

A study of etiological profile of balanoposthitis in patients attending RIMS hospital Imphal

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Abstract

Balanoposthitis is one of the most commonly encountered sexually transmitted diseases in this region. Balanitis an inflammation of the glans penis and posthitis refers to an inflammation of the mucosal surface of the prepuce. A total of 100 cases of balanoposthitis attending STD clinic were selected randomly regardless of age and duration of clinical signs and symptoms for the study. A complete demographic information along with clinical evaluation were done: 1. Demographic information: age, sex, address, religion, educational status, occupation; 2. Sexual orientation: marital status, sexual exposure, contact; 3. Clinical information: onset of disease, site of onset, duration, distribution, aggravating factors, morphology of the lesions etc. The present study is based on 100 patients of balanoposthitis and the data has been collected during the period from September 2007 to August 2009. The results and observations of the study shows that: Mean age of study population was 36.76 ± 10.37 . Religion wise Hindu men were affected most (84%). Occurrence of balanoposthitis was mostly seen in uncircumcised patients (99%), diabetes was the most common systemic disorder associated (15%). *Candida* spp. was the most common aetiological agents (29%) isolated. The present study highlighted that majority of the subjects having balanoposthitis were in sexually active age group, 99% were uncircumcised and 15% had diabetes mellitus. These two conditions may be as important risk factors and *Candida* spp. was most common causative organism associated.

Keyword: Balanitis, Balanoposthitis, Candidiasis, Diabetes mellitus, Sexually transmitted disorders.

Introduction

Sexually transmitted diseases (STDs) have been known to exist since times immemorial. Their pattern and incidence is influenced to a great extent by morale outlook, sexual practices, presence of efficient machinery for early diagnosis, availability of treatment facilities, mass awareness of preventive measures, socio-economic status and geographical factors.¹

Sexually transmitted diseases are a group of communicable diseases that are transmitted predominantly by sexual contact and are caused by a variety of bacterial, fungal, viral, protozoal and ectoparasites.²

Balanoposthitis is one of the commonly encountered sexually transmitted diseases in both developed and developing countries. Balanitis is an inflammation of the glans penis and posthitis refers to an inflammation of the mucosal surface of the prepuce.³

Balanoposthitis in elderly men is highly suggestive of diabetes mellitus whereas in younger age group it usually results from sexually transmitted diseases. Manifestation of balanoposthitis irrespective of etiology are much more severe when associated with HIV infection, particularly in advanced stage.⁴

In a study done in North-East India by Zamzachin G et al,⁵ it was found to be most common STD (22%). In present study we found patients attending the STD clinic of the Department of Dermatology, Regional Institute of Medical Sciences had high number of cases. Therefore it was considered worthwhile to carry out this

study to find out the etiological profile of balanoposthitis as seen in this part of the country.

Materials and Methods

The present study was conducted in patients attending STD clinic in the Department of Dermatology, in collaboration with Department of Microbiology, Regional Institute of Medical sciences Hospital, Imphal, Manipur from September, 2007 to August, 2009.

A total of 100 cases of balanoposthitis attending STD clinic were selected randomly regardless of age and duration of clinical signs and symptoms for the study.

A complete history and evaluation of patients were done by following characteristics: 1. Demographic information: age, sex, address, religion, educational status, occupation; 2. Sexual orientation: extra marital sexual exposure; 3. Clinical information: onset of disease, site of onset, duration, aggravating factors, morphology of the lesions: color, margins etc, symptoms: pain, itching, burning, swelling, discharge etc.

Examination included: thorough general physical, systemic and cutaneous examination. On cutaneous examination entire skin, mucous membrane and appendigeal structures were examined in natural daylight. Morphology of the lesions based on: a. Type: macule/papule/plaque/vesicle/bullae/nodule/ulcer etc, b. Distribution: discrete/solitary/ grouped, c. Arrangement: linear/annular/grouped, d. Margin:

distinct/indistinct, e. Oral and genital: erosion, ulceration, patch, discharge, pigmentary changes. In addition to routine blood and urine examination, laboratory examinations were carried out (such as Potassium hydroxide mounts, gram staining, fungal culture, bacterial (pus culture and sensitivity), Giemsa staining (Tzanck smear), saline wet mount. Serological test like Rapid plasma regain (RPR) test was also conducted.

Results

The present study is based on 100 patients of balanoposthitis and the data has been collected during the period from September 2007 to August 2009.

