

Research Letter

Tuberculosis of the uterine cervix

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Tuberculosis (TB) is a bacterial infection frequently seen in less developed countries. It is a frequent cause of chronic pelvic inflammation and infertility. The incidence was reported to be 58/100,000 population in Taiwan in 2009 [1]. While lung and lymph node localization are common, genital organ involvement is more rare. Tuberculosis involvement in the female genital tract in almost all cases is secondary to extragenital tuberculosis [2]. It has been estimated that 5–13% of the cases of pulmonary TB develop a genital infection [3]. The fallopian tubes are affected most commonly (90%), followed by the endometrium (50%) and the ovaries (10–30%). The cervix is rarely involved and accounts for 5–24% of the cases of genital tract tuberculosis [4]. We describe here a case of secondary amenorrhea with cervical tuberculosis, along with the colposcopic findings.

A 21-year-old Vietnamese woman presented with amenorrhea and primary infertility over the past 4 years. Her marriage brought her to Taiwan. Her menarche had occurred at 13 years of age. Her menstrual history was uneventful until she was 18 years old, when she had an episode of irregular spotting and was treated in her country. Then she came to Taiwan. No menstruation has been noted since her arrival. We conducted hormonal tests at our hospital, including follicle-stimulating hormone, luteinizing hormone, estradiol, prolactin, testosterone, and thyroid function, which all fell within normal levels. The uterine size was 5.7 × 3.1 cm via ultrasound. Pelvic and colposcopic examinations revealed vegetative growth at the 3 o'clock position of the uterine cervix and multiple yellowish caseous nodules covering the entire cervix (Fig. 1). We did a cervical punch biopsy. The histologic slide showed granuloma formation composed of histiocytes and multinucleated giant cells (Fig. 2). Occasional acid-fast (+) bacilli were seen under acid-fast stain. A TB culture of the cervix revealed *Mycobacterium tuberculosis*,

and we made a diagnosis of mycobacterial infection of the uterine cervix.

She was referred to a pulmonologist, but no pulmonary lesions were found. The acid-fast stain of the sputum was negative. The sputum culture revealed no growth of mycobacterium species for 8 weeks. Antimycobacterial drugs were given for 9 months. Another colposcopy was done after she completed the course of treatment. No yellowish caseous nodules were found (Fig. 3). We did a second cervical punch biopsy and discovered chronic cervicitis. Neither acid-fast bacilli nor granuloma were identified. The cervical TB culture showed no growth of mycobacterium species.

We conducted a hysterosalpingogram and noted bilateral tubal occlusion. Consequently, *in vitro* fertilization was suggested. She still had amenorrhea for 2 years after the TB treatment, but withdrawal bleeding was noted after a progesterone injection. Two years later, she now has a regular menstrual cycle.

Tuberculosis is still a major cause of morbidity and mortality around the world. It is endemic in Taiwan. The risk factors for the development of tuberculosis include immigration, low income, immunosuppression, human immunodeficiency virus, and living with patients who have tuberculosis [5].

Symptomatic genital TB usually presents with menstrual irregularities, abnormal vaginal bleeding, and abdominal pain. However, some young cases are asymptomatic and discovered accidentally during investigations of infertility. In developing countries, genital TB may account for 3% or more of the patients with infertility [6]. The genital organs are usually infected from the primary chest lesion by hematogenous spread [7,8]. Tuberculous salpingitis is the most common manifestation of genital tract tuberculosis. From the fallopian tube, the infection disseminates to the endometrium and/or cervix by lymphatic spread or by direct extension. In our case, the primary TB infection was in the genital region, possibly in the cervix, based on the negative pulmonary investigations.

The macroscopic appearance of tuberculous cervicitis mimics cervical cancer [9,10]. Via the colposcopy, there are

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Fig. 1. Multiple yellowish caseous nodules over the whole cervix and vegetative growth at the 3 o'clock position on the uterine cervix.



Fig. 3. Resolution of the caseous nodules and vegetative growth after 9 months of antitubercular treatment.

two features. The first finding consisted of a deep ulcer with irregular margins and a granulomatous, necrotic base that bled readily and had multiple, indurated nodules covered by normal epithelium. In other cases, when acini are associated with ectopic columnar epithelium, they are edematous, hypertrophic, and covered with sticky yellow mucus [11]. The iodine staining of the acetowhite area in tuberculous cervicitis contradicts a diagnosis of cancer [12]. The diagnosis of tuberculosis can be confirmed either by histopathology or bacteriology. Isolation of mycobacterium is the gold standard for diagnosis. While some cases do culture negative, a histologic examination of a cervical specimen can confirm the diagnosis. The detection of typical granulomata is sufficient for diagnosis if the other causes of granulomatous cervicitis, such as amoebiasis, schistosomiasis, brucellosis, tularemia, sarcoidosis, and foreign body reaction, have been excluded [4]. Cytologic detection of tuberculous cervicitis by cervical smears has been documented [13]. Staining for acid-fast bacilli was not found to be very useful in making the diagnosis. However, with recent advancements, nested polymerase chain reaction has been used in vaginal cytology smears and has proven more sensitive than cultures [14].

