

A REVIEW OF MALIGNANCIES AT THE PATHOLOGY DEPARTMENT, GENERAL HOSPITAL, KUALA LUMPUR (1981 – 1985)

N Thanaletchimy MBBS, MPath and R Thangam MBBS.

Department of Laboratory Services, General Hospital, Kuala Lumpur.

Summary

During the five year period, 1981 to 1985, 3764 malignant tumours were **histologically** diagnosed in surgical specimens processed at the Pathology Department, General Hospital, Kuala Lumpur. These malignancies were analysed to study the distribution of primary and secondary malignancies according to location, the major ethnic groups and sexes. The majority of subjects were between 40 and 79 years of age. The most common malignancies encountered were those of the urinary bladder, uterine cervix, nasopharynx, breast and skin. The commonest malignancies according to ethnic group and sex were: Malay males – urinary bladder, Malay females – breast, Chinese males – nasopharynx, Chinese females – uterine cervix, Indian males – oral cavity, Indian females – uterine cervix. The possible reasons for the patterns of malignancy observed are discussed and compared with other hospital based studies.

Keywords : Malignancies, pattern, hospital

INTRODUCTION

Hospital-based studies, **inspite** of their limitations, can yield useful information particularly in the absence of **population**-based cancer registry data. A comparison of different hospital-based studies may also provide insight into epidemiology of disease and variations in hospital utilisation on which future studies and planning may be based. Further to that, because the General Hospital Kuala Lumpur is the largest in Malaysia, it is felt that information from this centre would be of considerable interest and use to both pathologists and clinicians working in this region.

This paper reviews the malignancies diagnosed in surgical specimens at the Pathology Department, GHKL, between 1981 and 1985 and serves to provide some basic information on the patterns of malignancy in the Malaysian population.

MATERIALS AND METHODS

The General Hospital, Kuala Lumpur (**GHKL**), besides functioning as a regional and national referral centre, is also the teaching hospital for the Universiti Kebangsaan Malaysia (UKM). Admissions into the hospital are generally registered as 'UKM' when treated by the doctors working in the UKM and 'KKM' (Kementerian Kesihatan Malaysia) when treated by the doctors working with the Ministry of Health. Of the 527,533 admissions during the

five year period of study, approximately 64% were KKM patients. Specimens from the patients in the KKM units of the hospital were processed by the Department of Pathology, GHKL.

All tissues received by the department were recorded in the accession **book**. All the records of malignancies diagnosed between 1981 and 1985 were extracted from the accession book. Where the details of name, age, sex, ethnic group or diagnosis were not mentioned in this book, the duplicate of the pathology report was located and these details verified. Where the diagnosis recorded was doubtful, the relevant slides were reviewed and where these were not available, fresh sections were cut from the paraffin blocks and **re-examined**.

The data for each year was analysed using the PFS Programme and an Apple II type computer with 64K of RAM.

Any repeat biopsy of a patient **during** the five year period and any slide referred to the department for a second opinion were not included in the study.

RESULTS

The total number of malignant tumours diagnosed histologically during the five year period was 3764. Of these, 3306 were primary tumours and 445 were metastatic. In 13 cases it was not possible to determine whether the tumour was primary or secondary.

Table 1 shows an analysis of cases of malignancy by age and year of diagnosis.

The majority of subjects were between 40 and 79 years of age. Only 37 were in the paediatric age-group (i.e. below the age of 12 years).

The most frequent malignancy diagnosed was carcinoma. Only 105 (2.7%) of cases were sarcomas. Brain tumours were not encountered as the tissue from all neurosurgical cases were sent to the laboratory at the Neurology Institute for examination.

The main sites of metastatic tumours were the lymph nodes (accounting for 240 cases or 73.4% of malignancies diagnosed in lymph nodes), liver (accounting for 47 cases or 29% of malignancies seen in the liver), bone and skin.

In three patients two different malignancies were diagnosed in two different organs. In one patient with xeroderma pigmentosum three different types of skin malignancy were diagnosed at multiple sites.

The ten most common sites of primary malignancies are listed in Table 2. These totalled 2281 or 60.6% of the histologically

diagnosed malignancies. On comparison with the ethnic distribution of hospital admissions for the same period (Table 3), malignancy appears to be more frequently diagnosed in the Chinese compared to the Malays and Indians. The most frequently diagnosed malignancy in the Malays was malignancy of the urinary bladder, while in the Chinese it was nasopharyngeal carcinoma, and in the Indians malignancy of the oral cavity.

