

## VAGINAL DISCHARGE IN PREGNANCY

by

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Increased discharge or leucorrhoea is one of the commonest complaint in pregnant women. It is mainly vaginal in origin resulting from increased desquamation of a thickened mucosa as well as from increased transudate due to increased vascularity in genital organs (Satyawati, 1959). It is the commonest and most distressing symptom in these cases and a variety of vague complaints are attributed to this discharge (Gupta and Sachan, 1968). Its treatment, notwithstanding modern advances, remains a challenge to the practising obstetrician and it is for the attending obstetrician to determine the precise etiological agent and institute the requisite therapy (Grewal *et al*, 1974). True assessment of the etiology of excessive vaginal discharge seems to be difficult to make. Most of the workers have blamed *Trichomonas vaginalis* and various species of *Candida* principally *C. albicans* as major causative agents. Their presence in the vagina as normal commensals has been well documented even in the absence of any symptom. However, therapeutic response in the form of decrease in the discharge speaks well of their association with this symptom. Varying incid-

ences have been reported from various parts of the country (Shah, 1958; Pandya *et al*, 1968; Amonkar, 1959; Satyawati, 1959; Daftary *et al*, 1959 and 1961; Dutta-Chaudhari *et al*, 1959; Menon, 1959; Mehrotra *et al*, 1960; Anjaneyulu *et al*, 1961; Velayudhan and Kurup, 1963; Gupta and Sachan, 1958; Grewal *et al*, 1974 and Sen Gupta *et al*, 1975). Amonkar (1959) and Satyawati (1959) studied cases with excessive vaginal discharge and found *Trichomonas* as the commonest organism. The incidence of vaginal candidiasis is increasing because of excessive and indiscriminate use of antibiotics. Chiefly because of this and also because of higher glycogen content of the vaginal cells, the incidence of infective candidiasis in pregnant women surpasses that of *Trichomonas* infection.

Unfortunately, little attention has been paid towards the pyogenic organisms as the causal factor for vaginal discharge in pregnant women in the modern era. The organisms which may be present as normal commensals may become pathogenic under changed situations and cause puerperal and neonatal sepsis.

The purpose of this study has been to reexamine this problem in the light of the above facts, present day therapy and modern methods of detecting infections.

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*Material and Methods*

One hundred and fifty-nine pregnant women attending antenatal clinics of Safdarjung Hospital with specific complaint of vaginal discharge were the subjects of this study.

Observations were recorded with regard to the clinical history of the cases.

Giemsa and Gram stained smears were examined for the presence of pyogenic organisms, Doderlein's bacilli and structures morphologically resembling *Trichomonas* and *Candida*.

Cultures were done on Sabouraud's medium for isolation of *Candida*. Budding yeast cells of *Candida* were identified and biochemical typing was done as in Table I.

*Observations and Discussions*

A total of 159 pregnant women with vaginal discharge were examined. The age of the cases examined ranged from 18 to 40 years. Majority of cases (115 out of 159 i.e. 72.3%) were seen in 21-30 years age group presumably because this group is reproductively most active. Vaginal discharge was present in 156 cases of which 26 had pruritus also and 3 presented only with pruritus. Vaginal discharge during pregnancy is the most distressing symptom. Vaginal discharge and/or pruritus is more common in multiparas than in primiparas (46 primiparas and 113 multiparas). The discharge is most prominent in 3rd trimester (100 cases), less in 2nd trimester (48 cases), and least in first

TABLE I  
*Differential Diagnosis of Candida*

S. No.	Name	Glucose	Maltose	Sucrose	Lactose
1.	<i>C. albicans</i>	AG	AG	A	—
2.	<i>C. tropicalis</i>	AG	AG	AG	—
3.	<i>C. pseudotropicalis</i>	AG	—	AG	AG
4.	<i>C. krusei</i>	AG	—	—	—
5.	<i>C. parakrusei</i>	AG*	—	—	—
6.	<i>C. guilliermondi</i>	—	—	—	—
7.	<i>C. stellatoidea</i>	AG	AG	—	—

\*Occasionally acid only.

