Candida vaginitis

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Summary

The pathogenesis incidence and epidemiology of *Candida vaginitis* is considered.

Candida vaginitis

Other than the dermatophytic mycoses, *Candida* vaginitis is the most common fungal disease in the United Kingdom, described by Morton and Rashid (1977) as a near epidemic. Almost all the known facts about it are enumerative or descriptive and little is known of the factors affecting the pathogenesis, recrudescence, or recurrence of the mycosis. The facts do not disclose the psychological effect of this apparently minor disease on the women, their consorts and their children (Hurley, 1975).

The complacency with which the treatment of the disease has been regarded until recently has not been helpful. Reported cure rates of 95% or more are comforting to the practitioner, but tend to derogate the sufferings of those countless uncured or partially cured women, who are seen as a class of medical freaks. Intractable thrush, like intractable pruritus ani, a disorder with which it has much in common, is not a condition likely to bring a happy smile to the lips of the examining physician, as he and his patient contemplate the failure of therapy. The majority of the many preparations that can be used have been considered by Odds (1977).

There is no very precise information on the frequency of the intractable form of *Candida* vaginitis, but a retrospective study of patients treated during pregnancy in 1973 showed that 45% had had more than one course of therapy; one patient had had 9 courses. This suggests that during pregnancy, *Candida* vaginitis is less amenable to therapy than overall cure rates suggest.

Candida vaginitis occurring during pregnancy seems to be the initiating event in many cases of inveterate vaginal thrush (Hurley, 1975). No prospective studies have been made to establish or to dispute the oft-asserted view that the condition clears spontaneously after confinement. This assumption is unwarranted, for the evidence relates only to the isolation rate of yeasts, including *C. albicans*, from the vagina (Jennison, 1966; Hurley and Stanley, 1972) which falls markedly in the puerperium, some

think owing to the cleansing action of the lochia. There is no work to show that symptoms do not recur once the puerperium is over, but a prospective study might resolve this point. Should symptoms recur once the inoculum size has again built up, specific antifungal therapy after delivery in women selected appropriately might avert further episodes. Prophylactic antifungal therapy has been used to avert oral thrush in susceptible infants, that is those born to women harbouring *C. albicans* in the vagina; such children have a 35 times greater chance of developing thrush than have other newborns (Woodruff and Hesseltine, 1938). A similar approach to the prevention of long-standing *Candida* vaginitis might be worth considering.

The ultimate source of infection by *C. albicans* in man is the maternal vagina. Although it is not fashionable to speak of vertical transmission with respect to colonizing fungi, there is no doubt that many infants are colonized during passage through the birth canal. Some, particularly those who are debilitated, or whose buccal mucosa has been damaged (Delafond, 1858) develop oral thrush, but most are unscathed, presumably becoming permanent carriers of the fungus in the gastrointestinal tract. Horizontal transmission occurs also, for *C. albicans* is a fungus that can be isolated from man and from his immediate environment. In the Paris hospitals of the last century, thrush achieved epidemic proportions, and does so still in institutions where rigorous standards of hygiene, asepsis and antisepsis are not practised.

The incidence of carriage of the fungus in the gastrointestinal tract (faeces) varies from 10 to 70%, and in the mouth from 6 to 53% (Winner and Hurley, 1964). The gastrointestinal tracts of man and birds are the chief reservoirs of *C. albicans* in nature (Hurley, 1967). Doubtless, the vagina is often contaminated from the perineum, but vaginal thrush, although recorded from virgins (Mettenheimer, 1880) is unusual in them, and probably minor trauma such as may be occasioned by sexual intercourse, together with a substantial inoculum of the fungus, is required to initiate infection. Experimentally, *Candida* vaginitis is far more readily produced in the pregnant than in the non-pregnant