The distribution of primary malignancies by the ten most common sites, ethnic group and sex, in absolute numbers, are presented in Tables 4 and 5. Malignancies of the urinary bladder and nasopharynx were the most common in the males; while in the females malignancies of the uterine cervix and breast were the commonest.

The ten most common sites of primary malignancies by rank order and sex of the 3 major ethnic groups are shown in Tables 6, 7 and 8. This analysis brought to light some malignancies which were not within the

TABLE 1
AGE DISTRIBUTION OF MALIGNANCY, GHKL, 1981-1985

Age	Year					Total
	1981	1982	1983	1984	1985	
Below 10	3	7	8	3	9	30
10-19	9	15	10	17	18	69
20-29	23	37	33	32	52	177
30-39	73	82	60	91	86	392
40-49	148	136	146	128	124	682
50-59	159	164	178	164	210	875
60-69	157	169	170	165	184	845
70-79	85	85	132	109	130	541
80-89	23	16	17	27	26	109
90 and above	0	0	3	0	1	4
Unknown	16	8 ^a	6	2	5	37
Total	696	719	763	738	845	3761*

*Excludes duplication of the 3 patients with multiple malignancies.

categories shown in Tables 4 and 5. Of note, lymphoma was observed to be more prevalent in Malay males, thyroid carcinoma in Malay females, colonic carcinoma in Chinese females and oesophageal and laryngeal carcinoma in Indian males and females.

Analysis of the malignancies of the alimentary tract by sex and ethnic groups (Table 9) revealed that the frequency of colorectal and gastric malignancies were high in the Chinese while oral cavity cancers were high in the Malays. Oral cavity and oesophageal malignancies were also frequent among the Indians.

Ethnic variation was also observed in male genital tract malignancies (Table 10). Penile malignancy appeared to be unusually frequent in the Indians while in the Malays, malignancy of the testis took unusual prominence.

It was also noted that the numbers of lung and liver malignancies diagnosed differed widely throughout the five years of this study (Table 11). Malignancy of the lung was not recorded in 1981. On the other hand, the

number of primary liver malignancies in 1984 was only a third of that diagnosed in 1981.

A comparison of the prevalence of carcinoma-in-situ against invasive carcinoma of the uterine cervix over the years revealed an increase from 4% in 1981 to 13% in 1985 (Table 12).

DISCUSSION

Errors and limitations

Accurately kept pathology records are a useful source of data for analysis of disease patterns. Patient identification was, as pointed out in a previous study,¹ a difficult task. Errors in transcription gave numerous names which sounded alike and at times the search for the correct name involved tracing the original case notes and tallying the name with that stated in the histopathology reports. In 1985 the task was made somewhat easier as national identity card numbers were insisted upon for all requests for histopathology examination and an alphabetical index of names with identity card numbers was introduced.

TABLE 2
DISTRIBUTION OF MALIGNANCIES BY ETHNIC GROUP
AND TEN COMMONEST SITES

Sites	Ethnic Groups: No. (%)				Total
	Malays	Chinese	Indians*	Others	
Urinary bladder	114 (34.0)	178 (53.1)	38 (11.3)	5 (1.5)	335 (100)
Uterine cervix	43 (14.3)	196 (65.3)	59 (19.7)	2 (0.7)	300 (100)
Nasopharynx	60 (21.1)	210 (73.9)	4 (1.4)	10 (3.5)	284 (100)
Breast	82 (31.3)	141 (53.8)	39 (14.9)	0	262 (100)
Skin	79 (31.3)	128 (50.8)	35 (13.9)	10 (4.0)	252 (100)
Oral cavity**	60 (30.3)	47 (23.7)	88 (44.4)	3 (1.5)	198 (100)
Lung	40 (22.3)	125 (69.8)	12 (6.7)	2 (1.1)	179 (100)
Stomach	19 (11.3)	116 (69.0)	32 (19.0)	1 (0.6)	168 (100)
Liver	47 (29.0)	107 (66.0)	4 (2.5)	4 (2.5)	162 (100)
Rectum	37 (26.2)	91 (64.5)	13 (9.2)	0	141 (100)
Total	581 (25.5)	1339 (58.7)	324 (14.2)	37 (1.6)	2281 (100)

* Includes Pakistanis and Sri Lankans.

