

## BALANOPOSTHITIS: A CLINICAL STUDY

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**ABSTRACT: INTRODUCTION:** The inflammation of the non-keratinized epithelium of the glans penis (i.e., Balanities) and that of prepuce (i.e., posthitis) together comprise the term Balanoposthitis. **AIMS AND OBJECTIVES:** To determine the aetiological and predisposing factors for the development of Balanoposthitis, and to know its relation with venereal and non-venereal disease, local and systemic precipitating factors. To know the prevalence of Balanoposthitis in STD clinic. Study design-retrospective study. **MATERIALS AND METHODS:** The study material consists of 75 cases of balanoposthitis attending out-patient department Skin & STD clinic during a period extending from Feb, 1998 to Feb, 1999. **CRITERIA FOR SELECTION OF A CASE:** Only those cases which have a history of redness of glans or mucous surface of prepuce, with or without genital discharge or ulcer on glans or mucosal surface of prepuce with or without discharge or growth on the penis or fissuring of fore skin were selected for the study. **RESULTS:** Incidence of balanoposthitis during the period from Feb. 98 to Feb.99 was – 11.53%, out of 650 new STD cases. It was observed that maximum number of patients was in the 21-30 age group (33.34%). The next predominant groups affected were 17-20 & 31-40 age group (20% each). The third most common age group affected was 41-50 (16%). In this study 69 patients (92%) who presented with balanoposthitis of whatever cause were found to be uncircumcised, only 6 cases (8%) were found to be circumcised. Most cases who presented with balanoposthitis gave a history of exposure to STD risk. **CONCLUSIONS:** Balanoposthitis is very commonly encountered condition in the STD clinics with a multi factorial aetiology. Infective causes dominated over the other possible causes, and 30% of the candidial infection had diabetes mellitus as a predisposing factor.

**KEYWORDS:** balanoposthitis, diabetes mellitus STD, Inflammation.

**INTRODUCTION:** The inflammation of the non-keratinized epithelium of the glans penis (i.e., Balanities) and that of prepuce (i.e., posthitis) together comprise the term Balanoposthitis.

The term Balanitis is defined as inflammation of the glans penis, because in uncircumcised males it commonly involves the prepuce, the correct name for balanitis is Balanoposthitis.<sup>1</sup>

Balanoposthitis may be associated with phimosis, the inability of the prepuce to be retracted over the coronal edge of the glans penis.

The two words Balanos and posthe for glans and prepuce respectively have their origin from Greek literature. Usually the two structures are involved either simultaneously or reciprocally, but balanitis occurs alone in cases of the circumcised uncommonly.

Balanoposthitis is seen very frequently and it can be a recurrent or persistent condition.

There is a wide variety of causes and predisposing factors.

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Balanoposthitis is more common among uncircumcised men possibly as a result of poor hygiene and aeration or because of irritation by smegma. Underlying medical conditions can also predispose to Balanoposthitis which may be more severe.

In cases due to poor hygiene which is likely when the prepuce is difficult to retract or when phimosis is present, friction of coitus or masturbation results in overt inflammation.

The clinical condition of Balanosthitis is one of the commonest conditions seen in skin and STD clinics in India.

The exact aetiological diagnosis requires many investigations, guided by clinical features. Many a times it poses problem in its management.

Infection is the most important all causes of Balanoposthitis. A great variety of opportunistic micro-organisms have been cultured from the lesions. Role of anaerobic organisms and fungi have been studied extensively, but their exact role in the pathogenesis is still not clear. Most of the cases appear to be due to symbiosis of various organisms.<sup>2</sup>

Inflammation of the glans and prepuce may also provide, a route for the acquisition of HIV infection.<sup>3</sup>

The treatment of Balanoposthitis is directed towards eliminating the aetiological factors both systemic and local which produce it.

Balanoposthitis which persist and in which the cause remains unclear warrants biopsy.

**INCLUSION CRITERIA:** Those cases with inflammatory lesions involving both prepuce (foreskin) and glans are included in this study.

**EXCLUSION CRITERIA:** Those cases below the age of 15 years.

## **Method of study:**

- a) General physical examination.
- b) Systemic examination.
- c) Local examination of genitalia: On inspection, the genitalia were cleaned well with a wet swab and the following were noted.

