Difficulties in diagnosing tuberculosis of the cervix in a post menopausal woman: Case report and literature review

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CASE REPORT

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Abstract

Tuberculosis (TB) of the cervix is a rare disease, especially in developed countries. We presented a patient with primary TB of the cervix with no concurrent immune deficiency or HIV infections. The case clinically mimicked carcinoma of the cervix. Difficulties in diagnosis have been discussed. Given the recent increase in migration patterns including travel from TB endemic areas, an abnormal-looking cervix should be regarded with a degree of suspicion for TB.

Key Words
Tuberculosis, cervix, female genital tract

Implications for Practice:

1. What is known about this subject?
TB of the cervix is a rare condition in developed countries.
2. What is the key finding in this case report?
TB of the cervix can mimic cervical carcinoma and diagnosis can be difficult, especially when histological specimens do not always have a positive culture or AFB stain.
3. What are the implications for future practice?
In those patients with suspected TB of the cervix with negative stains for AFB, the presence of typical granulomatous disease is sufficient for diagnosing TB once other causes of granulomatous cervicitis is excluded.

Background

Tuberculosis (TB) of the cervix is rare in the developed world; it accounts for 0.1-0.65% of all TB cases.[1] Further, 95% of TB of the female genital tract (FGT) is located in tissues other than the cervix.[1] However, it is impossible to assess the true magnitude of FGT TB since most cases remain asymptomatic, unreported or misdiagnosed.[2] It usually occurs in women of child-bearing age, indicating a possible hormonal relation.[1-4]

We presented a case of TB of the cervix in an older, post-menopausal patient due to the rarity of this condition and that it clinically mimicked carcinoma of the cervix.

Case details

A 72-year-old multipara lady of Cambodian ethnicity presented with a three-week history of lower abdominal pain, decreased appetite, fevers and weight loss of seven kilograms. She also reported increased watery mal-odorous per vaginal discharge but no bleeding. A speculum examination at the time revealed an unhealthy looking cervix with a fungating irregular shaped mass which bled on contact. A chest X-ray at time of admission showed a collapsed right middle lobe with consolidation (Figure 1). Blood tests during admission revealed a microcytic anaemia, normal white cell count and a marginally raised C-reactive protein.

A pelvic ultrasound scan revealed an atrophic endometrium only. Following this a CT scan reported a large cervical mass, thought to be the primary tumour. A cervical biopsy revealed prominent necrosis with residual areas of viable connective tissue widely involved by necrotising granulomatous inflammation (Figure 2). There was no polarisable or refractile foreign material identified and there was no viable cervical parenchyma available for assessment.

Figure 1: Showing chest radiology at admission and six months post treatment

Top: AP CXR at admission showing right middle lobe collapse and consolidation
Bottom: CXR following six months of treatment showing marked improvement in consolidation

