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RESEARCH ARTICLE

A CLINICO-ETIOLOGICAL STUDY ON BALANOPOSTHITIS

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Abstract

Background: Balanoposthitis is a relatively common condition affecting both pediatric patients and adults. In adults, uncircumcised males with diabetes mellitus are at the highest risk, with higher prevalence. Although majority of patients will respond to changes in hygiene and empiric therapy, about one in ten will show recurrence needing further evaluation and more targeted management.

Aims And Objectives: To study the clinical features in patients of Balanoposthitis, and to determine the etiological agents by microbiological spectrum and the risk factors associated with it.

Materials And Methods: The present hospital based cross-sectional study was conducted for a period of 18 months on 75 patients with clinically diagnosed balanoposthitis visiting outpatient and inpatient under the Department of Dermatology, Venerology and Leprosy of Basaveshwar teaching and general hospital; attached to Mahadevappa Rampure Medical College, Kalaburagi. A pre-designed semi-structured proforma, which was internally validated was used to collect the necessary information on all the needed variables. Demographic details were recorded and a detailed history of symptoms, history of external application, and history of systemic illness was obtained. The systemic and genital examination was done. Subpreputial discharge was collected on swabs and sent for KOH mount, bacterial and fungal culture.

Results: In the present study, the mean age was estimated to be 44.60 ± 10.49 years. Majority were married (90.7%), had completed just high school education (90.7%). On enquiring whether any topical agents were applied in the past, only 10.7% had agreed to it. Subpreputial discharge was found to be the most common clinical feature (72.0%), followed by erythema (54.7%). The involvement of preputial skin was observed in about 44.0% cases. Herpes genitalis was evident in 5.3% cases, while syphilis was present in only 1 individual, and 3 other subjects were positive for HIV infection. The only complication was non-retractable prepuce, which was appreciated in about 9.3% cases. About 74.1% of the subjects showed positive for KOH Mount. However, among them, only 35 individuals were found to be positive on fungal culture. Staphylococcus aureus was the most common bacteria (25.9%), followed by staphylococcus epidermis (22.2%). Diabetes mellitus was regarded as commonly associated risk factor

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(74.7%). The commonest infectious etiology was observed to be bacterial infection (73.3%), followed by fungal infection (46.7%). The commonest non-infectious etiologies were observed to be adverse drug reaction and irritant contact.

Conclusion: Subpreputial discharge was found to be the most common clinical feature followed by erythema, fissures over preputial skin and ulcer. Bacterial and fungal infection were common infectious etiologies while adverse drug reaction and irritant contact were non-infectious etiologies causing Balanoposthitis. Co-morbidities such as diabetes mellitus and hypertension were regarded as the risk factors associated with Balanoposthitis.

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Introduction:-

Balanitis is characterized as glans penis inflammation, frequently including the prepuce (Balanoposthitis).¹ The primary cause of this infection is nonspecific balanoposthitis, another name for poor hygiene. Other aetiologies include inflammatory skin disorders, infections, trauma, and cancer. Candida infections in children are common and can result in diaper rash. Other infectious causes include anaerobic bacteria, viruses like the human papillomavirus, and aerobic bacteria like Staphylococcus aureus and Group A Streptococcus. A few inflammatory aetiologies include lichen sclerosus, reactive arthritis, and contact dermatitis.²

Balanoposthitis is a rather frequent illness that can affect both adults and children. Between 12% and 20% of males of all ages are affected.⁵ Children typically present between the ages of 2 and 5; this is probably because to physiologic phimosis and hygiene practises. With a prevalence of about 35%, adult uncircumcised males with diabetes mellitus are most at risk.^{6,7} According to a meta-analysis, circumcision can reduce inflammatory conditions of the glans penis by 68%.³

Most patients without a clear infectious aetiology will respond in one to two weeks to adjustments in hygiene and empiric therapy with emollients. However, about one in ten of those patients' symptoms will return, necessitating another assessment and more focused management. Since the aetiology is frequently missed because the clinical indications are vague, managing the condition remains clinically difficult. In order to evaluate the etiological causes and clinical aspects of balanoposthitis, this study will be carried out.

