COEXISTENCE OF TUBERCULOSIS AND BILATERAL OVARIAN ADENOCARCINOMA : A CASE REPORT

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**Abstract**

*Peritoneal tuberculosis is generally secondary to hematogenous dissemination of Mycobacterium tuberculosis during primary infection. It is often confused with advanced ovarian cancer.*

*We report a case of coexisting tuberculosis and ovarian cancer in a postmenopausal woman. This was an unique and unusual case, due not only to the uncommon localization but also to the bilateral nature of the lesion and the histological type of ovarian cancer.*

*The diagnosis of this coexistence of two diseases is not always suspected on clinical examination. It is confirmed by anatomopathological examination. The diagnosis and treatment of tuberculosis in patients with cancer have a great importance in patients with coexisting pathologies.*

**Key words:** *Mycobacterium tuberculosis, Ovarian mucinous carcinoma, Peritoneum, Tuberculosis, Madagascar*

**INTRODUCTION**

Tuberculosis is a public health problem worldwide [1]. The extra-pulmonary form, which is the peritoneal localization, is most often known to mimic advanced ovarian cancer [2-6]. Association of those lesions is uncommon. Pathological association is rare, and the majority of cases reported in the literature are of ovarian tuberculosis mimicking cancer. We report a case of coexisting tuberculosis and mucinous adenocarcinoma of the ovary.

**Case report**

This was a postmenopausal woman, aged 60, G2P2. She complained of chronic abdominal pain of the right hypochondrium, during 2 years, with a prick-like sensation, associated with genital bleeding becoming more and more abundant, motivating her consultation in 2023. She had a history of pulmonary tuberculosis in 1998, declared cured after 8 months of anti-tuberculosis treatment, and an ovarian cyst on ultrasound during prenatal consultations for her first pregnancy (around the age of 30), without any particular treatment.

Due to the history of anorexic state, weight loss and night-time fever prompted an abdomino-pelvic CT scan. It was revealed voluminous multilobulated cystic formations with a predominance of fluid, latero-uterine on both sides of the ovaries, measuring 120 mm long axis on the left and 142 mm on the right. The uterus was enlarged with hypodense endometrial thickening of 29 mm and irregular cervical thickening of 55 mm. On ultrasound, theree were multiple mediastinal lymph nodes of semi-centimetric size.

She underwent bilateral adnexectomy. On gross examination, the left and right fallopian tubes were dilated, measuring 10 and 15 mm in diameter respectively. The left and right ovaries were enlarged and measured 230 and 130 mm in diameter. The external surface was smooth. On cut section, they presented heterogeneous cross-sectional slices solid, with a fleshy whitish appearance, and cystic pattern, with gelatinous contents and intracystic vegetations. Histologicaly, both ovaries were the site of the same lesion. This was an infiltrative tumour proliferation organized into glandular tubes or cribriform clusters, rarely outlining papillae. The glands were mainly lined by mucosecretory cells with moderate cytonuclear atypia, pseudostratified (Fig 1c). An endometrioid-type contingent (fig 1 a, b) was associated. The stroma was fibrosis. This proliferation infiltrates the ovarian stroma and invades the uterine tubes from the serosa to the mucosal chorion. In the tumoral stroma, epithelioid granulomas with Langhans-type giant cells (fig 1a) without caseous necrosis were observed. The tubal walls on both sides showed epithelioid granulomas associated with Langhans-type giant cells, suggestive of tuberculosis. The diagnosis was “mucinous adenocarcinoma of the ovaries (pT2aNx) associated with bilateral tubo-ovarian tuberculosis.

**Discussion**

Tuberculosis is a growing public health problem worldwide, with around six million new cases every year. Genital tuberculosis accounts for 5% of female pelvic infections [7]. Pelvic tuberculosis is generally secondary to systemic dissemination of *Mycobacterium tuberculosis* during primary infection [8]. This could be the case for the patient in this study who presented with pulmonary tuberculosis at the age of 34, which was well treated and cured, but there may have been quiescent bacilli that reactivated. Tuberculosis bacilli spread through the bloodstream, affecting the fallopian tubes (100%), then the endometrium (50%), ovaries (20%), cervix (5%), vagina and vulva (less than 1%) [6,7]. Ovarian cancer ranks 8th among female genital cancers, and mucinous carcinoma accounts for 3-4% of primary ovarian cancers [9].

Tuberculosis can be seen at any age, but ovarian cancer occurs most frequently in older women [9]. This was observed in this study, where the patient was already menopausal and aged 60. On the other hand, Saini A et al [7] reported a case in a young woman (21 years), in her first pregnancy at 10 weeks.

Clinically, the usual presentations of genital tuberculosis can be dysmenorrhoea, post-menopausal bleeding and an abdominopelvic mass mimicking those of an ovarian or endometrial carcinoma [7, 10]. This makes it unlikely to suspect the coexistence of these pathologies on clinical and/or paraclinical examination.

The patient in this study presented with chronic abdominal pain, genital bleeding and signs of tuberculosis impregnation, but the existence of a cystic ovarian mass on imaging, together with an abnormality of the uterus, steered the diagnosis towards a tumoral origin.