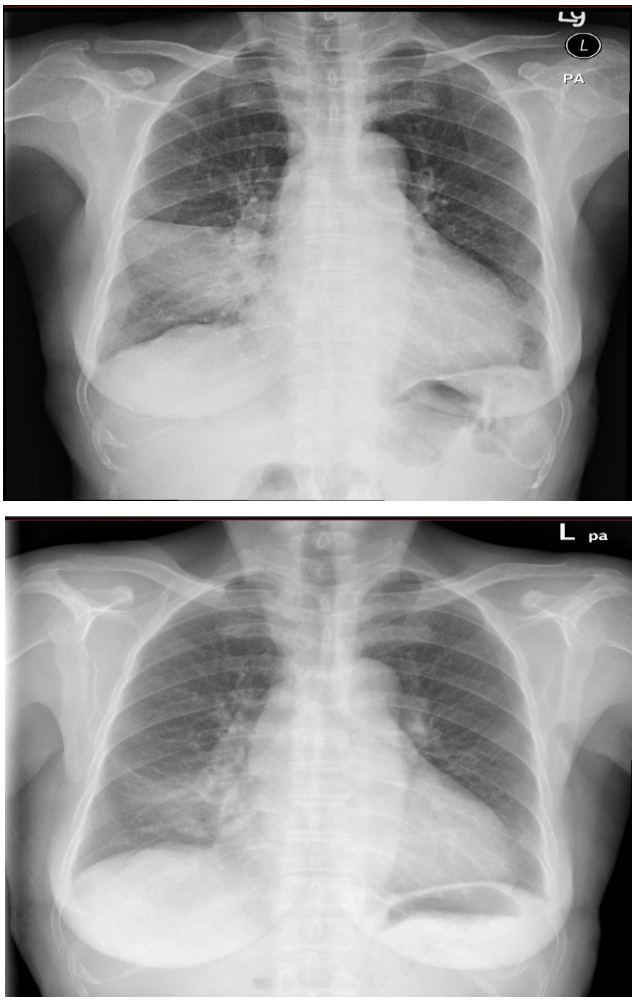
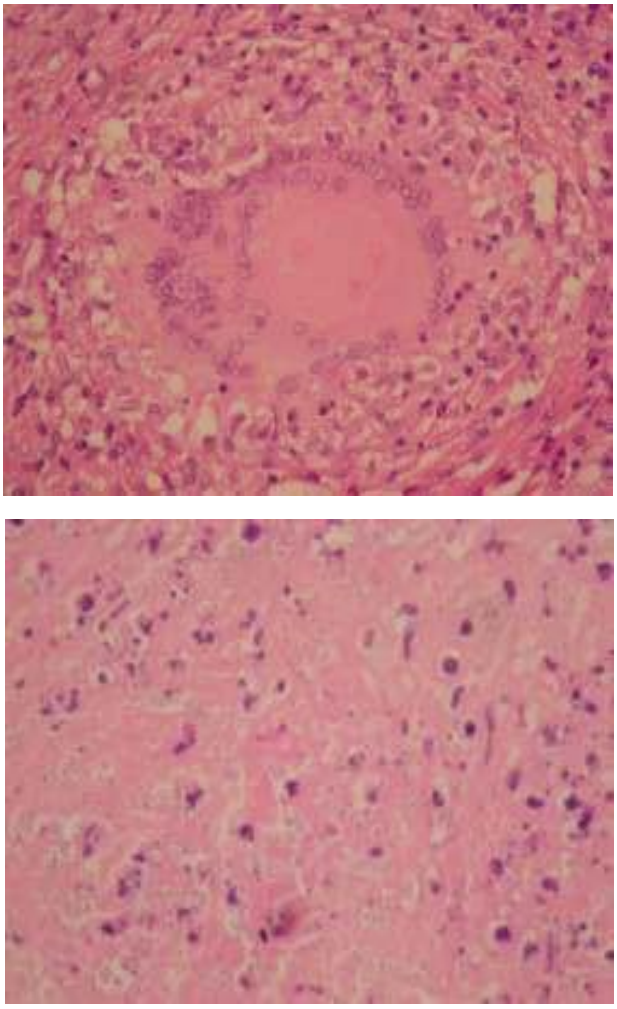


Figure 2: Showing pathologic characteristics seen in biopsy samples

Top: High power view of lymph node showing Langhans Giant cells with wreath-like nuclei and necrotising granulomatous inflammation

Bottom: High power view of cervix showing numerous neutrophils with caseous necrosis



As a result, a fine needle aspiration (FNA) of a solitary unilateral neck lymph node was carried out. On histological examination, the lymph node parenchyma was almost completely effaced by necrotising granulomatous inflammation (Figure 2). The granulomata were large and serpiginous in shape, with numerous Langhans-type multinucleate giant cells identified. Centrally, the granulomata demonstrated eosinophilic necrosis, with occasional neutrophils. Special stains for microorganisms were performed on both the cervical and lymph node specimens. Methanamine silver and PAS stains were negative for fungal organisms. Acid fast bacilli were not visualised on Ziehl Nielsen staining. Assessment of Auramine-Rhodamine stains utilising fluorescent microscopy, did not identify fluorescent bacilli (Figure 3).

A cervical smear, performed during the presentation, did not show evidence of granulomatous inflammation. Three urine samples were negative for acid- fast bacilli (AFB). Three sputum AFB stains were negative but all sputum cultures grew Mycobacterium (Figure 3).

She had a markedly positive Mantoux with a 35mm response and a positive Quantiferon Gold test. Schistosomal antibodies, amoeba haemagglutination and Brucella antibodies were all negative. Swabs for *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, and *Herpes simplex* virus were negative. A negative serum ACE titre reduced the possibility of active sarcoidosis. Immunoglobulin tests revealed no impaired immunity and she was HIV negative.