Materials And Methods:-

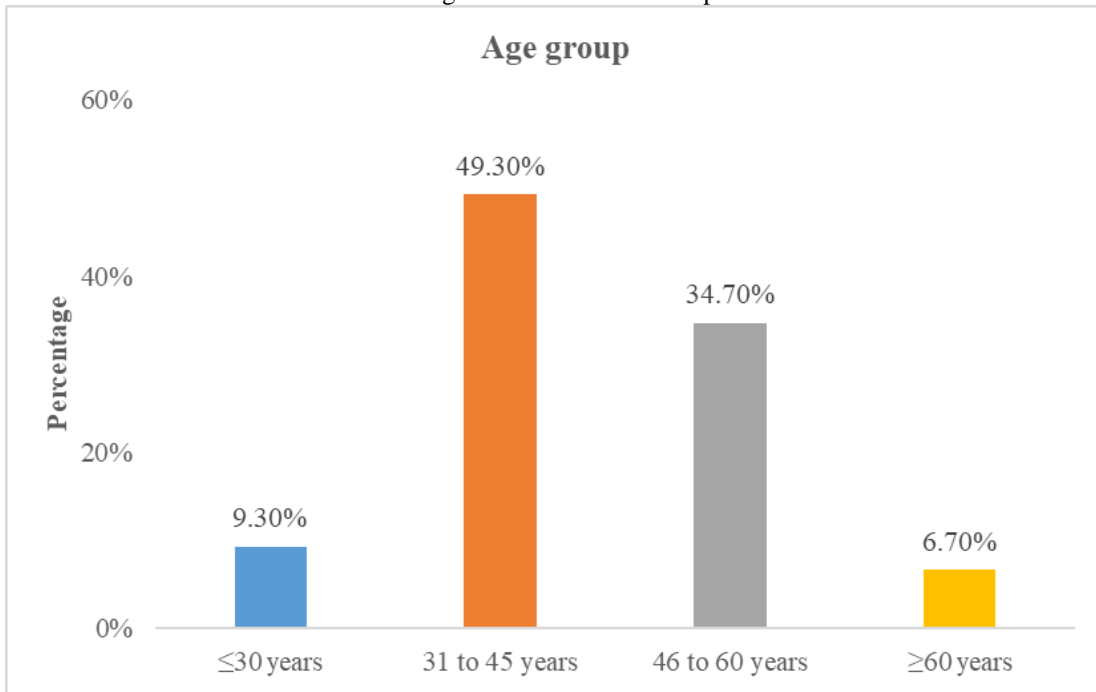
A total of 75 patients who presented to department of dermatology, venereology and leprosy, basaweshwara teaching and general hospital, attached to mahadevappa rampure medical college, Kalaburagi during the period of 1st march 2021 to 31st august 2022 were included in this study. Dermographic details such as age, sex, occupation, marital status, socioeconomic status, sexual history were recorded in all patients.

A detailed history of symptoms, history of external application, and history of systemic illness was obtained. The systemic and genital examination was done. Subpreputial discharge was collected on swabs and sent for KOH mount, bacterial and fungal culture.

