

*The Early Detection of Unsuspected Carcinoma of Cervix in Malaysia by Exfoliative Cytological Screening

by Prof. T. A. Sinnathuray

AM, MD (S'pore), BS(Malaya) FRCS(Edin.),
FRCS(Glasg.), FRCOG, FICS, FACS.

and Prof. K. S. Lau

MB,BS (Malaya), FRC.Path.(Aust.)

Departments of Obstetrics & Gynaecology and Pathology,
Faculty of Medicine,
University of Malaya,
Pantai Valley,
Kuala Lumpur,
Malaysia.

CARCINOMA OF the cervix is the commonest cause of death from cancer in women in most countries of the world, and the pattern for Malaysia is no exception. It was 50 years ago, in 1923, that Papanicolaou (1943) began a comprehensive study of vaginal smears in normal and pathological women, and from these studies he realised that it was possible to detect desquamated cancer cells of the uterus by the screening of vaginal smears. He published his first paper in 1923 (Papanicolaou, 1943), but he was unable to convince the clinicians or pathologists of those days that vaginal cytology could in any way be useful in the earlier detection of carcinoma of the uterus. The value of exfoliative cervical cytological smear screening programmes in the early detection of unsuspected carcinoma of the cervix has now been firmly established, to justify the provision of such programmes within the national health services of a country.

Methodology

An exfoliative cervical cytological cancer screening service, based upon the Papanicolaou technique, has been provided for the patients of the Obstetrical & Gynaecological Unit of the University Hospital, University of Malaya, Malaysia since the inception of the Unit in March 1968. Initially, all patients who attended the Obstetrical & Gynaecological Unit, irrespective of their ages, had vaginal and cervical cytological smears taken. This was done so as to teach our medical undergraduates this investigatory procedure, and it was made possible by the fact that the cytology screening unit of our

Pathology Department was initially able to cope with all the patients that we screened. However, after the first year (1968) of running, the rapid increase in patient turn-over in the Obstetrical & Gynaecological Unit had made it necessary to restrict the screening service to high risk women, aged 25 years and over.

The technique of smear-taking was as follows: One end of the wooden spatula dipped into the secretions of the posterior vaginal fornix was smeared onto one end of a clean glass slide. The squamous-columnar area of the cervix was firmly scraped by the other end of the wooden spatula and smeared onto the middle portion of the same glass slide; and finally, a cotton wool swab from the endocervical canal was taken and smeared onto the other end of the same glass slide. The smeared slide was immediately fixed by immersing it into a bottle containing alcohol-ether solution. The fixed smear was subsequently stained in the laboratory by the standard Papanicolaou staining technique and screened for the presence of malignant cells.

Patients, from whom a positive smear is obtained, are admitted to the gynaecological ward of the Hospital for further investigations. Smears are repeated, and if these confirm the previous findings, usually a "cone-biopsy" of the cervix is taken for thorough histological examination. Treatment depends upon the histological findings - radiotherapy, Wertheim's Hysterectomy, or a combined attack in the case of the invasive Stage I lesions, and usually hysterectomy for the pre-invasive lesions.

*Paper read by first author at the 8th Singapore-Malaysia Congress of Medicine held in Singapore in July 1973.

Results

The experience of the cervical cancer screening programme over a 5-year period from March 1968 to February 1973 inclusive, and covering a total of 11,283 obstetrical and gynaecological patients, that were screened by exfoliative vaginal and cervical smears are evaluated and presented.

In Table I is presented the annual breakdown of all obstetrical and gynaecological patients that were screened, over the 5-year period of March 1968 to February 1973, together with the respective "Pick-up" rates for unsuspected carcinoma of the cervix. The large number of patients (2,727 patients) screened, together with the low "Pick-up" rate of 0.5% for the 10 month-period of March to December 1968, is because of the fact that all patients, attending the Unit were screened, without any prior selection. The high "Pick-up" rate of 1.6% for 2-month period of January to February 1973 is a chance distribution and not representative of the entire study. The average "Pick-up" rate for the entire study is 0.7%.

Table I
University of Malaya
University Hospital
"Pick-up" Rates on Annual Breakdown of All
Obstetrical and Gynaecological Patients Screened
for the Five-Year Period — March 1968 to February
1973

Year	No. of Patients Screened	No. of Un-suspected "Positives"	"Pick-up" Rates
1968 (March to Dec.)	2,727	14	0.5%
1969	1,711	18	1.1%
1970	1,889	11	0.6%
1971	2,015	19	0.9%
1972	2,561	7	0.3%
1973 (Jan. to Feb.)	380	6	1.6%
Total for 5 years	11,283	75	0.7%

In Table II is presented the break-down of "Pick-up" rates in the ante-natal patients by age-groups for the 5-year period. Except for the small group of 221 patients in the "40 to 49 years" age-group, where the "Pick-up" rate was atypically high (0.9%), the "Pick-up" rates for all other age-groups and for the whole of this sample was very low (0.2% to 0%). This is not surprising, as these ante-natal patients represent the relatively healthy members of the Malaysian community. There was no "Pick-up" in the age-group "under 25 years".