The synchronous presence of infection and ovarian malignancy presents a diagnostic challenge. Since clinical and paraclinical data generally do not lead to a definitive diagnosis, preoperative diagnosis is difficult. [11]. It is obtained after histopathological examination [12]. Macroscopically, ovarian tumours vary in size. It measured 20 cm in the case reported by Saini A et al [7]. In the case of this study, it was bilateral and measured 13 and 23 cm respectively. The diagnosis was confirmed on microscopic examination by the discovery of tumour proliferation infiltrating the ovarian parenchyma and the presence of epithelioid granuloma centred by caseous necrosis with Langhans-type giant cells. The diagnosis and treatment of tuberculosis in a patient with cancer is of great importance, as high morbidity has been observed in patients with coexisting disease [8]. Among female genital organs affected by tuberculosis, the incidence of ovarian involvement is 10%. Ovarian tuberculosis is generally a sequela of tuberculous salpingitis. [12] This was the case in the patient in this study, who also presented with tubal tuberculosis.

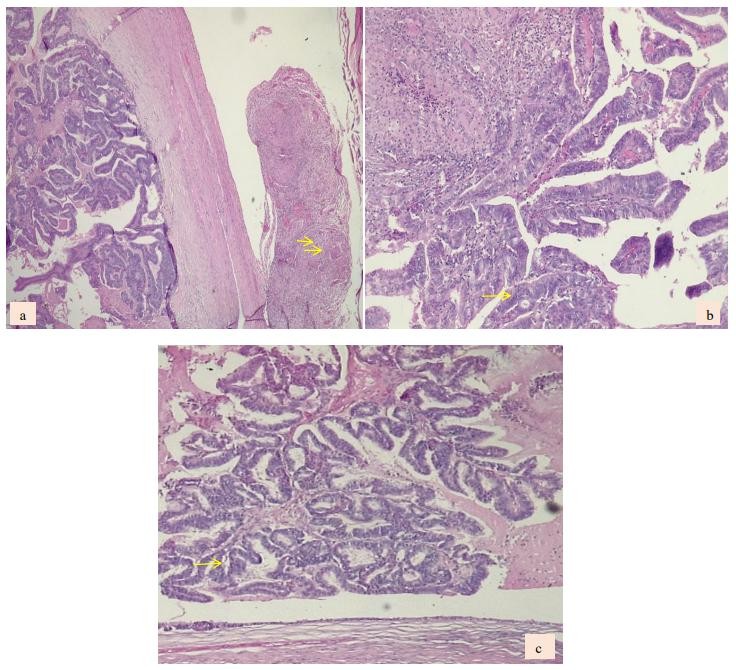
The association of tuberculosis and ovarian tumor has been reported by a few others. Lobo FD et al [12] reported the association with a serous cystadenoma and an association with a dermoid cyst for О.B. Kalinkina et al [13]. For A Saini et al [7], it was a malignant tumor, in this case a dysgerminoma, with tubal and peritoneal tuberculosis, and for Akitoshi Yamamura et al [14], it was tuberculosis with an endometrioid carcinoma of the ovary. For the patient in this study, it was a mucinous carcinoma associated with tubo-ovarian tuberculosis, also bilateral.

The mechanism of the coexistence of these two lesions within the ovary is still unclear, as regards the influence of one pathology on the other [8]. It remains to be determined whether tuberculosis, a chronic inflammatory disease, facilitates carcinogenesis and induces the appearance of ovarian cancer, or whether the cachectic, immunosuppressed state of the cancer patient provides a good nutritional basis for the survival of dormant tubercle bacilli. In general, patients are cachectic at the time of consultation, as both malignancy and tuberculosis cause altered general condition. [8, 15]. This coexistence of tuberculosis and cancer in the genital sphere has been reported by a number of authors, such as Metin Ingec et al [16] who reported serous carcinoma of the uterine tube with tuberculous salpingitis, Gupta A et al [8] endometrioid adenocarcinoma and endometrial tuberculosis, and Hsu CT et al [15] an association with squamous cell carcinoma of the uterine cervix. Cervical cancer has been included in the list of diseases defining acquired immunodeficiency syndrome in HIV-infected patients, and tuberculosis has also resurfaced since the HIV pandemic. According to Gupta A et al [8], Abbott MR et al [17], decreased immunity caused by HIV infection is a risk factor for the development of cervical cancer and tuberculosis, with the appearance of a secondary focus by decompensation or reactivation of the primary tuberculosis focus occurring due to decreased cellular immunity [12, 17, 18]. Tuberculosis complicating a malignant tumor can occur in regions where the prevalence of the disease is high. [8]. Kaplan et al have also reported that immunosuppression, inherent or related to therapy, is probably involved in the increased incidence of tuberculosis in patients with malignant neoplasms. [18, 19].

In the case of this study, the patient presented with an ovarian mass at the age of 30 with no further investigations at that time. She had presented with pulmonary tuberculosis at the age of 34. This could probably support the hypothesis of cancer promoting the development of dormant pelvic tuberculosis, if the ovarian tumour discovered previously corresponded to a malignant lesion. Since the diagnosis of ovarian cancer was made at the age of 60, if the ovarian mass initially discovered had been benign, would the subsequent appearance of tuberculosis have favoured the transformation of the initially benign tumour into cancer, given that mucinous carcinoma most often appears after the age of 55 [9].

**Conclusion**

The clinical aspects of tuberculosis and ovarian cancer may be similar, masking the suspicion that the two pathologies coexist, the diagnosis being histopathological. It is important to bear this possible association in mind when discovering genital cancer, especially in a patient with a history of pulmonary tuberculosis. Further studies are still needed to determine whether tuberculosis infection, as a chronic inflammatory condition, could be involved in carcinogenesis.



**Figure 1 : Ovary. Mucinous adenocarcinoma (single arrow) with epithelioid granuloma and giant cells, Langhans-type (double arrow). HEx100 (a, c) HEx200 (b)**

**Source: Department of Pathology, Joseph Ravoahangy Andrianavalona Hospital, Antananarivo, Madagascar**

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