

THE HISTOPATHOLOGY LABORATORY SERVICES IN MALAYSIA

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INTRODUCTION

The potential of the microscope in the study of tissue changes in pathological conditions was not fully appreciated until about the mid-19th century. Since then the microscopical study of diseased tissues has evolved into the highly specialised science of Histopathology which now forms an essential part of modern medicine. In Malaysia, the rising demand for histopathological examinations over the years reflects an increasing recognition of the useful contribution which Histopathology can make in the diagnosis and management of patients. Like the other branches of pathology, the quality of the histopathology service influences and reflects the quality and standard of patient care. However, unlike some of the other branches of pathology, histopathology demands the direct involvement and attention of the pathologist in every examination, for he has to personally read and report on each slide. It is a branch of pathology which is particularly taxing on the energy and time of the pathologist. Without the pathologist, the histopathology service ceases. This paper gives an idea of the state of the histopathology services in Malaysia today and the problems unique to it.

THE HISTOPATHOLOGY LABORATORIES IN MALAYSIA

In Malaysia today, histopathological examination of human tissues obtained by biopsy, surgical excision or necropsy is available only at some level III and most level IV laboratories'. These include histopathology laboratories in some of the state general hospitals, General Hospital Kuala Lumpur (GHKL), the Institute of Medical Research (IMR), and the Medical Schools of the nation's Universities. It is important to note that not all the states in Malaysia have histopathology services of their own. At the time of writing, the government laboratories of Penang, Perlis, Terengganu, Malacca, Sabah and Sarawak are without pathologists. The other states each usually have only a sole pathologist. He is usually stationed at the state general hospital but is expected to serve the whole state. He is also

liable to be lost to the state on transfer. Even the GHKL, the nation's referral centre, has time and again been without its own pathologist. The same can be said for the IMR, which whenever it had its own histopathologist, had tried to help with the workload at the GHKL and the other states. Only the medical schools enjoy a consistent histopathology service: the Department of Pathology of the University of Malaya serving the University Hospital (UHKL), the Department of Pathology of the Universiti Kebangsaan Malaysia (UKM) serving the University units of the GHKL-UKM complex, and the Department of Pathology of the Universiti Sains Malaysia serving part of the Penang General Hospital. In addition, the Neurosurgery Unit of GHKL has its own histopathology laboratory, which handles only the requirements of that unit. However, it has no pathologist. Departments of Oral Pathology are also present in the IMR and the Dental Faculty of the University of Malaya. Only one private hospital, the Assunta Hospital, Petaling Jaya has its own histopathology laboratory and employs a full-time pathologist. A few private laboratories, some with branches throughout East and West Malaysia, provide a diagnostic histopathology service for private clinics and private hospitals which are without histopathology laboratories of their own. Specimens and reports are delivered either by post, bus, taxi or private courier service.

In general, it can be said that government clinics and district hospitals do not have histopathology facilities of their own. Doctors here have to send formalin-fixed tissues either by post or by ambulance to the state laboratory (usually sited in the General Hospital at the capital town of that particular state) or to the IMR. The results are then sent back by post and occasionally by telegram or telephone. A few district hospitals such as those in Muar and Taiping have histopathology laboratory facilities but no pathologists. Such laboratories are able to process biopsy tissues but have to either send their slides to a manned centre or await a visit from the state pathologist for a histopathology service. The General Hospital in Malacca has no pathologist but depends on the Armed Forces pathologists in the Terendak

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Camp. At present, both the East Malaysian states of Sabah and Sarawak are without histopathologists of their own. The Central Medical Laboratory in Kuching has a fully functional histopathology laboratory serving the state of Sarawak, and previously had its own histopathologist. The Lau King Howe Hospital in Sibu possesses basic laboratory facilities for histopathology but this aspect of its laboratory is not functioning due to lack of suitable personnel to man it. From May 1981, the Department of Pathology, University of Malaya began to provide a diagnostic histopathology service to Sabah and Sarawak on a temporary basis. With this arrangement, the Central Medical Laboratories in Kota Kinabalu and Kuching now act as intermediary stations which record, pack and redirect tissue specimens (Sabah) or slides (Sarawak) and the final pathology reports between the University's Pathology Department and the other peripheral hospitals in Sabah and Sarawak. However, as mentioned earlier, this arrangement is temporary as the workload is too heavy for the University Department to bear indefinitely. A change is envisaged by the end of 1983, with possibly the GHKL taking on the service for Sarawak and the IMR providing the service for Sabah.

The various histopathology laboratories function independently but friendly consultation and discussion between pathologists is common. Very often, whenever a patient is transferred or referred from one hospital to another, it has not been difficult for the doctors concerned to obtain microscopic slides of the patient's earlier biopsies for review, either to reconfirm the diagnosis or as an aid to further management. This form of cooperation reflects a good working relationship between the laboratories.

