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Genital tuberculosis mimicking ovarian malignancy: case series and review of literature

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ABSTRACT:

— ***Objective:*** Tuberculosis infection of the female genital organs most commonly presents with infertility, menstrual irregularities, dyspareunia and chronic PID. Very infrequently, the disease may mimic an ovarian malignancy and pre-operative differentiation between the two becomes a real challenge.

— ***Patients and Methods:*** A study of all cases of female genital tuberculosis diagnosed in the last two years and presenting with features of ovarian neoplasm in a tertiary level institute was done.

— ***Results:*** Out of 28 patients, eight women of GTB had atypical presentation and had a different primary diagnosis. Out of these, two women presented with acute abdomen and a primary diagnosis of tubal pregnancy was made in one and pyosalpinx in other. Six women presented with tubo-ovarian masses and elevated CA-125 levels. A primary diagnosis of tubo-ovarian malignancies was made in all these cases and laparotomy was done in each. The final diagnosis of genital tuberculosis was confirmed through the histopathological examination in each of these six patients and the patients responded on antitubercular treatment.

— ***Conclusions:*** A high index of suspicion is required for diagnosis of cases of tuberculosis, especially in endemic areas. Though mainstay of treatment is anti-tubercular therapy, however adequate surgical intervention in advanced cases can expedite the recovery of patient.

— ***Keywords:*** Genital tuberculosis, Infertility, Atypical presentation, Diagnostic dilemma, Ovarian malignancy.

INTRODUCTION

Tuberculosis continues to be an unresolved challenge for health care systems across the world. The problem is particularly alarming for India, which accounts for about one fourth of the global disease load[1]. While tuberculosis primarily affects the lungs, the extra-pulmonary disease contributes to around 15-20% of the burden of the disease[2]. Genitourinary Tuberculosis (GTB) is a common form of extra-pulmonary TB worldwide (27%) with genital TB alone accounting for 9% of all EPTB cases[3]. Infertility is the most frequent clinical presentation of GTB, occurring in 43-74% of the cases[4]. Besides infertility, tuberculous infection of the female genital organs can result in menstrual irregularities, dyspareunia and chronic PID. It can also mimic pelvic malignancies, acute and chronic pelvic inflammatory diseases and even can go completely asymptomatic. Cases have been reported in the literature where cervical TB has even been misdiagnosed as cervical carcinoma[5]. The disease conundrum is accentuated by the disparate and highly diverse clinical presentation. We report a series of six women, in whom genital tuberculosis had masqueraded as ovarian malignancy.

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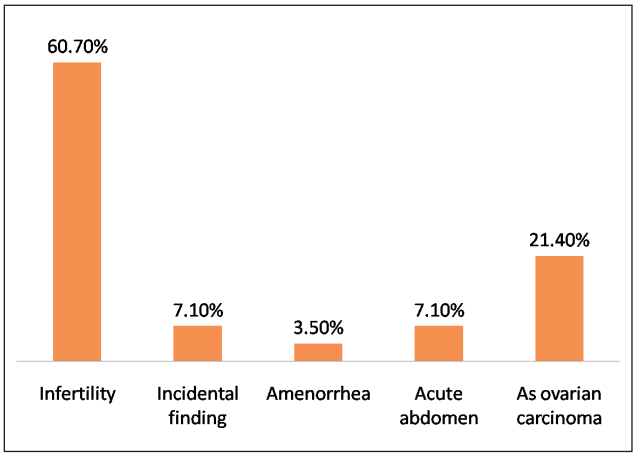

Figure 1. Presentations of Genital tuberculosis in the instant study.

PATIENTS AND METHODS

This retrospective observational study was conducted at the Obstetrics and Gynecology Department of a Tertiary Level Institute in North India. The data was collected from the clinical records of indoor patients diagnosed with the genital tuberculosis over a two-year period from June 2015 to June 2017. All the cases of GTB, which had an entirely different primary diagnosis, were segregated and the data regarding their age, clinical features, investigations, treatment undertaken and the outcome were studied in detail.

RESULTS

Over the two years of the study period, indoor records yielded 28 patients who had been ultimately diagnosed with genital tuberculosis. Out of these 28 patients, 17 cases presented with infertility. In two cases, genital tuberculosis was an incidental finding in the uterus specimen after vaginal hysterectomy done for utero-vaginal prolapse, and as such were excluded from the study due to absence of any cause-effect relationship between tuberculosis and prolapsed and incidental nature of findings. One patient out of 28 was diagnosed with secondary amenorrhea, which came out to be tuberculosis on histopathological examination of endometrial tissue sample. Eight cases presented with entirely atypical symptoms and a different primary diagnosis, other than GTB, were made in these cases. A comparison of the various presentations of the disease in our study has been depicted at Figure 1. We encountered six cases in which a primary diagnosis of ovarian malignancy was made; however, the final diagnosis of genital tuberculosis was confirmed through the histopathological examination and the patients responded on antitubercular treatment. The predominant clinical symptoms in all these cases were abdominal distension and vague pain abdomen. The constitutional symptoms like low-grade fever, cough, night sweats and loss of appetite, which are well associated with tuberculosis, were conspicuously absent. Examination and imaging investigations revealed tubo-ovarian masses of varying sizes