** Includes alveolus, tongue, buccal mucosa, lip, oropharynx, and tonsil.

TABLE 3
ADMISSIONS BY ETHNIC GROUPS, GHKL, 1981-1985

Year	Ethnic group				Total
	Malays	Chinese	Indians	Others	
1981	41,203	29,311	22,514	857	93,885
1982	46,882	30,272	23,712	1,226	102,092
1983	50,117	30,115	23,279	1,411	104,922
1984	55,739	31,361	24,825	1,263	113,188
1985	57,042	33,805	25,018	1,965	119,168
Total	253,341	154,864	119,348	6,722	527,553
% of Total	48	29	22	1	100

TABLE 4
10 COMMONEST SITES OF MALIGNANCIES IN MALES
BY ETHNIC GROUPS
1981 - 1985

Site	Number of Males				Total
	Malays	Chinese	Indians	Others	
Urinary bladder	100	147	31	5	283
Nasopharynx	45	156	9	3	213
Skin	44	70	19	7	140
Lung	31	97	10	2	140
Liver	37	96	3	3	139
Oral Cavity	35	33	50	2	120
Stomach	13	74	24	1	112
Prostate	40	41	25	1	107
Rectum	25	54	8	0	87
Oesophagus	5	45	31	1	82
Total	375	813	210	25	1423

TABLE 5
10 COMMONEST SITES OF MALIGNANCIES IN FEMALES BY ETHNIC GROUPS,
1981 – 1985

Site	Number of Females				Total
	Malays	Chinese	Indians	Others	
Uterine cervix	43	196	59	2	300
Breast	81	141	36	0	258
Skin	35	58	16	3	112
Ovary	41	33	12	2	88
Oral cavity	25	14	38	1	78
Thyroid	37	24	12	0	73
Nasopharynx	15	54	1	1	71
Stomach	6	42	8	0	56
Rectum	12	37	5	0	54
Urinary bladder	14	31	7	0	52
Total	309	630	194	9	1142

TABLE 6
10 COMMONEST SITES OF MALIGNANCY IN MALAY MALES AND FEMALES

Rank	Male		Female	
	Site	No.	Site	No.
1.	Urinary Bladder	100	Breast	81
2.	Nasopharynx	45	Uterine Cervix	43
3.	Skin	44	Ovary	41
4.	Prostate	40	Thyroid	37
5.	Liver	37	Skin	35
6.	Oral Cavity	35	Oral Cavity	25
7.	Lung	31	Nasopharynx	15
8.	Lympho-reticular	30	Urinary Bladder	14
9.	Rectum	25	Lympho-reticular	13
10.	Colon	18	Rectum	12
	Total	405		316

TABLE 7
10 COMMONEST SITES OF MALIGNANCY IN CHINESE MALES AND FEMALES

Rank	Male		Female	
	Site	No.	Site	No.
1.	Nasopharynx	156	Uterine Cervix	196
2.	Urinary Bladder	147	Breast	141
3.	Lung	97	Skin	58
4.	Liver	96	Nasopharynx	54
5.	Stomach	74	Stomach	42
6.	Skin	70	Rectum	37
7.	Rectum	54	Ovary	33
8.	Oesophagus	45	Urinary Bladder	31
9.	Prostate	41	Colon	31
10.	Oral Cavity	33	Lung	28
Total		813	651	

TABLE 8
10 COMMONEST SITES OF MALIGNANCY IN INDIAN MALES AND FEMALES

Rank	Male		Female	
	Site	No.	Site	No.
1.	Oral Cavity	50	Uterine Cervix	59
2.	Larynx	32	Oral Cavity	28
3.	Urinary Bladder	31	Breast	36
4.	Oesophagus	31	Oesophagus	27
5.	Prostate	25	Skin	16
6.	Stomach	24	Thyroid	12
7.	Skin	19	Ovary	12
8.	Lympho-reticular	11	Colon	10
9.	Lung	10	Stomach	8
10.	Rectum	8	Larynx	8
Total		241	216	