Similar study for the post-natal patients of this Unit is presented in Table III. The total patients in this post-natal group is very small (less

than 2% of entire sample), and hence not representative for critical evaluation. The overall "Pick-up" rate amongst the 193 patients is 1.0%. The reason for the very small number of post-natal patients screened in this study is that most obstetrical patients would have already been screened during their ante-natal period, and these represent the small number of unbooked obstetrical patients. Again, there were no "Pick-ups" in the age group "under 25 years".

Table IV represents the combined results that have been presented in Tables II and III, and shows the "Pick-up" rates in all obstetrical patients by age-groups for the 5-year period of study. It is worthy of note that there were no "Pick-up" in obstetrical patients under 25 years of age, and the "Pick-up" rate for the total obstetrical patients (all ages) is very low (0.2%).

The "Pick-up" rates for all the gynaecological patients by age-groups in the study are presented in Table V. There are again no "Pick-ups" in the "under 25 years" age-group. However, in contrast to obstetrical patients, there is a 0.2% (2 out of 937 women screened) "Pick-up" rate in the "25 to 29 years" age-group. The "Pick-up" rates in the gynaecological patients, aged 30 years and over, are relatively high, 0.8% to 1.8%. The overall "Pick-up" rate for the total gynaecological patients is also relatively high - 1.0%.

Table VI represents the combined results that have been presented in Tables IV and V, and shows the "Pick-up" rates in the total obstetrical and gynaecological patients by age-groups for the 5-year period of study. There is an apparent steady rise in the "Pick-up" rates with increasing age-groups. The "Pick-up" rates are significantly high (1.4% to 1.8%) in the age groups of 40 years and over.

In Table VII is presented the histological diagnosis of the cervical lesions in the 75 positive "Pick-up" cases in this study. These 75 cases had cone-biopsy studies of the cervix undertaken to establish a histological diagnosis of the cervical pathology. In this study, it is apparent that 89.3% of the cervical lesions are carcinoma-in-situ (intra-epithelial carcinoma of cervix) and 10.7% are (pre-clinical) early unsuspected invasive squamous cell carcinoma of cervix.

The age-group distribution of the cervical lesions in the 75 positive "Pick-up" cases is presented in Table VIII, and the contents of this Table are self-explanatory. A critical evaluation of the 3 "Pick-up" cases in the "25 to 29 years" age group reveals the following:-

Table II
University of Malaya
University Hospital
"Pick-up" Rates in Ante-Natal Patients by Age-Groups for
the Five-Year Period March 1968 to February 1973

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Ages
No. of Ante-Natal Patients screened	804	797	2,878	221	—	—	4,700
No. of Positive "Pick-ups"	0	1	7	2	—	—	10
"Pick-up" Rate	0%	0.1%	0.2%	0.9%	—	—	0.2%

Table III
University of Malaya
University Hospital
"Pick-up" Rates in Post-Natal Patients by Age-Groups for The Five-Year Period
March 1968 to February 1973

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Ages
No. of Post-Natal Patients Screened	47	57	80	9	—	—	193
No. of Positive "Pick-ups"	0	0	2	0	—	—	2
"Pick-up" Rate	0%	0%	2.5%	0%	—	—	1.0%

Table IV
University of Malaya
University Hospital
"Pick-up" Rates in All Obstetrical Patients by Age-Groups for The Five-Year Period
March 1968 to February 1973

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Ages
No. of All Obstetrical Patients Screened	851	854	2,958	230	—	—	4,893
No. of Positive "Pick-ups"	0	1	9	2	—	—	12
"Pick-up" Rate	0%	0.1%	0.3%	0.9%	—	—	0.2%

THE EARLY DETECTION OF UNSUSPECTED CARCINOMA OF CERVIX

Table V
University of Malaya
University Hospital
"Pick-up" Rates in Gynaecological Patients by Age-Groups for The Five-Year Period
March 1968 to February 1973

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Ages
No. of Gynaecological Patients Screened	442	937	2,600	1,441	643	327	6,390
No. of Positive "Pick-ups"	0	2	20	26	9	6	63
"Pick-up" Rate	0%	0.2%	0.8%	1.8%	1.4%	1.8%	1.0%

