Acta Scientific Orthopaedics (ISSN: 2581-8635)

Volume 3 Issue 2 February 2020

Research Article

Histopathology and Cytopathology Based Tumours Diagnosed in A Tertiary Care Level Institute in Dhaka City

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Received: November 28, 2019

Published: January 07, 2020

Abstract

During the past century, cancer has emerged as the most challenging problems for public health systems in medium and low income source countries. With a cancer load of more than one million, Bangladesh is not an exception.

Thist study showed that squamous cell carcinoma was the most common malignant tumour and duct cell carcinoma of breast was the next one. The lower income generating group was the more vulnerable group for both benign and malignant tumours. Among female malignant tumours- breast cancer represented the highest occuring and cervical cancer and ovarian cancer represented the second and fourth most common tumours. Of the studied benign tumours- tumour of the skin adnexa (lipoma) was the most common both in adult male as well as in adult female and of breast (fibro adenoma) was the second most common tumour in adult females.

The frequency of malignant tumour was more from third to sixth decade and highest in fourth decade. Frequency of paediatric benign tumours in total tumour cases was 13.87% and paediatric malignant tumour was 05.08% and frequency of paediatric benign tumours within paediatric tumours 89.40% and frequency of malignant tumours within paediatric tumours was 10.60%. Leukaemia was the most common tumour both in male and female of paediatric age group but more in number in male. On the other hand, malignant tumour of lymph node, skin, head-neck-brain and bone was more in number in female than that of male of the same age group. Male to female ratio in this study population was 2:5. Male to female ratio of benign tumour was 1:3 and of malignant tumour was 5:8. Benign tumours out of 434 cases in adult males were mostly skin adnexal and out of 1293 cases in adult females were also mostly skin adnexal followed by uterine, breast, ovarian etc. Regarding aetiology of cancer, people in rural area were habituated with various forms of tobacco (jarda, biri, gul, khaini etc), betel nut and betel leaf. These are carcinogens and etiologically responsible for head and neck cancers. Breast cancer was the first and cervical carcinoma was the second most common malignant tumour in adult female in this study. In this study malignant tumour of lymph node was the highest in adult male followed by skin cancer, leukaemia, head-neck-brain mass, urinary bladder, stomach, mouth and oral cavity, liver, prostate, lung, colon and rectum, bone and thyroid. Of male benign tumours tumour of skin adnexa was the highest followed by tumours of head and neck, bone, parotid gland, oral cavity, colorectal and penis.

Keywords: Tumours; Paediatric

Introduction

Cancer burden causes serious health problems both in developed and developing countries. Cancer has devastating effect on individual, family and society of Bangladesh. Cancer is one of the major causes of morbidity and mortality among the non-communicable diseases in our population [1]. Appropriate prevention of cancer deserves urgent attention since the disease is expected to double in the next 20 to 25 years in most of the countries [2]. Cancer in Bangladesh is one of the major killer diseases like many other countries particularly because of ubiquitous exposure to environmental carcinogens, oncogenic viruses and microorganisms, coupled with lack of screening, awareness and poor health seeking behaviors associated with poverty, malnutrition and illiteracy. The magnitude of the problem from cancer is often unrecognized by health and general policy makers alike to other overwhelming and more visible competitive health problems and natural calamities.

According to Bangladesh Bureau of Statistics cancer is the sixth leading cause of death in Bangladesh2. The number of people developing cancer is expected to increase in number mainly because of increase in life expectancy and life style factors. Each year more than 200,000 people develop cancer and 150,000 die of the disease. IARC (International Agency for Research on Cancer) has estimated death from cancer in Bangladesh was 7.5% in 2005 and will be increased up to 13% in 2030. IARC has projected death from 10 leading cancers (2002) [3] in females of Bangladesh are :

1.Mouth and oro-pharyngeal, 2. Cervical, 3. Breast, 4. Oesophageal, 5.Ovarian, 6. Lung, 7. Lymphoma, 8. Stomach, 9. Liver and 10. Colorectal cancer.

and in males of Bangladesh are:

1. mouth and oropharyngeal, 2. lung, 3. oesophagus, 4. lymphoma, 5. stomach, 6. bladder, 7. liver, 8. leukaemia, 9. colorectal and 10. prostate cancer.

During the 2 years study period 2908 histopathological cases and 5187 cytopathological cases were diagnosed at the department of Pathology and 70 haematological malignant tumours were handled at the department of Haematology, Sir Salimullah Medical College (SSMC) and Mitford Hospital (MH), Dhaka [4].

Materials and Methods

This study is partial presentation of a two years tumour registry study done at the Department of Pathology, SSMC, Dhakafrom July 1st, 2013 to June 30th, 2015. It was a cross-sectional observational study done on all patients diagnosed as cases of both benign and malignant tumors by cytopathology, histopathology and haematology.

