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HISTOPATHOLOGY AND CULTURE IN THE DIAGNOSIS OF FEMALE GENITAL TUBERCULOSIS

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Abstract:

Introduction: About 60 per cent of TB cases and deaths occur among males, but the disease burden is also high among women also. In 2015 nearly 500,000 women died from TB, and among them, 28 per cent had human immunodeficiency virus (HIV) co-infection. A common form of extra pulmonary TB (EPTB) is Genitourinary TB is and worldwide (27%) with genital TB alone contribute for 9 per cent of all EPTB cases. TB bacilli can infect the genital tract by four routes - haematogenous route in which lungs as the common primary focus, descending direct spread, lymphatic spread and rarely as primary infection of the genitalia through sexual transmission. The most common age group affected is the reproductive age group i.e.15-45 years. A definite diagnosis can be made by positive mycobacterial culture and by demonstrating specific histopathological lesion in the specimen

Material and Methods: Women who showed tubal factor infertility which is proved either by hysterosalpingogram (HSG) and/or laparoscopy. and those presenting with unexplained infertility were included in the study. Evidence of past chronic infection in the form of thickened tubes, intraluminal caseation, and terminal hydrosalpinx with retort shaped tubes, tubo-ovarian masses, flimsy adhesions in the pouch of Douglas (POD) were also looked for.

Results: A total of 25 patients with suspected tuberculosis were included in the study. Age group was between 23 to 34 years. Of the 25 patients 22 (88%) females were less than 30 years of age. In 2 patients there was a past history of tuberculosis. laparoscopy was carried out on all 25 cases, features suggesting genital tuberculosis was seen in 11 (44%)patients. distorted endometrial cavity, beaded appearance of the tubes, retort shaped hydrosalpinx, calcified areas and cornual blocks were considered as the features of genital tuberculosis. On histopathological examination 8 (32%) of patients shown positivity for tuberculosis. On culture 5 (20%) were positive of which all were positive by histopathological examination.

Conclusion: Histopathological examination is easy, quick and cheap and provides characteristic features of *M. tuberculosis in genital tuberculosis*. Even though Culture is the gold standard for diagnosis of MTB, histopathological methods can be considered as culture are negative in most of the cases and diagnosis can be missed.

Keywords: TB, hysterosalpingogram, Laparoscopy and EPTB

Introduction:

Tuberculosis (TB) is a major public health problem worldwide with effective diagnosis and treatment there is a declining trend in mortality, with effective diagnosis and treatment. Around 10.4 million people developed TB in 2015 and 60% of the TB cases 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 also high among women also. In 2015 nearly 500,000 women died from TB, and among them, 28 per cent had human immunodeficiency virus (HIV) co-infection[i].A common form of extra pulmonary TB (EPTB) is Genitourinary TB is andworldwide (27%) with

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genital TB alone contribute for 9 per cent of all EPTB cases[ii]. A survey by the Indian Council of Medical Research (ICMR) reported that prevalence of female genital tuberculosis (FGTB) in India has increased from 19 per cent in 2011 to 30 per cent in 2015.[iii]. Genital TB is generally secondary to pulmonary TB or extra pulmonary foci like kidneys, meninges, skeletal system and gastrointestinal system. TB bacilli caninfect the genital tract by four routes - haematogenous route in which lungs as the common primary focus, descending direct spread, lymphatic spread and rarely as primary infection of the genitalia through sexual transmission[iv]. In Genitourinary TB, organs appear normal in the early stages. In fallopian tubes the ampullary region shows the early changes and the fimbrial processes become swollen later. TB endometritis is often focal, and pathological changes such as ulceration, caseous necrosis and haemorrhage are seen in advanced endometrial TB. In advanced stages, adhesions may occur between ovaries and adjacent pelvic organs resulting in adnexal mass. Intrauterine adhesions if occur can result in partial obliteration of the uterine cavity[v]. *Mycobactrium tuberculosis* affects the female genital tract, especially the fallopian tubes, and hence causes infertility. The most common age group affected is the reproductive age group i.e.15-45 years[vi].

When TB affects genital organs of young females, it produces devastating effects by causing irreversible damage to the fallopian tube resulting in infertility which is difficult to treat both by medical and surgical methods[vii]. Intensive investigations are required in the diagnosis of the disease. Contact history, elevated ESR, X ray chest and positive tuberculin test may indicate the need for further investigations[viii]. A definite diagnosis can be made by positive mycobacterial culture and by demonstrating specific histopathological lesion in the specimen. However, these methods have low detection rates as in GTB bacilli are scanty.

