

Case report

Pink urine syndrome (PUS): a case report



Mourad Ababou^{1,8}, Ayoub Boubekri¹, Noureddine Kartite¹, Abdelhafid Houba¹, Nawfal Doghmi¹, Hicham Bakkali¹

¹Department of Anesthesiology and Intensive Care, Military Hospital Mohammed V, Faculty of Medicine and Pharmacy of Rabat, Mohammed V University, Rabat, Morocco

⁸Corresponding author: Mourad Ababou, Department of Anesthesiology and Intensive Care, Military Hospital Mohammed V, Faculty of Medicine and Pharmacy of Rabat, Mohammed V University, Rabat, Morocco

Received: 10 May 2020 - Accepted: 18 May 2020 - Published: 02 Jun 2020

Domain: Emergency medicine, Intensive care medicine

Keywords: Pink urine syndrome, propofol, uric acid, diabetes

Abstract

The PUS (pink urine syndrome) is a disorder of low frequency, described by sudden presence of pink urine distinguishable from hematuria, because of its lighter tone and to leave sediment of this shading while centrifuging. There is no definite occurrence and just reports of secluded cases. Urine analysis revealed low pH in the various cases and pink sediment was shown to contain many uric acid crystals. The mechanism of this fascinating phenomenon is not clearly understood, but some factors have been associated with the increased excretion of uric acid in urine such as obesity, use of propofol, antidiuretic hormone, dehydration, surgical stress, abdominal surgeries, among others. We describe a case of propofol-induced pink urine syndrome and discuss the factors leading to this syndrome.

Case report | Volume 3, Article 35, 02 Jun 2020 | 10.11604/pamj-cm.2020.3.35.23394

Available online at: <https://www.clinical-medicine.panafrican-med-journal.com/content/article/3/35/full>

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Introduction

Tuberculosis is an infectious disease caused by mycobacterium tuberculosis usually involving the lung parenchyma and hilar lymph nodes. Extra-pulmonary involvement is seen in 20% of all TB cases. TB of the breast is an uncommon disease, particularly in men. In this case report, we describe pulmonary and mammary tuberculosis in immunocompetent male patient.

Patient and observation

This is a 32 years old male patient known for smoking and past medical history of tuberculosis in June 2018. After just 2 months he abandoned its antibacillary treatment and 4 month after, he complained about a productive cough associated with dyspnea New York Heart Association (NYHA) class II and asthenia. He was then hospitalized in the department of pneumology and the acid-fast bacillus (AFB) investigation in the sputum was positive as well as the MTB in the Genexpert which confirmed the absence of resistance to rifampicin. Antibacillary treatment was then initiated. However six months after discontinuation of his treatment, the patient was readmitted for left gynecomastia associated with inflammatory signs in the physical examination (the breast was hot, painful and sensitive) (Figure 1). A breast ultrasound was then asked and revealed an anechoic image compatible with an abscess which was drained. Thereafter, the purulent fluid was sent to bacterial laboratory and result positive for a strong cell reaction characterized by a large number of neutrophil, lymphocytes and epithelial cells with no germ at the direct examination. Germ cell culture on selective and nonselective media returned sterile, supplemented with a Genexpert that revealed MTB without resistance to rifampicin. Moreover, the AFB sputum test returned positive and the Genexpert detected MTB without resistance to rifampicin. HIV serology was negative. The patient was treated with 2RHZE/7RH and vitamin

B6 as preventive dose and an incision was performed for purulent evacuation from the breast with satisfied clinical outcome (Figure 2).