1. **Erythema:** Its site, extent, size, shape, scaling borders, margins, induration and tenderness if any present were noted.
2. **Erosions:** Its site, extent, size, shape, numbers, borders, margin were noted.
3. **Ulcers:** Their number, site, size, border, margin, floor, base, shape, were examined. Any tenderness, induration, bleeding or discharges were noted.
4. **Discharge:** The genitalia were examined for any discharge either from the sub preputial sac or from the ulcer or from any growth or from the urethra.
5. **Subpreputial deposits:** Supreputial sac were examined for any deposits other than smegma and it was removed and bleeding of any noted.
6. **Fissuring of foreskin:** Preputial skin is examined for any longitudinal splits with associated bleeding.
7. **Tumors:** Genitalia were examined for any growth, its nature, surface, consistency, bleeding if any; discharge and ulcerating if present were noted.

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8. **Tenderness:** Genitalia were palpated for any tenderness and its sites noted.
9. **Lymph nodes:** Regional lymph nodes were examined for swelling, tenderness, fixation, consistency, fluctuation, bubo formation and periadenitis.
10. **Scars:** Genital scars were observed and if any recorded with site specification.
11. **Others:** Finally the scrotum, testes epididymis, vas deference, spermatic cord, perineum, and anus were examined for any pathology.

The cases diagnosed clinically were investigated as follows to arrive at an exact aetiological diagnosis.

## **A. Routine Investigations.**

### **B. Other Investigations:**

1. **Gram's stain:** Sub preputial discharge and urethral discharge is subjected to Gram's stain as per the procedure.
2. **VDRL:** Blood samples were sent to Department of Microbiology – tertiary hospital Bellary.
3. **HIV Testing:** After obtaining consent from the patient and pre-test counselling patients were subjected to HIV testing
4. Dark ground microscopy.
5. **KOH Preparation:** Sub preputial deposits or discharge were taken and transformed on to a glass slide. A drop of 10% was added and the slide warmed gently by passing it through a spirit lamp flame 2-3 times. After keeping the slide for a few minutes to cool down, a cover slip was placed on the specimen and pressed firmly with a blotting paper. The slides were observed first under low power and then under high power.
6. **Wet saline preparation:** A drop of discharge is mixed with a drop of normal saline on a microscopic slide, a cover slip applied and examined under the low or high power objective.

Trichomonads which are bigger than pus cells but smaller than epithelial cells are obvious from the mobility of their flagella and undulating membrane which twinkles, with great rapidity on one side of the organism.<sup>4</sup>

7. **Tissue smear:** The most effective method for definitive diagnosis of Donovanosis is by demonstrating *D. granulomatis* in the large mononuclear endothelial cells in tissue spreads.

Specimen is collected from the edge of an ulcer (with scalpel) which appears clean and with healthy granulation tissue. The tissue was spread on a glass slide, air dried, and stained using leishman's stain according to the standard procedure. The stained smear was examined under oil immersion objective.

8. **Tzanck Preparation:** This test may aid in the diagnosis of Herpes progenitalis.

A vesicle less than 72 hours old is opened with No.18 hypodermic needle. The base is scraped with the needle and cells obtained are spread on a glass slide. The slide is heat fixed and then stained with Giemsa stain and examined under oil immersion objective for multinucleated giant cells.

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**9. Culture and sensitivity:** Both subpreputial discharge and deposit was sent for bacterial culture and sensitivity and also for fungal culture, specifically for *Candida* spp. Using sterile culture bottles to the Department of Microbiology.

## STATISTICAL ANALYSIS ON CASES OF BALANOPOSTHITIS BASED ON THE COLLECTED DATA:

TABLE-1 and TABLE-2

Based on the Statistical analysis of data in Table No: 1 and Table No: 2, using measures of central tendency, it is understood that on an average, 30 cases exhibited incidence of Balanoposthitis in the population during the period of Feb 98-Feb 99. The cases were studied for their varied clinical presentation and various aetiological causes were elucidated.

Total No. of new cases seen during Feb. 98 to Feb.99	Total No. of balanoposthitis	Percentage
650	75	11.53

TABLE I: INCIDENCE

According to table no. I, incidence of balanoposthitis during the period from Feb.98 to Feb.99 was – 11.53%, out of 650 new STD cases.