MATERIAL AND METHODS

Present study was conducted in the Dept. of Pathology, at KM Medical College and Hospital, Mathura India. A total of 25 female patients were enrolled in the study having history of infertility. Ethical committee approval was obtained.

Women who showed tubal factor infertility which is proved either by hysterosalpingogram (HSG) and/or laparoscopy, presence of adnexal mass diagnosed which was diagnosed by ultrasound, presenting with recurrent pelvic inflammatory disease which is refractory to conventional therapy and those presenting with unexplained infertility were included in the study. Women in which infertility was due to abnormalities of ovulation, male factors, endocrine problems, sexual disorders, endometriosis and peritoneal adhesions due to previous abdominal surgery were excluded. All 72 patients were subjected to investigations such as Hemoglobin , total leucocyte count, differential leucocyte count (DLC), ESR, tuberculin test, chest X-ray, and abdomen and pelvic sonography. Laparoscopic features suggestive of tuberculosis like frank tubercles, caseation, granulomas and beaded tubes were noted. Evidence of past chronic infection in the form of thickened tubes, intraluminal caseation, and terminal hydrosalpinx with retort shaped tubes, tubo-ovarian masses, flimsy adhesions in the pouch of Douglas (POD) were also looked for.

The specimen for the study was collected from pre-menstrual endometrium and pouch of Douglas fluid was also aspirated at the time of laparoscopy. Culture and histopathological examination was done on all the patients. For histopathology, a portion of the endometrial tissue/tissue from the lesion over the tube was fixed in 10 per cent formalin; routine processing was done and stained with haemotoxylin and eosin. Presence of caseating granulomas surrounded by epitheloid cells, lymphocytes, plasma cells and giant cells were diagnostic of tuberculosis.

Culture of sample was done on LJ medium in this tissue sample was ground with addition of 5 ml of sterile distilled water. Deposit from the centrifuged ground specimen was used for the culture.

OBSERVATIONS AND RESULTS

A total of 25 patients with suspected tuberculosis were included in the study. Age group was

between 23 to 34 years. Of the 25 patients 22 (88%) females were less than 30 years of age. In 2 patients there was a past history of tuberculosis. laproscopy was carried out on all 25 cases, features suggesting genital tuberculosis was seen in 11 (44%)patients. distorted endometrial cavity, beaded appearance of the tubes, retort shaped hydrosalpinx, calcified areas and cornual blocks were considered as the features of genital tuberculosis. On histopathological examination 8 (32%) of patients shown positivity for tuberculosis. On culture 5 (20%) were positive of which all were positive by histopathological examination.

Table 1:

Test	N=25	Positive (%)
AFB smear	25	7(28%)
Culture	25	5(20%)
Histopathology	25	8(32%)
Laproscopy	25	11(44%)

DISCUSSION

Genital TB is mostly secondary to pulmonary TB. In the early stages the organs appear normal. The ampullary region of the fallopian tubes shows the earliest changes and then fimbrial processes become swollen. There is focal TB endometritis, and pathological changes such as ulceration, caseous necrosis and haemorrhage are seen in advanced endometrial TB. In later stages, adhesions may occur between ovaries and adjacent pelvic organs resulting in adnexal mass[ix]. In most of the cases, the disease is asymptomatic or can present with a few symptoms among which infertility is the most common. In postmenopausal women, genital TB generally presents with symptoms which resembles endometrial malignancy, like postmenopausal bleeding, persistent leucorrhoea and pyometra[x]. FGTB needs a thorough clinical examination and high degree of suspicion with use of intensive investigations[xi].

The possibility of FGTB can be considered in females with chronic pelvic inflammatory disease (PID) and are not responding to standard antibiotic treatment, unexplained infertility or in women with irregular menstrual cycle or postmenopausal bleeding and persistent vaginal discharge[xii].also according to WHO definition of EPTB, diagnosis of EPTB should be made on the basis of 'one culture-positive specimen, or positive histology or strong clinical evidence consistent with active EPTB. Laparoscopy aids in visual inspection of the female genital organs like ovaries, fallopian tubes, peritoneal cavity and biopsy of the tuberculouslesions. The advantages of combining hysteroscopy with laparoscopy include not only the exclusion of endometrial involvement but also to do interventions such as lysis of synechiae or endometrial priming with oestrogen[xiii].