A lesion on the cervix provides a marker to assess response to therapy. Serial colposcopic observation and histopathological examination by punch specimens can confirm a therapeutic

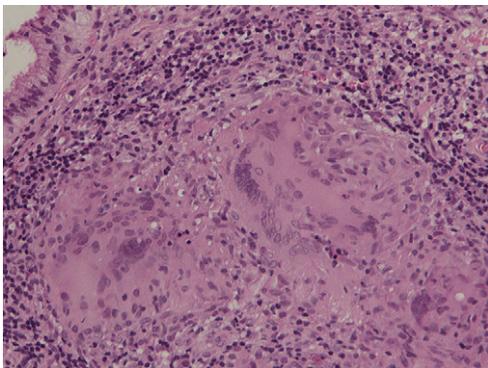


Fig. 2. Granulomas containing Langerhans' giant cells and epithelioid histiocytes in the endocervix (hematoxylin & eosin, original magnification $\times 200$).

response. In this case, the cervical TB culture and biopsy under the colposcope showed a complete response after 9 months of medical treatment [15]. However, the prospects for fertility are not usually encouraging even after treatment, owing to the endometrial and tubal involvement and subsequent healing by fibrosis. *In vitro* fertilization with embryo transfer remains the most effective method of treating the associated infertility.

In Taiwan, the incidence of TB has decreased recently, but it is still high despite advances in antimycobacterial therapy and TB control measures [1]. There should be a high index of suspicion for tuberculosis in women with abnormal cervical appearance, especially immigrants, those with a family history of TB, as well as those with a low socioeconomic status or infertility.

References

- [1] Centers for Disease Control, R.O.C. (Taiwan). Taiwan Tuberculosis Control Report 2010. Taipei: Centers for Disease Control, Department of Health, R.O.C. (Taiwan); 2010. p.14.
- [2] Sharma JB, Roy KK, Pushparaj M, Kumar S, Malhotra N, Mittal S. Laparoscopic findings in female genital tuberculosis. Arch Gynecol Obstet 2008;278:359–64.
- [3] Varma TR. Genital tuberculosis and subsequent infertility. Int J Gynecol Obstet 1991;35:1–11.
- [4] Lamba H, Byrne M, Goldin R, Jenkins C. Tuberculosis of the cervix: case presentation and a review of the literature. Sex Transm Infect 2002; 78:62–3.
- [5] Chow TW, Lim BK, Vallipuram S. The masquerades of female pelvic tuberculosis: case reports and review of literature on clinical presentations and diagnosis. J Obstet Gynaecol Res 2002;28:203–10.
- [6] Chowdhury NNR. Overview of tuberculosis of the female genital tract. J Indian Med Assoc 1996;94:345–61.
- [7] Sinha R, Gupta D, Tuli N. Genital tract tuberculosis with myometrial involvement. Int J Gynecol Obstet 1997;557:191–2.
- [8] Sutherland AM, Glen ES, MacFarlane JR. Transmission of genitourinary tuberculosis. Health Bull 1982;40:87–91.
- [9] Shobin D, Sall S, Pellman C. Genitourinary tuberculosis simulating cervical carcinoma. J Reprod Med 1976;17:305–8.
- [10] Kumakech W, Zamblera D, Jolaoso A. The multifaceted presentation of tuberculosis in gynaecology: a masquerader as cervical cancer as well as a cause of primary infertility in the same patient. J Obstet Gynaecol 2006;26:178–9.
- [11] De Palo G. Colposcopic appearance of benign cervical disease. CME J of Gynecol Oncol 2005;10:41–5.

- [12] Baliga BS. Biopsy proven cervical intraepithelial neoplasia: management options. In: Principles and practice of colposcopy. 2nd ed. New Delhi: Jaypee Brothers Medical Publishers; 2009. p. 240–5.
- [13] Samantaray S, Parida G, Rout N, Giri SK, Kar R. Cytologic detection of tuberculosis cervicitis: a report of 7 cases. *Acta Cytol* 2009;53:594–6.
- [14] Ferrara G, Cannone M, Guadagnino A, Nppi O, Barberis MC. Nested polymerase chain reaction on vaginal smears of tuberculosis cervicitis. A case report. *Acta Cytol* 1999;43:308–12.
- [15] Aliyu MH, Aliyu SH, Salihu M. Female genital tuberculosis: a global review. *Int J Fertil Woman Med* 2004;49:123–36.