STUDY ON HEALING CERVICAL EROSION

by

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Study of healing cervical erosion after electrocauterisation permits two important points to be observed viz., the incidence of replacement of abnormal epithelium in erosion by normal epithelium, and secondly, the origin of the replacing normal epithelium. Both are fundamentally important. The present study is the first phase of a continued observation, in which cases of cervical erosion after cauterisation were followed up cytologically till the cervices were clinically normal.

Material and Method

One hundred and five out of 178 cases of cervical erosion admitted to the 2nd Professorial unit during one year period were included in this study. After clinical examination, precauterisation smears were taken from the vaginal pool and with cervical scraping, and were stained by Papanicolaou technique. Under intravenous anaesthesia, after dilating the cervix, electrocauterisation was performed using a Philips diathermy unit operating on 230-250 volts 60 cycles. The endocervical canal was cauterised upto half its extent and the depth of cauterised tissue was about 2 to 3 mm. After cauterisation every patient had parenteral penicillin and streptomycin, and local Triple Sulpha Cream (Johnson & Johnson) application. Cytological study was made once a week from the 7th day upto the end of 6 weeks, and as far as practicable each patient had 5 postoperative smear study. The rate of healing was recorded weekwise, and the clearance of abnormal cells from the smear of those who had dysplasic cells before cauterisation was noted.

Observation

Sixteen of 105 cases had abnormal smears. The cytology findings are shown in Table I.

Inflammation was a predominating associated feature in both the nondysplasic and dysplasic groups. In 2 cases dysplasia was diagnosed from cervical scrape although it was absent in vaginal pool smear. Abnormal smears were encountered more in 30-34 age group, in para 4 and above, in those with history of married life of 10 years and longer and in those who complained of contact

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TABLE I
Preoperative Cytological Findings

	Cervical Scrape		Vaginal Pool	
	No. of cases	Percentage	No. of cases	Percentage
Normal	12	11.4	14	13.4
Normal with inflammation	77	73.4	77	73.4
	89	84.8	91	86.8
Dysplasia alone ..	7	6.6	7	6.6
Dysplasia with inflammation	9	8.6	7	6.6
	16	15.2	14	13.2
Total in both groups	105	100	105	100

bleeding. It was also more frequent in erosion of 1.0 cm. or more radius, and in those who had cervical biopsy before cauterisation on clinical grounds. The healing pattern of the cases is shown in Table II.

The cytological clearance in abnormal group is also indicated. Clinical healing and cytological clearence often go together, the abnormal cells having disappeared much earlier than gross healing. Once having disappeared the abnormal cells did not reappear. In 8 cases, 6 nondysplasic and 2 dysplasic, gross healing did not occur; 2 of these, both having nondysplasic smear after first cautery, were cauterised for the second time. Cytological picture of these 8 cases were as follows Table III.

The reasons for the failure of first cauterisation could be an underlying inflammatory condition or dysplasic change. Inadequacy of technique is another possibility. The cell population in postcauterisation smears are shown in the three graphs (Figs. 1, 2 and 3). As

TABLE II
Healing Pattern of Cases After Cauterisation

Healed weeks	Normal smear		Abnormal smear			
	Gross healing		Gross healing		Cytological clearance	
	No. of cases	Percentage	No. of cases	Percentage	No. of cases	Percentage
1	—	—	—	—	11	68.8
2	4	4.5	—	—	1	6.2
3	16	18.0	1	6.2	2	12.5
4	36	40.0	—	—	—	—
5	20	22.5	9	56.2	—	—
6	7	7.8	4	25.1	—	—
Not healed	6		2	12.5	1	12.5
Total	89	6.7	16			

TABLE III

Cytological Picture of 8 Cases Where Healing Was Not Achieved After First Cauterisation