Data collection procedure

A predesigned questionnaire both in Bangla and English was developed according to MacLennan method and software were generated with the technical assistance by the University of Chicago Research Bangladesh by the cooperation of department of Pathology, BSMMU. Prior to the commencement of this study, approval was taken from the Ethical Review Committee of SSMC. Each patient was interviewed and relevant information was recorded systematically in a prescribed preformate. A written consent also attached with the questionnaire was explained before the patient/ patient's guardian. The first part of the questionnaire was designed to record the demographic details of patients. The second part of the questionnaire was to record the pathological diagnosis of tumour with its ICD 0-3 and ICD-10 codes. The information collected was entered into the database by software Microsoft Access 2003 and Visual Basic 6.

How the data were recorded?

The data were recorded according to database software. All the patients were supplied 1st part of the questionnaire (topography portion) during access to the department for submission of the specimen or for FNAC or other procedures. The data were entered case after case from the filled up Questionnaire received from the patients during collection of their reports following a self-made registrar which recorded 10 items for each case likely

1). Case serial number; 2) Case- whether it is histopathological or 3) cytopathological or 4) haematological specimen; 5) Referred by; 6) Yearly serial number i.e., accession number; 7) Diagnosis; 8) Specimen received from / site; 9) date of diagnosis; 10) Reported by.

Thereafter data were entered into the computer database software accordingly.

Analysis of the data

Statistical analyses of the results were obtained by using Microsoft access and Window based computer software devised with Statistical Packages for Social Sciences (SPSS-15). The information was partially coded according to ICD - 10 (International Classification of Diseases version -10) and ICD – 03 (International Classification of Diseases – Oncology version 3).

Results and Observations

Among 408 benign tumours of uterus leiomyoma is more common followed by adenomatous polyp (Table 1).

Diagnosis	Paediatric	Adult	Total	Percentage (%)
Leiomyoma	4	270	274	67.16
Adenomatous (endometrial and endocervical) polyp	5	92	97	23.77
Hydatidiform mole (of placental/ uterine tissue)	6	31	37	9.07
Total	15	393	408	100.00

Table 1: Diagnostic distribution of benign tumours of uterus according to age.

Out of 85 malignant tumours of uterus squamous cell carcinoma is found more common than adenocarcinoma (Table 2).

Diagnosis	Paediatric	Adult	Total	Percentage (%)
Squamous cell carcinoma	1	76	77	90.59
Adenocarcinoma		08	08	9.41
Total	1	84	85	100.00

Table 2: Diagnostic distribution of malignant tumours of uterus according to age.

Among 127 benign tumour of ovarian origin serous cyst adenoma, mucinous cyst adenoma and dermoid cyst are more common followed by fibroma, adenofibroma and thecoma (Table 3).

Benign tumour	Paediatric	Adult	Total	Percentage (%)
Serous cyst adenoma	5	39	44	34.65
Mucinous cyst adenoma	1	34	35	27.55
Dermoid cyst	3	31	34	26.77
Fibroma	0	8	8	6.30
Adenofibroma	1	4	5	3.34
Thecoma	0	1	1	0.79
Total	10	117	127	100.00

Table 3: Diagnostic distribution of benign tumours of ovary according to age.

Among 33 malignant tumour of ovary papillary adenocarcinoma is the highest occuring followed by serous and mucinous cyst adenocarcinoma etc (Table 4).

Diagnosis	Paediatric	Adult	Total	Percentage (%)
Papillary Adenocarcinoma	0	15	15	45.46
Mucinous cyst adenocarcinoma	0	5	5	15.15
Serous cyst adenocarcinoma	0	4	4	12.12
Mucinous adenofibroma borderline tumour	0	3	3	9.09
Intraductal carcinoma	0	2	2	6.06
Papillary transitional cell carcinoma	0	1	1	3.03
Choriocarcinoma	0	1	1	3.03
Embryonal carcinoma	0	1	1	3.03
Papillary squamous cell carcinoma	0	1	1	3.03
Total	0	33	33	100.00

Table 4: Diagnostic distribution of malignant tumours of ovary according to age.

Out of 382 benign tumour of breast fibroadenoma is the most common and more found in adult age group. Nodular hydradenoma is equally found in both adult male and female and Phyllodes tumour is found only in adult female (Table 5).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Fibroadenoma	0	127	0	251	378	98.96
Nodular hydradenoma	0	0	1	1	2	0.52
Phyllodes tumour	0	0	0	2	2	0.52
Total	0	127	1	254	382	100.00

Table 5: Diagnostic distribution of benign tumours of breast according to age and sex.

Out of 127 malignant tumour of breast duct cell carcinoma is found highest occuring followed by lobular carcinoma, medullary carcinoma, comedocarcinoma etc (Table 6).