woman, the incubation period ranging from 24 to 96 hr, with an average of 59 hr (Bland, Rakoff and Pincus, 1937). The vagina is lined with squamous epithelium, having no glands or appendages, and it is likely that the sequence of events in the initial lesion parallels that which occurs following experimental subcutaneous injection. Here, a shallow, self-limiting ulcer appears after 7–10 days, healing by the end of the third week (Hurley, 1966). Maibach and Kligman (1962) found that some further factor, such as application of an occlusive dressing, was required for continuation of the cutaneous lesion in man and, presumably, this is true for vaginal lesions also. Other than pregnancy and diabetes mellitus, we do not know the nature of this factor or factors. Some have argued that the effects of pregnancy and diabetes are simply those of encouraging overgrowth of the fungus to the point of initiating and maintaining an inoculum size sufficient to induce multiple lesions. Hurley (1966) found the size of dose important in determining experimental *Candida* infections.

Other conditions associated with *Candida* infections are iron deficiency anaemia (Higgs and Wells, 1972), various endocrinopathies (Kunin *et al.*, 1963) and excessive use of broad-spectrum antibiotics or corticosteroid or immunosuppressive drugs. Deficiencies of T-lymphocyte and/or phagocyte function (Hobbs *et al.*, 1977; Valdimarsson *et al.*, 1973), although rarely recognized, are predisposing conditions requiring special tests for their demonstration. Careful search for any or all of these factors, other than heavy usage of antibiotics such as occurs in those with recurrent, acute sore throats, or asthma with winter bronchitis, does not usually elucidate the aetiology of recurrent *Candida* vaginitis, although, of course, it must be attempted.

The incidence of *Candida* vaginitis, well attested, is highest during pregnancy (Winner and Hurley, 1964). Carroll, Hurley and Stanley (1973) isolated *C. albicans* from 16.5% of the pregnant population; the majority of the isolates in this double-blind prospective study (84%) were associated with signs of vaginitis or vulvo-vaginitis, giving an incidence of *Candida* vaginitis of 14%. *C. albicans* was, or had been isolated, from all women with both vaginitis and vulvitis, who complained of irritation and had discharge apparent to the clinical observer, and from all but one of those with vaginitis accompanied by symptoms. *Trichomonas vaginalis* was demonstrated in this patient. In only one instance was the fungus isolated from a perfectly healthy vagina. The authors supported the general conclusions of Bour (1964) that presence of the fungus might prognosticate disease, indicating a need for specific antifungal therapy.

During pregnancy, the lower genital tract is the

seat of morbid processes, some specific and some not so. Stanley *et al.* (1975) demonstrated that only 30% of 280 pregnant women had no evidence of vulvo-vaginitis or cervicitis, and that complaints of discharge (42%), irritation (15%) or both (11%) were frequently made.

As mentioned previously, *Candida* infection is more easily induced experimentally in areas of local morbidity, and the lower genital tract is at high risk during pregnancy. Intercourse is practised in early pregnancy, and the role of the male in the initiation of vaginal thrush has been discussed by Morton and Rashid (1977) and by Oriel (1977). Trauma may play a part, particularly in overweight women with moist and macerated vulvar and adjacent skin, and the partners of affected women (10%) have balanitis of some degree, indicating concentration of yeasts unless there is an element of local hypersensitivity to *C. albicans*.

Apart from symptoms, 14% of 280 women studied prospectively admitted a past history of treated vulvo-vaginitis, emphasizing the frequency of the condition in general and gynaecological practice. There was significant relationship between past vulvo-vaginitis and present morbidity ($P < 0.01$), indicating a need for mycological investigation in patients with a history of vulvo-vaginitis.

It is likely that between 1/20 (Jennison, 1966) to 1/7 (Carroll *et al.*, 1973) of women of child-bearing years suffer from *Candida* vaginitis, even ignoring the vexed and perplexing question of commensalism or transient carriage of the fungus in the vagina. This makes the disease one of considerable import to public health. An unspecified number of women who have had *Candida* vaginitis go on to develop a form of the disease that is extremely refractory to treatment, and which may be extremely persistent, lasting for more than 20 years (Brunsting, 1950). Effective therapy for the latter condition is a matter of urgent medical need.

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