Results:-

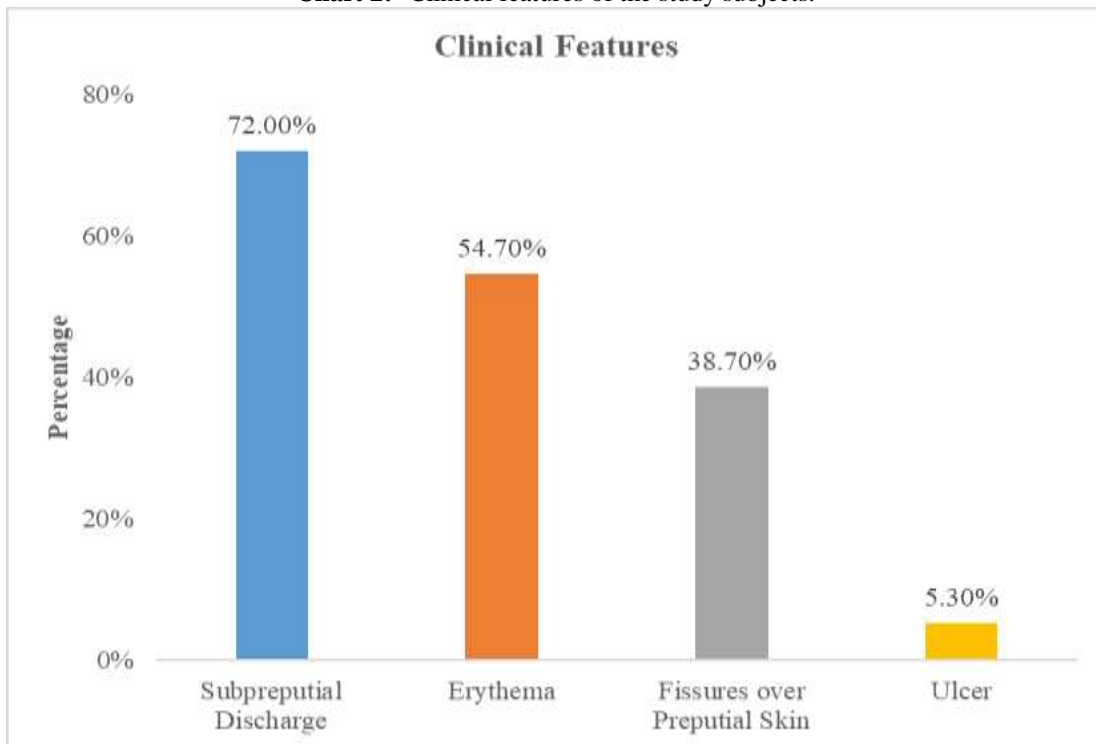
Out of the 75 patients included in our study majority belonged to 31 to 45 years of age.

Chart 1:- Age distribution in balanoposthitis.



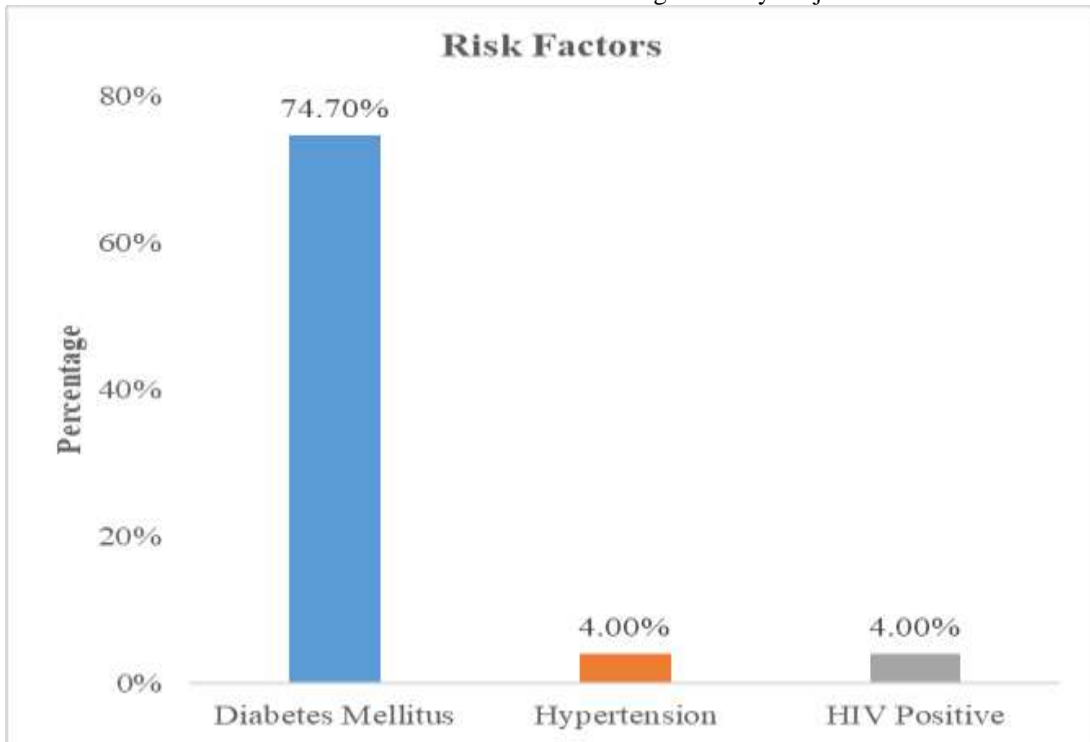
In the study, majority of the subjects belonged to age group of 31 to 45 years (49.3%). The next common age group was 41 to 60 years. The mean age was estimated to be 44.60 ± 10.49 years.