Out of 767 benign tumour of skin lipoma is much more common and in adult female>adult male; followed by ganglioneuroma, neurofibroma, nevus, benign mesenchymal lesion etc (Table 7).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Infiltrating duct cell carcinoma	0	0	2	114	116	91.34
Lobular carcinoma	0	0	0	3	3	2.37
Medullary carcinoma	0	0	0	2	2	1.57
Comedocarcinoma	0	0	0	2	2	1.57
Signet ring cell carcinoma	0	0	0	2	2	1.57
Malignant Phyllodes tumour	0	0	0	1	1	0.79
Metaplastic carcinoma	0	0	0	1	1	0.79
Total	0	0	2	125	127	100.00

Table 6: Diagnostic distribution of malignant tumours of breast according to age and sex.

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Lipoma	15	29	302	353	699	91.13
Neurilemoma/Ganglioneuroma	2	4	12	13	31	4.05
Neurofibroma	5	1	5	2	13	1.69
Nevus	0	1	1	5	7	0.92
Epithelioid mesothelioma benign	1	0	3	1	5	0.65
Benign fibrous histiocytoma	1	0	1	3	5	0.65
Fibromatosis	1	0	0	1	2	0.26
Squamous papilloma	1	0	1	0	2	0.26
Pilomatricoma	0	0	1	1	2	0.26
Cylindroma	0	0	0	1	1	0.13
Total	26	35	326	380	767	100.00

Table 7: Diagnostic distribution of benign tumours of skin / skin adnexa according to age and sex.

Squamous cell carcinoma and basal cell carcinoma are the most common malignant tumour of skin and only one malignant tumour is found in paediatric age group out of a total of 49 cases (Table 8).

Out of 49 lymphoma cases non Hodgkin lymphoma is found more in number than Hodgkin lymphoma and no Hodgkin lymphoma is found in paediatric age group (Table 9).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Squamous cell carcinoma	0	1	26	0	27	55.10
Basal cell carcinoma	0	0	5	6	11	22.45
Dermatofibrosarcoma	0	0	4	1	5	10.21
Verrucous carcinoma	0	0	2	1	3	6.12
Malignant melanoma	0	0	1	2	3	6.12
Total	0	1	38	10	49	100.00

Table 8: Diagnostic distribution of malignant tumours of skin according to age and sex.

Trait	Tumour								Total
Diagnosis	Hodgkin Lymphoma (HL)				Non-Hodgkin lymphoma				
Age group	Paediatric		Adult		Paediatric		Adult		
Sex	Male	Female	Male	Female	Male	Female	Male	Female	
Frequency	0	0	5	1	1	8	24	10	
Total	0		6		43				49
Percentage (%)	0		12.24		87.76				100.00

Table 9: Diagnostic distribution of lymphoma according to age and sex.

Hodgkin lymphoma is found more common in male than female and mixed cellular variety is more in number (Table 10).

Hodgkin lymphoma				
Adult male				Adult female
HL, NOS	Nodular sclerosis	Lymphocyte rich	Mixed cellularity	Nodular sclerosis
1	1	1	2	1

Table 10: Diagnostic distribution of Hodgkin lymphoma among the patients.

N.B. -HL= Hodgkin lymphoma; NOS= Not otherwise specified.

Metastasis to lymph node occurs mostly from squamous cell carcinoma and adenocarcinoma followed by small cell carcinima, signet ring carcinoma, large cell carcinoma, multiple myeloma and plasmacytoma (Table 11).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Metastatic squamous cell carcinoma	0	2	22	8	32	41.56
Metastatic adenocarcinoma	0	0	14	11	25	32.47
Metastatic Small cell carcinoma	0	0	6	0	6	7.78
Metastatic Signet ring carcinoma	0	0	0	6	6	7.79
Metastatic Large cell carcinoma	0	0	1	2	3	3.90
Metastatic multiple myeloma	0	0	2	1	3	3.90
Metastatic plasmacytoma	0	0	2	0	2	2.60
Total	0	2	47	28	77	100.00

Table 11: Diagnostic distribution of metastatic tumours to lymph node according to age and sex.

Out of a total of 53 studied leukaemia cases mostly (40) were acute leukaemic of which 12 were of paediatric age group and M > F and in chronic cases F > M (Table 12).

Out of a total of 13 malignant tumour of thyroid gland which is found only in adult age group and F>M (Table 13).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Precursor cell lymphoblastic leukaemia	4	5	5	5	19	35.85
Acute myeloid leukaemia	2	0	12	4	18	33.95
Chronic myeloid leukaemia	1	0	3	5	9	16.98
Acute promyelocytic leukaemia	1	0	1	1	3	5.66
Acute leukaemia	0	0	0	1	1	1.89
Acute lymphoblastic leukaemia	0	0	0	1	1	1.89
Chronic myeloproliferative disease	0	0	0	1	1	1.89
Chronic lymphocytic leukaemia	0	0	1	0	1	1.89
Total	8	5	22	18	53	100.00

Table 12: Diagnostic distribution of leukaemia according to age and sex.

