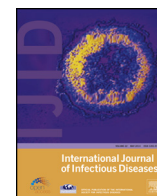


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## Case Report

## Cervical syphilitic lesions mimicking cervical cancer: a rare case report



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## SUMMARY

A woman presented to the hospital due to postcoital vaginal bleeding. The patient was initially diagnosed with cervical carcinoma by clinicians at a local hospital. However, a biopsy of the cervical lesions revealed chronic inflammation and erosion of the cervical mucosa, and the rapid plasma reagin ratio titer was 1:256. The patient was eventually diagnosed with syphilitic cervicitis and treated with minocycline 0.1 g twice a day. The patient was cured with this treatment.

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## 1. Introduction

Syphilitic chancre of the external genitalia is the main clinical manifestation of primary syphilis.<sup>1</sup> However, the occurrence of similar lesions on the uterine cervix is a rare event. There have been no more than 20 cases reported so far, and no cases of syphilitic cervicitis have been reported since the year 2000. We report a case of syphilitic cervicitis. The patient was initially diagnosed with cervical carcinoma.

## 2. Case report

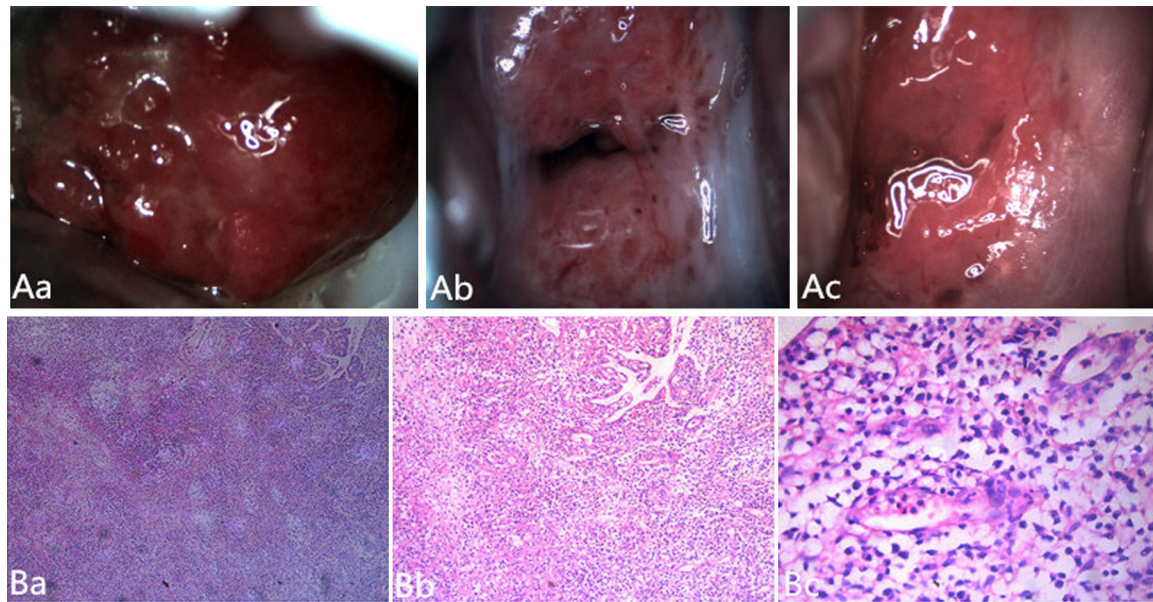
A 42-year-old Chinese woman, with regular menses, presented to our hospital due to a 2-year history of vaginal bleeding after sexual intercourse. She was post status gravida 4, para 2, with a history of tubal ligation (operation in 2002), appendectomy (in 1988) and surgery for nasal polyps (in 2009). She had no skin rashes or sores in her mouth, vagina, or anus. There were no symptoms of the late stages of syphilis, including difficulty coordinating muscle movements, paralysis, numbness, blindness, or dementia. She had a regular male partner and had had no other sexual partners in the time prior to symptoms. She was otherwise well, had no significant past medical history, and was not taking any medications. She initially went to see a doctor in the local hospital. The doctor noted the cervical lesions and performed a biopsy after a pelvic examination. A ThinPrep cytological test (TCT) was not done at that time. The pathology report for the biopsy

noted that there was chronic inflammation and erosion of the cervical mucosa. However, cervical carcinoma was diagnosed by the clinicians at the local hospital.

The patient attended our hospital for further therapy. A pelvic examination revealed an irregular eminence on the cervix, especially on the front lip, that did not involve the vagina. The vaginal fornix was soft and there were no obvious nodules. The right parametrium was thickened and shorter, without nodules, and the left was normal. Pelvic magnetic resonance imaging (MRI) revealed that the external cervical orifice tissue, especially the front lip, was thickened with enhanced signals. The radiology report stated cervical carcinoma. However, TCT of the cervix gave no indication of malignant lesions. Moreover, the pathology report for the biopsy specimen obtained in our hospital considered the lesions to be chronic inflammation (Figure 1). The report described an infiltration of lymphocytes, plasma cells, histiocytes, and debris in the cervical tissue. Colposcopy showed irregular bulges covering the cervix (Figure 1). Herpes simplex virus IgM antibody was negative. Also, human papillomavirus DNA testing, the Chlamydia antigen test, and gonococcus culture were all negative. A complete blood count, urinalysis, electrolytes, and liver enzyme studies were all within normal limits. An electrocardiogram and chest X-ray findings were also within normal limits.

