Primary tuberculosis of the glans penis: A rare presentation and review of literature

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ABSTRACT

Tuberculosis poses a real public health problem in Tunisia. We report an 80-year old patient, immunocompetent, who has initial presentation of a painless ulcerative lesions of the glans penis. A history of pulmonary tuberculosis was not present. The physical examination revealed an indurated glans penis covered with blackish crusts and small ulcerations. A biopsy of the lesion was undertaken and histological examination was confirmed the diagnosis of tuberculosis of glans. Others investigations was performed without finding any abnormalities. He responded well to anti-tubercular treatment with complete resolution of lesions in six months.

1. Introduction

Tuberculosis (TB) poses a real public health problem in Tunisia and in developing countries. Globally, no country has ever been able to eradicate TB. The cutaneous form represents 2% of all of extra-pulmonary tuberculosis and localization on the glans is even rarer. TB of the glans penis is an uncommon presentation of TB, even in countries where the incidence of pulmonary and extrapulmonary TB is high. We report an 80-year old patient, immunocompetent, who was referred to our institution for multiple ulcerative necrotic lesions of the glans penis. A biopsy of the lesion was undertaken and histological examination confirmed the diagnosis of tuberculosis of glans. Clinical and pathological features will be discussed with a literature review of the previous cases.

2. Presentation of case

An 80-year-old Tunisian man was referred to our institution for multiple ulcerative necrotic lesions of the glans penis that had been evolving for 15 days, suggestive of necrotizing dermatitis. The patient would have noticed the appearance of a small punctiform ulceration on the anterior face of the glans penis that progressively increased in size, taking up almost the entire glans penis.

He has no history of pulmonary tuberculosis, he had an endoscopic resection of the prostate in 2000 for benign prostatic hyperplasia, he is married and denies having had other sexual partners in the past months. The physical examination revealed an indurated glans penis covered with blackish crusts and small ulcerations of 0.5 cm in diameter and 0.5 cm in depth, and the glans penis was painless on palpation. He had no inguinal nodes. The rest of the genital examination was normal. HIV serology was negative. Excision of the lesions was then undertaken and histological examination of the specimen showed confluent epithelioid granulomas, an epithelioid granuloma with giant cells and caseous necrosis [Fig. 1 (a,b,c)]. All microbiological staining of the specimen was negative. Culture of the collected tissues revealed Mycobacterium tuberculosis, susceptible to isoniazid, rifampicin, pyrazinamide, isoniazid, rifampicin, pyrazinamide, and ethambutol.

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streptomycin and ethambutol. Early morning urine samples were negative for mycobacteria on microscopy and culture. Cytological tests were also negative. Intravenous urography did not reveal any abnormalities in other structures of the urinary tract.

He received anti-tuberculosis treatment for 6 months and we noted a good evolution of the lesions. The patient was cured without any recurrence after 15 months of follow-up.

3. Discussion

Tuberculosis is still a major cause of morbidity in developing countries like Tunisia. An extremely rare form of genitourinary tract tuberculosis will present as tuberculosis of glans penis constituting less than 1% of reported cases worldwide. Epididymis (42%) followed by seminal vesicle (23%), prostate (21%), testis (15%) and vas deferens (12%) are the common sites of presentation.

Based on a systematic Pubmed search using the keywords «tuberculosis of glans penis», we have not found many cases published in the literature. We have excluded those who could not be opened. Most of the published cases are case reports.

Fournier was stated to have described in 1848 the first case of a patient with TB of penis who had multiple ulcers of the penis and regional lymphadenopathy. Lewis in 1946 reviewed 110 cases of TB of the penis and Sekhon in 1971 reviewed 29 cases of TB of penis that had been reported between 1946 and 1971. From 1971 through 1999, further 16 cases of TB of the penis had been reported by a number of authors in the literature.(3). Since 2000 to 2020 fifteen cases of TB of the glans penis have been sporadically reported (Table 1).

Clinical presentation is extremely varied, and TB of the penis may present as painless nodules, indurated swelling of the glans, single or multiple genital ulcers, fungating growth and urethral discharge with or without erectile dysfunction.

TB of the glans penis may either be primary TB or secondary TB but on the whole most of the reported cases have been primary TB. Primary penile tuberculosis are usually acquired either through violent intercourse with female partners with active genital tuberculosis or infected patients own ejaculates or through fomite spread by contact with infected cloths. The secondary form is due to the subsequent complication of lung tuberculosis or TB of other parts of urogenital tract extended through urethra or through haematogenous route.

Diagnostic confirmation is based on histological study aided by culture, which represents the gold standard but which requires six to eight weeks for the isolation of BK. PCR allows an equivalent result in 24–48 hours.\(^5\)

The diagnosis requires the search for other tuberculous sites, in particular an attack on the urinary tract, by performing an intravenous urography, a direct bacteriological examination. These examinations were normal in our patient. Similarly, the HIV infection is essential because of the frequency and increased morbidity and mortality of tuberculosis in this context. Our patient’s HIV serology was negative. Examination of the partner is indicated for urogenital tuberculosis. The absence of another tuberculous localization, notably urogenital, in our patient eliminates a secondary tuberculosis in particular orificial tuberculosis.