Chart 2:- Clinical features of the study subjects.



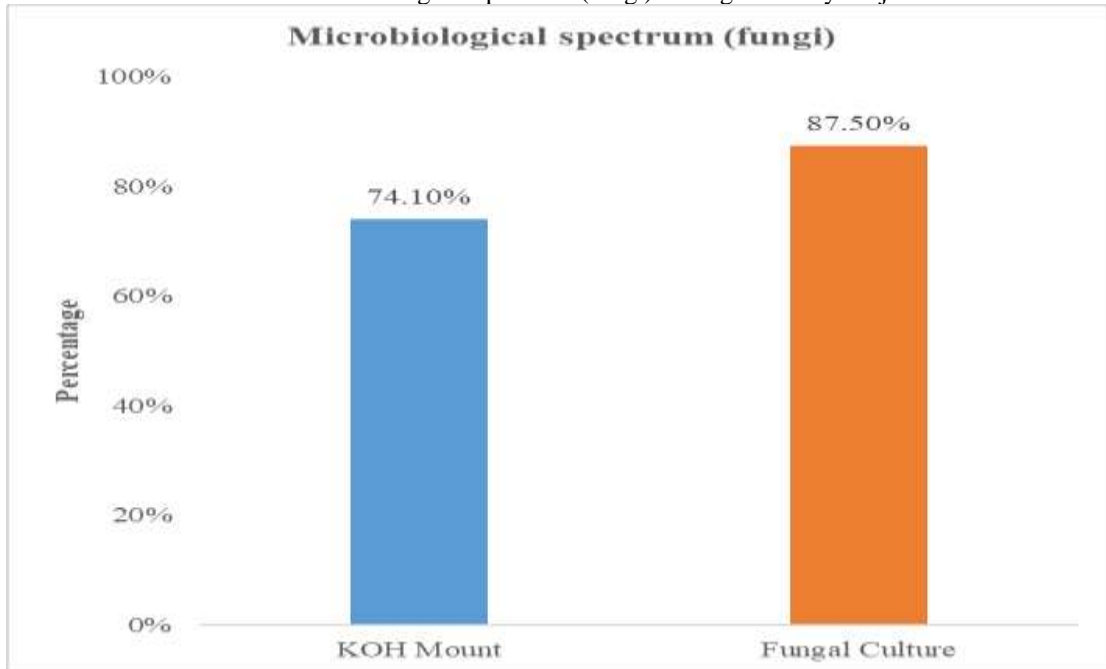
In the study, subpreputial discharge was found to be the most common clinical feature (72.0%), followed by erythema (54.7%). The other clinically presented features were fissures over preputial skin (38.7%) and ulcer (5.3%).

Chart 3:- Associated risk factors among the study subjects.

