

Hypertrophic Vulvar Tuberculosis: A Case Report and Review of the Literature

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Abstract

Case Report

Vulvar tuberculosis is an exceptionally rare manifestation of female genital tuberculosis and may mimic vulvar malignancy, making diagnosis challenging. A 46-year-old multiparous perimenopausal woman with poorly controlled insulin-treated type 2 diabetes mellitus presented with a one-month history of an extensive vulvoperineal lesion. Examination revealed marked hypertrophy of the labia majora extending to the anoperineal and inguinal regions, measuring approximately 10 × 5 cm, with additional nodular lesions on the posterior vaginal wall. Biopsy demonstrated epithelioid and multinucleated giant-cell granulomas with caseous necrosis, consistent with tuberculosis. Chest radiography showed no pulmonary involvement. The patient received standard antituberculous therapy for six months, with marked regression of the vulvar lesions. Vulvar tuberculosis should be considered in the differential diagnosis of atypical hypertrophic or pseudotumoral vulvar lesions, even in the absence of pulmonary disease. Histopathological examination remains essential, while microbiological or molecular testing should be pursued when feasible to support diagnosis and guide management appropriately.

Keywords: vulvar tuberculosis; female genital tuberculosis; vulvar hypertrophy; extrapulmonary tuberculosis; caseous necrosis; genital tuberculosis; pseudotumoral lesion.

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INTRODUCTION

Tuberculosis remains a major global infectious disease and continues to represent an important public health problem despite the availability of effective antituberculous treatment. [1]

Female genital tuberculosis is an uncommon manifestation of extrapulmonary tuberculosis and usually results from hematogenous or lymphatic dissemination from another tuberculous focus. The fallopian tubes and endometrium are the most frequently affected sites. [2–6]

Vulvar involvement is exceptionally rare. Reported clinical manifestations include ulceration, nodules, swelling, fistulisation and hypertrophic or pseudotumoral lesions. [7–12]

The diagnosis can be challenging because vulvar tuberculosis may clinically mimic malignant disease, sexually transmitted infections, chronic inflammatory disorders or other granulomatous

conditions. Histopathological examination therefore plays a central role in establishing the diagnosis. [7–11]

We report an unusual case of extensive hypertrophic vulvar tuberculosis in a 46-year-old woman with poorly controlled type 2 diabetes mellitus and no documented pulmonary involvement. The case is particularly noteworthy because of the extensive vulvoperineal and inguinal involvement and the associated vaginal lesions.

CASE PRESENTATION

Patient information

A 46-year-old multiparous woman in the perimenopausal period was admitted to our department for evaluation of an extensive vulvoperineal lesion.

Her medical history was notable for insulin-treated type 2 diabetes mellitus with poor glycaemic control.

There was no known history of tuberculosis exposure. The patient also reported no previous history

of pelvic inflammatory disease or upper genital tract infection.

The lesion had developed progressively over approximately one month.

Despite the extent of the local lesions, the patient's general condition remained preserved. No fever, night sweats, weight loss or other constitutional symptoms were reported.

Clinical findings

Gynecological examination revealed marked hypertrophy involving both labia majora.

The lesion extended to the anoperineal and inguinal regions and measured approximately 10 cm in length and 5 cm in width.

- The lesion had a papillary, hypertrophic and pseudotumoral appearance (**Figure 1**)
- Several additional nodular lesions were observed on the posterior vaginal wall.
- The inguinal lymph nodes were not clinically enlarged.
- Abdominal examination was unremarkable, with no palpable abdominal or pelvic mass and no clinical evidence of ascites.
- Pulmonary examination was normal.
- The remaining peripheral lymph-node areas were clinically free of lymphadenopathy.
- The main differential diagnoses considered at this stage included vulvar malignancy, giant condyloma,



Figure 1: Clinical appearance of a hypertrophic and infiltrative vulvar lesion involving the labia majora and minora and the clitoris

Diagnostic assessment

Because of the unusual and extensive appearance of the lesion, a biopsy was performed.

Histopathological examination demonstrated a granulomatous inflammatory lesion composed of epithelioid cells and multinucleated giant cells associated with caseous necrosis.

- These findings were considered highly suggestive of tuberculosis.
- The absence of clinical pulmonary findings prompted further investigation for an associated pulmonary focus.
- Chest radiography showed no abnormalities suggestive of pulmonary tuberculosis.
- No peripheral lymphadenopathy or other clinical evidence of extrapulmonary tuberculosis was identified.