Our patient was started on quadruple anti-TB therapy (Isoniazid, Rifampicin, Ethambutol and Pyrazinamide) and showed some improvement symptomatically (lethargy, night sweats, appetite) after four weeks of treatment. The large fungating mass in her cervix was completely healed after two months of treatment. At the four month follow up, our patient reported symptomatically being back to her normal self. Radiologically, there has been improvement though there is a persisting opacity in her lung (Figure 2), is likely reflective of ongoing change. Our patient will be completing six months of therapy with further follow up at that stage.

Figure 3: Showing summary of Auramine-Rhodamine staining and culture of specimens

Specimen type	Ziehl-Neelsen stain	Culture
Sputum X3	Negative	Positive
Urine X3	Negative	Negative
Supraclavicular LN FNA	Negative	Positive
Cervical Biopsy	Negative	Not done

Discussion

FGT TB is uncommon and it is rarer still in developed countries. Further, in TB of the FGT, the upper genitourinary organs, such as the fallopian tubes and ovaries are more commonly affected.[1] We presented a case of cervical TB in one of the tertiary hospitals in New Zealand due to its rarity. Most cases of cervical TB are seen in women from second and third decades of age, indicating a hormonal dependence. Our patient was unusual since the pathology presented much later in life.

FGT TB is caused primarily by *Mycobacterium tuberculosis* or *Mycobacterium bovis*. In 92% of cases the pelvis is infected from a primary source by haematogenous spread.[5] In rare cases TB has been thought to be introduced by a sexual partner with tuberculosis epididymitis.[6] In certain rare cases it is thought that infected sputum used as a sexual lubricant may also be a route for transmission.[2]

Our patient had no respiratory symptoms on presentation and did not have any previous respiratory history of note. Further, chest radiology revealed only acute changes in the lung. Therefore, primary TB of the cervix was suspected in our patient.

Clinically, TB of the cervix does mimic carcinoma of the cervix. It can present with common symptoms such as abnormal vaginal bleeding or discharge and abdominal pain.[7,8] Speculum examination often shows an unhealthy cervix with possible mass lesions, as in our patient, that can look like carcinoma. Microscopically, the presence of caseating granulomas is not diagnostic since they may also be found in other pathologies such as, sarcoidosis and infections of schistosomiasis, brucellosis, tularaemia and amoebiasis.[9] The pattern of necrotising granulomatous inflammation in this case, including large, confluent granulomata with necrosis and Langhans-type giant cells was highly suggestive of mycobacterial infection as an aetiology. Although some neutrophils were present, the predominant pattern was not considered suppurative. Although classically associated with fungal infections, it is recognised that mycobacterial infections can occasionally have neutrophilic infiltrates.[11]

Our case mirrored other cases where clinicians have found staining for AFB to not be useful as a diagnostic test.[4, 7,8,10] In our patient, sputum, urine, lymph node FNA and core biopsy of the cervix all had negative Ziehl-Neelsen staining even though all except the urine samples had a positive culture. Isolation of mycobacterium is considered the gold standard for diagnosis, although, a third of cases are culture negative.[6] More recently, certain authors have suggested that Papanicalou smear test can aid in diagnosis.[5] The presence of epithelioid and multinucleated histiocytic cells are an abnormal feature and should prompt further investigation. However, the usefulness of this test has not been fully assessed in the case of TB of the FGT. Certainly, in our case, the smear did not show evidence of granulomatous inflammation. Therefore this test can only be considered as a potential screening tool.

Therefore, diagnosing TB of the cervix is a challenging problem for the clinician. In those patients with suspected TB of the cervix with negative stains for AFB, the presence of typical granulomatous disease is sufficient for diagnosing TB, once other causes of granulomatous cervicitis is excluded.

Although the incidence of TB of the FGT is low in developed countries, with the increase in TB incidence globally and increased migratory patterns of people from areas of high TB incidence, clinicians in developed countries should have a high index of suspicion for tuberculosis when confronted with an abnormal cervix.

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PEER REVIEW

Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests. We also declare that all the authors have approved the final version of this manuscript.

PATIENT CONSENT

The authors, *Saptarshi Mukerji, Lyle Moncur, Brendon Sanders, Alexandra Currie*, *Alistair Watson* and *Karen Leeman* declare that:

1. They have obtained written, informed consent for the publication of the details relating to the patient(s) in this report.
2. All possible steps have been taken to safeguard the identity of the patient(s).
3. This submission is compliant with the requirements of local research ethics committees.