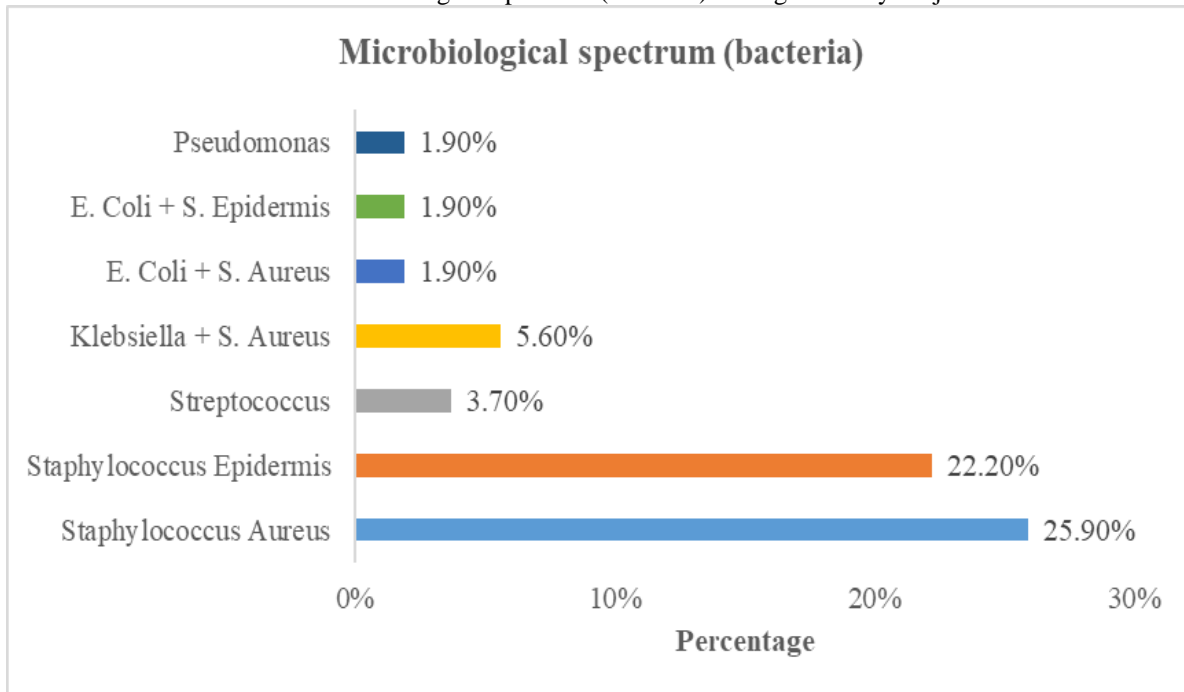


In the study, diabetes mellitus was regarded as commonly associated risk factor (74.7%). Hypertension was present in only 3 individuals, and HIV infection was co-existing in other 3 individuals.

Chart 4:- Microbiological spectrum (fungi) among the study subjects.



In the study, the sample of subpreputial discharge was used to examine the spectrum of possible fungal agents. Accordingly, 74.1% of the subjects showed positive for KOH Mount. However, among them, only 35 individuals were found to be positive on fungal culture

Chart 5:- Microbiological spectrum (bacteria) among the study subjects.

Further, the sample of subpreputial discharge was also used to examine the spectrum of possible bacterial agents. Accordingly, majority (37.0%) of the subjects were found to be negative on bacterial culture. Remaining showed positive culture, where staphylococcus aureus was the most common bacteria (25.9%), followed by staphylococcus epidermis (22.2%).

Discussion:-

The present hospital based cross-sectional study was conducted for a period of 18 months on 75 patients with clinically diagnosed balanoposthitis.

In the present study, majority of the subjects belonged to age group of 31 to 45 years (49.3%). The next common age group was 41 to 60 years. The mean age was estimated to be 44.60 ± 10.49 years⁴.

In the present study, subpreputial discharge was found to be the most common clinical feature (72.0%), followed by erythema (54.7%). The other clinically presented features were fissures over preputial skin (38.7%) and ulcer (5.3%). Even in many previous studies such as Kalra S et al⁵, Abdullah AN et al⁶, Lisboa C et al⁷ and Birley HD et al⁸, subpreputial discharge was found to be the commonest presentation, followed by redness and ulceration.

On analysing the co-existence of few important sexually transmitted diseases, herpes genitalis was evident in 5.3% of the subjects in the study. Syphilis was present in only 1 individual, while 3 other subjects were positive for HIV infection. This mimics the findings from the studies such as Schwartz RH et al⁹, Piot P et al¹⁰, Stary A et al¹¹, and Birley HD et al¹⁴, where herpes was found to be commonly associated sexually transmitted disease with Balanoposthitis, followed by HIV and syphilis.