The results and observations of the study are as follows:

Mean age of study population was 36.76 ± 10.37 . Table 1 shows age-wise distribution of balanoposthitis.

Table 1: Age-wise distribution of balanoposthitis

Characteristics	Number	Percentage (%)
20-40	67	67
41-60	33	33
Mean age \pm SD (year)	36.76 ± 10.37	
Median age (year)	35	

Table 2: Association between balanoposthitis and sexual exposure pre-marital/extra-marital

Marital status	Type of partners	Exposure		P value*
		Unprotected	Protected	
Unmarried	Casual	1	2	0.003
	CSW	9	6	
	CSW & MSM	1	0	
	Total	11 (57.9%)	8 (42.1%)	
Married	Casual	13	2	
	CSW	28	2	
	CSW & MSM	0	0	
	Total	41 (91.1%)	4 (8.9%)	

*Calculated from the total figures only i.e. 64



Fig. 1: Picture showing patient with candidal balanoposthitis

A large proportion (54%) had formal education (undergraduate), 24% had postgraduate degree and above degree had balanoposthitis, 74% patients were married.

High percentage of defence personnel (31%) and persons with middle income group (66%) had balanoposthitis. Religion wise Hindu population had highest percentage (84%) while only 1% Muslim had balanoposthitis. Again occurrence of balanoposthitis was mostly seen in uncircumcised patients (99%). Diabetes was the most common systemic disorder associated (15%), whereas 84% didn't have any other systemic illnesses.

Out of 100 subjects 64 had pre-marital and extra-marital sexual behaviour, out of which majority (n=52) didn't use any sort of protection (p=0.003) (Table 2).

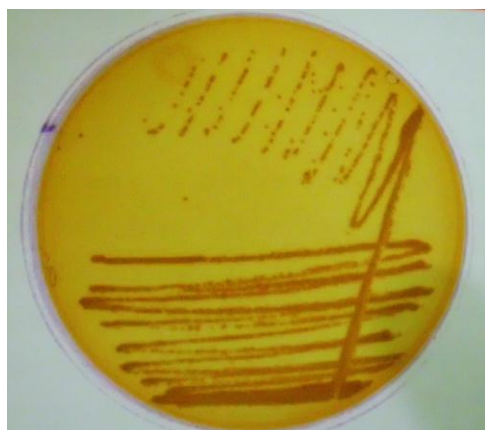
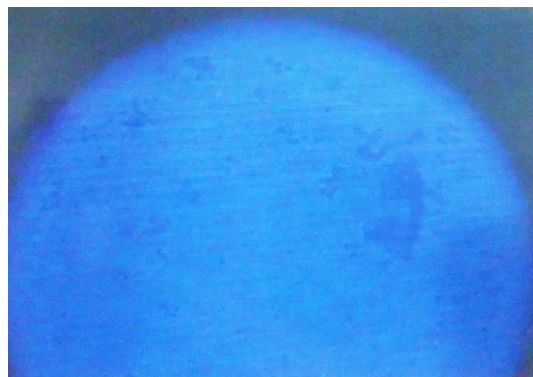


Fig. 2: Balanoposthitis due to herpes genitalis

Etiological distribution is represented in table 3 where *Candida* spp. was the most common agent (29%) causing balanoposthitis.

Table 3: Distribution of the cases by etiological agents

Etiological agents	Numbers	Percentage (%)
Bacteria :		
E.coli	5	5
Klebsiella spp.	3	3
Proteus spp.	1	1
Staphylococcus aureus	13	13
Streptococcus spp.	9	9
Fungal :		
Candida spp.	29	29
Trichophyton spp.	2	2
Viral:		
Herpes simplex virus	12	12
Protozoal:		
Trichomonas vaginalis	7	7
Spirochaetal:		
T.pallidum	2	2
Traumatic	3	3
Idiopathic	14	14
Total	100	100

**Fig. 3: Photograph showing isolation of Candida spp having septate hyphae****Fig. 4: Shows growth of Candida spp. in Sabouraud's Dextrose agar****Fig. 5: Budding yeast cell of Candida spp. (LCB) 40X**

Discussion

Balanoposthitis is a commonly encountered sexually transmitted diseases in both developed and developing countries. Balanitis is an inflammation of the glans penis and posthitis refers to an inflammation of the mucosal surface of the prepuce. It usually occurs in combination and may be a recurrent or persistent problem. The inflammation may be followed by oedema of the prepuce, discharge, pain, pruritus and occasional burning micturition and at time resulting in phimosis.⁵

