INCIDENCE OF MONILIAL VULVO-VAGINITIS AMONG KASHMIRI WOMEN

by

RAZIA PUNJABI,* M.D.

and

GIRJA DHAR,** F.R.C.S., M.R.C.O.G.

One of the vexing problems in gynaecology today is the detection of causative agent and treatment of vaginal discharge. Increased vaginal discharge, both acute and chronic, is one of the commonest disorders met within the obstetric and gynaecology departments of S.M.H.S. Hospital and mostly the diagnosis is done on the basis of clinical findings only. The present study was undertaken to find out the incidence of monilial vulvovaginitis in Kashmiri women complaining of vaginal discharge and to correlate the clinical signs and symptoms with the laboratory diagnosis and also to identify the various species to the possible extent. Such a study will be helpful in elucidating the role which these organisms play in the production of typical and atypical vaginal discharge.

Prior to 1931, mycotic vulvovaginitis was not regarded as common and only isolated reports appeared in the literature. Plass *et al* (1931) reported a large series of cases and gave an accurate description of symptoms and clinical features. Benham (1931) separated these fungi into various species by correlating the macroscopic and microscopic morphology, fermentation reactions and serological differences. Benham (1931), and Stovall and Bubolz (1932) attached diagnostic significance to giant colony characteristics on blood agar, Sabouraud's agar and corn-meal agar media.

Material and Methods

Cases for the present study were taken from patients attending the antenatal clinics and gynaecology out patient's department of SMHS Hospital, Srinagar with complaints of vaginal discharge. No selection of cases was done and a total of 1000 women between 15 to 45 years of age, 500 pregnant and 500 gynaecological cases, were examined. All cases were attending clinics for the first time and include both rural and urban groups.

Methods

After a thorough clinical examination, patient was examined for any vulval inflamation, excoriation or patches. A sterile cotton swab was swept over the outer and inner surfaces of labia minora and round the introitus and returned to a sterile glass tube. A Cusco's vaginal speculum was next inserted and after noting the type and amount of discharge, cotton swabs in duplicate were passed into the posterior fornix and around the lateral vaginal walls. One of the swabs was returned to a second sterile glass tube for culture and from the other wet preparation was made in saline or 10% KOH, if the discharge was thick and

*Lecturer.

**Head of the Department, Department of Gynec. & Obst., Medicol College, Srinagar.

Accepted for publication on 19-8-1975.

adherent. The wet preparation was immediately examined for trichomonas vaginalis, yeast cells, pus cells, pseudomycelia or candida.

Primary inoculation was done on Sabouraud's dextrose agar containing pencillin and streptomycin and inoculated media were incubated at 37°C for 48 hours. Growth of candida group of organisms was identified by their smooth, white or cream coloured buttery colonies. Further confirmation was made by making a wet smear. Cultures examined after 48-72 hours showed the presence of hyphae also. Negative cultures were incubated for one week before being discarded. A subculture was done on blood agar and the plate again incubated at 37°C for 24 hours.

For identification of species sugar fermentation reactions were employed. Sugars used in our laboratory for the present study were analar glucose, maltose, lactose and sucrose. Production of acid and gas was found in peptone water containing 1 per cent of each of the mentioned sugars. The indicator incorporated to detect acid changes was Andrade's indicator. Inoculam from the subculture was put into the fermentation tubes which were then kept at 37°C, the reaction being read upto 7 days at the end of which the test was inferred as negative.

Observations and results

Cases under study were divided into two groups. Group "A" including 500 pregnant and group "B" comprising of 500 gynaecological cases. Analysis of various symptoms showed that in all cases moderate to profuse increase in vaginal discharge was the chief complaint. Other important symptoms were as summed up in Table I.

Apart from the clinical assessment of discharge the type of discharge was also noted. various types of discharge and their frequency is shown in Table II.

Smear examination showed yeast cells and in some cases of typical mycotic vulvovagnitis fungus appeared as a woven Mycelium of long branched filaments of hyphae. However, examination of smears was not found to be a dependable method of diagnosis. Only 76 per cent in obstetric group and 62.2 per cent in gynaecological group were smear positive out of 259 and 115 culture positive cases respectively.

