

INCIDENCE OF VAGINAL MONILIASIS IN AN OUT-PATIENT GYNAECOLOGICAL CLINIC IN AHMEDABAD

BY

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Recent years have seen an upsurge in clinical moniliasis. With the advent and widespread use of broad-spectrum antibiotics, the incidence of clinical moniliasis has markedly increased.

Candida albicans (Robin) Berkhont 1923 (Syn. *Monilia albicans*) is an anascosporegenous, pseudomycelium forming yeast which has been isolated exclusively from human sources. Mycologically, it belongs to the subgroup Eumycetes and class fungi imperfecti (No sexual spores).

The most frequently encountered clinical manifestations of candidiasis are vulvovaginitis, oral thrush in young infants, perleche (angular stomatitis), onychia and paronychia, *erosio interdigitalis blastomycetica* and intertrigo of the axillary, inframammary, umbilical and genitocrural regions. Intestinal candidiasis is increasingly seen following broad-spectrum antibiotic therapy. Systemic candidiasis is less frequently seen.

Wide use of penicillin and broad spectrum antibiotics, with resultant disturbance of vaginal bacteriology has increased markedly the incidence of yeast and fungus infections

of vagina. Before the advent of the wonder drugs, relationship of trichomonas to monilia was roughly four to one in the usual office practice. Within the past eight years the ratio has been reversed with three monilia problems to one of trichomonas.

In a series of 33 pregnant patients, Pace and Schantz found a ratio of monilial to trichomonal vaginitis of 15 : 1, or, put another way, 93.93 per cent of the pregnant subjects had a monilial vaginitis while only 6.06 per cent had a trichomonal vaginitis. Among the 43 non-pregnant patients in the series the ratio of candidal vaginitis to trichomonal vaginitis was 7 : 1, or, in percentages, 65.11 per cent of the non-pregnant had monilial vaginitis whereas only 9.30 per cent had a trichomonal vaginitis.

A search of Indian literature on this subject was not particularly revealing. The existence of candidal vaginitis is generally accepted, (Sharma, Bhaumik) but the extent of incidence is not known. It would thus appear that at present the problem is not of any great importance in India. Satyavati and Reddy, in an analysis of 100 cases of leucorrhoea, detected vaginal moniliasis in only

2 patients. These data prompted us to investigate the problem of leucorrhoea in general with particular reference to the incidence of vaginal moniliasis in Ahmedabad.

The Plan of Work

The investigation was instituted at the gynaecological out-patients' department of Chinai Maternity Home and Sheth Vadilal Sarabhai General Hospital, Ahmedabad. Patients coming primarily with a complaint of leucorrhoea were taken up for the study. Since the total attendance at the out-patient clinic ran into huge numbers, it was not possible to include in the present series each and every patient suffering from leucorrhoea. Our selection was therefore made entirely at random; usually the first two or three patients we came across for leucorrhoea on each day were taken up for the investigation.

Besides the personal data which were recorded on a proforma specially prepared for the purpose, we took a detailed menstrual and obstetric history and inquired into the various aspects of the vaginal discharge. Marital life was elicited with particular reference to frequency of intercourse and use of contraception. History of previous antibiotic administration was also inquired into. The physical examination included a general examination with particular reference to nutritional status. This was followed by a complete gynaecological examination. The discharge was collected in saline and a wet preparation was examined for presence of trichomonas. KOH preparation was examined for the fungus. A smear for Gram staining was also

prepared in each case. Ziehl-Neelson staining procedure was adopted whenever thought necessary.

The next morning, patients were taken up for routine laboratory investigations. These included the red cell count and Hb estimation as also examination of urine and faeces. Serological test for syphilis (Kahn test) was carried out in each patient. So was fluroscopy of the chest. Husband's urine and semen were examined in the majority of the cases where trichomonas infection was detected.

The investigation was carried out from August 1956-May 1957. The criteria accepted for diagnosis of vaginal moniliasis are as follows:

1. Clinical evidence of vulvovaginitis.
2. Characteristic discharge (white tenacious, cheesy discharge which when removed leaves the wall red and rugose).
3. Microscopic evidence of presence of yeast cells in the discharge. (Typical pseudohyphae and spores in stained smears)
4. Cultural demonstration of *C. albicans*.
5. Dramatic response to antimonal therapy and by Nystatin.

Owing to paucity of facilities, animal pathogenicity tests could not be carried out in the present series. Same is true of fermentation tests. It is, however, felt that in routine clinical practice, it may not be quite essential to perform these tests provided the above mentioned diagnostic criteria are fully observed.

During the period of investigation four hundred patients suffering from leucorrhoea were studied along the lines mentioned above. 350 of these were non-pregnant and 50 were pregnant cases. 36 patients were found to be suffering from monilial vaginitis both clinically and as proved by wet preparation and cultural method. In the present series in no case were monilia albicans found in absence of clinical symptoms.

The aetiology of leucorrhoea in these cases was, therefore, attributed to *C. albicans*. Further, therapeutic response to Nystatin confirmed the above diagnosis.

of the 50 pregnant patients examined 15 suffered from the disease, giving an incidence of 30%. The overall incidence of monilial vaginitis in the 400 patients of leucorrhoea was 9%.