Case no.	Cytology before cauterisation	Cytology after first cauterisation	Cytology after second cauterisation
1	Normal plus inflammation	Normal plus inflammation	Normal
2	Normal	Normal plus inflammation	Normal
3	Normal	Inflammation	Amputation, Normal
4	Dysplasia	Dysplasia	Amputation, Normal
5	Normal		
6	Normal	NOT FOLLOWED UP	
7	Normal		
8	Normal		

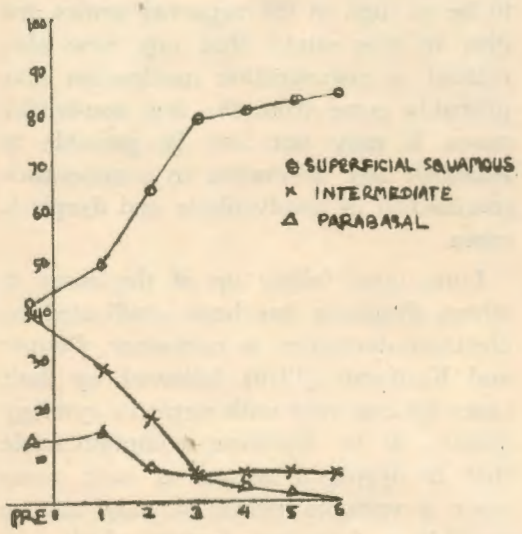

Fig. 1

the healing progressed, blood cell elements after an initial rise, came down below the precauterisation level. At the end of healing the superficial squamous cells appeared in higher percentage and the intermediate and parabasal cells declined below the precautery level. There was marked reduction in the population of endocervical cells when the erosion was well healed. Histiocytes and stromal cells made significant appearance from week 2 to week 5, attaining peak in weeks 3 and 4.