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Papillary carcinoma	0	0	2	3	5	38.46
Follicular carcinoma	0	0	0	4	4	30.77
Anaplastic carcinoma	0	0	2	2	4	30.77
Total	0	0	4	9	13	100.00

Table 13: Diagnostic distribution of tumours of thyroid gland according to age and sex.

Out of 60 benign tumour of salivary gland most common is pleomorphic adenoma and no malignant tumour is found in paediatric age group and mostly found in adult female (Table 14).

Among 111 tumour of blood vessel mostly found is haemangioma (Table 15).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Pleomorphic adenoma	3	1	15	28	47	78.33
Adenolympho-ma benign / Warthin tumour	0	0	2	2	4	6.67
Mucoepidermoid carcinoma	0	0	5	0	5	8.33
Adenoid cystic carcinoma	0	0	3	1	4	6.67
Total	3	1	25	31	60	100.00

Table 14: Diagnostic distribution of tumours of salivary gland according to age and sex.

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Haemangioma	20	16	35	35	106	95.50
Lymphangioma	0	1	0	2	3	2.70
Haemangiopericytoma	0	0	1	0	1	0.90
Haemangioblastima	0	0	1	0	1	0.90
Total	20	17	37	0	111	100.00

Table 15: Diagnostic distribution of tumours of blood vessels according to age and sex.

Out of 29 malignant tumour of stomach all are found in adult age group (Table 16).

Diagnosis	Adult		Total	Percentage (%)
	Male	Female		
Adenocarcinoma	7	11	18	62.07
Mucin secreting adenocarcinoma	5	1	6	20.69
Gastro Intestinal Stromal Tumour	4	1	5	17.24
Total	16	13	29	100.00

Table 16: Diagnostic distribution of tumours of stomach according to age and sex.

Out of 17 tumour of brain most commonly found are meningioma, anaplastic astrocytoma and fibrillary astrocytoma (Table 17).

Out of 44 benign tumour of bone giant cell tumour of bone and osteochondroma are mostly found (Table 18).

Diagnosis	Paediatric		Adult		Total	Percentage
	Male	Female	Male	Female		
Meningioma	0	0	2	5	7	41.18
Anaplastic astrocytoma	0	0	2	2	4	23.54
Fibrillary astrocytoma	0	2	0	0	2	11.76
Pilocytic astrocytoma	1	0	0	0	1	5.88
Glioblastoma	0	0	1	0	1	5.88
Gemistocytic astrocytoma	0	0	1	0	1	5.88
Astroblastoma	0	1	0	0	1	5.88
Total	1	3	6	7	17	100.00

Table 17: Diagnostic distribution of tumours of brain according to age and sex.

Diagnosis	Paediatric		Adult		Total	Percentage
	Male	Female	Male	Female		
Giant cell tumour of bone	2	1	11	12	26	59.09
Osteochondroma	1	1	5	7	14	31.82
Ossifying fibroma	0	0	1	3	4	9.09
Total	3	2	17	22	44	100.00

Table 18: Diagnostic distribution of benign tumours of bone according to age and sex.

Out of 12 malignant tumour of bone osteosarcoma is mostly found in paediatric female and adult male in this study (Table 19).

Diagnosis	Paediatric		Adult		Total	Percentage (%)
	Male	Female	Male	Female		
Osteosarcoma	1	3	4	3	11	91.67
Ewing sarcoma	1	0	0	0	1	8.33
Total	2	3	4	3	12	100.00

Table 19: Diagnostic distribution of malignant tumours of bone according to age and sex.

Discussion

Cancer has devastating effect on individual, family and society. Cancer is one of the major causes of morbidity and mortality among the non-communicable diseases. Rapid urbanization, changes in life style and increased life expectancy are the underlying reasons for cancer. Cigarette smoking, chewing of betel nut and exposure to several oncogenic microorganisms and other carcinogens are the causes of cancer [7].

This analysis is based on collecting pathology based tumor data diagnosed in both the departments of Pathology and Haematology of SSMC and MH (Mitford Hospital, Dhaka). The data included 375

biopsy samples, 678 resected specimens (that is, a total of 1053 histopathologically diagnosed tumour cases), 1473 FNAC cases, 21 Pap's smear cases, 05 cytological samples of body fluids and 01 cell block case, 51 bone marrow cases, 10 scraping/brushing cases and 41 other cases. Of the 2655 tumour cases, 1904 were female and 751 were male [4].