The only complication developed among the subjects in the present study was non-retractable prepuce, which was appreciated in about 9.3% cases. It was the most frequent complication developed as a result of this condition, but in less proportions comparatively.

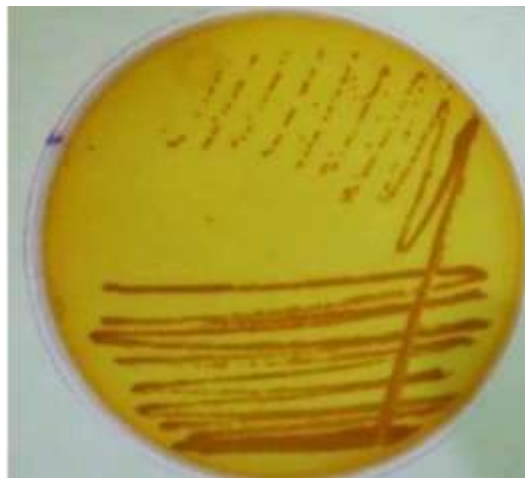
In the present study, diabetes mellitus was regarded as commonly associated risk factor (74.7%). Hypertension was present in only 3 individuals, and HIV infection was co-existing in other 3 individuals. This can be substantiated from the studies such as Piot P et al, Birley HD et al, Stary A et al, and Cree GE et al, where diabetes mellitus was observed to be the most common comorbidity associated with Balanoposthitis.

Overall in the present study, the commonest infectious etiology was observed to be bacterial infection (73.3%), followed by fungal infection (46.7%). The commonest non-infectious etiologies were observed to be adverse drug reaction and irritant contact. This varies with different studies, where fungal agents were the commonest infectious etiology. Bacterial Balanoposthitis formed the major source of infectious etiology.

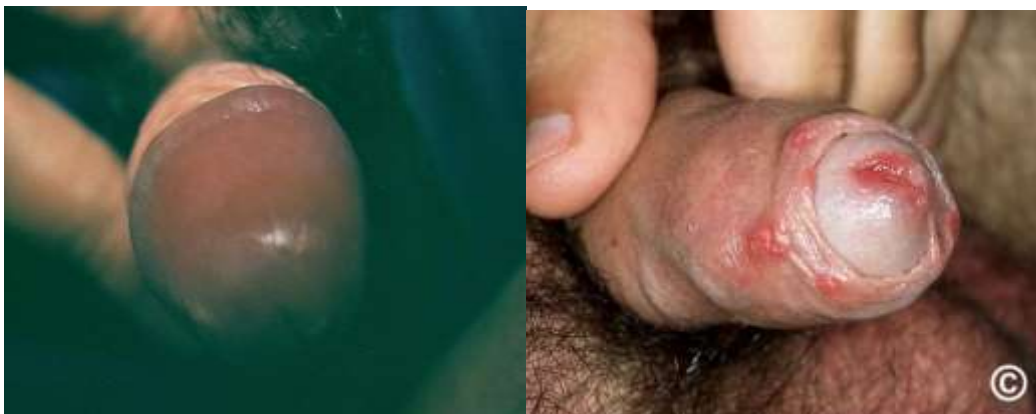
Pictures Of Balanoposthitis



Candidial balanoposthitis KOH showing abundant pseudohyphae



Culture showing growth of candida spp. in Sabouraud's dextrose agar



Bacterial balanitis

Herpetic balanitis



Candidal growth on swab culture.

Conclusion:-

Subpreputial discharge was found to be the most common clinical feature followed by erythema, fissures over preputial skin and ulcer. Bacterial and fungal infection were common infectious etiologies while adverse drug reaction and irritant contact were non-infectious etiologies causing Balanoposthitis. Co-morbidities such as diabetes mellitus and hypertension were regarded as the risk factors associated with Balanoposthitis.

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