Age group (years)	No. of cases	Percentage
17-20	15	20.00
21-30	25	33.34
31-40	15	20.00
41-50	12	16.00
51-60	04	05.33
61 & above	04	05.33
<b>Total</b>	<b>75</b>	<b>100.00</b>

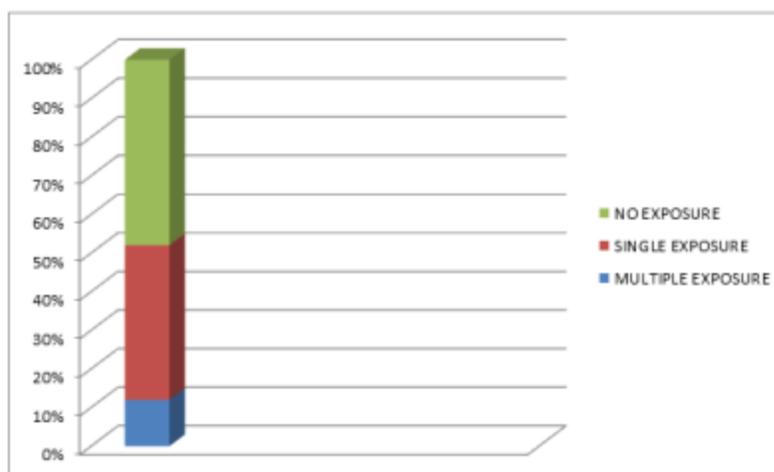
TABLE II: AGE DISTRIBUTION

According to table No. II, it was observed that maximum number of patients was in the 21-30 age group (33.34%). The next predominant groups affected were 17-20 & 31-40 age group (20% each). The third most common age group affected was 41-50 (16%).

**CIRCUMCISION:** In this study 69 patients (92%) who presented with balanoposthitis of whatever cause were found to be uncircumcised, only 6 cases (8%) were found to be circumcised.

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## SEXUAL BEHAVIOUR:



**Graph 1**

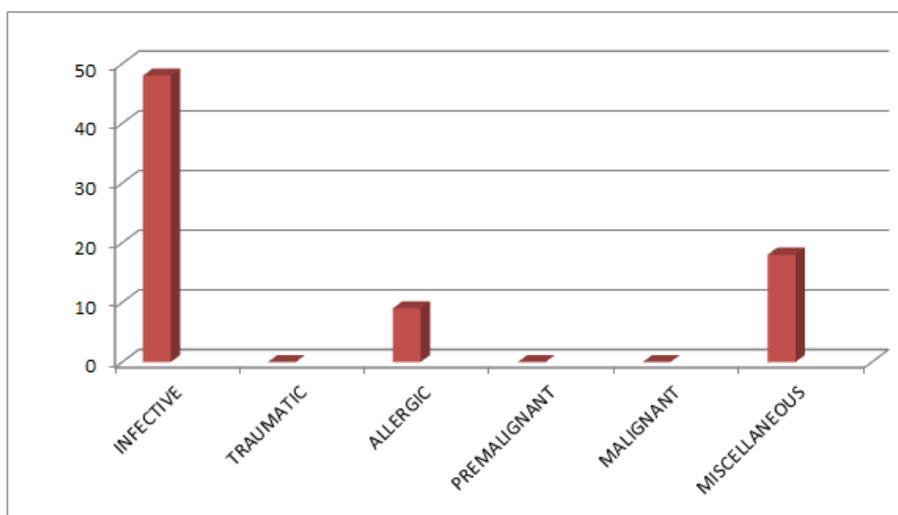
From the percentage bar presented above, we can observe that 52% of the cases with incidence of Balanoposthitis give a history of exposure to STD.

Type	No. of cases	Percentage (Cases)	
		For 48	For 75
Mycotic infections Candida spp.	38	47.91	30.66
Bacterial infections	18	37.05	24.00
Viral infections HPV infection (Condylomata acuminata)	3	6.72	4.00
HSV infection (Herpes progenitalis)	2	4.16	2.66
Parasitic infection Scabies	2	4.16	2.66
<b>Total</b>	<b>48</b>	<b>100.00</b>	

**ANALYSIS OF INFECTIVE CAUSES TABLE III**

Out of these infective causes, 8 of the cases were associated with diabetes mellitus (candidial balanoposthitis)/ In bacterial infections, cases were secondary syphilis and 3 cases were latent syphilis. Data in the table may be expressed in diagrammatic form for easy analysis.

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**Graph 2**

According to the survey, 64% of the cases show infective aetiology. This is likely to be true for the population also.

**TABLE-15 and TABLE-16:** The statistical analysis for the data given in table no: 15 and in table no: 16 regarding the infective and allergic causes, show that the two causes are independent of each other. Infective causes are not dependent on the allergic causes and vice-versa.