In our our study out of 25 cases 8 (32%) of the cases were histopathologically positive. This percentage was higher than study by Manjari M et al[xiv]. andNagpal M et al[xv]. Histopathological examination is easy, quick and cheap and provides characteristic features of *MTB. D*ue to the cyclical shedding of the endometrium, granulomas do not have enough time to form in the endometrium so the endometrium may not show evidence of tuberculosis in all the cycles.
In 2 patients there was a past history of tuberculosis and either one or more of the other diagnostic parameters were positive. A definite past history of tuberculosis was taken as one of the parameters to arrive at a diagnostic criteria to suspect genital tuberculosis. In both the cases histopathology was positive. AFB smear positivity was7 (28%) while cultute for MTB was positive in 5(20%). All these cases were histopathologically positive. In a study by Namavar *et al*[xvi] reported AFB in direct smears of tissue biopsies in 12.19 per cent of cases. Culture positivity was less because of the low incidence of culture positivity in endometrial tissue could be due to paucibacillary nature[xvii].

CONCLUSION

Histopathological examination is easy, quick and cheap and provides characteristic features of *M. tuberculosis in genital tuberculosis*. But due to the secondary nature of the genital tuberculosis, the infecting organisms are generally less in number, the sampled site may not represent the infected area and the infected site can be easily missed. Even though Culture is the gold standard for diagnosis of MTB, histopathological methods

can be considered as culture are negative in most of the cases and diagnosis can be missed.

REFERENCES

1. WHO. WHO global tuberculosis report 2016.
2. Golden MP, Vikram HR. Extrapulmonary tuberculosis: an overview.Am Fam Physician. 2005 Nov 1; 72(9):1761-8.
3. Indian Scientists Developing Diagnostic Algorithm for Female Genital TB. Hans India.
4. Sharma JB. Current Diagnosis and Management of Female Genital Tuberculosis.J ObstetGynaecol India. 2015 Dec; 65(6):362-71.
5. Das P, Ahuja A, Gupta SD. Incidence, etiopathogenesis and pathological aspects of genitourinary tuberculosis in India: A journey revisited.Indian J Urol. 2008 Jul; 24(3):356-61
6. Qureshi RN, Samad S, Hamid R, LakhaSF. Female genital tuberculosis revisted.J Pak Med Assoc. 2001 Jan; 51(1):16-8.
7. Varma TR. Genital tuberculosis and subsequent fertility. Int J Gynaecol Obstet. 1991 May; 35(1):1-11.
8. Raut VS, Mahashur AA, Sheth SS. The Mantoux test in the diagnosis of genital tuberculosis in women.Int J Gynaecol Obstet. 2001 Feb; 72(2):165-9.
9. Das P, Ahuja A, Gupta SD. Incidence, etiopathogenesis and pathological aspects of genitourinary tuberculosis in India: A journey revisited.Indian J Urol. 2008 Jul; 24(3):356-61.
10. Sharma JB. Current Diagnosis and Management of Female Genital Tuberculosis.J ObstetGynaecol India. 2015 Dec; 65(6):362-71.
11. Bhanothu V, Theophilus JP, Rozati R. Use of endo-ovarian tissue biopsy and pelvic aspirated fluid for the diagnosis of female genital tuberculosis by conventional versus molecular methods.PLoS One. 2014; 9(5).
12. Varma TR. Tuberculosis of the female genital tract. Glob Libr Women's Med 2008.
13. Schaaf HS, Zumla A. Tuberculosis: A comprehensive clinical reference. St Louis (MO): Elsevier Health Sciences; 2009.
14. Manjari M, Khanna S, Arora U, Kahlon SK, Gulati VL, Pushpa, et al. Tuberculous endometritis in sterile females: a Clinicopathological study. Indian J Tuberc. 1995;42:227–8.
15. Nagpal M, Pal D. Genital tuberculosis - Diagnostic dilemma in OPD patients. J ObstetGynaecol India. 2001;51:127–31.
16. Bhanu NV, Singh UB, Chakraborty M, Suresh N, Arora J, Rana T, Takkar D, Seth P.Improved diagnostic value of PCR in the diagnosis of female genital tuberculosis leading to infertility.J Med Microbiol. 2005 Oct; 54(Pt 10):927-31.
17. Bhanu NV, Singh UB, Chakraborty M, Suresh N, Arora J, Rana T, Takkar D, Seth P.Improved diagnostic value of PCR in the diagnosis of female genital tuberculosis leading to infertility.J Med Microbiol. 2005 Oct; 54(Pt 10):927-31.