Table VI
University of Malaya
University Hospital
"Pick-up" Rates in Total Obstetrical and Gynaecological Patients by Age-Groups for the Five-Year Period
March 1968 to February 1973

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Ages
No. of Total Obstetrical and Gynaecological Patients Screened	1,293	1,791	5,558	1,671	643	327	11,283
No. of Positive "Pick-ups"	0	3	29	28	9	6	75
"Pick-up" Rate	0%	0.2%	0.5%	1.7%	1.4%	1.8%	0.7%

Table VIII
University of Malaya
University Hospital
Age-Group Distribution of the Cervical Lesions in The 75 "Pick-up" Cases

Age-Groups Studied	Under 25 Years	25 to 29 Years	30 to 39 Years	40 to 49 Years	50 to 59 Years	60 Years & Over	All Years
Intra-Epithelial Carcinoma of Cervix (Ca-in-situ)	0	2	27	26	7	5	67
Early Unsuspected Invasive Squamous Cell Carcinoma of Cervix	0	1	2	2	2	1	8
Total No. of "Pick-up" Cases	0	3	29	28	9	6	75

Table VII
University of Malaya
University Hospital
Histological Diagnosis of Cervical Lesions in The
75 "Pick-up" Cases

Histological Diagnosis of Lesion	No. of Cases	%
Intra-Epithelial Carcinoma of Cervix (Ca-in-situ)	67	89.3%
Early Unsuspected Invasive Squamous Cell Carcinoma of Cervix	8	10.7%
Total	75	100%

1st Case: Eurasian, aged 26 years, para 8, married 10 years, presented in the first trimester of pregnancy with a benign-looking cervical erosion, contact bleeding and a positive Schiller's test. Repeated PAP smears revealed malignant cells. Colposcopy and punch biopsy of cervical lesion revealed a moderately well differentiated squamous cell carcinoma of the cervix on histological examination.

Diagnosis: Carcinoma of cervix Stage I (a). The case was treated by hysterotomy (for pregnancy termination) and full course of radiotherapy. Patient alive and well 5 years later.

2nd Case: Chinese, aged 28 years, para 4, married 9 years, presented at clinic with request for sterilisation. Repeated PAP smears revealed malignant cells. Cone biopsy of cervix confirmed carcinoma-in-situ. Treated by hysterectomy.

3rd Case: European, aged 25 years, para 2, married 3 years, but has had premarital sex for 9 years with both her children born illegitimately. Cervix revealed benign erosion. Repeated PAP smears revealed malignant cells. Cone biopsy of cervix confirmed carcinoma-in-situ. Refused hysterectomy in view of the fact that she had had no children by the present marriage.

Summary and Conclusions

1. The experiences of a cervical cancer screening programme at the University Hospital, University of Malaya, Malaysia over a 5-year period since its inception, from March 1968 to February 1973, and covering a total of 11,283 obstetrical and gynaecological patients, that were screened by exfoliative vaginal and cervical smears, are presented.
2. The overall gross "pick-up" rate is 0.7%.
3. The "pick-up" rate for all obstetrical patients (all ages) is very low - 0.2%, whereas that for all gynaecological patients (all ages) is high - 1.0%.
4. There were no "pick-ups" in the women in the age-group "under 25 years", and the "pick-up" yield in the age-group of "25 - 29 years" was also very low - 0.2%.
5. The "pick-up" yield was significantly high in the women over the age of 40 years = 1.4% to 1.8%.
6. It is recommended that ideally all women, who are aged 25 years and over, should have the benefits of a vaginal and cervical cytological cancer screening service.

Acknowledgements

The authors wish to record their very sincere thanks to Mr. B.Y. Leong for his services in helping to collect and compile the statistical Tables, and to Mrs. Ivy Phang for her secretarial assistance in the preparation of this paper.

We also wish to thank Miss Ho and Miss Gan of the Pathology Department for their technical assistance.

References

- Ayre, J.E. (1946): *Amer. J. Obstet. Gynaec.*, **51**, 743.
 Ayre, J.E. (1947): *Amer. J. Obstet. Gynaec.*, **53**, 609.
 Brit. Med. J. Leader (1963): "Cytological Screening for Cancer of the Cervix", *Brit. Med. J.*, **1**, 1625.
 McLaren, H.C. and Attwood, M.E. (1961): *Brit. Med. J.*, **2**, 111.
 Papanicolaou, G.N. and Marchetti (1943): *Amer. J. Obstet. Gynaec.*, **45**, 421.
 Papanicolaou, G.N. and Traut, H.F. (1943): "Diagnosis of Uterine Cervix by the Vaginal Smear" Commonwealth Fund, Oxford, London, New York.
 Sinnathuray, T.A. (1963): *Med. J. Malaya*, **18**, 77.