Discussion

The high incidence of dysplasia in this group (15 per cent) was due to selection

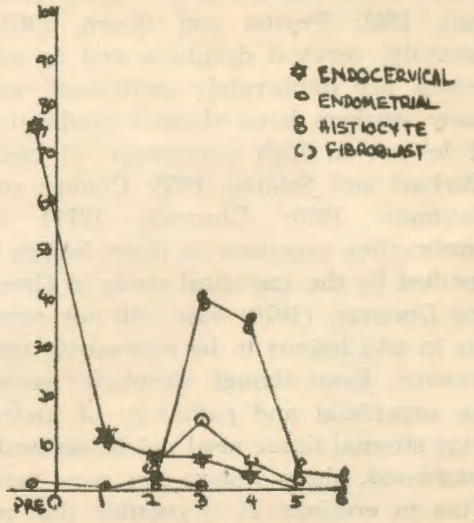

Fig. 2

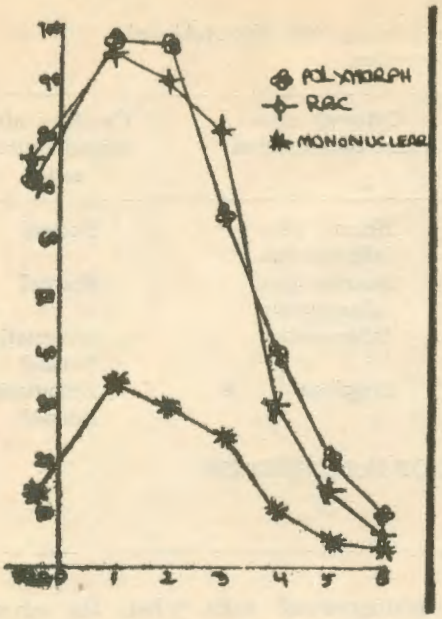

Fig. 3

of cases with unhealthy cervices only. Young, *et al* (1949) claimed cure of carcinoma in situ lesion by cauterisation. Electrocauterisation came to be considered as an efficient prophylactic measure against cervical carcinoma (Hunner, 1906; Pemberton and Smith, 1929; Cashman, 1941; Peyton and Rosen, 1963). Recently, cervical dysplasia and in situ lesions are deliberately cauterised, and many workers have claimed eradication of lesions in high percentage of cases (Richart and Sciarra, 1968; Conner and Kaufman, 1970; Channen, 1971). A conservative approach to these lesions is justified by the statistical study of Green and Donovan (1970) who will not consider in situ lesions to be necessarily progressive. Even though dysplasic lesions are superficial and pathology of underlying stromal tissue need not be seriously considered, these lesions are seen more often in erosions. It is possible that repairing or regenerating epithelial cells may more often undergo dysplasic changes or the epithelium of erosion may be more prone to such change due to some extraneous factors. In the present study gross healing and clearance of abnormal cells to the extent of 90 per cent was achieved: Cytologically, healing was well evident from the beginning of 3rd week when immature or atypical squamous epithelium comprised of cells of all layers were present. The appearance of abnormal cells was shortlived, compared to that seen following radiation (Graham, 1972) and after cryotherapy (Gondos *et al*, 1970). The only persistent residual cytological finding in some cases were the inflammatory component. The incidence of healing, gross and cytological, appears to be so high in the reported works and also in this study that any new idea related to regeneration mechanism may probably come from the few non-healed cases. It may not also be possible to establish any difference in regeneration mechanism in nondysplasic and dysplasic cases.

Long term follow up of the cases in whom dysplasia has been eradicated by electrocauterisation is necessary. Conner and Kaufman (1970) followed up their cases for one year with negative cytology smears. It is, however, comprehensible that if dysplasia recurs in such cases after a variable period it may not be possible to determine factors which may be responsible for the recurrence. There is wide disparity in views that are held regarding the origin of the squamous epithelium which ultimately covers the cauterised area. Meyer (1910) and Adair (1910) held that fully differentiated squamous epithelium from the basal cells of the adjacent normal epithelium covered the area of healing erosion. Later views favoured an origin from the reserve cells

underlying the columnar and squamous epithelium. More recently an origin from the stromal cells has been proposed (Reid *et al*, 1967). In our study, in some cases, stromal cells and histiocytes were found in abundance towards the 3rd postoperative week. In some others there was predominance of parabasal cells in the smear. We hope that in the next phase of our study we shall be able to provide definite information on this issue.

References

1. Adair, F. L.: Surg. Gynec. & Obst. 10; 399, 1910.
2. Cashman, B. Z.: Amer. J. Obst. & Gynec. 41: 216, 1941.
3. Chanen, W.: Obst. & Gynec. 37: 623, 1971.
4. Conner, J. S. and Kaufman, R. H.: Surg., Gynec. and Obst, 131: 726, 1970.
5. Gondos, B., Smith, L. R. and Townsend, D. E.: Acta Cytol. 14: 386, 1970.
6. Graham, R. M.: The cytologic diagnosis of cancer. Philadelphia, W. B. Saunders, 1972, pp. 177—182.
7. Green, G. H. and Donovan, J. W.: Jour. Obst. and Gynec. of the Brit. Cwlth., 77: 1, 1970.
8. Hunner, G. L.: Jour. of Amer. Med. Assn. 49: 191, 1906.
9. Meyer, R.: Archiv für Gynakologie, 91: 579, 1910.
10. Pemberton, F. A. and Smith, G. V.: Amer. J. Obst. and Gynec. 17: 165, 1929.
11. Peyton, F. W. and Rosen, N. A.: Amer. J. Obst. and Gynec., 86: 111, 1963.
12. Reid, B. L.: Singer, A. and Coppleson, M.: Australian and New Zealand Journal of Obst. and Gynec., 7: 125, 1967.
13. Richart, R. M. and Sciarra, J. J.: Amer. J. Obst. and Gynec. 101: 200, 1968.
14. Young, P. A., Hertig, A. T. and Armstrong, D.: Amer. J. Obst. and Gynec. 58: 867, 1949.