**DISCUSSION: INCIDENCE:** Incidence of Balanoposthitis in the present study is 11.53%. Total numbers of new cases seen in STD clinic during the period from Feb-98 to Feb-99 were 650, out of which 75 cases of Balanoposthitis were clinically identified.

The incidence of Balanoposthitis in this department (Skin and STD) during the period 1996-1997 and 1997-1998 happens to be 10.75% and 11.40% respectively.

Vinod Sharma et al found in their study- an incidence of 10.5% of all STD cases (110 cases of Balanoposthitis studied).<sup>5</sup>

It is a common condition affecting 11% of male genitourinary clinic attendees in the United Kingdom.<sup>6</sup>

V.R. Krishna Murty et al found an incidence of 8.43% of reported STD cases at Thanjavur.<sup>7</sup>

**AGE DISTRIBUTION:** In the present study of 75 cases of Balanoposthitis, it was found that majority of cases were between 17 and 40 years of age (73.34%), with those belonging to 21-30 years age group constituting 33.24%. Only 26.66% of cases were seen in the above 40 years age group (Youngest is 17 & Oldest is 70 years of age).

This is in conformity with other studies where it was found that majority of patients belongs to those age group in which a person was most active sexually.

Vinod Sharma et al found an incidence of 73% in the 22-40 years age group with 10% in teenagers and 17% in those who were 40 years of age (Age range from 15-68 years with a mean age of 31 years).<sup>7</sup>

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V.R. Krishna Murty et al found 67% of cases in the 15-30 year age group. The age of patients ranged from 15-75 years.<sup>8</sup>

N.K. Singhi et al found only 10% of cases to be above 50 years of age.<sup>9</sup>

A.K. Chakraborty found 76.12% of cases were between 21 to 40 years of age, 14.15% were 20 years and below and 6.19% were above 50 years of age.<sup>10</sup>

**CIRCUMCISION:** In the present study of 75 cases of Balanoposthitis 69 patient (92% were found to be uncircumcised and only 6 cases (8%) were found to be circumcised.

As in the study by N.K. Singhi et al who found all their patients to be uncircumcised.<sup>9</sup>

Out of 6 cases who are circumcised, 2 patients were Hindu and were Muslims. One Hindu patient had condylomata acuminata and underwent circumcision for the same complaint earlier & other had scabies with secondary infection.

Irritant dermatitis, candidial infection, FDE and scabies with secondary infection were found in other 4 Muslim patients.

**AETIOLOGICAL CAUSES OF BALANOPOSTHITIS:** In the present study of 75 cases, infective causes were found to be aetiology for 64% of cases.

This is in comparison with study done by V.R. Krishnamurthy et al who found an incidence of 65.74% for infective causes.<sup>11</sup>

A study done by Veller Fornasa et al – in a series of 321 patients, the majority (185 patient) had an infectious cause constituting 57.8%.<sup>12</sup>

The next commonest aetiological factor found in the present study was miscellaneous causes accounted for 24% and which included various ulcerative STD conditions like primary chancre, chancroid, granuloma inguinale, and papulosquamous disorders like psoriasis and lichen planus.

No other studies were found that gave a comparative figure for above mentioned causes of balanoposthitis along with infective causes.

Allergic causes of balanoposthitis were seen in 9 patients (12%) out of which FDE constituted 8%, irritant dermatitis 2.67%, and erythema multiform 1.33%.

In the present study, no causes were reported in traumatic, premalignant and malignant category, which is supposed to play a role in causation of balanoposthitis. Balanoposthitis is very commonly encountered condition in the STD clinics. Balanoposthitis has many predisposing factors with a multi factorial aetiology.

It is most commonly seen in the sexually active age group and in majority of cases exposure to STD plays a major role.

The various precipitating factors like smegma, urine, alkaline vaginal discharge, friction of clothing, vaginal pathogens of unhygienic contacts and systemic disorders like diabetes mellitus plays an important role.

The exact aetiological diagnosis requires appropriate investigations as guided by clinical features, some-times it is very difficult to establish the exact aetiology particularly when laboratory facilities are inadequate.

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Infective causes dominated over the other possible causes, as evidenced by the fact that candidial infection formed the aetiology in a fairly significant number of cases. However, it may be appreciated that about 30% of the candidial infection had diabetes mellitus as a predisposing factor.

**CONCLUSION:** Balanoposthitis is very commonly encountered condition in the STD clinics. Balanoposthitis has many predisposing factors with a multi factorial aetiology.

It is most commonly seen in the sexually active age group and in majority of cases exposure to STD plays a major role.

