

## EVALUATION OF TOLUDINE BLUE TEST IN DELINEATING AREAS OF CERVICAL NEOPLASIA†

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It is generally held that histological verification of an abnormal cervical smear is necessary before deciding any definitive treatment. But there exists a lot of controversy as to the particular method of biopsy to be followed as the various procedures have inherent weaknesses. A diagnostic conization, though ideal, is fraught with serious complications. Hence most of the gynaecologists limit this to those cases where the diagnosis is still doubtful after cytology and punch biopsy. This leaves punch biopsy to be the most acceptable, method, though in a small number of cases it may be inadequate.

The effectiveness of punch biopsy greatly increases when the areas of biopsy are delineated by colposcopy. But in the absence of colposcope the two other simpler and effective methods used for selecting areas for biopsy are Schiller's test and Toludine Blue test. Both these methods are being used since long with good results. Richart in 1963 demonstrated that higher degree of accuracy is achieved by Toludine Blue test than with Schiller's test. The present communication is an

attempt to evaluate the effectiveness of toludine blue test in identifying areas for cervical punch biopsy.

### *Material and Methods*

At MKCG Medical College Hospital, Berhampur a study was undertaken to investigate the cases of unhealthy cervix. The cervix was mopped off with cotton swab containing 1% acetic acid and then painted with 1% aqueous solution of toludine blue. After one minute, the stain was removed by applying 1% acetic acid. The areas which retained blue or dark blue stain were taken as positive for toludine blue test. As a routine 4 samples, one from each quadrant of the cervix were taken from toludine blue positive areas and if any quadrant of the cervix did not show positive areas a punch biopsy was taken from the squamo-columnar junction. In this way from January 1974 to December 1974, 510 cases of clinically unhealthy cervix were studied. The results of 2040 pieces of cervical tissues obtained by punch biopsy from these women are presented to evaluate the efficacy of toludine blue test.

### *Results*

The results of toludine blue staining of the cervix in 510 women is presented in Table I. In 38 cases (Group-A) there

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TABLE I  
Results of Toluidine Blue Staining of the Cervix

Group	No. of cases	Quadrants Showing		No. of Biopsies
		Positive Areas	Negative Areas	
A	38	152	NIL	152
B	45	73	107	180
C	427	NIL	1708	1708
Total	510	225	1815	2040

were positive areas extending to all quadrants of cervix from which 152 pieces of cervical tissues were taken while another 45 cases (Group-B) had positive areas extending to 1 to 3 quadrants of the cervix, from whom 73 specimens were collected from positive areas and 107 from negative areas. In the rest of the cases (Group-C) since the cervix did not show any positive areas 1708 biopsies all from negative areas, were taken. These 2040 pieces of tissue were examined and the highest grade of lesion seen in the slide was taken into account.

The various lesions that were seen in the biopsies taken from positive and negative areas are shown in Table II. Among

showing only mild dysplasia, while in 26.2% of biopsies no lesion was detected. In the 1815 punch biopsies from the negative areas the only lesion was mild dysplasia detected in 182 (10.03%) biopsies while the rest showed no pathology.

#### Comments

The results showed that a cervix giving a positive toluidine blue test very often will have a lesion from mild dysplasia to invasive carcinoma. But it may show a false positive result in 26.2% of cases. The false positive results may be due to the presence of an erosion or due to the destruction of the surface epithelium by chronic discharge and in any case is not

TABLE II  
Histological Lesions Seen in the Punch Biopsies

Type of Lesion	In Positive Areas		In Negative Areas	
	No.	%	No.	%
Invasive Carcinoma	5	2.22	NIL	NIL
Carcinoma-in-situ	15	6.67	NIL	NIL
Dysplasia severe	30	13.34	NIL	NIL
Dysplasia moderate	42	18.67	NIL	NIL
Dysplasia mild	74	32.90	182	10.03
No Pathology	59	26.20	1633	89.97
Total	225	100	1815	100

the 225 biopsies from positive areas there were 5 with invasive carcinoma, 15 showing carcinoma in situ, 30 with severe dysplasia, 42 moderate dysplasia and 74

detrimental to the patient.

Basing on our results it can be further said that a negative toluidine blue test invariably means the absence of lesions of

any significance as the only histological change noted in 10.03% of negative biopsies was mild dysplasia. Sasiprava *et al* (1973) also found similar results though their study was concerned with biopsies from positive areas only.

These results have shown that toluidine blue test is quite effective in demarcating areas of the cervix for biopsy, which may be due to the fact that the stain is taken by the nuclei. Punch biopsy based on toluidine blue test is accurate and can eliminate the need for cone biopsy on many occasions. Hence this test should be used while punch biopsy is contemplated. Until colposcope is available for general use Toluidine Blue Test will retain its indispensable place in the early detection of carcinoma of cervix.

Summary

In 510 women the toluidine blue test was employed on the cervix and 2040 punch biopsies both from positive and negative areas were taken. The results of 225 biopsies taken from positive areas were compared with those of the 1815 biopsies from negative areas to evaluate the test. Though it gave 26.2% false positive and 10.3% false negative results, the test is considered to be highly effective in demarcating areas for cervical biopsy and thus increasing the accuracy of punch biopsy.

References

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