

Looking through the cracks of diabetic candidal balanoposthitis!

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Abstract: India is becoming an epicentre of type II diabetes mellitus with a crude prevalence rate of about 9%. Candida balanoposthitis is a known feature of diabetes mellitus especially in Indian males who are predominantly uncircumcised. In this country, diabetes is often diagnosed for the first time by dermatologists. Diabetes is much more frequently the cause of candida balanoposthitis than sexual intercourse in India. Fissuring along with balanoposthitis was found to be more common in sexually active males. The biomechanical basis of fissuring and the effect of diabetes in this phenomenon are explained. The issue of circumcision is debated under various aspects.

Keywords: balanoposthitis, diabetes mellitus, dermatology

Diabetes mellitus (DM) is a metabolic disease with a marked increase in prevalence not only in the western world but also in India. The current crude prevalence rate is said to be around 9% in India. DM interferes with both facets of host defence against infection, the innate as well as the adaptive immunity.¹⁻⁴

Acquired balanoposthitis can be the first clinical sign of DM in uncircumcised males. In a recent study from Britain, 26% of adult patients with an acquired phimosis were found to suffer from type II DM. The diagnosis of DM was made for the first time in 8% of these patients which means that candidal balanoposthitis in an apparently healthy male is a cutaneous marker of DM. Another 15% of males had impaired glycemic control.⁵ In a recent study from Portugal, prevalence of candida colonization was 26.2% and the prevalence of candida balanitis was 18%.⁶

We did an Internet-based survey of 20 dermatologists from across the country, who together cared for more than 60,000 dermatological outpatients. These dermatologists detected diabetes for the first time in 31% of patients presenting with candidal balanoposthitis. Their average figure of known diabetic patients coming with candidal balanoposthitis was 55%. Figures in this clinic were on average 40% for the first time diagnosis of DM. About 75% of patients of candidal balanoposthitis seen in this clinic were known cases of DM. A large number of those who were sexually active had a tendency of fissuring of the inner part of the foreskin (Figure 1).

Those patients who were elderly and were not sexually active presented more commonly with itchy, moist erythema of the inner prepuce with variable involvement of the glans and significantly less fissuring. Itching, burning, and increased smegma collection were accompanying signs in the majority of young sexually active patients.

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Figure 1 Fissuring in diabetes-related candida balanitis.

Candida balanoposthitis is a particularly important issue in countries like India where DM is emerging as a major public health problem, described by some as a pandemic.⁷ Lack of diagnosis or late diagnosis, irregular monitoring of blood sugar, and infrequent follow-up by the physician are also contributory. Diabetes caused candida balanoposthitis is more of a problem in India than sexually acquired candida balanoposthitis. Though no studies have been done to detect vulvovaginal candidiasis in the spouses of these men, a majority of them replied in negative when asked about an itchy, curdy, whitish vaginal discharge.

Religious beliefs also play an important part in the discussion of preventive measures. An overwhelming majority of Indian Hindu males are uncircumcised in contrast for instance to the Indian Moslem population but there are no scientific data available from India that demonstrate an advantage of circumcision in the prevention of candida balanoposthitis.

We realise that there is a paucity of dermatologic literature readily available explaining the phenomenon of fissuring in DM related balanoposthitis. It is important to bear in mind that balanoposthitis is a biomechanical problem, a fact that has become obscured in the discussion of the role of infections. Preputial fissures, a hallmark of this condition can be explained by the accumulation of advanced glycation end products (AGEs) in the skin. AGEs content is increased in particular by inadequate glycemic control in diabetics. AGEs impair production of collagen and extracellular organization that is associated with a lowered hydroxyproline content and superoxide dismutase activity. In addition, this causes deleterious effects such as a greater impairment and alteration of biomechanical properties of the skin, namely, elasticity and hydration.^{8–11} There is also loss of surface lipids of skin due

to impairment of sebaceous gland function and a tendency of reduced hydration in the stratum corneum.^{9,12}

Biomechanical stress due to the oft repeated acts of retracting the foreskin during urination and during sexual intercourse can directly be responsible for a tendency of vertical fissuring of the foreskin in diabetic patients. This can lead to fibrosis in the form of phimosis.⁶ It exacerbates candida balanoposthitis and hence the fissuring. Candida posthitis can develop without candida balanitis. It is of interest that an increased smegma production might be an attempt to control *Candida* overgrowth. It has been shown that lysozyme from prostate and seminal vesicles, which is present in smegma, is capable of inhibiting and eliminating *Candida* species.¹³ This would suggest that an intact prepuce would be protective, rather than an independent risk factor for candidal balanoposthitis. Surgery is in general not a cure for yeast infections with the exception of a possible abscess formation.¹⁴

Disclosure

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