TABLE 9
ALIMENTARY TRACT MALIGNANCIES
DISTRIBUTION BY SEX AND ETHNIC GROUPS (1981 - 1985)

Site	No. of Patients						Total
	Malay		Chinese		Indian		
	Male	Female	Male	Female	Male	Female	
Oral Cavity	35	25	33	14	50	38	195
Oesophagus	5	6	45	17	31	27	131
Stomach	13	6	74	42	24	8	167
Colon	18	4	32	31	7	10	102
Rectum	25	12	54	37	8	5	141
Caecum	1	0	2	2	1	0	6
Appendix	0	4	0	0	3	3	10
Anus	2	3	2	0	0	0	7
Duodenum	1	1	0	2	0	0	4
Small Intestine	0	2	2	3	0	0	7
Total	100	63	244	148	124	91	770

TABLE 10
ETHNIC DISTRIBUTION OF MALIGNANCIES OF THE MALE GENITAL TRACT

Site	Ethnic Group : No.				Total
	Malay	Chinese	Indian	Others	
Penis	3	4	7	1	15
Prostate	40	41	25	1	107
Testis	13	4	4	0	21
Vas Deferens	1	0	0	0	1
Total	57	49	36	2	144

The ethnic group was taken as stated in the request form. It was only verified under odd circumstances e.g. an "Indian" female with nasopharyngeal carcinoma was found to be a Chinese adopted by Indians.

In three instances the tissue or site could not be identified as the records could not be located.

Although all efforts have been made to avoid duplication, minimal error in the final numbers cannot be excluded because of the reasons stated above.

The data presented in this study is based on histologically diagnosed malignancies. It covers a biased sample of the population as admissions into hospital is invariably influenced by the cultural attitudes of the various ethnic groups towards hospitalisation, the facilities of the hospital, the reputation and policies of admission, the available specialist staff and their fields of interests.

In addition, many malignancies may be under represented as the site of the lesion may not be easily accessible to biopsy. In this study 240 cases of metastatic carcinoma to the lymph nodes were diagnosed. Although

it was often possible to deduce the primary sites, these biopsies were often not followed by biopsy of the primary sites. This included 20 metastatic nasopharyngeal carcinoma. It was also possible that these patients did not come for follow-up or had further treatment elsewhere.

Type of service in relation to malignancy pattern

Although most of the patients were categorised according to UKM and KKM units, this division did not exist in the very specialised disciplines such as Urology and Cardio-thoracic surgery. This explains the large numbers of bladder and prostatic malignancies in this study, as all tissue from the Urology Department are processed in the KKM Department of Pathology where this study was carried out. The absence of malignancies of the urinary tract in the UKM counterpart department has been pointed out in a previous review.'

The 37 malignancies diagnosed in the paediatric age group were mainly from the departments of ophthalmology, (retinoblastoma), urology (nephroblastoma),

TABLE 11
MALIGNANCIES OF THE LIVER AND LUNG (1981 - 1985)

Malignancy	Year					Total
	1981	1982	1983	1984	1985	
Lung	0	2	95	69	13	179
Liver	48	47	23	16	28	162

TABLE 12
CARCINOMA OF UTERINE CERVIX, 1981 - 1985

	No. (%)					Total
	1981	1982	1983	1984	1985	
Carcinoma-in-situ	3 (4)	4 (7)	4 (7)	3 (5)	7 (13)	21 (7)
Invasive carcinoma	72 (96)	57 (93)	51 (93)	54 (95)	45 (87)	279 (92)
Total	75 (100)	61 (100)	55 (100)	57 (100)	41 (100)	300 (100)

and orthopedics (osteosarcoma). This low count is because Paediatric surgery is serviced by the UKM and most cases requiring surgery in the paediatric age group were referred to that unit.

Lung malignancies, in comparison to other hospital based studies, are also under-represented.^{2,3} The non-diagnosis of lung malignancies in 1981 is because the patients requiring bronchoscopic biopsies were referred to the Lady Templer Hospital (LTH) and the biopsies processed elsewhere. The increase in numbers observed in 1983 and 1984 is because this department requested LTH to send the tissue to GHKL for processing so that pathology trainees in this department would gain experience in the interpretation of lung biopsies as well. The numbers dropped again in 1985 when LTH was privatised and the tissue sent to a private laboratory for processing. A small proportion of the lung biopsies in 1983, 1984 and 1985 came from the Cardio-thoracic unit of GHKL which was established in late 1982.