Discussion

The World Health Organization (WHO's) global tuberculosis (TB) report stated that TB causes 10 million cases and 1.3 million deaths annually and it is estimated that 3.6 million cases are either not detected or not notified to public health services each year. TB is one of the most significant contagious pathogens in the world and considered one of the top 10 causes of death worldwide [1]. Tuberculous mastitis is a rare form of extrapulmonary tuberculosis. The first case of breast TB was reported in a woman in 1829, but the first detailed description of the disease was only made by the end of the 19th Century. The first case of breast TB in a man was reported about a century later in 1927, and by 1945 there were only 21 known cases of breast TB in men. It is generally believed that the infection of the breast is usually secondary to tuberculous foci elsewhere in the body, which may or may not be clinically apparent [2]. In a large series of pulmonary tuberculosis in the pre-chemotherapy era, tuberculous mastitis was observed in 0.06% of patients. Tuberculosis mastitis is responsible for 3% to 4.5% of female breast lesions in high-prevalence areas. A unilateral lump with or without ulceration in a young multiparous postpartum woman is the most common scenario when tubercular mastitis is suspected. Tuberculosis of the male breast is uncommon, and in several large series of male breast lesions, tuberculous mastitis was not represented. In a series of tubercular breast lesions, male breast lesions are reported between 0% to 4%. Data are scant on the total number of reported cases in men, its rarity with respect to that of females, presentation, and outcomes.

Fine needle aspiration (FNA) can be helpful and up to 73% cases with breast TB can be diagnosed with this technique [11].

Culture of AFB remains gold standard for diagnosis of TB. However its usefulness is limited by the time required and frequent false negative results in paucibacillary specimens [12]. The usefulness of Ziehl-Neelson staining or culture to identify AFB was not very high and was only 2% in a series of 38 patients published by Harris *et al.* [13]. It is important to highlight that a negative Ziehl-Neelson stain does not exclude the diagnosis of TB, and due to low-sensitivity, it is more likely to indicate a false-negative than rule out the diagnosis completely. Whereas a positive result would indicate the presence of mycobacterium TB infection in the tissue. Nowadays gene amplification methods such as PCR is used more frequently for early results and PCR has positivity rate from 40-90% in diagnosing tuberculous lymphadenitis [14]. However a false negative result is still a possibility. The sensitivity of GeneXpert in PUS varies from 92 to 100% according to the studies [15]. Recent studies explained that GeneXpert has high sensitivity and specificity value ranging from 97-100% for pulmonary specimens [16]. Histopathology of specimen such as abscess wall biopsy can show epitheloid cell granulomas and caseous necrosis.

The treatment of breast tuberculous is still subject to several controversies essentially concerning the duration of anti-tuberculous treatment and the place of surgery. According to the World Health Organization (WHO), the duration of antituberculous treatment is 6 months [17]. However, studies often reveal an even tuberculous mastitis has been classified as primary or secondary. Primary infection is acquired through skin abrasions or duct openings from tonsillar tuberculosis of infants. Secondary tuberculous mastitis is more common and occurs by centripetal lymphatic spread from axillary nodes; from the lungs via inter mammary nodes, as is the case for our patient, or hematogenous spread. Given the small number of reported cases of male tubercular mastitis, data on pathogenesis and pathology have been extrapolated from female tubercular mastitis, and no differences in pathology have been reported according to gender [3]. HIV coinfection

exposes people to an increased risk for primary or reactivation TB and for second episodes of TB from exogenous reinfection [4,5]. HIV has been considered as potential risk factor for breast TB, in both genders; however, this is not supported by evidence [6,7]. Our patient had a negative HIV serology. TB of breast is classified into three different varieties: nodulocaseous tubercular mastitis, disseminated/confluent tubercular mastitis and tubercular abscess [8]. The characteristics of nodulocaseous type involvement are slow growing painless mass which gradually involves skin with sinuses and ulcers. The differential diagnosis in the early stages could be benign lumps such as fibroadenoma and late stages it can mimic cancer. This is the most common pattern of tuberculous disease in breast [8,9]. Second type is disseminated breast TB. This is characterised by multiple foci throughout the breast which caseates to form multiple sinuses. The last type is tuberculous abscess formation. In a series of 63 cases published by Mehta *et al.* the incidence of nodulocaseous form was 74.6%, tuberculous abscess was 12.6% and that of disseminated mastitis was 6.3% and in 6.3% of patients the only presenting symptom was nipple discharge [8]. Breast TB is often difficult to diagnose. When diagnosis is suspected, commonly chest X-ray helps to rule out lung lesions. Other imaging such as CT scan, MRI, mammography and ultrasound can all contribute valuable information in confirming the diagnosis and assessing the extent of the disease. However, none of these image findings are specific for TB [9,10].