AG = Acid and gas.

The discharge was inoculated into Whittington's culture medium for *trichomonas vaginalis*. The tubes were examined after 24 hours and those which were found negative were further incubated for 6 days and if still no growth was visible, the results were tabulated as negative.

The discharge was inoculated on blood agar medium for growth of any pyogenic organisms. The morphological characters of the growth were studied in smears stained with Gram's stain and their sensitivity to usual antibiotics was also tested.

trimester (11 cases).

Amongst the cases of vaginal discharge most common infection was pyogenic (86) followed by *candida* (55) and *trichomonas* (20). In 5 cases no organism could be cultivated. Of the 55 cases of candidiasis, 7 were mixed infections in which *trichomonas* was also present, while only *trichomonas* infection was present in 13 cases. The distribution of cases in relation to parity and period of gestation are given in Table II. *Candida* and/or *trichomonas* infection was present in 68 of the 159 cases



i.e. in 42.8%. Grewal *et al* (1974) reported a prevalence rate of 52% of these infections from amongst pregnant women who had vaginal discharge. The lower percentage of candidiasis or trichomoniasis in this series could be because a large number of cases presented as frank pyogenic infections. Candida infection was about 3½ times more frequent than trichomonas infection. These findings are in agreement with those obtained by a majority of workers, (Menon and Jehan, 1962; Grewal *et al*, 1974). However, Amonkar (1959) and Satyawati (1959) reported a higher rate of infection with trichomonas in pregnant women. The percentage of candida infection reported in the literature varies from 55 to 68.89 (Purandare *et al*, 1962; Dutta-Chaudhary *et al*, 1962; Velayudhan and Kurup, 1963; Mansukhani *et al*, 1961; Grewal *et al*, 1974 and Sen-Gupta *et al*, 1975) and has been reportedly higher than trichomoniasis. The reason advanced by many workers, is the indiscriminate use of antibiotics, contraceptive pills and jellies making the vagina favourable for fungal growth (Whittington 1951 and Purandare *et al* 1962). In recent years, incidence of candidiasis has been on the increase as against Trichomoniasis. In the present study, candidiasis was 3.5 times more

common than trichomoniasis as against 2.5 times reported by Grewal *et al* (1974) and 2.0 times reported by Sen-Gupta *et al* (1975). Unfortunately most of the authors have completely ignored the pyogenic organisms which form about 55% of all the infections. It seems that not only the fungal infections but also infections with resistant strains of pyogenic organisms are on the increase because of indiscriminate use of corticosteroids, antibiotics and hormonal pills.

Seven, i.e. 4.4% of our cases, showed mixed infections with candida and trichomonas. These findings are in conformity with those of Satyawati (1959), Mehrotra *et al* (1960), Dutta-Chaudhary *et al* (1962), Menon and Jehan (1962), Velayudhan and Kurup (1963) and Grewal *et al* (1974), in whose series incidence of mixed infections varied from 4.3 to 6.8%. However, Sen Gupta *et al* (1975) reported a high incidence of mixed infection (16.52%). Such cases require treatment accordingly and their correct diagnosis is very important.

The distribution of 48 candida positive, 13 trichomonas positive, 7 cases having mixed candida and trichomonas infection and 86 cases of pyogenic infection in relation to age, parity and period of pregnancy is shown in Table II. It shows

TABLE II  
Distribution of (154) Positive Cases in Relation to Age, Parity and Period of Gestation

S. No.	Organisms	Total Isolates	Age in years			Parity		Gestation period (Trimesters)		
			18-20	21-30	31-40	Primi	Multi	I	II	III
1.	Candida	48	11	32	5	10	38	1	15	32
2.	Trichomonas	13	1	9	3	5	8	—	5	8
3.	Both Candida and Trichomonas	7	2	4	1	2	5	1	2	4
4.	Pyogenic	86	14	68	4	27	59	6	25	55
Total		154	28	113	13	44	110	8	47	99



that candidiasis during pregnancy bears direct relationship with parity and period of gestation, the highest incidence being in multipara during the last trimester. Similar findings have been reported by Bose and Rana (1953), Pandya *et al* (1958), Dutta-Chaudhary *et al*, (1962), Gupta and Sachan (1968) and Grewal *et al* (1974). Grewal *et al* (1974) were of the view that repeated pregnancies with trauma of parturition make the genital tract more susceptible to fungal infection and acidic pH attained during the last trimester probably explains the higher incidence of candida.