Culture was found to be the only method of confirmation of the diagnosis. All colonies grew very luxuriantly on Sabouraud's medium and produced moist, creamy raised colonies except those of

TABLE I
Symptoms

Symptom	Obstetric group		Gynaecological group	
	No. of cases	%age	No. of cases	%age
1. Vaginal discharge	216	43.2	371	74.2
2. Pruritus vulvae, soreness or burning sensation of vulva	140	28.0	78	15.6
3. Vaginal discharge with pruritus vulvae	132	26.4	49	9.8
4. Dysuria	8	1.6	1	0.2
5. Dyspareunia	4	0.8	1	0.2

TABLE II
Type of Discharge

Type of discharge	Obstetric group		Gynaecological group	
	No. of cases	%age	No. of cases	%age
1. Thick cheesy	86	17.2	10	2
2. Mucopurulent	81	16.2	116	23.2
3. Cream white	172	34.6	207	41.4
4. Thin yellowish	95	19.0	82	16.4
5. Mucoid discharge	62	12.4	78	15.6

candida krugei. No clearcut differentiation between the various species could be found on culture basis. From obstetric group, 259 cases (51.8 per cent) and from gynaecological group, 115 cases (23 per cent) were culture positive. Subculture on blood agar however showed all colonies to be small, discrete and greyish or white in colour. Non-pregnant group includes one case following broad spectrum antibiotic therapy, 8 diabetics and 18 cases with history of vaginal trauma like repair operation and vaginal hysterectomy followed by vault infection and gaping episiotomy wounds.

Sugar fermentation reactions were done in all culture positive cases. Only 6 species of candida were isolated from the present study. Their incidence in both groups is tabulated in Table III.

From the obstetric group 20 cases and from the gynaecological group 11 cases were associated with trichomonas vaginalis.

Candida albicans Vs. other candids

61.7 per cent cases from pregnant series and 49.5 per cent from non-pregnant series yielded candida albicans. Also 36 pregnant women and 4 cases from the gynaecological group who were clinically diagnosed as "Thrush" all yielded candida albicans. Patients having thick cheesy or adherent type of discharge harboured candida albicans only, whereas pruritus was a common complaint with c. albicans infestation it was absent in 24 per cent of cases.

Discussion

Incidence of candidiasis in pregnant

TABLE III
Distribution of Various Species of Candida

Species	Obstetric group		Gynaecological group	
	Total cases	%age	Total cases	%age
1. C. albicans	160	61.7	62	49.5
2. C. stellatoidea	45	17.3	4	3.4
3. C. Tropicalis	20	7.7	20	17.3
4. C. Pseudotropicalis	11	4.2	10	8.6
5. C. Krusei	14	5.4	12	10.4
6. C. Parakrusei	9	3.4	–	–
7. Unidentified	–	–	7	6.0

symptomatic group was 51.8 per cent and in non-pregnant group 23 per cent. Many studies have been reported concerning the incidence of vaginal moniliasis. The figures given vary from 1 to 67 per cent in pregnant women and 8 to 33 per cent in non-pregnant cases. In the present series also figures within reported range have been obtained and it is obvious that quite a large proportion of female population in this part of the country also harbour candida organisms. Moreover, the present study confirms the well known belief that vulvovaginal candidiasis is decidedly more common in pregnant women as has been proved by workers like Pickhardt and Breen (1957); Winner and Hurley (1969); Mehrotra *et al* (1960); Menon and Faiz Jahan (1962). According to all these workers prevelance of candidiasis during pregnancy is due to the glycogen factor of vaginal epithelium and on the basis of same present figures also can be described. Analysis of various symptoms showed that primary complaint was increased vaginal discharge and 43.2 per cent pregnant women and 74.2 per cent non-pregnant cases presented with this symptom. Discharge varied widely in character from thick cheesy and muco-purulent to creamy and thin yellowish. However, conditions like standard of living, personal hygiene, duration of marriage and parity were found to bear no relationship with the severity of symptoms and presence of yeasts. The observations correspond with those of Plass *et al* (1931); Dawkins *et al* (1953); Mehrotra *et al* (1960) and Das and Sen (1967). Regarding the diagnosis of moniliasis the study confirms that it can be made on the basis of culture examination and this is a superior method than wet and stained smears. Similar have been the observations of Dawkins *et al* (1953); Das and Sen (1967) and Nagesha and Ananthakrishna (1970).