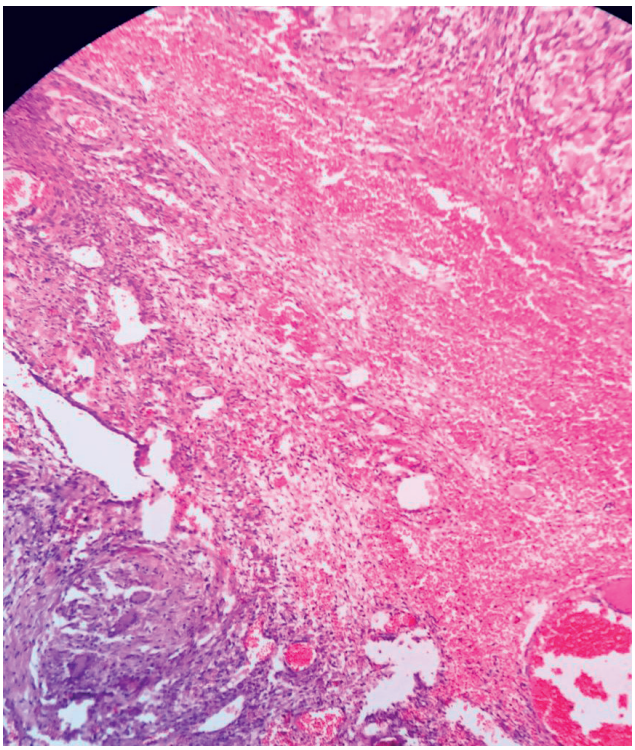

Figure 2. Tubercular Granuloma in ovarian tissue in case no. 4 (Table 1).

in the patient and the CA-125 levels were elevated mildly to moderately, strengthening the primary diagnosis of ovarian malignancy. An exploratory laparotomy was performed in every case and the intra-operative findings were consistent with the diagnosis of tuberculosis. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed in one patient who had a huge tubo-ovarian mass. Omental biopsy and other biological tissue were taken in all cases, which subsequently showed granulomatous inflammation on histopathological examination (Figures 2, 3). All the patients were started on anti-tubercular treatment (four drug treatment for two months and two drug for four months) and they responded well. The individual findings of the cases are summarized in Table 1.

DISCUSSION

Genital tuberculosis in females is found in 0.75% to 1% of all gynecological admissions in India[6]. The disease is responsible for 5% of all female pelvic infections and occurs in 10% cases of pulmonary tuberculosis[7]. The disease affects the fallopian tubes in almost every case, the endometrium in half the cases and the ovaries in about one fifth of cases.

The predominant symptom of genital tuberculosis is infertility, to the extent that three out of four patients of the disease can present either with primary or secondary infertility[4]. The prime presentation of GTB in the instant study has also come out to be infertility, occurring in as much as 60.7% of cases. Conversely, the incidence of genital tuberculosis in patients with infertility has been estimated to be between 3% to as high as 24.2%

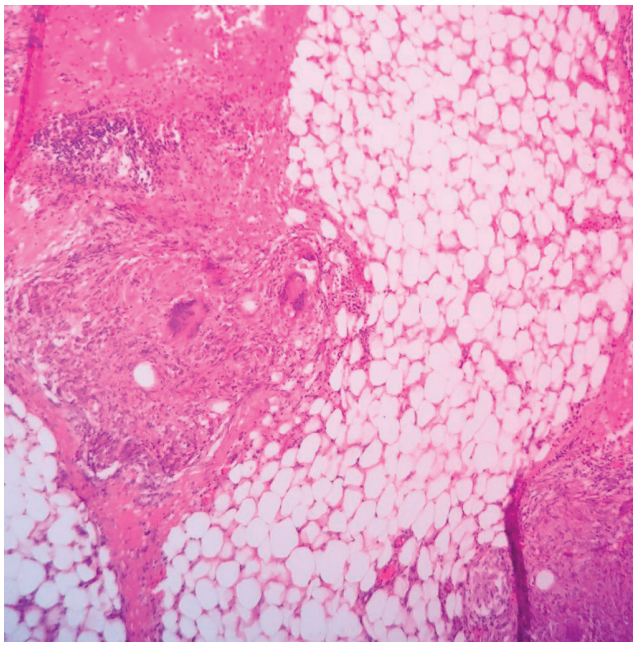

Figure 3. Tubercular granulomas detected in omental tissue.

