

A CYTOLOGICAL STUDY OF TRICHOMONIASIS AND DYSKARYOSIS OF CERVIX UTERI

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Introduction

The *Trichomonas vaginalis* is capable of producing either an infestation or an infection. The infestation cases may show normal vaginal pattern. The infective group included two phases the florid and the latent. During florid phase patient is troubled and symptomatic and it represents cytologically as a case of chronic cervicitis with negligible degree of dysplasia. The next phase is the latent phase of trichomoniasis which remains asymptomatic, it is in this phase the organism is associated with serious epithelial lesions of the endocervix (Novak, 1974). On the other hand, in pre-existing malignancy the malignant cells may lose their diagnostic criteria, whereas benign cells cause alarm and even false identification of cancer (Novak 1974; Koss 1968). The dysplasia of cervical epithelium has also been reported by Bechtold (1952), Brux and Warner (1957), Reagan *et al* (1963), Wahi *et al* (1969) Wachtel (1969) and W.H.O. report (1973), who established a

relationship of *Trichomonas* infection to false diagnosis of squamous carcinoma of cervix uteri.

Material and Methods

A total of 625 cases of erosion of the cervix were studied cytologically. The cervical scrape smears were taken by means of Ayer's spatula and stained by standard, Papanicolaou's technique (1954). The cases were grouped in seven groups, (Singh *et al* 1976) Normal, Chronic cervicitis, dysplasias grade I, II and III, carcinoma in situ, and invasive carcinoma. This classification was based on the classifications of Papanicolaou (1954) and W.H.O. report (1973). Cervical punch biopsy was done in cases with smears showing evidence of dyskaryosis. A followup study was done in cases with cervical dyskaryosis before and after treatment of trichomoniasis.

Observations

On cytological analysis 30.6 per cent of non-pregnant and 56 per cent of pregnant group showed normal smears. The chronic cervicitis was present in 40.76 per cent in non-pregnant and 23.5 per cent in pregnant cases. The prevalence of dysplasia and neoplasia was 36.86 per cent and 4.47 per cent in non-pregnant and 40.5 per cent in pregnant group. There

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was no case of neoplasia in pregnant group (Table I). These cases were further screened for trichomoniasis and moniliasis. In the non-pregnant group, 131 (63.39%) cases were of moniliasis 8 trichomoniasis and rest 65 (81.86%) were normal. In the pregnant group only 15, (28.3%) cases were associated with trichomoniasis, 1 (1.7%) had moniliasis and rest 47 (74.5%) appeared normal (Table II).

In cases of non-pregnant group, trichomonas vaginalis infection was associated with dysplasia in 43.6 per cent cases (mild 22.7%, moderate 14.4% and severe dysplasia 6.6%). Neoplasia was seen in 5.5 per cent cases (3.2% pre-invasive and 2.3% invasive carcinoma). Besides there was evidence of chronic cervicitis in 34.2 per cent cases. Normal vaginal cytology was seen in 16.6 per cent cases (Table III).

In pregnant group smears having trichomoniasis showed dysplasia in 19.8 per cent cases evidence of chronic cervicitis in 33.6 per cent cases and normal cytological pattern in 46.6 per cent cases. It was found that 42.8 per cent cases of mild dysplasia, 60 per cent cases of moderate dysplasia and 57.1 per cent cases of severe dysplasia and all cases of neoplasia were associated with trichomonas vaginalis infection. These cases were followed after treatment of trichomoniasis and it was observed that all cases of mild and moderate dysplasia and 87.5 per cent (7 out of 8) cases of severe dysplasia reverted back to normal or showed considerable decrease in the severity of dysplasia.

Discussion

The dysplasia of cervical epithelium in cases with trichomonas vaginalis infection has been reported by Bechtold (1952), Brux (1957), Reagan (1963), Wahi

TABLE I
Cytological Findings in Erosion of Cervix Cases

Groups of patients	Cytological findings							Total
	Normal	Chronic cervicitis	Dysplasia			Carcinoma in situ	Invasive carcinoma	
			Grade I	Grade II	Grade III			
Non pregnant	130 (30.6)	173 (40.76)	70 (16.5)	30 (7.06)	14 (3.3)	5 (1.17)	3 (.735)	425 (68.00)
Pregnant	72 (56.0)	47 (23.5)	59 (29.5)	21 (10.5)	1 (0.5)	—	—	200 (32.00)
Total	202 (32.3)	220 (35.2)	129 (20.6)	51 (3.1)	15 (2.4)	5 (0.8)	3 (0.5)	625 (100.0)

Note: Figures in parentheses denote percentages.

