmed	Obst & Gynae
144	Dr. Kazi Reshad Agaz	Obst & Gynae
153	Dr. Mursedul Azam	Anaesthesiology
155	Dr. A. K. Moyeen Uddin Ahmmed	Psychiatry
161	Dr. Kazi Mizanur Rahman	Clinical Pathology
163	Dr. Syed Md. Kashem	Clinical Pathology
164	Dr. Mahmuda Khatun	Clinical Pathology
167	Dr. Kohinoor Begum	Clinical Pathology
168	Dr. Chin Bahadur Pun Magar	Clinical Pathology
181	Dr. Md. Kabiruzzaman	Family Medicine
182	Dr. Zahirul Quayyum	Family Medicine
186	Dr. Abul Khayer Bhuiyan	Family Medicine
196	Dr. Md. Mozaffor Rahman	Family Medicine
197	Dr. A. S. M. Towhidul Alam	Family Medicine

6th Convocation of the College:

The 6th Convocation of the Bangladesh College of Physicians and Surgeons will be held on 26th January, 1995. Fellows and Members admitted since July, 1992 will be conferred Diplomas. About 450 receipients are expected to attend the Convocation.

Annual General Meeting and Council Election:

The 22nd Annual General Meeting of he College will be held on 27th January, 1995 at 8:30 A. M. in the auditorium of the college. The election of the 8 councillors of the College will also be held on 27th January, 1995 from 9:00 A. M. to 3:00 P. M. in the College premises