in various studies [8-10]. The association of infertility with genital tuberculosis is so high, that the latter should always remains one of the differential diagnosis in case of the former, irrespective of the presence or absence of constitutional symptoms like nights sweats and loss of appetite[11]. Tuberculosis continues to be a great masquerader and genital infection is no different. Besides infertility, it can present in a myriad of symptoms depending upon the site of involvement of genital organs and can even go asymptomatic in as many as 11% of the cases[9]. A diagnostic dilemma arises in cases of genital tuberculosis where the presenting features and examination findings are not consistent with the predominant ones described and commonly encountered. The present study highlights the predicament since as high as 21.4% of cases of GTB had atypical presentations. There are cases reported in the literature where vulval and vaginal TB presented itself as extensive painful genital ulcers even in sexually inactive women[12-14]. A tubercular tubo-ovarian mass can closely mimic certain conditions like tubo-ovarian masses of gonococcal or pyogenic origin, pelvic endometriosis, old pelvic hematocele, benign or borderline ovarian cysts and pelvic malignancies. Arora et al[15] presented a series of three patients where primary diagnosis of a neoplasm was made but the histopathological examination revealed a diagnosis of genital tuberculosis. The sites in these three cases were endometrium, lymph node and the pouch of douglas, respectively. Gascón and Acién[16] have reported a case of an eighteen year old female presenting with hypogastric discomfort and pelvic inflammatory disease where ultrasound and tumor markers suggested ovarian malignancy while laparotomy revealed large pelvic abscesses with bilateral pyosalpinx. The diagnosis of tuberculous infection was confirmed on histopathological examination and culture. In a series of five cases reported by Chabra et al[17] a primary diagnosis of an ovarian tumour was made in two cases while diagnosis of ectopic pregnancy was made in one case of a 25 year old woman. Tagore and Ramineni[18] have reported a case of an 18-year-old female with bilateral tubo-ovarian masses, mimicking ovarian malignancy. The CA-125 levels are usually elevated in tuberculosis, mainly in extra-pulmonary locations with abdominal involvement[19]. This has been attributed to proliferation of mesothelial cells in proximity of tuberculous granulomas and subsequent expression of CA-125 glycoprotein[20]. Keeping in view, the potential atypical presentations of the disease, a high index of suspicion is required in endemic areas. In cases of large abdominopelvic masses with elevated levels of CA-125, an exploratory laparotomy should be considered to confirm the diagnosis[22,23].

CONCLUSIONS

It emerges that genital tuberculosis in females can afflict at any point of age and it can present itself with plethora of symptoms, adding confusion to the diagnostic.

Table 1. Findings in cases of tuberculosis mimicking ovarian malignancies.

Sr. no.	Age of patient	Imaging	CA-125 levels
1	40	Large adnexal mass on the right side measuring 9.8 X 7 X 8 cm with solid component on ultrasonography, similar findings on Contrast enhanced CT scan	45 IU/mL
2	18	Ultrasonology detected an isodense lesion mixed with hypodensity of size approximately 11.7 X5.9 X 8.6 cm. The mass was seen arising from the right ovary and going into the Pouch of Douglas. There were multiple papillary excrescences in the mass having moderate heterogenous enhancements suggestive of malignant ovarian tumor	108 IU/mL
3	41	Very large abdomino-pelvic mass of size approximately 9.5 X 7.6 centimeters with large amount of free fluid. Contrast enhanced computed tomography showed multiple lesions in the liver suggestive of metastases	450 IU/mL
4	25	Bilateral complex solid-cystic masses of size 77 X 62.6 mm and 110 X 62.9 mm in the right and left adnexa respectively on ultrasonography.	237 IU/mL
5	20	Mass of 6.2 X 4.5 cm in right adnexa (ultrasonography)	319 IU/mL
6	23	Mass of 8.4 X 6.5 cm in left adnexa (ultrasonography)	249 IU/mL

While evaluating any patient in outpatient department or emergency room, one should always keep in mind the possibility of tuberculosis, especially in endemic areas. Whenever the diagnostic techniques and the clinical examination are giving inconsistent results, it is better to go in for surgical intervention to directly visualize the disease and obtain material for histopathological examination which should clinch the diagnosis in majority of cases. Prompt and appropriate surgical intervention coupled with adequate antitubercular therapy can drastically improve the results in terms of cure from the disease and restoration of female reproductive functions.

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Informed consent was obtained from all individual participants included in the study. All authors have contributed, read and approved the manuscript, and also that the manuscript has not been previously published nor is not being considered for publication elsewhere.

Conflict of Interests:
The Authors declare that they have no conflict of interests.

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