Occasionally painful lymphadenopathy develop if left untreated and may progress to extensive ulceration, perforation of prepuce and even gangrenous ulceration (phagedema) of the glans and prepuce, especially when infected with fusospirochetes.⁴ Balanoposthitis (BP) is more common amongst uncircumcised men possibly due to poor hygiene, inadequate aeration and irritation by smegma.⁵

Etiological agents of balanoposthitis includes Fungal like candida spp., Anaerobic organisms, spirochaetal like treponema pallidum, viral infection like herpes simplex, mycobacteria like mycobacterium tuberculosis, staphylococci zoon's balanitis, trichomonas vaginalis eczema (including irritant, allergic and seborrhoeic), herpes simplex virus allergic reactions (including fixed drug eruption and Stevens Johnson Syndrome), human papillomavirus mycoplasma genitalium, Bowen's disease, bowenoid papulosis, erythroplasia of Queyrat.³

In the present study, out of 100 patients 67 (67%) were in the age group of 20-40 years during which an individual is sexually active. In a study conducted by Raju J et al. (1998-99) they found that balanoposthitis mostly occurred in the age group of 21-30 years (33.34%).⁶ Study by Kumar et al (1987) reported that commonest age group affected by STDs was in 20-29 years.⁷

Majority of study populations were in the standard of undergraduate level of education (54%), followed by graduate and above (24%). In a study carried out by Shegal VN et al, it was found that the poor, uneducated and unmarried were at higher risk.⁸

In present study, distribution of balanoposthitis was recorded highest in the category of middle income group (66%) who were mainly of defence personnel. Study conducted in India by Kapur TR et al.⁹ (1982) reported that all the five traditional STDs are common throughout India but differ considerably from region to region due to variable socio-economic conditions.

In this study, occurrence of balanoposthitis was mostly seen in uncircumcised patients (99%) out of 100 while in circumcised patient it was only 1%. In the study conducted by Porter WM et al.¹⁰ denoted that 74 % cases of balanoposthitis were found in uncircumcised persons. Another study carried out by Herzog et al.¹¹ showed balanitis as the most common complications in uncircumcised patients, which is similar to our findings. Aridogan A et al.¹² studied circumcised men and reported prevalence of asymptomatic candida colonization of 14.7%

Out of 100 cases of balanoposthitis, 16% had history of associated systemic diseases. Diabetes mellitus constituted 15% while one subject had hypertension. Lisboa C et al.¹³ found that patients having diabetes mellitus are more prone to develop candida colonies as detected by culture. Fakjian N et al.¹⁴ reported occurrence of balanoposthitis was more in case of diabetic population (16%) compared to non-diabetic population.

The role of sexual behaviour in candida colonization and candida balanitis has frequently been misinterpreted, some issue remain controversial. Sexual transmission of candida organisms occurs during vaginal intercourse.^{14,15} Present study showed distribution of balanoposthitis was found to be highest amongst married patients who had unprotected extra-marital sexual exposure. Banger HS et al.¹⁶ found that out of all affected males having different sort of STIs, 36.84% had premarital sexual contact history. Another study reported that candida balanitis is more common among heterosexual men than in MSM.¹⁷ In present study none of study subject gave history of MSM.

The accurate diagnosis of balanitis still remains a challenge while an over-clinical diagnosis of candida balanitis has been reported.¹⁸ Regarding the aetiology of balanoposthitis, present study shows Candida spp. remains the commonest percentage (29%) followed by Staphylococcus aureus (13%) and herpes simplex infection (12%). Libosa et al.¹⁴ found that almost half (40.7%) of the men with candida balanitis had other concomitant cause of balanitis; in such men the presence of Candida spp. could also be interpreted as a super infection. Another study by Abdulla AN et al.¹⁹ depicted Candida spp. alone was responsible for 30% cases which is similar with our finding.

Conclusion

The present study reveals relevant information regarding epidemiology of balanoposthitis and associated risk factors as well in North Eastern India.

This study highlighted that majority of the subjects having balanoposthitis were in sexually active age group, majority of the subjects had pre-marital and extra-marital sexual exposure, 99% patients were uncircumcised and 15% had diabetes mellitus which may be considered as important risk factors. Albeit Candida spp. was most common causative organism associated, the chance of balanoposthitis being caused by other organisms e.g. Staphylococcus aureus, herpes simples, E.coli, Klebsiella spp. etc. should also be kept in mind.

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