An interesting correlation was found between the history of vaginal trauma and the development of vaginal mycosis in the present study. A similar report has been given by Dawkins *et al* (1953) and Nagesha and Ananthakrishna (1970). These workers explain that probably a predisposition to the infection results from mechanical or chemical trauma and disturbance of normal bacterial flora.

As regards the distribution of species of candida results are similar to those given in other reports. Strains belonging to nearly all commonly recognised species were isolated. Candida albicans formed the majority of strains. The same has been the incidence with Dawkins *et al* (1953); Dutt Choudhary *et al* (1962); Singh and Sharma (1962). As candida albicans is the main pathogen it is expected that vaginitis due to this species would more likely be symptomatic than that due to other candida.

The correlation of candida with the symptomatology merits consideration. Absence of irritative symptoms was found in 32.8 per cent of pregnant cases and 37.30 per cent of non-pregnant cases and 24 per cent of these yielded candida albicans. These results agree with those of Dawkins *et al* (1953) and Mehrotra *et al* (1960), that all the commonly occuring species of the genus including candida albicans may exist as saprophytic organisms and under some circumstances may be concerned with the production of vaginal discharge.

Summary

An investigation was made to determine the incidence of vaginal yeast like fungi in 1000 Kashmiri women between

15-45 years of age, the series including 500 pregnant and 500 non-pregnant cases. The incidence of monilial vulvovaginitis was found to be 51.8 per cent in symptomatic obstetric group and 23 per cent in gynaecological group. Six different species of candida were isolated on the basis of morphology and biochemical reactions. Candida albicans was found to be the main pathogen.

References

1. Benham, R. W.: J. Infectious Diseases. **49:** 183, 1931.
2. Benham, R. W.: J. Chron. Diseases. **5:** 460, 1956.
3. Das, M. S. and Sen, R.: J. Ind. Med. Assoc., **56:** 7, No. 1, Jan. 1, 1971.
4. Dawkins, S. M., Eowards, J. M. B. and Riddell, R. W.: Lancet. **2:** 1230, 1953.
5. Dhar, M. R.: J. Ind. Med. Assoc. **56:** 7, 1971.
6. Dutt Choudhari, R., Mukherjee, T. and Dutta, R.: Fungus diseases in India, Calcutta School of Tropical Medicine, 1962, p. 240.
7. Mehrotra, G. C., Aggarwal, T. R. and Grewal, S.: Ind. J. Path. Bact., **3:** 149, 1960.
8. Menon, M. K. K. and Faiz, J.: J. Ind. Med. Assoc. **34:** 7, 1960.
9. Nagesha, C. N. and Ananthakrishna, N. C.: Amer. J. Obst. & Gynec., **74:** 42, 1957.
10. Pickhardt, W. L. and Breen, J. L.: Amer. J. Obst. & Gynec. **74:** 42, 1957.
11. Plass, E. D., Hesseltine, H. C. and Borts, I. H.: Amer. J. Obst. & Gynec. **21:** 320, 1931.
12. Satyavati, C. and Reddy, D. B.: J. Ind. Med. Associ. **28:** 229, 1957.
13. Singh, B. and Sharma, M. D.: Fungus Diseases in India, Calcutta School of Tropical Medicine. 1962, Page 138.
14. Stouall, W. D. and Bubolz, A.: J. Infectious Diseases, **50:** 73, 1932.
15. Winner, H. I. and Hurley, R.: (Quoted) J. Obst. & Gynec. British Cwelth., **77:** 1013, 1970.

See Figs. on Art Paper VI-VII