The various precipitating factors like smegma, urine, alkaline vaginal discharge, friction of clothing, vaginal pathogens of unhygienic contacts and systemic disorders like diabetes mellitus plays an important role.

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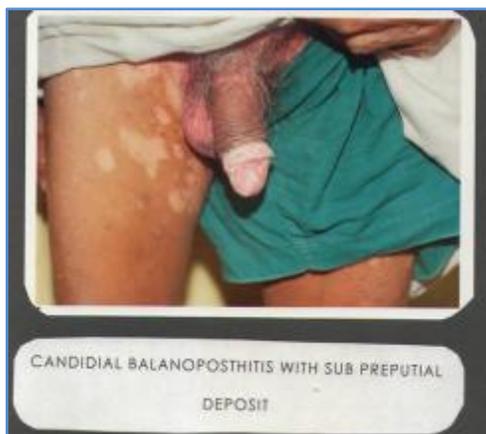
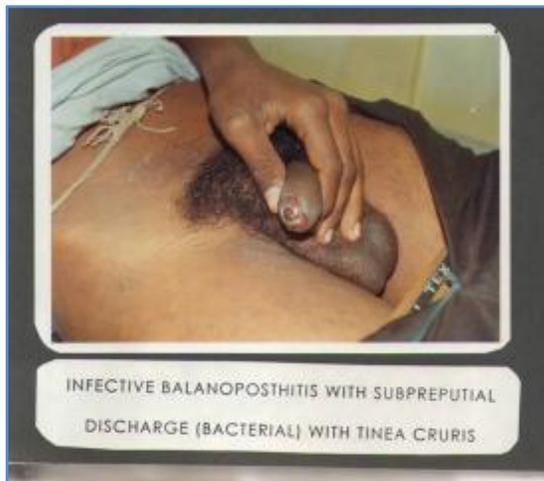
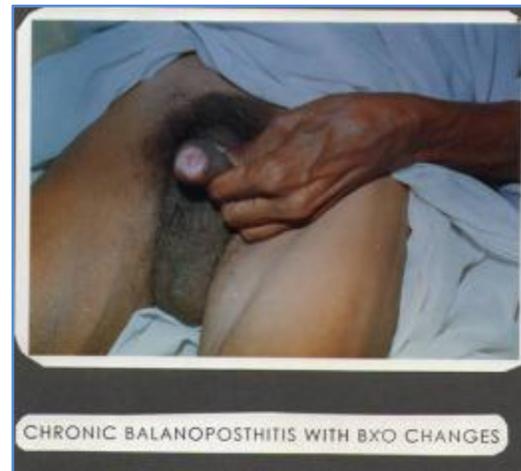
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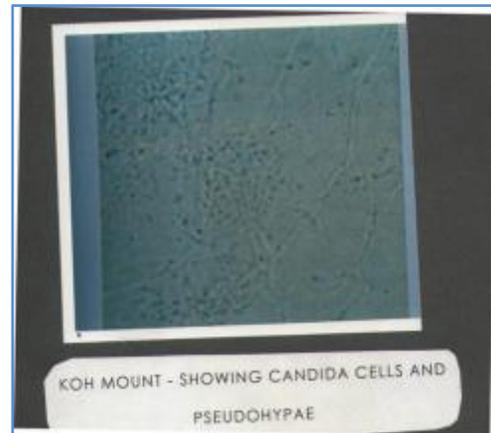