Based on the clinical presentation and characteristic histopathological findings, the diagnosis of hypertrophic vulvar tuberculosis without documented pulmonary involvement was established.

Where available, microbiological confirmation by mycobacterial culture or molecular testing would provide additional diagnostic support. However, genital tuberculosis may be paucibacillary, and microbiological confirmation can be difficult to obtain. [3–6]

Therapeutic intervention

- The patient was treated with standard antituberculous therapy for a total duration of six months.
- No surgical excision of the vulvar lesions was performed.

Follow-up and outcome

- The clinical evolution was favorable.
- Progressive regression of the vulvar hypertrophy was observed during antituberculous treatment, with marked improvement of the vulvoperineal lesions.
- No additional surgical treatment was required.

TIMELINE

Clinical period	Event
Approximately 1 month before admission	Onset of papillary vulvoperineal lesion
Admission	Extensive vulvar hypertrophy with anoperineal and inguinal extension identified
Initial assessment	No constitutional symptoms, lymphadenopathy or pulmonary abnormalities
Diagnostic work-up	Vulvar biopsy performed
Histopathology	Epithelioid and giant-cell granulomas with caseous necrosis
Extension assessment	Chest radiography without pulmonary abnormalities
Diagnosis	Hypertrophic vulvar tuberculosis
Treatment	Antituberculous therapy for 6 months
Follow-up	Marked clinical regression and favorable outcome

DISCUSSION**Vulvar tuberculosis: a rare manifestation**

Female genital tuberculosis most frequently involves the fallopian tubes and endometrium. Vulvar involvement is considerably less common and is primarily described through case reports and small clinical series. [2–12]

The rarity of vulvar involvement may result in delayed diagnosis, particularly when the lesion presents as a tumor-like mass.

Recent publications illustrate the broad clinical spectrum of this disease. Singh *et al.*, reported vulvar tuberculosis presenting as an ulcerative lesion, whereas Sharma *et al.*, described a hypertrophic vulvar form mimicking a malignant lesion. [7,8]

Yu *et al.*, subsequently reported ulcerative vulvar cutaneous tuberculosis secondary to genital tract tuberculosis, demonstrating that both primary-appearing and secondary vulvar manifestations may occur. [9]

More recently, cases of vaginal and vulvar tuberculosis presenting as masses or isolated lesions have further emphasized the potential for genital tuberculosis to mimic neoplastic disease. [10–12]

A pseudotumoral presentation

The most striking feature of our case was the marked hypertrophic and pseudotumoral appearance of the vulvar lesion.

The lesion measured approximately 10 × 5 cm and extended from the labia majora to the anoperineal and inguinal regions. Associated nodular lesions were also present on the posterior vaginal wall.

This clinical presentation is unusual and may strongly suggest vulvar carcinoma.

Squamous cell carcinoma should therefore remain an important differential diagnosis in a woman presenting with an extensive vulvar mass.

However, infectious and inflammatory causes must also be considered, particularly when the lesion has an atypical appearance or occurs in a tuberculosis-endemic setting.

A biopsy is consequently essential before establishing a definitive diagnosis.

Histopathological diagnosis

Histopathology was decisive in our patient. The biopsy demonstrated epithelioid and giant-cell granulomas associated with caseous necrosis.

Caseous necrosis within an epithelioid granulomatous inflammatory reaction is highly suggestive of tuberculosis in an appropriate clinical context. [3–6]

However, granulomatous inflammation is not pathognomonic of *Mycobacterium tuberculosis*. Fungal infections, syphilis, sarcoidosis, Crohn's disease and other inflammatory or infectious conditions may produce granulomatous lesions.

Therefore, microbiological confirmation should be pursued whenever feasible.

Molecular diagnostic tests can be particularly useful in extrapulmonary tuberculosis, where conventional smear microscopy and culture may have limited sensitivity. WHO recommendations emphasize the increasing role of rapid molecular diagnostic methods in tuberculosis diagnosis and drug-resistance detection. [13,14]

Absence of pulmonary involvement

- An important feature of our case was the absence of documented pulmonary disease.

- Chest radiography was normal and the patient had no respiratory symptoms.
- However, a normal chest radiograph does not establish that the vulvar lesion represents primary tuberculosis.

