

Female genital tuberculosis: Histopathological study

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ABSTRACT

Aims: To find out the occurrence of genital tuberculosis in submitted samples of female genital tract, histopathological changes and age distribution.

Methods: A retrospective study of 300 cases of extrapulmonary tuberculosis out of which 11 are of female genital tract based on laboratory record which was done from 2011 to 2018 at Patan Academy of Health Science, Lalitpur, Nepal. Descriptive analysis performed using MS Excel and SPSS 16.

Results: Out of 30,000 biopsies 300 cases were of extrapulmonary tuberculosis. Out of 300 extrapulmonary tuberculosis females affected were 61%; out of these female patients 3.6% (n=11) were of female genital system. Maximum numbers of the cases lie in the age group 30-39 years. Lymph nodes comprised of 58%, followed by Gastrointestinal and Skin in 10% each. Out of all female genital tuberculosis 27% was seen in endometrium while majority (73%) was seen in tubo-ovarian complex; all of them had epithelioid granuloma and 54% had caseous necrosis. Ziehl Neelson stain done for acid fast bacilli was positive in 2 cases (18%).

Conclusions: The female genital TB constituted 0.04% of total biopsies with 3.6% samples of female patients of total extrapulmonary tuberculosis. The commonest sites affected by tuberculosis were seen to be fallopian tube, ovaries and endometrium. Histopathology with special stains remains the gold standard for diagnosing female genital tuberculosis in Nepal even though there is advanced diagnostic modalities like PCR, culture of tissue and/or fluid (menstrual/peritoneal).

Keywords: caseous necrosis, epithelioid granuloma, female genital, tuberculosis

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INTRODUCTION

Tuberculosis (TB) is a major public health problem worldwide despite a declining trend in mortality, with effective diagnosis and treatment. An estimated 10.4 million people developed TB in 2015 and more than half of the TB cases (60%) were seen in South-East Asia and Western Pacific Regions. About 60 per cent of TB cases and deaths occur among males, but the disease burden is high among women also.¹ Genital TB usually occurs secondary to TB in other sites (primarily, the lungs). Predisposing factors include poverty, ill health, and immuno-suppression. The spread is generally through haematogenous or lymphatic routes.² Tuberculous infection of the female genital organs can result in infertility, dyspareunia, menstrual irregularities and chronic pelvic inflammatory disease (PID).³ In addition to infertility it gives rise to a number of sequelae

including chronic pelvic pain, ectopic pregnancy and pelvic adhesions.⁴ In Nepal tuberculosis (TB) is common and still a major cause of morbidity. Female genital tuberculosis is one form of extra pulmonary TB. Genital TB may be asymptomatic and diagnosis requires a high index of suspicion. Early diagnosis may improve the outcome before permanent tissue damage leading to permanent infertility. The objective of this study is to find out the occurrence of genital tuberculosis in submitted samples of female genital tract.

METHODS

This is a retrospective study done in the Department of Pathology in Patan Academy of Health Science, Lalitpur, Nepal. The study was conducted from 2011 to 2018. The histopathology samples were received from the operation theaters within the hospital.

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These specimens were received at Histopathology laboratory. The Histopathology reports were retrieved from the electronic record maintained at lab. All reports were examined by pathologist. All records were entered into the MS Excel spread sheet and exported to SPPSS window, and then descriptive analysis was performed.

RESULTS

Out of approximately 30,000 specimens received in the Pathology Department in the 7 year period 1% was of Extra Pulmonary Tuberculosis (EPTB). Out of 300 extrapulmonary tuberculosis females affected were 61%; out of these female patients 3.6% (n=11) were of female genital system. Lymph nodes comprised of 58%, followed by Gastrointestinal and Skin in 10% each. Out of all female genital tuberculosis 27% was seen in endometrium while majority (73%) was seen in tubo-ovarian complex.

Eighty one percent (n=9) of female genital tract tuberculosis were diagnosed histopathologically based on histological findings seen in tuberculosis while rest of the 19% (n=2 cases) was diagnosed by observing acid fast bacilli (AFB) in the histology slides. [Figure-1]



Figure-1: Frequency of extra pulmonary and genital TB in females

In all the cases of fallopian tubes and ovarian tuberculosis typical epithelioid granulomas were seen. Microscopically, features of chronic salpingitis were seen in all cases.