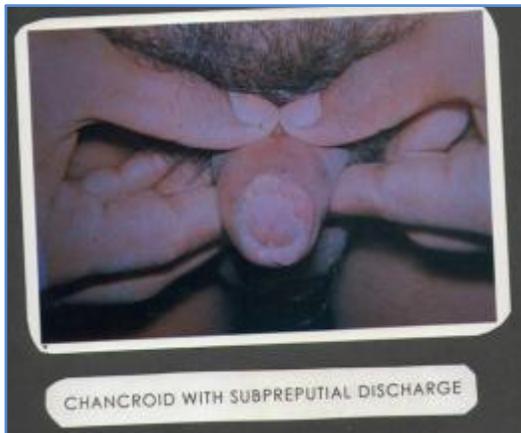
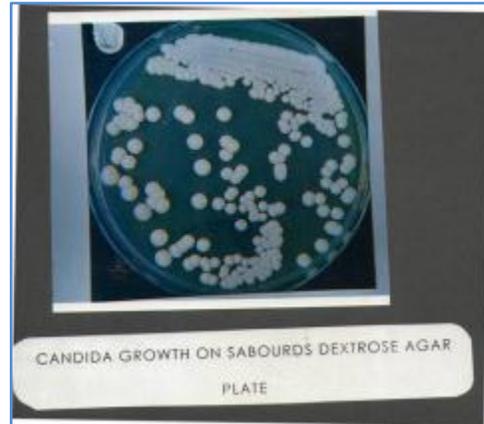
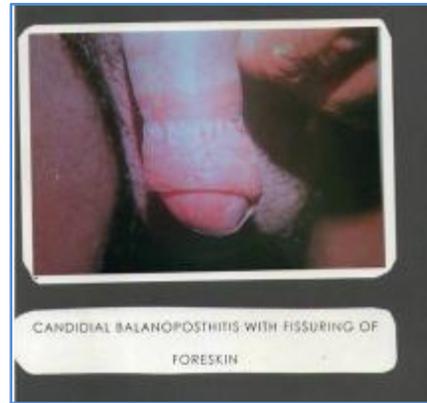
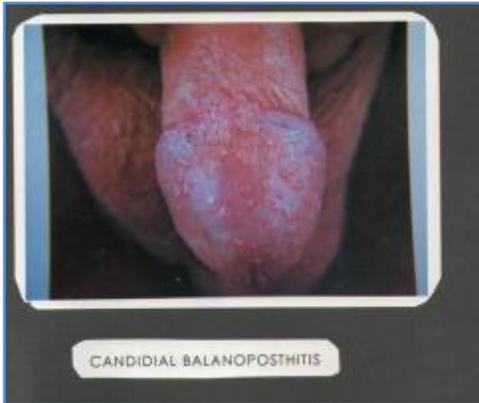
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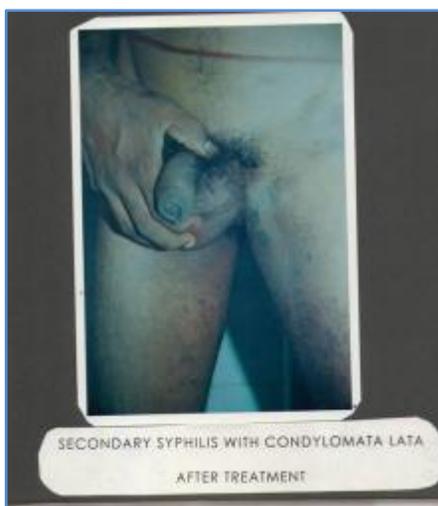
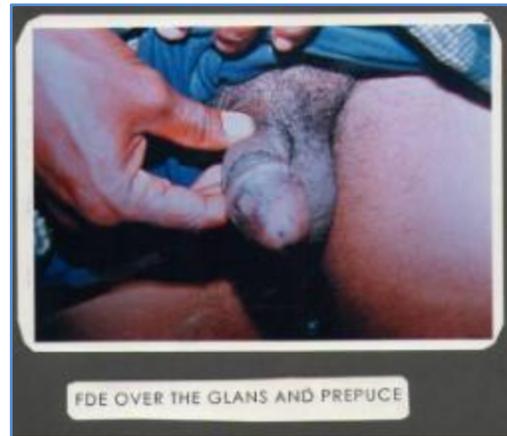
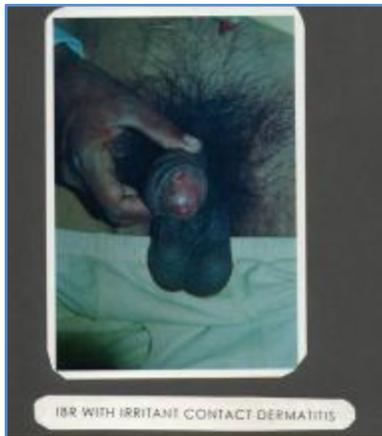
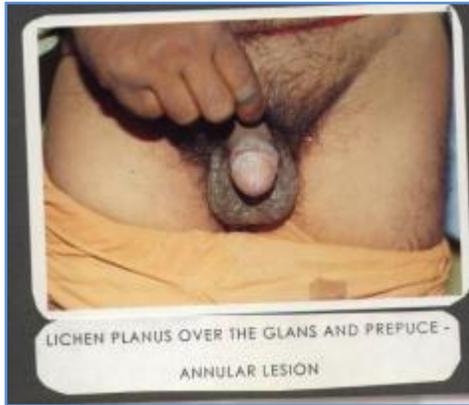


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