The infection may arise from an occult or previously unrecognized focus through hematogenous or lymphatic dissemination.

Therefore, the terminology “vulvar tuberculosis without documented pulmonary involvement” is more appropriate than “primary vulvar tuberculosis” unless a complete investigation has definitively excluded another primary focus.

Diabetes mellitus as a relevant comorbidity

The patient had poorly controlled insulin-treated type 2 diabetes mellitus.

Diabetes is a recognized risk factor for tuberculosis. A 2024 Cochrane systematic review confirmed an association between diabetes and increased risk of tuberculosis disease. [15]

The coexistence of diabetes and tuberculosis is clinically relevant because hyperglycaemia can impair several components of innate and adaptive immunity.

Diabetes may also influence tuberculosis treatment outcomes, although the magnitude and mechanisms of this effect vary among studies.

In the present case, diabetes should therefore be considered an important associated condition. However, a causal relationship between poor glycaemic control and vulvar localization cannot be established from a single case.

The histopathological findings in our patient were decisive in differentiating tuberculosis from these alternative diagnoses.

Treatment

Treatment of drug-susceptible tuberculosis is based on combination antituberculous therapy.

Current WHO guidance provides recommendations for the treatment of drug-susceptible and drug-resistant tuberculosis. [19]

In our patient, six months of antituberculous therapy resulted in marked regression of the vulvar lesions.

The favorable response supports the clinical diagnosis, although therapeutic response alone should not be considered a substitute for microbiological or histopathological confirmation.

Role of surgery

Surgery is not generally the primary treatment for vulvar tuberculosis.

Medical therapy is the cornerstone of management.

Surgical intervention may nevertheless be considered in selected patients with persistent hypertrophic tissue after adequate antimicrobial treatment, particularly when residual lesions produce functional or cosmetic problems.

In our patient, the clinical response to medical therapy was sufficient and no surgery was required.

REVIEW OF THE RECENT LITERATURE

Recent publications confirm the exceptional nature of vulvar tuberculosis.

In 2020, Singh *et al.*, described vulvar tuberculosis presenting as a large ulcerative lesion. [7]

In 2021, Sharma *et al.*, reported a hypertrophic form of vulvar tuberculosis, emphasizing the possibility of confusion with vulvar malignancy. [8]

Also in 2021, Carton *et al.*, reported vaginal tuberculosis presenting as a potential differential diagnosis of vaginal malignancy. [10]

In 2022, Yu *et al.*, described ulcerative vulvar cutaneous tuberculosis secondary to genital tract tuberculosis. [9]

More recently, Melesse Bicha *et al.*, reported female genital tuberculosis presenting as an anterior vaginal wall mass, demonstrating again that genital tuberculosis may mimic a neoplastic lesion. [12]

Challita *et al.*, reported an isolated *M. tuberculosis* vulvar lesion confirmed by histology and mycobacterial culture, with complete resolution after antituberculous treatment. [11]

Desai *et al.*, also reported vulvar tuberculosis presenting as a clinical masquerade of other vulvar conditions, further illustrating the diagnostic challenge associated with this rare localization. [20]

These reports demonstrate that the clinical spectrum of genital tuberculosis may be considerably broader than the classic manifestations of infertility, menstrual disturbances and pelvic pain.

Our case adds another unusual phenotype: extensive hypertrophic vulvar tuberculosis involving the labia majora, anoperineal and inguinal regions, with associated vaginal nodules, in a patient with poorly controlled type 2 diabetes mellitus and no documented pulmonary involvement.

LEARNING POINTS

- Vulvar tuberculosis is an exceptionally rare manifestation of female genital tuberculosis.
- It may present as an extensive hypertrophic or pseudotumoral lesion and mimic vulvar malignancy.
- Histopathological examination is essential for the diagnosis of atypical vulvar lesions.

- Epithelioid and giant-cell granulomas associated with caseous necrosis should raise strong suspicion of tuberculosis.
- A normal chest radiograph does not exclude extrapulmonary genital tuberculosis.
- Diabetes mellitus is an important comorbidity associated with increased susceptibility to tuberculosis.
- Antituberculous therapy can result in substantial regression of vulvar lesions, and surgery is not necessarily required.

DISCLOSURE

The authors have nothing to disclose.

Ethics Statement: Ethical approval was not required for this case report in accordance with the policies of our institution.

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

Conflicts of Interest: The authors declare no conflicts of interest.

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