The distribution of benign and malignant tumours in the study shows predominance of benign tumours constituting a majority of 2005 (75.52%) and malignant tumours 650 (24.48%). The age range of the patients is from 0 to 80+ years with a mean age of 37.16 years. According to IACR, the median age for individual countries ranges from around 17 - 42 years. The National Cancer Control Strategy and Plan of Action for 2009-2015 of Bangladesh have stated that more than 66% of cancers occur in the age group of 30-65 years. Talukder., *et al*. 2009, showed that peak incidence of malignant tumours were more common in the fourth decade [9]. The present study shows that the frequency of malignant tumour (65%) is more from third to sixth decade and highest in fourth decade. Frequency of paediatric benign tumours in total tumour cases is 13.87% and paediatric malignant tumouris 05.08% and frequency of paediatric benign tumours within paediatric tumours 89.40% and frequency of malignant tumours 10.60%. The National Cancer Control Strategy and Plan of Action for 2009 - 2015 of Bangladesh stated that children with cancer represented 01 percent of the overall incidence of the disease. NICRH found that in children aged 14 years or younger, lymphoma, Leukaemia, osteosarcoma were most commonly found [5]. Rugutt K and Mutuma GZ (2006) showed that retinoblastoma had the highest frequency [6]. In the present study, leukaemia is the most common malignant tumour in paediatric age group followed by cancer of lymph node, skin cancer, neck mass, bone cancer and uterine cancer and breast tumour is the most common benign tumour in paediatric female followed by skin adnexal tumour in the present study [4].

Leukaemia is the most common tumour both in male and female of paediatric age group but more in number in male. On the other hand, malignant tumour in lymph node, skin, head-neck-brain and bone is more in number in female of the same age group than that of male. Male to female ratio in this study population is 2:5. Male to female ratio of benign tumour is 1:3 and of malignant tumour is 5:8. Similar findings were found by Rugutt K and Mutuma GZ (2006), and Mokhter., *et al*. 2007 and Talukder., *et al*. (2009). But Zaman., *et al*. 2009 showed that males suffered more in number than females, because a large number of male patients having lung cancer in their study [5]. In the present study most common benign tumour in male in paediatric age group is skin adnexal tumour and in female is tumour of breast followed by skin adnexa, ovary, uterus etc.

Zaman., *et al*. 2009 showed in 2005 - 2007 that lung cancer followed by breast cancer, cervical cancer, lymphoid malignancies in their study. Others were cancers of larynx, oesophagus, stomach, oral cavity and gall bladder [5]. IACR and cancer research, UK 2009 jointly showed that only four cancer sites – lung (13%), female breast (11%), colorectal (10%) and stomach (08%) accounted two-fifth (41%) of the world's total cancer burden. Lung cancer has been estimated as the most common cancer in the world for several decades. An estimated 1.61 million people across the world were diagnosed having lung cancer in 2008, accounting for 13% of the total world population, more than half (55%) of the cases occurred in the developing world. Benign tumours out of 434 in adult males are mostly skin adnexal 347 (79.95%) and benign tumours out of 1293 tumours in adult females are mostly skin adnexal 413 (31.94%), uterine 381 (29.47%), breast (20.03%), ovarian 97 (7.50%) etc [4]. Farhad., *et al*. found lipoma was the top one (35.70%) followed by fibroadenoma of breast (25.13%), pleomorphic adenoma of salivary gland (8.10%), leiomyoma of uterus (4.82%) [12]. Malignant tumours out of 223 in adult males are mostly of lymph node 47 (21.08%), skin 32 (14.35%), blood cancer 24 (10.75%), head-neck-brain tumours 24 (10.75%), urinary bladder 19 (8.52%) and of stomach 16 (7.17%) (Table 20) and malignant tumours out of 394 in adult females are mostly of breast 125 (31.72%), cervix of uterus 88 (22.34%), lymph node 34 (8.63%), ovarian 26 (6.60%), blood cancer 20 (5.08%), skin 14 (3.35%) and of stomach 13 (3.30%) (Table 21).

Diagnosis	Organ	Paediatric		Adult		Total	Percentage (%)
		Male	Female	Male	Female		
Benign mesenchymal lesion	Unspecified site	3	5	47	67	122	70.93
Squamous papilloma	Mouth, oral	0	0	7	13	20	11.63
Adenomatoid tumour	Testis	4	0	7	0	11	6.40
Giant cell tumour	Tendon sheath	0	0	3	7	10	5.81
Condyloma accuminatum	Penis	0	0	4	0	4	2.33
Atypical adenoma	Pituitary gland	0	0	0	1	1	0.58
Fibromyxolipoma	Kidney	0	0	0	1	1	0.58
Intraductal papilloma		0	0	0	1	1	0.58
Langerhans cell histiocytosis	Lymph node	0	0	1	0	1	0.58
Myelosclerosis		0	0	0	1	1	0.58
Total		7	5	69	91	172	100.00

Table 20: Diagnostic distribution of other benign tumours according to age and sex.