Longer duration probably because of the frequency of multifocal TB associated with cold TB abscess [18]. In our case, the duration of treatment is 9 months. Surgery consists of resecting the entire abscess and removing the underlying necrotic tissue with removal of a possible chronic productive fistula. It can be for diagnostic and therapeutic purposes and therefore indicated immediately. As it can be achieved after initiation of antituberculous treatment. It is performed in cases of large cold abscesses. Some authors

believe that anti-tuberculosis treatment combined with surgery is the sole guarantor of cure and has the advantage of reducing the risk of tuberculous recurrence [18,19]. Our patient had tuberculous disease affecting lungs (Figure 3), and it is highly likely that the breast involvement was secondary. Our patient also needed surgical drainage as anti-tuberculosis treatment alone would not have resolved such large abscess. The prognosis is often favorable [18]. It depends on the early diagnosis and the rigor of the care. In the absence of treatment, the abscess may progress to fistulization or formation of fibrous shell that may calcify or locoregional or distant spread [18].

Conclusion

Extrapulmonary tuberculosis occurring in the breast is extremely rare. Breast tuberculosis is uncommon even in countries where the incidence of pulmonary and extrapulmonary tuberculosis is high. Tuberculous mastitis is paucibacillary, and routine diagnostic tests such as microscopy and culture do not have the same diagnostic utility as they do in pulmonary tuberculosis. Newer diagnostic tests like PCR can be used in atypical cases with smear and culture negativity. Treatment of breast tuberculosis consists of antitubercular drugs with surgery in persistent lesions following treatment.

Competing interests

The authors declare no competing interests.

Authors' contributions

All authors have actively contributed to the writing and editing of this article. All authors have read and approved the final version of the manuscript.

Figures

Figure 1: left breast abscess

Figure 2: left breast after drainage

Figure 3: AP chest X-ray

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Figure 1: left breast abscess



Figure 2: left breast after drainage

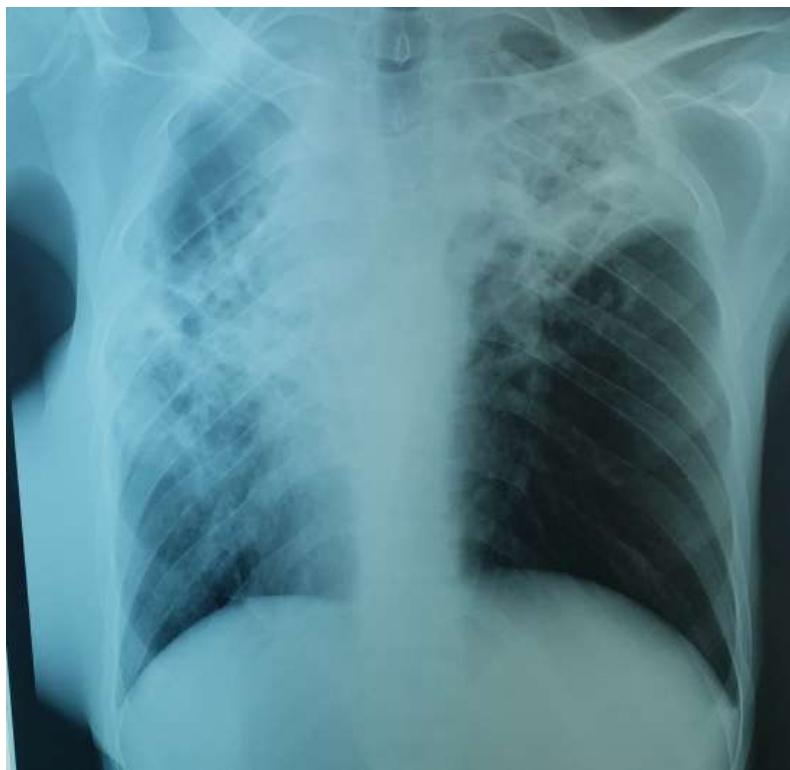


Figure 3: AP chest X-ray