

## Diagnosis of tuberculous cervicitis by Papanicolaou-stained smear

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Tuberculosis (TB) is a common infection in the developing countries. It can involve most organs. Genital TB is usually secondary to pulmonary or extragenital TB. Tuberculosis most commonly involves the upper genital tract. Involvement of the cervix is rare. In countries like India, where carcinoma of cervix is very common, cervical TB may easily be mistaken clinically for malignancy. We report a case of tuberculous cervicitis (secondary to pulmonary tuberculosis) in a 54-year-old postmenopausal woman, who presented with a complaint of discharge per vaginum for a short duration. Per speculum examination showed an ulcerated lesion over anterior lip of cervix, clinically suggestive of malignancy. However, a Papanicolaou-smear showed features suggestive of tuberculosis which was confirmed by biopsy, resulting in early diagnosis and treatment of the patient. Hence, in a patient with a suspicious cervical lesion and a prior history of tuberculosis, a diagnosis of cervical tuberculoiss must be considered.

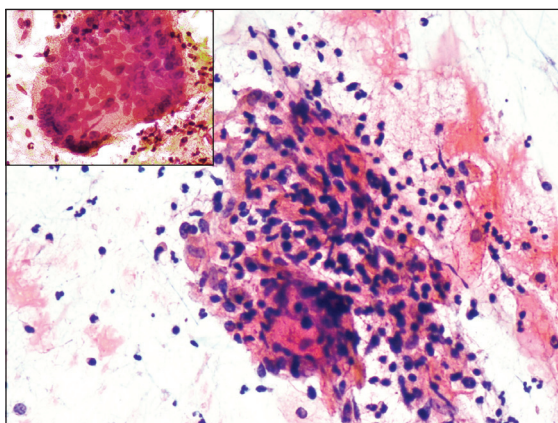
**T**uberculosis (TB) is a common infection, especially in developing countries and can involve almost all bodily systems. Genitourinary involvement is usually secondary and detection is delayed because of the late development of symptoms. Cervical TB is rare and only a few documented cases (less than 8 case reports and a series of 7 cases) of tuberculous cervicitis have been described. They are often clinically wrongly diagnosed as carcinoma of cervix since the colposcopic features are very similar.<sup>1</sup>

### CASE

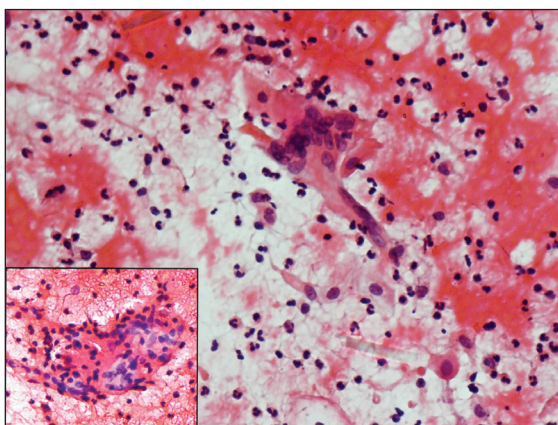
A 54-year-old nulliparous postmenopausal Indian woman presented to the gynecologic outpatient department of a tertiary referral center, being referred from a primary health clinic, with a complaint of discharge per vaginum for 2 months. It was serous in nature, non-foul smelling, and not associated with pruritus. It was not associated with bleeding or postcoital spotting. She was a known hypertensive on regular treatment, on oral amlodipine and clonidine, for 7 years. There was no history of loss of appetite; however, there was a history of weight loss. The patient did not have any other constitutional symptoms like cough or fever.

The vitals were within normal limits. On per vagi-

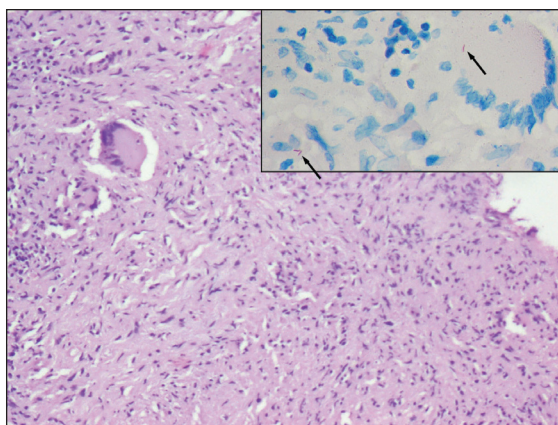
num examination, the perineum appeared unremarkable. Palpation revealed no cystocele or prolapse of the uterus. Per speculum examination (using a Graves speculum) showed a normal vagina with an ulcerated growth over the anterior lip of the cervix, obliterating the external os. A Papanicolaou smear was then taken using an Ayres spatula. On palpation, the same growth was felt, which bled on touch. However, a bimanual examination revealed a normal-sized uterus, and the fornices were free. The parametria also appeared free. A clinical diagnosis of carcinoma of cervix was made, considering the age. A pap smear taken was sent to the pathology laboratory attached to the tertiary referral center. Subsequently, a cervical biopsy was also done to rule out malignancy. On microscopy, the vaginal smear studied was partly air-dried and showed superficial, intermediate, and parabasal cells along with a few epithelioid cell clusters, numerous Langhans giant cells (Figures 1, 2), lymphocytes, plasma cells, and histiocytes against a background of focal patchy necrosis. A diagnosis of granulomatous cervicitis, probably TB was made and a biopsy requested for confirmation. The histological examination of the cervical biopsy showed tissue bits with ulcerated mucosa overlying tuberculous granulation tissue, which was composed of well-formed granulomas