The main histologic finding in endometrial tuberculosis was the presence of epithelioid cell granulomas seen in all cases. Most of these granulomas were small to medium sized, isolated and scattered. Multinucleated giant cells of both Langhans and foreign body type were seen in all cases. Disruption of endometrial glands was seen in all 3 cases. Caseous necrosis was seen in 54% (n=6) of all cases. Ziehl Neelson stain done for acid fast bacilli was positive in 18% (n= 2). [Figure-2]

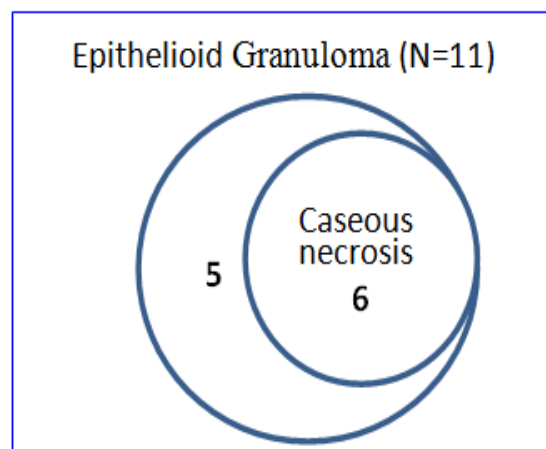


Figure-2: Histopathology as epithelioid granuloma and caseous necrosis

Age of the patients ranged from 20 to 59 years with mean age of 31.66 year. Maximum numbers of the cases were seen in the age group 30-39 years. [Figure-3]

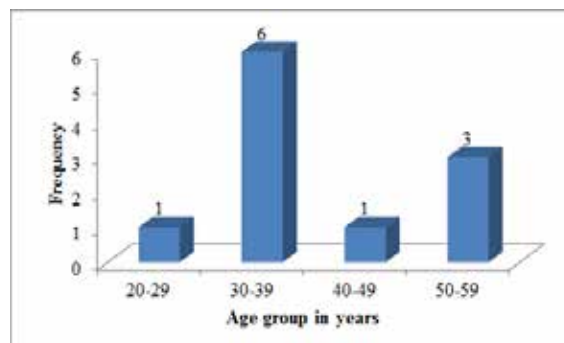


Figure-3: Frequency distribution of female genital TB by age group in years

DISCUSSION

The actual incidence of genital tuberculosis cannot be assessed accurately in any population, since the disease is discovered incidentally in many patients, and in a large number of asymptomatic patients, this disease remains undiscovered. Most cases of tuberculosis (95%) occur in developing countries.⁵ The involvement of the fallopian tubes, endometrium and ovaries due to genital tuberculosis is consistent with other studies.⁶ In a study done by Jha et al the endometrial tuberculosis is seen to be 22% which is similar to the findings of this study.⁷

Caseous necrosis was seen in 54% of cases in this study while it was present in 13.23% in a study done in India by Mondal et al⁸ and In patients of

reproductive age group caseation is rare in tuberculous endometritis.^{9,10} However in postmenopausal women, tuberculous granulomas have enough time to develop caseation as there is no periodic loss of endometrium to menstruation. In our study all three cases of endometrial tuberculosis were of premenopausal age group. In the reproductive age, tuberculous granulomas have to regenerate from the basal layer after menstrual shedding of the functionalis layer. The granulomas become well developed and numerous as the menstrual cycle progresses. Biopsy is therefore recommended just before menstruation or the late secretory phase, as the granulomas get the longest possible time to develop and there is a greater chance of providing an accurate diagnosis. In most of the studies, endometrial tuberculosis occurs mainly in women of the reproductive age group, but Falk V et al found most cases in the postmenopausal group.¹¹ Genital tuberculosis is rare in postmenopausal women and comprises 1% of postmenopausal bleeding cases.¹² The exact cause of the low incidence of the disease in this age group is not known. Most authors believe that an atrophic endometrium is a poor milieu for the growth of *Mycobacterium tuberculosis* bacilli.¹³

Clinically the diagnosis of female genital tuberculosis is challenging as it does not have any specific symptoms. Elaborate examination and diagnostic methods like ultrasound, chest x-rays, histopathological examination, culture, Ziehl-Neelson (ZN) stain and PCR analysis should be carried out for accurate diagnosis. Recently, PCR has emerged

as a rapid, sensitive and specific molecular method to diagnose female genital TB with a turnaround time of 1-2 days.¹⁴

The fallopian tubes are affected in 94% of women with genital TB. There is almost always bilateral involvement. Salpingitis results from haematogeneous infection. Spread from TB salpingitis can cause peritonitis, endometriosis, or rarely, cervicitis and vaginitis.⁵

ZN Stain for AFB is positive in 18% cases in our study while it is only 5.88% in the study done in India.⁸

In our study genital tuberculosis was seen in the age group of 30 – 39 years while in studies done in India and Pakistan the age group of the patient fell in 26-30 years category.^{15,16} This must be because our hospital is not specialized for fertility treatment and hence the younger patients with subfertility problems are referred to centers which specialize in fertility treatment.

CONCLUSIONS

In present study female genital TB constituted 3.6% of total extrapulmonary tuberculosis in female and 0.04% of total biopsies during 7 years of study period. Maximum numbers of the cases in present study were seen in the age group 30-39 years. The commonest sites affected by tuberculosis were seen to be fallopian tube, ovaries and endometrium in present study.

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