

# An evaluation of Cervical Cytological Screening in the University Teaching Hospital, Lusaka.

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## SUMMARY

A diagnostic cytology service was started in the Obstetric and Gynaecology Department of University Teaching Hospital, Lusaka in September, 1974. Its primary aim was to diagnose precancerous lesions or early invasive cancer of the cervix. However, the ser-

vice was offered to other disciplines in the hospital who could benefit from cytology.

During the two and a half period, September 1974, to 31st December 1976, 2,877 cervical smears were examined. Of these, 138 smears (4.8%) showed evidence of cellular abnormality consistent with

dysplasia, carcinoma in situ, or invasive cancer. *Trichomonas vaginalis* was diagnosed in 464 cases (16%), *Candidiasis* in 89 (3.1%), and *Schistosomiasis* in 19 (0.7%).

## INTRODUCTION

Carcinoma of the cervix was the commonest type of female cancer recorded over a four year period 1968-1972, in the Zambia Southern Cancer Registry. Due to lack of knowledge of the disease in the general population, patients fail to report symptoms, and usually present when the disease has reached a late stage. Results of treatment are then poor, as radiotherapy is not available, and surgery cannot be expected to cure the late stage of the disease with which the patient usually presents. Screening of cervical scrape smears may however detect carcinoma-in-situ, or early invasive carcinoma (Schiller 1933), and the results of surgery in these early cases are good.

An educational programme to alert those patients at risk, supplemented by cervical cytological screening would reduce the number of patients being picked up in the late stages of this fatal disease. Against this background it was decided to start a diagnostic cytology unit, initially as a pilot project. It was then hoped to expand the service to cope with mass cytological screening.

An evaluation of the results of the initial screening is now presented.

## MATERIALS AND METHODS

The project was set under way by recruitment of an experienced cytotechnician. A new laboratory complex was installed in the old X-Ray Department in the obstetric block. Local staff were recruited for training as screeners of cytology specimens. A skilled cytologist joined the team in 1975.

Screening was carried out initially on patients in the gynaecological wards, and attending gynaecological clinics, but was then extended to patients attending family planning and antenatal clinics. Some cervical scrapes were submitted by general practitioners. The service has grown as the facilities in the laboratory expanded. In 1976, twelve thousand new patients attended the obstetrics and gynaecology clinics, forming a large section of the population on whom screening could be effected. Our clinicians must now become motivated to screen as many of these new patients as possible.

Table 1 illustrates a modification of Papanicolaou's classification used to assess cellular abnormalities. Particular attention is paid to grade 2, 3, 4, and 5 smears. These smears are examined by the chief cytotechnician and cytologist who provide a descriptive report, and suggestions on further management.

The gynaecologist in charge of the case is invited

to review grade 3, 4, and 5 smears. If such a smear is found, the clinician will arrange to review the patient in question. If necessary, histological clarification is sought after performing cone biopsy. The follow-up consists of clinical examination and smears at intervals of 6-12 weeks. Hysterectomy, together with removal of a cuff of vagina, is necessary if cone biopsy shows incomplete removal, if micro-invasion is noted, or if smears remain positive at follow-up examination.

## RESULTS

Table 2 shows that since the inception of the unit 2,877 smears have been examined of which 138 (4.8%) fall into groups 3 to 5. This gives an overall pick-up rate of abnormal smears of 1 in 20. Trussell (1967) reported an incidence of 1 in 28, and Leighton (1975) from a much larger series, quotes a pick-up rate of 1 in 36. Both of these studies are reported from Uganda. Our figures show a positive bias due to the small number of patients in the study, and because smears were taken from patients with obvious cervical cancers. The pick-up rate of cellular abnormalities found on cervical cytology will fall, as more normal patients are screened.

Table 3 shows that *Trichomonas Vaginalis* was observed in 464 cases (16%), *Candida Albicans* was noted in 89 (3.1%), and *Schistosomiasis* in 19 cases (0.7%).

Leighton (1972) quotes figures for *Trichomonas* of 34% and *Candidiasis* 7.8%, from Uganda. Van Nierkerk (1972) reporting from South Africa, provides figures of 15.3% for *Trichomonas*, and 1.3% for *Candida*.

Table 4 analyses the ages of women examined and the number of abnormal (Grade 3, 4, and 5) smears, by age. The peak incidence of abnormal smears (22%) is observed in the 46-50 year age group. There is however, a significant pick-up rate, from the age of 20 years onwards.

In a group of 662 patients no cellular abnormalities were found. The explanation is as follows. Many smears were received with incompletely filled forms. If the smears were normal no effort was made to obtain further information. However in all cases where a significant abnormality was found, each patient's file was examined, and their age ascertained.

The peak incidence of carcinoma-in-situ occurred in the 36-46 year age group. One in every 91 cases was thought to have carcinoma-in-situ on cytological grounds.