WORKLOAD AND MANPOWER

Table 1 shows the workload of some of the histopathology laboratories in Malaysia. As histological interpretation of tissue changes requires a medical background and specialised training, the availability of a histopathology service is directly dependent on the availability of a pathologist. Histopathology reporting is performed only by pathologists or registrars and medical officers under their supervision. The pathologists have at least one of the following postgraduate qualifications in Pathology, all of which are recognised by the Ministry of Health, Malaysia as specialist qualifications: MPath. (University of Malaya), DCP (London), MRCPATH. (UK), FRCPA.

(Aust), Dip. Path. (UK) and M.D. (India). In the government sector, only the IMR and GHKL have medical officers posted to their histopathology divisions. These doctors do not possess postgraduate qualifications in pathology, but provide a histopathology service under the supervision of their respective pathologists. In the University departments, trainees (medical officers) working towards a postgraduate degree in Pathology, would also be actively involved in the daily activities of the histopathology laboratory and the reporting of frozen sections and routine sections under the supervision of qualified histopathologists. A good account regarding postgraduate training in Pathology in Malaysia has been published by the Medical Alumni Association of the University of Malaya².

Although there are several private laboratories in Malaysia, only those few manned by doctors with postgraduate degrees in Pathology offer a diagnostic histopathology service.

The technical work of the government, University and some private histopathology laboratories is usually shouldered by qualified technologists with either a certificate or advanced certificate/diploma in Medical Laboratory Technology. The IMR and University laboratories also have personnel training for these certificates. However, some of the private laboratories may function without qualified technical staff, so that the pathologist has to take over the responsibilities of the technologist as well.

RANGE OF HISTOPATHOLOGY SERVICES

A comparison of the various types of histopathology services provided by laboratories manned by pathologists is shown in Table 2. Most of these laboratories provide a routine H&E diagnostic service, supplemented by special stains whenever necessary. The larger laboratories in the IMR and the Universities have a wider range of special stains and also possess electron microscopy facilities. However, due to the overall heavy workload and the shortage of staff trained in this specialised field, diagnostic electron microscopy is performed only on limited cases. Although most of the time electron microscopy is viewed as an academic exercise, there have been instances when its contribution to tissue diagnosis has been gratifying.

A frozen section service is important in the practice of a large hospital, particularly in the management of malignancies. The University laboratories are the main centres able to

offer this service consistently and this is probably related to the responsibility that these centres bear in the training of future doctors, pathologists and other specialists. Government laboratories such as GHKL offer this service only on special request. Recently, two private laboratories have begun to offer frozen section service to the private sector. Immunohistochemistry is also available only in the University laboratories, and includes immunofluorescence microscopy and immunoperoxidase staining for the major classes of immunoglobulins, complement and other specific antigens (e.g. **HBsAg**) in tissue sections. In addition, as the University laboratories tend to have a more academic outlook, from time to time specific subspecialties in histopathology may be exceptionally well developed in these laboratories.

THE AUTOPSY SERVICE

The majority of autopsies performed in Malaysia are medico-legal autopsies on sudden or accidental deaths (Table 3). The scarcity of autopsies on clinical cases is unfortunate, as such examinations can contribute richly to medical knowledge, including disease patterns and diagnostic pitfalls. Among others, some of the reasons for this are probably related to public prejudice and reluctance to accept post-mortem examinations. Also, with the wide range of sophisticated investigations and scans available in the larger centres, it may be difficult for doctors to convince the public that autopsies still have an important role to play in furthering medical knowledge. Besides that, since the value of an autopsy is highly dependent on how completely and carefully it is performed, clinical autopsies in the smaller hospitals must have been limited by the lack of a pathologist, let alone one specialised in morbid anatomy. In the district hospitals and most general hospitals, the majority of autopsies are performed by medical officers who may not have had any training in pathology except for a pathology posting in their undergraduate curriculum. The state pathologist, who would have to travel from town to town when necessary, can spare time only for special cases. Only in large hospitals such as GHKL and those attached to the Universities, do medical officers perform autopsies under supervision and guidance. On the whole, there is no segregation of forensic from clinical (ward) autopsies. Although forensic units exist, there are no specialised forensic pathologists to man such units in our hospitals. An exception is the state of

Sarawak which has a qualified forensic pathologist stationed in Kuching.

PROBLEMS IN THE HISTOPATHOLOGY SERVICE

1. Workload and Manpower

The major problem in the histopathology service in Malaysia today lies in the lack of pathologists. A number of Peninsula states and the whole of East Malaysia do not have a single histopathologist. The remaining states can be said to have only a sole general pathologist each to run all aspects of the state's laboratory service including histopathology, haematology, forensic medicine, chemistry, bacteriology and blood banking. He is alone and his attention is divided between all these branches of Pathology. He is chronically overworked and rarely has the luxury of a medical officer under him. His practice of histopathology is thus understandably hampered.