Diagnosis	Organ	Paediatric		Adult		Total	Percentage (%)
		Male	Female	Male	Female		
Transitional cell carcinoma	Urinary bladder	0	0	19	4	23	22.55
Adenocarcinoma	Unspecified	0	0	14	6	20	19.61
Adenocarcinoma	Colon and rectum	0	0	4	8	12	11.76
Adenocarcinoma	Prostate	0	0	7	0	7	6.87
Adenocarcinoma	Lung	0	0	1	6	7	6.87
Rhabdomyosarcoma	Soft tissue mass	0	0	1	5	6	5.88
Carcinoma-in situ	Unspecified	0	0	1	3	4	3.92
Renal cell carcinoma	Kidney	0	0	3	0	3	2.94
Hepatocellular carcinoma	Liver	0	0	2	1	3	2.94
Seminoma	Testis	0	0	2	0	2	1.96
Adenocarcinoma	Gall bladder	0	0	0	2	2	1.96
Adenocarcinoma	Oesophagus	0	0	0	2	2	1.96

Table 21: Diagnostic distribution of other malignant tumours according to age and sex.

Regarding aetiology of cancer people in rural area are habituated with various forms of tobacco (jarda, biri, gul, khaini etc), betel nut, betel leaf. These are carcinogens and etiologically responsible for head and neck cancers. Breast cancer is the first and cervical carcinoma is the second most common malignant tumour in adult female in the present study and the saying result also of Talukder., *et al*. (2009) [9] and Farhad., *et al*. (2012) (thesis) [12].

In pakistan, the Aga Khan University Hospital (AKUH) showed that the relative frequency of the commonest cancer in the male was cancer of lung (9.5%) followed by oral cavity (9.1%), lymphoma (non-Hodgkin and Hodgkin) (8.4%), leukaemia (5.2%) and colorectal cancer (4.7%). Zama., *et al*. (2009) showed that lung cancer occupied the top in males in 2005 - 2007 at NICRH in Bangladesh [5]. This was followed by lymphoma (7.9%), cancer of oesophagus (5.9%) and larynx (5.4%). IARC and Cancer Research, 2009 showed lung cancer continued to be the most common cancer diagnosed in men worldwide (accounting for 16.5% of all new cases). Cancer Incidence Report (Nairobi) 2000 - 2002 showed that head and neck cancers made up a large proportion comprising 14.8% of male cancers followed by prostate and stomach.

Various studies including IARC showed that in female breast carcinoma was the number one (GLOBOCAN, 2012). The AKUH study showed that highest frequency of cancer in female was breast followed by oral cavity, ovary, lymphoma and colorectal carcinoma.

Cervical carcinoma but still ranking top among the top cancers in developing countries [5]. It is due to early marriage, poor sanitation and lack of screening program. Like developed countries breast cancer is rising in this country (DNAnonymous, 2013) [11].

Regarding individual malignant tumour the present study shows that squamous cell carcinoma is the most common malignant tumours (Table 22). The NICRH also showed that about 60% of the male cancer patients were smokers and among them more than half were squamous cell carcinoma (53%) [5]. Rugutt K and Mutuma GZ (2006) [6] showed that squamous cell carcinoma was also noted as the most common morphological type of cancer of the cervix making up 86.7% of all cervical cancer cases. In the present study, squamous cell carcinoma 143 (19.85%) is the highest followed by duct cell carcinoma 127 (19.54%), adenocarcinoma 93 (14.31%), metastatic tumours 77 (11.85%), leukaemia 53 (8.15%), lymphoproliferative disorders 48 (7.38%), transitional cell carcinoma 23 (3.54%), osteosarcoma and Ewing sarcoma 12 (1.85%), astrocytoma 7 (1.08%) and hepatocellular carcinoma 5 (0.77%) (Table 23 to 25). The present study shows that lower income generating group was the more vulnerable to malignant tumours. The present study shows that squamous cell carcinoma is the highest malignant tumours 63 (11.66%) in patients with risk behaviors (smokers and non-smoking tobacco consumers) followed by adenocarcinoma 35 (6.48%), leukaemia 16 (2.96%), lymphoma 14 (2.59%) etc. In the present study the most common site of squa-

mous cell carcinoma in patients with risk behaviors in cervix of the uterus followed by lymph node, skin, neck mass and oral cavity. Stomach followed by colon and rectum are the most common site for adenocarcinoma followed by lymph node, thyroid gland, lungs, pancreas, kidney, uterus, ovary, liver, gall bladder and breast. The NICRH, 2009 showed that most patients in the study were from Dhaka followed by Tangail, Narayangonj and Munshigonj and the current study shows in declining order with much higher in Dhaka followed by Munsigonj, Shariatpur, Madaripur, Barishal and Narayangonj.