Antibiotic therapy for tuberculosis is the basis of treatment. It allowed a rapid healing of the ulcerations in our patient, confirming a posteriori the diagnosis.

4. Conclusion

Tuberculosis should be considered in the presence of ulceration of the glans, particularly in countries with a high endemic. Skin biopsy should be performed systematic to eliminate a malignant tumor of the penis. Determine whether a TB of glans penis is a primary or a secondary disease, intravenous pyelography and chest X-ray must be done. Anti-tubercular drugs are the mainstay of treatment.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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Author contribution

All authors have contributed to this work and have read and approved the final version of the manuscript.

Declaration of competing interest

The authors declare that they have no conflicts of interest.
| Authors            | Years | Numbers of patients | Symptoms                                                                 | Country         | Histological findings                                                                                       | Treatment | Outcome                                                                 |
|--------------------|-------|---------------------|--------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------|
| Brian J. Angus     | 2001  | 01                  | painless ulcer on penis                                                  | United Kingdom | caseating granuloma and tissue culture of the biopsy yielded Mycobacterium tuberculosis.                   | ATT       | Would healed well with no recurrence.                                  |
| Amir-zargar ma     | 2004  | 01                  | An ulcerative burgeon (granulated) lesion on his glans penis             | Iran            | section biopsy was performed and the primary report showed tuberculosis.                                   | ATT       | Complete improvement was achieved following the treatment complete healing occurred |
| Shigenori Yonemura | 2004  | 01                  | painless subcutaneous nodule at the glans penis                          | Japan           | granulomatous inflammation. Tuberculin tests were strongly positive,                                       | ATT       | Ulcer healed after 3 months                                           |
| Baveja             | 2007  | 01                  | multiple ulcers on glans penis;                                          | India           | Direct smear microscopy of pus showed heavy growth of acid fast bacillus (3+) ; ELISA serology for mycobacterium A60-antigen was strongly positive. | ATT       | Ulcer healed.                                                         |
| Ghorbani KishanChand | 2007 | 01                  | painful ulcer on glans penis. Ulcer on glans penis with everted edges   | Iran            | Biopsy of the ulcer and PCR revealed Mycobacterium tuberculosis. chronic granuloma                        | ATT       | Ulcer healed.                                                         |
| J. K. Kar          | 2012  | 01                  | ulcer on glans penis                                                    | India           | Biopsy of ulcerated lesion histology showed TB of penis                                                  | ATT       | Responded well and ulcer healed five months the ulceration healed significantly complete subsidence of the lesions after 6 months it healed completely |
| Jose David Jimenez | 2014  | 01                  | papular-ampullary eruption in the glans penis                           | Espagne         | a chronic granulomatous inflammatory necrotizing lesion with granulomatous vasculitis lesions, without tumor infiltration | ATT       |                                                                                  |
| Deb S              | 2015  | 01                  | multiple ulcers over the glans penis and around the urethral meatus.     | India           | Numerous Langhans type of giant cells were seen with lymphoid cell infiltration                           | ATT       |                                                                                  |
| Khan D             | 2016  | 01                  | ulceration over the glans penis for 3 months                            | India           | Histopathology revealedlymphoplasmacytic infiltration of subepithelial fibrocollageous tissue along with the presence of epithelioid granulomawith caseation, suggesting a mycobacterial infection | ATT       |                                                                                  |
| Gangalakshmi C,    | 2016  | 01                  | ulcerative growth over glans penis                                       | India           | epithelioid cell granuloma and Langhan’s giant cells suggestive of tuberculoid granuloma                   | ATT       | Within 3 weeks, patient showed signs of healing complete resolution of lesions in six months |
| Sankaramahalingam  |       |                     |                                                                          |                 |                                                                                                           |           |                                                                                  |
| Archana Singal     | 2017  | 01                  | multiple ulcers on the glans penis                                      | India           | Histopathology revealed the diagnosis of genital tuberculosis (TB), and polymerase chain reaction for Mycobacterium A60-antigen tested positive | ATT       | responded well to antitubercular therapy completely healed glans penis lesion after antituberculosis therapy |
| D Pandey           | 2019  | 01                  | multiple undermined ulcers                                              | Nepal           | histopathology revealed a diagnosis of tuberculous ulcer                                                 | ATT       |                                                                                  |
| John S Banerji     | 2020  | 01                  | painful ulcerative lesion of the glans penis                            | USA             |                                                                                                           | ATT       |                                                                                  |
| Y. Elkhachine      | 2020  | 01                  | Chronic ulcerative lesions on glans penis                               | Morocco         | A skin biopsy, performed at the site of an ulceration, showed the presence of epithelial-giganto-cellular granulomas with caseous necrosis in favor of a cutaneous tuberculosis | ATT       | Ulcer healed.                                                         |

ATT: antitubercular treatment.
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