Relation to Diabetes Mellitus

Four patients from the diabetic clinic who complained of pruritus vulvae and leucorrhoea were investigated for the presence of *C. albicans*. In two of these, the candida were detected in the wet preparation and were subsequently grown on Sabourand's dextrose agar medium.

TABLE I
Incidence and Parity of Patients suffering from Monilial Vaginitis.

Age group	No.	Per cent	Nulliparous	Parous
15-20	11	30.6	6	5
21-30	20	55.6	5	15
31-40	3	8.3	—	3
Above 40	2	5.5	—	2
	36	100.0	11	25
			36	

A review of the above table indicates the high incidence of vaginal moniliasis in age group 21-30 years. About 55% of our cases fell in this age group. Next to the above came the age group 15-20 with an incidence of 30%.

Relation to Previous Antibiotic Administration

10 patients were found to have received previous antibiotic therapy during the past one year. In one, oxytetracycline vaginal suppositories were used recently while one other

TABLE II
Distribution of Monilial Vaginitis in the Non-pregnant and Pregnant Patient.

	No. examined	No. of monilial patients	Percentage incidence
Non-pregnant	350	21	6
Pregnant	50	15	30

Of the 350 non-pregnant patients, 21 suffered from vaginal moniliasis giving an incidence of 6%. Similarly patient had received 60 g of streptomycin. 8 patients had received intramuscular penicillin (5-7 doses of 0.5

mill. units each) during the past one year.

Relation to Other Diseases

No significant relationship could be established between moniliasis and the diseases from which patients had suffered in the past.

Relation to Socio-economic Status

The average per capita income was less than Rs. 30 per month in 29 cases.

Relation to Genital Hygiene

Genital hygiene was poor uniformly.

Discussion

The investigation has revealed that the incidence of monilial vaginitis in Ahmedabad does not come anywhere near the foreign figures, at least in the non-pregnant. In a recent study Satyavati and Reddi have found an incidence of 2% while we have seen candida in 6% of our non-pregnant patients. Of the 350 non-pregnant cases, trichomonas were detected in 97 patients. In other words, for every monilial patient detected, we found trichomonas in 3 patients. In pre-antibiotic era Lee and Keifer had detected 4 patients of trichomonas for every monilial case. To put it the other way, the female population in Ahmedabad does not seem to have been exposed to an abundance of antibiotics. It is possible that in the future, this ratio would alter, to be more in line with the present day findings in Western countries (three monilial problems to one of trichomonas).

The low incidence of monilial vaginitis seen by us in the non-preg-

nant is in marked contrast to the 30% incidence seen in the pregnant. Campbell in 1950 stated that 40-45 per cent of all pregnant women harboured the organisms on vaginal culture but that only about 10 per cent showed symptoms. Conant on the other hand, tells us that 15-30 per cent of pregnant patients will exhibit vaginitis typical of *Candida albicans* infection. Gardner reports an incidence for vaginal thrush of 11.5 per cent in a large series of obstetric patients, while Pace and Schantz have reported an incidence of 12.6 per cent. Our findings are in close agreement with those of Conant. They are almost similar to those of Anderson who finds mycotic vaginitis to be four times common in the pregnant as compared to the non-pregnant.

Monilial vaginitis has much more clinical significance than trichomonas vaginitis. This is particularly so in the pregnant. The latter seldom, if ever, causes death in either mother or baby. The same may not be said of *Candida albicans*. The presence of candidal infection in the vagina of the mother represents a distant hazard, in the form of oral thrush, for the infant. In addition to the work of Plass et al in which they demonstrated that the sporadic oral thrush in the newborn in all probability resulted from contamination during passage through the birth canal in an infected mother. Woodruff, in 1938, reported that there was a definite relationship between the incidence of oral thrush in the newborn and the presence of fungi in the vagina of the mother. The protection

of an infant against exposure to a potentially dangerous *Candida albicans* infection demands the prompt and effective treatment of every pregnant patient with vaginal moniliasis. By the same token is made obsolete the view that monilial vaginitis in the pregnant woman need not be treated vigorously, if discomfort from symptoms is not excessive.

The role of male genital moniliasis in keeping up the vaginal infection is increasingly realised. Waisman reported this in his practice. The increasing incidence of genital moniliasis among women has been paralleled by a mounting incidence of monilial infection of the external genitalia among men. The condition in the husband is manifested by pruritus or by the presence of small, vesicle-like lesions. We have not been able to investigate this aspect of the problem in the present series.

Role of Antibiotics

Ten of our patients had received some antibiotics during the preceding year. Pundel and Ost reported that among 68 non-pregnant women with a genital mycosis typical of *C. albicans*, 29 had received antibiotic therapy and in 22 of these the genital infection appeared clearly to have been precipitated by antibiotic therapy. As cited by Gaudefroy and Viart, the mycotic complications supervened in 24.6 per cent of the patients treated with antibiotics, an appreciable increase over the usual incidence of 2.4 per cent in patients not receiving antibiotic therapy.

Summary

1. An investigation to determine

the incidence of vaginal moniliasis is reported.

2. An incidence of 6 per cent in the non-pregnant and 30% in the pregnant was observed.

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