The dilemma of the pathologist reflects the unique situation of the laboratory services today: there is on the one hand a need to provide effective, basic laboratory support to the rural regions of the country, while on the other hand, there is a growing demand for a supersophisticated diagnostic service in the larger centres. Thus, in the small hospitals a doctor may not even obtain histological confirmation of a suspected malignancy whereas in a big centre a doctor may be asking the histopathologist to subtype a rare tumour.

However, the shortage of pathologists has not gone unheeded. Government scholarships are available for training in Pathology. Doctors have been sent for the DCP Course in the United Kingdom. The Master of Pathology course in the University of Malaya has been successfully training pathologists since 1974. Even though some of these trained personnel "leak" into the private sector, the private laboratories which are set up still constitute a significant contribution to the standard of health in the country, by raising the standard of medicine in private practice and by relieving some of the workload of the government laboratories.

Lack of motivation to pursue this relatively unglamorous speciality is less of a problem now than in the past, as the importance and relevance of the histopathologist in clinical Medicine is now increasingly recognised. It is important that provision be made for more posts as more pathologists are trained so that the optimum workload can be achieved.

2. Histopathology by Post

until there are enough pathologists in all the major hospitals of the country, most of the hospitals will have to utilize the present system of sending tissues by post or ambulance to a centre manned by a pathologist, and subsequently receiving the histopathology report by post. Laboratories capable of cutting tissue sections either send their slides out or await the visit of a pathologist. The unique system of "histopathology by post" has also been effectively provided for the states of Sabah and Sarawak by the Department of Pathology, University of Malaya. Despite its shortcomings, mainly related to inadequate communication between pathologist and clinician and time wasted in transport, there is much that can be said for this system. In developing countries with a shortage of pathologists, it must be recognised that such a system is workable and invaluable though far from ideal.

3. Subspecialisation

There is a need for a true histopathology service in which the pathologist's time can be solely devoted to that field and not divided between all the various disciplines of pathology.

Encouragement should be given and provision made for general pathologists to further specialise in histopathology. With the rapid advances and developments in histopathology today, histopathologists in Malaysia (particularly those in the larger centres and academic institutions) also face the need for subspecialisation, such as in the fields of renal pathology, neuropathology, respiratory pathology, gynaecological pathology, orthopaedic pathology, gastrointestinal pathology, cardiac pathology, immunopathology and oncology. There is also a dire need for forensic pathologists throughout the country. These needs have to be fulfilled concurrently with the need for basic histopathology services.

4. Data-storage and coding

There is a wealth of data and material stored in the histopathology laboratories. At present, only the research-orientated University departments routinely apply a systematised method of coding and cross-reference of data and are able to reap reliable information for large scale retrospective and comparative studies and other forms of organised research. It would be wise for all histopathology laboratories to

TABLE I

COMPARISON OF NUMBER OF SPECIMENS RECEIVED BY SOME HISTOPATHOLOGY LABORATORIES IN MALAYSIA FROM 1979 TO 1982

LABORATORIES	1979	1980	1981	1982
General Hospital, Kuala Lumpur	5141	5313	5834	6338
Institute for Medical Research	8955	8982	4126	2364
University of Malaya	7109	6921	7216 +3746*	6979 +6990*
Universiti Kebangsaan Malaysia	3453	3650	3925	4342
A large private hospital	858	736	905	1088
Private laboratory 'A'	5695	8002	8057	8138
Private laboratory 'B'	—	434	2690	3040

* Specimens from East Malaysia

TABLE 2
COMPARISON OF RANGE OF **HISTOPATHOLOGY** SERVICES AVAILABLE IN
THE VARIOUS **MALAYSIAN** LABORATORIES.

SERVICES	IMR	UNIVERSITIES	GHLK	STATE GH	PRIVATE HOSP.	PRIVATE LABS.
Routine H & E	t	t	t	t	t	+
Special stains	t	t	+	t	t	t
Frozen sections	-	t	t	+/-	-	+ -
Immunohistochemistry	-	+	-	-	-	-
Electron microscopy	t	t	-	-	-	-

TABLE 3
COMPARISON OF NUMBER AND TYPE OF AUTOPSIES IN 2 LARGE HOSPITALS

YEAR	GHLK		UHLK	
	NO.	(% CLINICAL)	NO.	(% CLINICAL)
1979	442	(9)	355	(44)
1980	391	(8)	340	(46)
1981	764	(4)	375	(43)
1982	874	(4)	368	(34)

embark upon a systematic method of data-storage and retrieval such as the SNOP or SNOMED systems, so that the wealth of knowledge stored within them can be usefully harvested one day. It is noteworthy that the histopathology laboratory in GHLK has recently embarked on SNOMED coding of its data, certainly a step in the right direction.

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