Diagnosis	Organ	Paediatric		Adult		Total	Percentage (%)
		Male	Female	Male	Female		
Synovial sarcoma	Soft tissue mass	1	0	0	1	2	1.96
Papillary adenocarcinoma	Unspecified	1	0	1	0	2	1.96
Alveolar soft part sarcoma	Soft tissue mass	0	0	1	1	2	1.96
Malignant fibrous histiocytoma	Soft tissue mass	0	0	1	0	1	0.98
Pseudosacomatous carcinoma	Unspecified	0	0	0	1	1	0.98
Fibrosarcoma	Soft tissue mass	0	0	1	0	1	0.98
Malignant neoplasm	Unspecified	0	0	1	0	1	0.98
Squamous cell carcinoma	Lungs	0	0	0	1	1	0.98
Total		2	0	59	41	102	100.00

Table 22: Diagnostic distribution of other malignant tumours according to age and sex.

Site	Frequency	Percentage (%)
Lymph node	47	21.08
Skin	32	14.35
Leukaemia / blood cancer	24	10.75
Head, neck and brain mass	24	10.75
Urinary bladder	19	8.52
Stomach	16	7.17
Mouth and oral cavity	7	3.14
Liver	7	3.14
Prostate	7	3.14
Lung	6	2.69
Colorectal and anal canal	4	1.79
Thyroid gland	4	1.79
Bone	3	1.35
Kidney	3	1.35
Parotid gland	3	1.35
Penis and testis	3	1.35
Breast	2	0.95
Duodenum	1	0.45
Larynx	1	0.45
Nose and nasal cavity	1	0.45
Pancreas	1	0.45
Unspecified	8	3.14
Total	223	100.00

Table 23: Distribution of malignant tumours in adult males according to sites of body.

Site	Frequency	Percentage (%)
Breast	125	31.72
Uterus(cervix)	88	22.34
Lymph node	35	8.88
Ovary	26	6.60
Leukaemia / blood cancer	20	5.08
Skin	14	3.55
Stomach	13	3.30
Head, neck and brain	12	3.05
Thyroid gland	9	2.28
Colorectal and anal canal	8	2.03
Mouth and oral cavity	7	1.78
Vagina	6	1.52
Abdominal mass	4	1.02
Urinary bladder	4	1.02
Bone	2	0.51
Gall bladder	2	0.51
Oesophagus	2	0.51
Liver	1	0.25
Lung	1	0.25
Parotid gland	1	0.25
Nose and nasal cavity	1	0.25
Pancreas	1	0.25
Unspecified	12	3.05
Total	394	100.00

Table 24: Distribution of malignant tumours in adult females according to sites of body.

Site	Frequency	Percentage (%)
Squamous cell carcinoma	143	22.00
Duct cell carcinoma and other carcinoma of breast (Table: 5.2.45)	127	19.54
Adenocarcinoma	93	14.31
Metastatic tumours	77	11.85
Leukaemia	53	8.15
Lymphoproliferative disorders	48	7.38
Transitional cell carcinoma	23	3.54
Osteosarcoma and Ewing sarcoma	12	1.85
Astrocytoma	7	1.08
Hepatocellular carcinoma	5	0.77
Mucoepidermoid carcinoma of salivary gland	5	0.77
Others	57	8.77
Total	650	100.00

Table 25: Ranking of malignant tumours according to diagnosis.

According to diagnostic distribution of the studied tumours - leiomyoma of the uterus, serous cyst adenoma of the ovary, fibroadenoma of the breast, lipoma and giant cell tumour of bone as well as pleomorphic adenoma of salivary gland are more found in adult female and paediatric male, haemangioma in paediatric male, meningioma in adult female are the most common benign tumours found in this study. Haemangioma is found equal in adult male and female. Squamous cell carcinoma of cervix of the uterus, papillary adenocarcinoma of the ovary, duct cell carcinoma of the breast, squamous cell carcinoma of the skin, metastatic squamous cell carcinoma to the lymph nodes, precursor cell lymphoblastic leukaemia, non-Hodgkin lymphoma more in paediatric female and adult male, papillary carcinoma of the thyroid more in adult female, adenocarcinoma of stomach more in adult female, osteosarcoma in paediatric female and adult male and transitional cell carcinoma more in adult male are the most frequently occurring malignant tumours in this study.

On the otherhand, endometrial and endocervical polyp of the uterus, mucinous cyst adenoma of the ovary, adenomatoid tumour of testis, ganglioneuroma and neurofibroma of skin adnexa, giant cell tumour of tendon sheath more in adult female and osteochondroma of bone are the benign tumours and adenocarcinoma of the uterus, mucinous and serous cyst adenocarcinoma of the ovary, metastatic adenocarcinoma to lymph node, acute myeloblastic leukaemia, anaplastic carcinoma, anaplastic astrocytoma, basal cell carcinoma of skin, Hodgkin lymphoma more in adult male, follicular carcinoma of thyroid more in adult female, mucin secreting adenocarcinoma and gastrointestinal stromal tumour of stomach more in adult male are the malignant tumours those are more frequenty found in this study.