TABLE II
Trichomoniasis and Moniliasis in Erosion of Cervix Cases

Groups of patients	Tricho- moniasis	Moniliasis	Negative smears	Total
Non-pregnant	8 (3.32)	131 (63.39)	65 (31.86)	204 (76.4)
Pregnant	15 (28.3)	1 (1.7)	47 (74.5)	63 (23.6)
Total	146 (54.6)	9 (3.4)	112 (41.9)	267 (100.0)

Note: Figures in parentheses denote percentages.

TABLE III
Cytological Findings in Trichomoniasis Cases

Groups of patients	Normal	Chronic cervicitis	Cytological findings						Total
			Duration after operation			Carcinoma in situ	Invasive carcinoma	Total	
			Grade I	Grade II	Grade III				
Non-pregnant women	22 (16.6)	46 (34.2)	30 (22.7)	18 (14.4)	8 (6.6)	4 (3.2)	3 (2.3)	131 (63.39)	
Pregnant women	7 (46.6)	5 (33.6)	1 (6.6)	1 (6.6)	1 (6.6)	—	—	13 (36.61)	
Total	29 (19.7)	51 (34.9)	31 (21.2)	19 (13.01)	9 (6.1)	4 (2.7)	3 (2.05)	146 (100.0)	

Note: Figures in parentheses denote percentages.

TABLE IV
Cytological findings in patients with or without trichomoniasis

Groups of patients	Cytological findings					Total
	Dysplasia			Carcinoma in situ	Invasive carcinoma	
	Grade I	Grade II	Grade III			
Patients with Trichomoniasis	30 (46.1)	18 (27.6)	8 (12.3)	4 (6.1)	3 (4.6)	65 (52.4)
Patients without Trichomoniasis	40 (67.7)	12 (20.3)	6 (10.1)	1 (1.6)	—	59 (47.58)

$X^2=11.05$, *df.*—4, *p* < 0.05.

Note: Figures in parentheses denote percentages.

(1969), Wachtel (1969) and W.H.O. report (1973). These dyskaryotic changes in the cervical epithelium are as a result of chronic irritation and inflammation due to trichomonas vaginalis infection. Koss (1968), Novak (1974) also described cervical atypia in cases of trichomoniasis. At times the degree of dyskaryosis is so severe that it resembles carcinoma of cervix uteri.

In the present series the findings in trichomoniasis ranged from normal to that of neoplasia, Novak (1974) described that trichomonas vaginalis is capable of producing either an infestation or infection. The infestation cases show normal vaginal pattern as it was observed in 34.2 per cent cases of non-pregnant and 46.6 per cent cases of pregnant group. The chronic cervicitis was seen in 34.2 per cent cases in non-pregnant group and in 33.6 per cent cases of pregnant group.

Among all cases, 267 of them were screened for the presence of trichomoniasis. The cytological findings with and without trichomoniasis were compared. On statistical analysis a significant association was found between trichomoniasis prevalence as well as severity of dysplasia ($P < .05$) as 87.5 per cent cases of neoplasia, 57.1 per cent cases of severe

dysplasia, 60 per cent cases of moderate dysplasia, and 42.8 per cent cases of mild dysplasia showed trichomonas vaginalis infection. A high prevalence of trichomoniasis is seen in cervical erosion ulcer and neoplasia of cervix uteri, as necrosed tissue create better media for their growth (Novak 1974, Koss 1968).

Novak (1974) described that trichomoniasis cases clinically manifest as cases of endocervicitis or erosion cervix, at the same time Wahi (1969) observed that 65 per cent case of cervical dyskaryosis manifested clinically in the form of erosion cervix uteri. Later, Rao (1971) reported that these cases, of cervical erosion and endocervicitis are the bad risk cases, which, in follow up studies may turn malignant.

It appeared that although the dyskaryotic changes in the vaginal epithelium are reversible and disappear after treatment of trichomoniasis, sometimes it reaches to such a degree of cervical atypia that even after treating the local infection the dyskaryosis persists. Therefore cervical trichomoniasis cases should be treated promptly and followed cytologically so that dyskaryotic lesions are checked in their earlier developmental stages.

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