Candida occurs quite frequently in healthy individuals and thus it is hard to attach importance to mere isolation. However, isolation of candida, accompanied by profuse discharge deserve proper attention and the patient should be treated. Though candida albicans is an accepted pathogen, yet, under similar circumstances other species can also give rise to symptoms. It is, therefore, recommended that species other than *C. albicans* should also be considered for treatment. (Table III). Similar views have also been expressed by Sen Gupta *et al* (1975).

TABLE III  
Various Species of Candida Isolated

<i>C. albicans</i>	32	66.7%
<i>C. tropicalis</i>	4	8.3%
<i>C. krusei</i>	2	4.2%
<i>C. parakrusei</i>	4	8.3%
<i>C. stellatoidea</i>	6	12.5%
Total	48	100.0%

All these cases showing candida isolation, were treated with nystatin pessaries, two pessaries a day for 15 days. All, irrespective of the species of candida, responded very well to the therapy. Thus, all cases presenting symptoms regardless

of the species of candida isolated, should be treated.

It is a common belief that a pH of less than 5 is inimical to *Trichomonas*, and the incidence of this infection can therefore, be expected to be low during pregnancy. As in the present series also, the incidence of trichomoniasis is higher in earlier period of reproductive life, i.e. below 25 years. Our findings also show that primigravidae are more prone to trichomoniasis than multigravidae. Similar findings have also been reported by Grewal *et al* (1974). Trichomoniasis was also found commoner in 2nd and 3rd trimesters than in the 1st. There was no difference in trichomoniasis between the second and third trimesters of pregnancy. Similar results have also been reported by Daftary *et al* (1961) and Grewal *et al* (1974).

No significant difference was found in the incidence of mixed infections in relation to age or period of gestation or parity (Table II).

In our series, it is clearly shown that 87.5% of the candida positive cases, had discharge, 4.2% had pruritus and 8.3% had both. As regards trichomonas infection, 69.2% of the positive cases had discharge and 30.8% presented themselves with discharge and pruritus. Of those positive for mixed infection with candida and trichomonas, 71.4% had excessive discharge and the remaining had both pruritus and discharge.

It is, however, surprising that almost all recent authors have ignored the presence of discharge due to pyogenic organisms which lead to very distressing symptoms. In an earlier article, (Agarwal, 1970) it was shown that *B. coli* is an infecting organism in many cases of vaginitis with purulent discharge and that in most of the cases it remains untreated be-



cause of the assumption that they are non-pathogenic normal commensals in the genital tract. It has also been shown that treatment of these cases with suitable antibiotics produces dramatic results. In this series, the pyogenic infection was treated with appropriate antibiotics after ascertaining their sensitivity and the response was gratifying. Sixty of the 86 cases were completely cured and the remaining 26 showed improvement with relief of the distressing symptoms of discharge.

#### Summary

Vaginal discharge of 159 pregnant women was examined. Candida infection was approximately 3.5 times more frequent than trichomonas infestation and it bears direct relationship with parity and period of gestation, the highest incidence being in multiparae during the last trimester. Treatment of candida positive cases with nystatin pessaries, irrespective of the species of candida isolated, was rewarding.

As regards trichomonas, primigravidae were more prone to this infection as compared to multigravidae.

The place of pyogenic infection in causation of vaginal discharge should not be ignored and proper therapy should be instituted after ascertaining the nature of bacterium and its sensitivity.

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