Fibroma and adenofibroma of the ovary, Phyllodes tumour and nodular hydradenoma of the breast, nevus, benign epithelioid mesothelioma, benign fibrous histiocytoma, ossifying fibroma, Warthin tumour of salivary glands and lymphangioma are the benign tumours and intraductal carcinoma, lobular carcinoma of breast, dermatofibrosarcoma, verrucous carcinoma, malignant melanoma, metastatic small and signet ring cell carcinoma, large cell carcinoma, multiple myeloma, chronic myelocytic leukaemia, acute promyelocytic leukaemia, fibrillary astrocytoma, mucoepidermoid carcinoma and adenoid cystic carcinoma of salivary gland are the malignant tumours those are less commonly found in this study.

Dysgerminoma and thecoma of ovary; fibromatosis, squamous papilloma, cylindroma and pilomatrixoma of skin adnexa are the benign tumours and papillary transitional cell carcinoma, choriocarcinoma and embryonal carcinoma of ovary; malignant Phyllodes tumour, comedocarcinoma, signet ring cell carcinoma and metaplastic carcinoma of breast; metastatic plasmacytoma, acute leukaemia, acute lymphoblastic leukaemia, chronic myeloproliferative disorders, chronic lymphocytic leukaemia; haemangioblastoma and haemangiopericytoma of blood vessels; pilocytic astrocytoma, glioblastoma, gemistocytic astrocytoma and astroblastoma of brain and Ewing sarcoma are the malignant tumours those are least commonly found in this study [4].

Software for data entry

Entry form

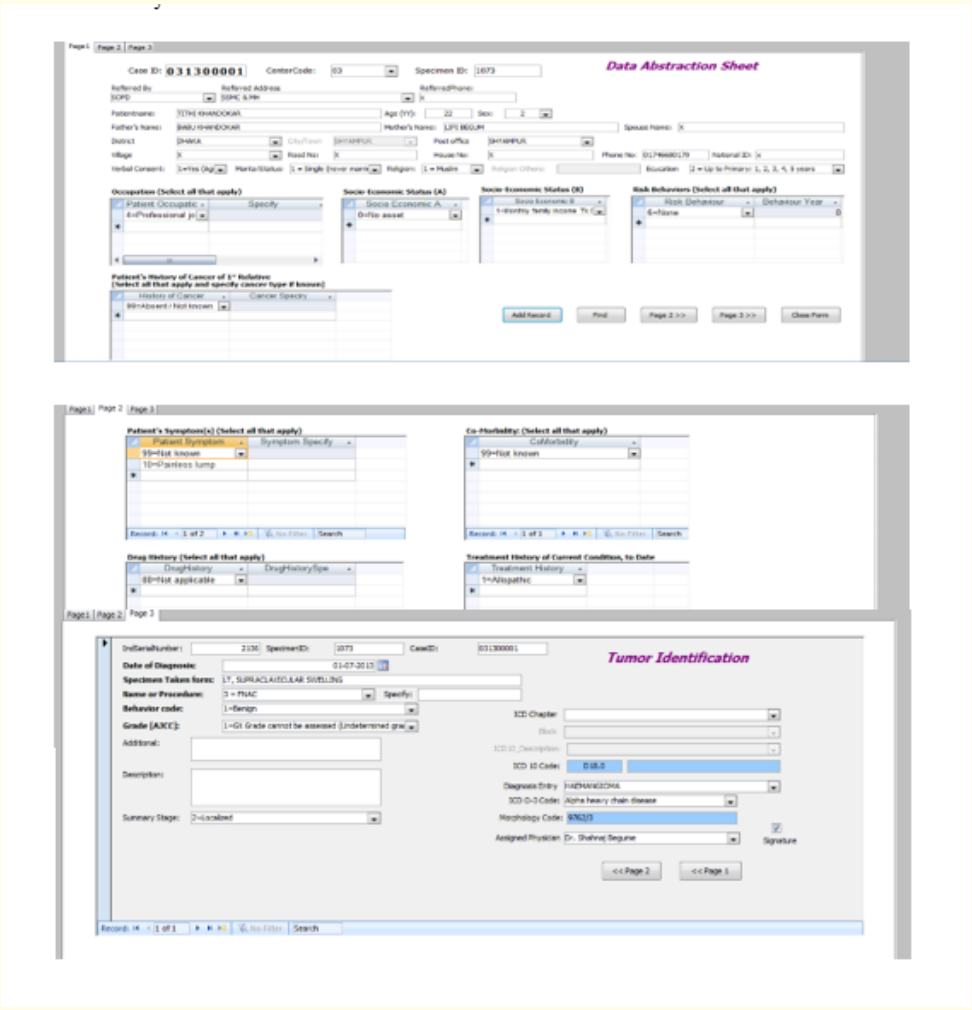

Figure 1

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