It is noted that the clinical pick-up rate for cervical cancer was apparently higher than the reported group 5 smears. This is due to the fact that gross lesions are often complicated by infection and necrosis and the smears taken are difficult to interpret. However, these smears will fall within the abnormal

**TABLE I**  
**MODIFIED PAPANICOLAOU CLASSIFICATION**

PAP GROUP	TENTATIVE HISTOLOGICAL DIAGNOSIS	CLINICAL ACTION
I	Normal Findings	Possible Repetition
II	Inflammatory or Degenerative changes. Simple Atypical Epithelium.	
III	Mild-Moderate Dysplasia. Atypical Edpidermoidal or Basal Cell Hyperactivity.	Repeat in 3 months
IV	Severe Dysplasia or Carcinoma-in-situ	Histological clarification
V	Invasive Carcinoma	Histological clarification.

**TABLE II**  
**GRADES III IV V SMEARS**

Year	Smears Examined	Abnormal Smears	Pick-Up Rate
1974 September to December	60	5	1 in 12
1975 complete	649	42	1 in 15
1976 complete	2,168	91	1 in 23
TOTAL	2,877	138	1 in 20

**TABLE III**

YEAR	SCHISTOSOMIASIS	TRICHOMONAS VAGINALIS	CANDIDA	TOTAL OF GRADES III IV V	TOTAL NUMBER SCREENED
1974	1	10	2	5	60
1975	6	117	27	42	649
1976	12	337	60	91	2,168
TOTAL	19 (0.7%)	464 (16%)	89 (3.1%)	138 (4.8%)	2,877

**TABLE IV**  
**SEPTEMBER 1974 – DECEMBER 1976.**

AGE	TOTAL PTS.	GRADES			TOTAL ABNORMAL	CLINICAL CANCER
		III	IV	V		
15-20	187	1	—	—	1 (0.59%)	0
21-25	452	5	—	1	6 (1.3%)	3
26-30	526	13	11	2	26 (4.9%)	3
31-35	377	10	6	6	22 (5.9%)	8
36-40	274	3	2	7	12 (4%)	9
41-45	129	2	5	8	15 (11.4%)	9
46-50	86	6	3	10	19 (22%)	15
51 +	184	5	7	23	35 (10.8%)	32
Unspecified	662	0	0	0	0	0
TOTAL	2,877	45	34	57	138 (4%)	79

range which need further clarification and follow-up.

An investigation into the follow-up of patients with abnormal smears is currently in progress, and will be reported at a later date.

Table 5 simply illustrates the number of smears taken from antenatal patients, and those taken from women using, or not using contraception.

Cytology was very helpful in the screening of fluid for premalignant and cancerous cells (Table 6). Of the small number of specimens submitted 36 cases had cells which fell within the abnormal range. It is

Corscaden et al (1962) emphasises the point that early diagnosis and treatment can prevent the ravages of the disease. Early diagnosis would require a screening programme for those women who are most at risk. A cervical smear programme could be supplemented by the "Irrigation Smear Technique" (Husain 1970). This simple procedure is performed by the patient herself, and can be supervised by nurses or paramedical staff.

Green (1966) was not convinced that population screening would reduce the mortality from

TABLE V

YEAR	PREGNANT	ON CONTRACEPTIVES	NON PREGNANT	TOTAL
1974	3	2	55	60
1975	243	52	354	649
1976	794	128	1,246	2,168
TOTAL	1,040	182	1,655	2,877

TABLE VI  
PAPANICOLAOU GRADING

s/	s ns	III	IV	V
		III	IV	V
Sputum		2	2	12
Ascites/Effusions		0	0	9
Urine		0	2	9
TOTAL		2	4	30

cancer of the cervix. Fidler et al, (1968), however, reports that in a population already screened and treated, invasive cervical cancer develops at a very low rate, compared to an unscreened population. The value of cervical cytology screening has recently been reviewed very favourably in the British Medical Journal (1976).

If we are to decrease the mortality and morbidity from this disease, the number of patients screened will need to be increased considerably. An increase in staff, and extension of the cytology laboratory will then be necessary. Exfoliative cytology has a definite role to play in the attack on female cancer in a developing country (Leighton et al, 1975). It should be backed up by an educational programme to inform those patients at risk, and radiotherapy, as a form of treatment, should be introduced as soon as possible.

hoped that this part of the service can be extended.

## DISCUSSION

The prevalence of carcinoma-in-situ of the cervix uteri, in a freshly screened symptomless population, is about 2 to 4 per 1,000, while that of micro-invasive carcinoma is about 1 to 2 per 1,000 (Feroze 1972). These figures are from European and American studies. The incidence of the same lesions in Africa are not generally known. However, Leighton et al (1972) quotes collective figures of abnormal grades 3 to 5 in 1 in every 36 of the population. Our incidence of grade 3-5 smears was 1 in every 20 cases.

The peak age incidence of cervical cancer quoted in the western literature is 48 years and our figures concur with that finding. It has been estimated that in developing countries, a woman living to 65 years of age, has a 1 in 50 chance of developing the disease (Leighton).

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