**Figure 1.** Smear showing a granuloma composed of epithelioid cells admixed with epithelial cells and a histiocytic giant cell (inset). Papanicolaou stain,  $\times 200$ .



**Figure 2.** Smear showing Langhans giant cell with neutrophils in the background and a granuloma (inset). Papanicolaou stain,  $\times 200$ .



**Figure 3.** Section showing tuberculous granulation tissue with confluent granulomas and Langhans giant cells. HE,  $\times 100$ . Inset showing acid fast bacilli (arrows) within the epithelioid cells and Langhans giant cells. Modified Gabbett stain,  $\times 400$ .

with epithelioid histiocytes, Langhans, and foreign body giant cells with focal necrosis. A modified Gabbett staining for acid fast bacilli showed numerous tubercle bacilli, especially within the giant cells (**Figure 3**).

The chest x-ray showed fibrous areas, suggestive of old healed TB. The patient was subsequently given antituberculous treatment for 6 months (ethambutol 1 g; isoniazid 300 mg; pyrazinamide 1.5 g; and rifampicin 600 mg for 2 months and isoniazid 300 mg and rifampicin 600 mg for 4 months) following which she was asymptomatic. The follow-up pelvic examination showed a normal cervix on per speculum examination, and the ultrasound scan also showed a uterus of normal size with an endometrium of 1.5 mm thickness. However, 2 months after completing the treatment, she developed cough and breathlessness. The chest x-ray showed a minimal right-sided pleural effusion with underlying opacity, suggestive of an old healed TB or an active lesion. This was followed by a CT, which revealed a mass/consolidation in the right lower lobe. CT-guided fine-needle aspiration cytology from the lesion was planned to differentiate an active pulmonary TB from malignancy, but the patient went against medical advice and did not return for the follow-up.

## DISCUSSION

Tuberculous cervicitis is rare and is usually secondary to abdominal TB or tuberculous endometritis by direct extension, tuberculous salpingitis through lymphatic spread or pulmonary TB through hematogenous route. The cervix is affected between 3% to 15% of cases of genital TB.<sup>1</sup> The diagnosis depends on a histological examination with a demonstration of epithelioid histiocytes and Langhans giant cells forming granulomas and a bacteriological examination with a demonstration of tubercle bacilli. Of late, TB polymerase chain reaction (PCR) has been used for the detection of bacilli.<sup>2</sup> However, cervical smears constitute an easy tool for the detection of cervical TB. There have been only a few case reports on the diagnosis of tubercular cervicitis in cervical smears.<sup>3</sup> Association with immunodeficiency and carcinoma in situ has also been documented.<sup>4,5</sup>

Macroscopically, there may be papillary or vegetative growths, a miliary appearance, and/or presence of ulcer thus simulating invasive cervical cancer.<sup>4</sup> Microscopically, it may show caseating granulomas. The demonstration of epithelioid cells, Langhans giant cells, and caseous necrosis in vaginal smears are diagnostic of cervical TB. Smears should be meticulously scanned for granulomas, especially in young women with a clinical suspicion of carcinoma of the cervix.

Granulomatous inflammation involving the cervix can

be seen in sarcoidosis, foreign body reaction, and following radiotherapy in postmenopausal women.<sup>6</sup> Amebiasis, schistosomiasis, brucellosis, and tularemia also produce granulomatous cervicitis. A histological examination of a cervical biopsy specimen is essential for confirmation, to rule out any associated hyperplasia or malignancy.

A previous study documented that staining for acid fast bacilli was not very useful in making the diagnosis.<sup>4</sup> However, in our case, Gabbet staining on the biopsy specimen demonstrated numerous acid fast positive bacilli, some inside the giant cells. Nested PCR amplification of mycobacterial DNA fragments on smeared and Papanicolaou-stained cytologic material has been used for confirmation of cervical TB.<sup>6</sup> In conclusion, a combi-

nation of caseous necrosis, epithelioid cells, multinucleate cells, and Langhans giant cells in vaginal smears are highly suggestive of TB, which can be confirmed by biopsy. An initial diagnosis by vaginal smears reduces the mental stress of the patient, especially in an older age group, by ruling out the more ominous and common carcinoma.

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