However, syphilis serology demonstrated positive results for the treponemal IgM/IgG antibody test and treponemal pallidum particle agglutination assay (TPPA). The rapid plasma reagin (RPR) ratio was 1:256. However, we could not identify *Treponema pallidum* in the cervical tissue stained with Giemsa stain. We thus performed silver staining of the tissue, but still could not identify *T. pallidum*.

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**Figure 1.** Colposcopy and pathology findings of the cervical lesions. (Aa) Before treatment: the uterine cervix is covered with irregular bulges. (Ab) After 2 weeks of treatment: the cervix is relatively smooth compared to pretreatment. (Ac) After 4 weeks of treatment: the cervix is nearly normal. (Ba)–(Bc) Stroma heavily infiltrated by lymphocytes, plasma cells, histiocytes, and debris (hematoxylin and eosin stain; Ba  $\times 50$ , Bb  $\times 100$ , Bc  $\times 400$ ).

The patient was finally diagnosed with syphilitic cervicitis on the basis of clinician experience. As the patient was allergic to penicillin, she was treated with minocycline 0.1 g twice a day. Two weeks after hospital discharge, a pelvic examination showed that the cervical lesions had disappeared. Follow-up serology showed the RPR ratio to be reduced to 1:64. These results indicated the effectiveness of minocycline for treatment. A follow-up colposcopy examination showed a relatively smooth cervix compared to the previous findings (Figure 1). The patient then continued with the primary therapeutic schedule for 10 weeks. The RPR ratio of the patient was reduced to 1:32 after treatment with minocycline for 4 weeks and to 1:4 after treatment for 3 months. Colposcopy examination showed an almost normal cervix after 3 months of treatment (Figure 1). After 4 months of treatment, the RPR ratio was 1:1.

After the patient was diagnosed with syphilitic cervicitis, her partner agreed to an auxiliary examination for syphilis. His TPPA test was positive, however the RPR ratio was within the normal limits. The patient's partner refused treatment.

### 3. Discussion

No cases of syphilitic cervicitis have been reported since Gutmann reported two cases in 1995.<sup>2</sup> Syphilitic cervicitis represents a rare event. An increasing number of clinicians have never encountered syphilitic infections of the cervix. Since the manifestations of syphilitic cervicitis mimic those of a cervical malignancy, it could easily be misdiagnosed.

According to the guidelines of the Centers for Disease Control and Prevention (CDC), syphilis can be divided into four overlapping stages: primary stage, secondary stage, latent stage, and tertiary stage. During the primary stage, the average incubation time is 2 to 3 weeks, after which a painless papule appears at the site of incubation. Approximately 25% of patients with an untreated infection will develop secondary syphilis within 4 to 6 weeks after the appearance of the primary lesion. During the secondary stage, one may have a generalized rash, fever, generalized lymphadenopathy, malaise, alopecia, aseptic meningitis, uveitis, etc. Latent syphilis is the period during which patients infected with *T. pallidum* have no symptoms but positive serological testing.

Tertiary syphilis can arise as early as 1 year after the initial infection, or up to 25 to 30 years later.<sup>3</sup> It may involve the central nervous system (CNS), cardiovascular system, skin, or mucous membranes. The gumma is the classic lesion found in tertiary syphilis. In the case presented, the patient had only the symptom of vaginal bleeding, without CNS or cardiovascular symptoms. The timeline suggests that she was in the late stage of syphilis; however, the manifestations suggest that she was in the primary stage. Furthermore, pathology revealed no granuloma. These contradictory results may indicate that the timeline of syphilitic cervicitis differs to that of general syphilis. The test results for the patient's partner showed that he may have been infected with *T. pallidum*, but was cured spontaneously. We speculate that the patient's cervical infection may have been transmitted from her partner.

Penicillin is the first choice for the treatment of syphilis. Doxycycline, tetracycline, or erythromycin may be used for patients who are allergic to penicillin.<sup>4</sup> According to the guidelines of the Chinese Center for Disease Control and Prevention,<sup>5</sup> patients who are allergic to penicillin should be treated with the following schedule: (1) doxycycline 100 mg oral, twice a day for 15 days; (2) tetracycline hydrochloride 500 mg oral, four times a day for 15 days. The duration can be prolonged to 30 days for patients who accept the doxycycline therapy in the late stages of syphilis. There are no guidelines for the treatment of syphilitic cervicitis. The appropriate duration of treatment may be difficult to determine. In this case, the patient accepted a 70-day therapy of minocycline. This therapeutic schedule may not be the most suitable.

Various types of cytokine secretion change during the different stages of syphilis, and there has been a lot of research into cytokine secretion in syphilis. In one study, it was found that the cells of syphilitic patients were already able to produce interleukin (IL)-2, interferon, tumor necrosis factor, and IL-10, and weakly IL-6, in primary seronegative syphilis.<sup>6</sup> However, this research was based on syphilitic patients with constitutional symptoms. In the present case, we did not investigate cytokine secretion. However, relevant investigations will be considered if there are cases of patients with local syphilitic lesions in the future. This may help to reveal the pathogenesis of local syphilitic lesions.

The purpose of this case report is to increase awareness among clinicians. When a patient complains of postcoital spotting, or

other similar symptoms, and cervical lesions are discovered, syphilitic cervicitis should be taken into account. Routine laboratory testing should include RPR and TPPA. Clinicians should pay particular attention to biopsy results for the lesions. If necessary, further examinations can be performed to assist in the diagnosis.

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