Influence of consultant's interest on the pattern of malignancy

The number of liver malignancies diagnosed in 1981 was 48. It dropped to 16 in 1984 when the consultant whose field of interest was hepatic diseases, retired from service. Conversely, with the change of gynaecologists the number of carcinoma-in-situ diagnosed showed an increase from 4% in 1981 to 13% in 1985.

Age distribution of cases

An increasing prevalence of malignancy was observed with increasing age. This is comparable with the study of the University Hospital Kuala Lumpur (UHKL).³ Most patients with malignancies (78%) were between the ages of 40 and 70 years.

Ethnic variation in malignancy pattern

The number of malignancies diagnosed as well as the overall prevalence of malignancy in hospital admissions appeared to be highest in the Chinese. This is followed by the Malays and the Indians. This is comparable to the study done in the UKM and the UHKL.^{2,3}

Consideration of the ethnic distribution of the various malignancies revealed a higher prevalence of many cancers in the Chinese compared to the other ethnic groups. 74% of nasopharyngeal carcinomas were from the Chinese although the Chinese constituted only

29% of hospital admissions. Other tumours of note were: lung (70.6%), stomach (66.6%), liver (66%), uterine cervix (65.3%), rectum (64.5%), colon (61.8%), breast (53.8%), and urinary bladder (53%). Accordingly, the malignancies with a higher frequency in Malays were testis (61%), lymphoma (50.6%) and thyroid (49.4%) whereas in the Indians, it was larynx (45.5%), oral cavity (44.4%) and oesophagus (43.9%). The ethnic variation of malignancies in this study is similar to that reported from UKM and UHKL,^{2,3} but the percentages in comparison to the UHKL study is lower. This may, in part, be due to the higher utilisation by the Chinese of the UHKL (51% of admissions are Chinese) compared to the GHKL (29% of admissions are Chinese).

The prevalence of skin malignancies is high in this study, ranking fifth among the sites of malignancy. In the UHKL study it ranked ninth whereas in the UKM study it was not placed in the ten most common malignancies. Our study showed that most of the subjects were Chinese (50%) and Malays (31%).

The analysis of malignancies of the male genital tract shows malignancies of the testis to be frequent among the Malays and malignancies of the penis to be frequent in Indians. This is not observed in previous studies.^{3,4}

Sex distribution

As observed in previous studies, the two most common malignancies in females in the major ethnic groups are carcinoma of the uterine cervix and carcinoma of the breast. It is noteworthy that ovarian malignancies rank higher among the Malays than among the other ethnic groups.

The common sites of malignancy in the males are urinary bladder, nasopharynx, lung, skin, and liver. This ranking differs from other reports^{2,3,4} and probably reflects the differences in services offered by the hospital as well as differences in rates of hospital utilisation. Very few hospitals outside of Kuala Lumpur have urology services comparable to that of GHKL. Further insight may be gained when a population-based Cancer Registry is established.

In conclusion, although hospital-based studies of cancer distribution presents information from a selective portion of the population at any one time and has definite limitations, it can still provide useful indicators of the pattern of malignancy in the population on which further studies and planning may be based.

ACKNOWLEDCEMENTS

The authors deeply appreciate the constant encouragement and help given by Mr. R. Paranchothi, in producing this paper. The authors also wish to thank the technical staff of the Histopathology Division, Department of Laboratory Services, GHKL, for their help in tracing relevant old slides and blocks, and the Director General of Health, Malaysia, for permission to publish this paper.

REFERENCES

1. Jabatan Rekod, Hospital Besar Kuala Lumpur. Annual Reports for 1981, 1982, 1983, 1984 and 1985.
2. Chong SM. Malignant Neoplasms at the Universiti Kebangsaan Malaysia. *Malays J Pathol* 1986; 8: 41–8.
3. Lim HH. An Epidemiological Study of Cancers in the University Hospital Kuala Lumpur. *Med J Malaysia* 1982; 37: 52–9.
4. Shanmugaratnam K. Cancer in Singapore – Ethnic and dialect group variation in cancer incidence. *Singapore Med J* 1972; 14: 69–81.