

THE CYTOLOGY LABORATORY SERVICES IN MALAYSIA

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The course of clinical cytology from the second half of the 19th century was punctuated by advances and setbacks until 1943 when Papanicolaou and Traut published their classical monograph entitled "Diagnosis of uterine cancer by the vaginal smear". Since then, the science of cells, "Cytology", has gained a firm foothold in the field of laboratory medicine as a diagnostic tool. In the short time since it entered the field of Pathology as a subspecialty, the scope of Cytology has widened with astonishing rapidity to cover a wide variety of anatomical sites and clinical conditions.

CYTOLOGY IN MALAYSIA

Though cytologic smears have been used in diagnosis sporadically since the introduction of pathology services in this country, the organization of the cytology service as a specialised entity was achieved only in May 1968 when the Division of Cytology was set up at the Institute for Medical Research (IMR). PAP smear screening for female genital cancer was from then on carried out with the National Cancer Society's aid in Kuala Lumpur, Ipoh, Penang and Johore Bahru. Today, cytology units are also present in the hospitals attached to the medical schools of the Universities and some private laboratories also offer basic cytology services.

Gynaecologic cytology continues to form the bulk of cytology smears in all the cytology laboratories in the country. The value of **exfoliative cytology** lies in its simplicity and reproducibility. Sophistication in this field has been directed almost exclusively towards improving techniques for obtaining material from target organs. Clinical cytology is largely involved in **cancer screening** and cancer diagnosis and when a site in the body is readily accessible for cytologic examination, detection of "in-situ" cancers and premalignant lesions is possible. Since cancer cure and control depend very largely on early detection, the value of mass screening programmes directed at a susceptible population cannot be over emphasised. To date in this country screening is carried out only for cervical cancer and less than 15% of the female population at risk are screened yearly. In patients clinically suspected to have cancer, cytology can establish a firm diagnosis of malignancy from sputa, bronchial aspirates, gastric washings, urine and serous fluids.

Hormonal cytology is an interesting aspect of Cytology seldom encountered in routine clinical cytology. At the IMR less than 10 cases for hormonal evaluation are seen in a year. Repeated and threatened abortions, primary or secondary amenorrhoea and menopausal problems requiring substitution hormone therapy are the types of clinical conditions that generally require cytological evaluation. **Fine needle aspiration** and **imprint smears** of solid tumours are modern facets of clinical cytology, again encountered only occasionally in a routine cytology laboratory. Mainly because clinicians prefer to biopsy or excise lumps straight away **and/or** fear dissemination of malignant cells, if present, by needle aspiration techniques, the method is not popular in this country. Assessing **radio-responsiveness** and radio-sensitivity of malignant tumours is another area of diagnostic cytology that is virtually unexplored in Malaysia.

From the characteristic changes induced in cells by **viruses**, such as Herpes Simplex and Cytomegalovirus and from the presence of fungi and parasites in material sent for screening of malignancies, some benign lesions are incidentally diagnosed in the cytology laboratory.

LIMITATIONS

While the scope of Cytology and its contributions to medicine are impressive, those looking at cells under the microscope have to be constantly aware of its limitations. Though it is possible to classify and assess the degree of differentiation of tumours with some certainty, in some cases this can only be ascertained from a histologic examination. Depth of invasion of malignant tumours cannot be assessed cytologically. Look-alikes due to a number of factors can pose difficulties even to the most experienced person.

Cytology has been practised in a very limited fashion in this country as a whole and the unit at the IMR has been handling the greatest volume of work in this field. The main cause for this vastly disproportionate division of the service has been the lack of trained **personnel**. There is no organized training for the technicians or doctors who wish to pursue this specialised field. In the last couple of years there has been a growing interest in cytologic screening for cancer concomitant with a rising cancer consciousness in the Malaysian population. One major step has been taken to

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remedy the appalling lack of trained technicians in the state laboratories within the country. Two crash courses in cytology were conducted at the IMR, each covering about ten weeks, to train technicians to handle routine screening at state level. Here again, screening will be confined to cervical cancer. Gynaecology cytology forms 75-100% of cases seen in the various laboratories (Table 1 and 2).

The cytology service as it exists today is far from satisfactory. Virtually every centre has only primary screeners and some of them have very little experience and no formal training. In many places, the cytologic diagnosis is made in one centre and the histologic diagnosis in another so that follow-up and correlation are not possible. Some centres such as the Central Medical Laboratory in Kuching entrust signing out of all cytologic diagnosis to technicians because there is no histopathologist or cytologist. The responsibility of signing out positive and atypical cytology should be on the pathologist and not on the cytotechnologist but until the number of trained pathologists are increased to cope with this additional responsibility, this unfair arrangement will continue.

The clinician has an important role to play in the advancement and practice of Cytology. The quality and suitability of the specimens are totally his responsibility. Many clinicians are unaware of the right procedure in collecting and preserving material for cytologic examination and generally leave this important task to nurses and junior doc-

tors with the result that hundreds of smears and specimens have to be discarded as unsatisfactory.

FUTURE CONSIDERATIONS

The future of Cytology in this country should be considered along the following lines. Firstly, a greater emphasis must be given to training and post-graduate education for cytotechnologists and pathologists. Secondly, the cytotechnologist has to be given special recognition and incentive, for apart from providing a unique service, he will be the most important member in any organization involved in mass population screening programmes.

Probably in the distant future, after a certain standard of efficiency and quality control has been achieved in routine clinical cytology, mass population screening programmes for prevalent cancers can be undertaken. Automation of certain facets of laboratory work such as specimen staining, cover-slipping, pre-screening and record keeping will become mandatory.

The practice of Cytology in this country has thus far been fraught with the problems of a late start and acute shortage of skilled personnel. But if a growing interest from clinicians and an increasing demand for this service by the public are to be taken into consideration, there is now sufficient impetus for strengthening and encouraging the existing facilities both in government and private sectors to their fullest potential.

TABLE 1
NUMBER OF CYTOLOGY SPECIMENS RECEIVED BY
GOVERNMENT AND ALLIED INSTITUTIONS

Name of Centre	1980	1981
IMR, Kuala Lumpur	32,180	36,983
IMR Branch, Penang	7,707	7,990
University of Malaya	7,332	7,422
Central Medical Laboratory, Kuching	3,600	4,900
Queen Elizabeth Hospital, Sabah	3,200	3,800
Universiti Kebangsaan Malaysia	2,486	3,411
IMR Branch, Ipoh	2,469	2,110
Kota Bahru State Laboratory	1,544	633
Kuala Trengganu State Laboratory	1,216	1,094

TABLE 2
NUMBER OF CYTOLOGY SPECIMENS RECEIVED BY PRIVATE LABORATORIES

Centre	1980	1981
Private Lab. 'A'	9,000	10,000
Private Lab. 'B'	3,100	3,650
Private Lab. 'C'	2,900	3,185
Private Lab. 'D'	1,318	1,394
Private Lab. 'E'	1,210	1,315
Assunta Hospital, Petaling Jaya	572	770