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### RESEARCH ARTICLE

#### HISTOPATHOLOGICAL STUDY OF TUBERCULAR ENDOMETRITIS IN PATIENTS OF PULMONARY TUBERCULOSIS WITH CLINICAL CORRELATION IN A TERTIARY REFERRAL UNIT OF ODISHA.

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Pulmonary Tuberculosis, Tubercular Endometritis, Histopathology, Z-N staining AFB .

#### Abstract

##### Background:-

After tuberculosis has been declared as Global emergency it has reawakened the interest of doctors. Genital Tuberculosis has been a subject of keen interest because it has impact on female infertility. Here this study aims at to study the Histo-pathological outcome of endometrial biopsy in diagnosed cases of Pulmonary Tuberculosis.

##### Methods:-

62 females Cases of diagnosed PTB of age Group 15-45 years having history of genital tuberculosis were enrolled in this study. The endometrial tissues of each patients collected and subjected to Histo-pathological examination and wherever required for bacteriological examination i.e. Z-N staining for AFB.

##### Results:-

Among 62 patients, highest incidence (59.68%) belong to 21-30 years age group and presented with in 1<sup>st</sup> year of development of PTB. Secondary amenorrhea, list of vaginal discharge and cervical erosion were observed in 24.19% and 25.81% of cases respectively, Eight (8) cases (12.90%) had histological finding of chronic endometritis. Out of them Four (4) cases (6.45%) were AFB positive on Z-N staining of endometrial tissue.

##### Conclusion:-

Endometrial tuberculosis though rare in pulmonary tuberculosis cases, bacteriological and histo-pathological examination of endometrial tissue should be done for early diagnosis and treatment.

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#### Introduction:-

The World Health Organization in 1993 declared tuberculosis, a common infectious disease in the Indian subcontinent, as "a Global emergency". (Talib et al, 1993) India, the world's second most populous country,

accounts for a quarter of the world's annual incidence of TB. Every year, around two million people develop TB in India and 300,000 die of TB. Over 15 million patients have been treated and three million cases were cured in last decade. (VK Arora et al 2017, MOHFW, Govt of India, 2017). Endometrial tuberculosis though rare in developed countries it is still common in developing and poor countries. (Khan Nawaz, 2005) It is almost secondary to a primary focus elsewhere in the body. Fallopian tubes are commonly the initial site of involvement and is affected mostly. (Nabamber, 2001) From primary site of tubercular infection it spreads to genital tract initially to the tubes and in most cases through the blood stream. (Kajal B Punyashetty, 2012) Female genital tuberculosis accounts to be 5–15% of infertility cases among Indian women. (Kriplani et al 2017) In India, the incidence of genital tuberculosis in infertility has been reported in 19% cases and among them 41% have tubal cause. (Tripathy and Tripathy 2002) As genital tuberculosis has a tremendous impact on the reproductive health in our country, in present scenario it has been a subject of keen interest. Many studies have been undertaken in this context (Kemal Güngördük, 2007). With this background this study aimed to find out the histopathological features of endometrium of infertility cases associated with pulmonary tuberculosis, so that early diagnosis and treatment with anti-tubercular drugs may be helpful in patients of genital tuberculosis.

### Materials and Methods:-

This observational study was carried out from 2013 to 2016 in the department of Pulmonary Medicine in collaboration with department of Obstetrics and Gynecology at a tertiary care hospital of Odisha. The ethical clearance was obtained from Institutional Ethics Committee. Written informed consent form was obtained from all the willing participants fulfilling the inclusion criteria. (Jai B Sharma et al, 2014)

As per the inclusion criteria, 62 females in the reproductive age group (15-45 years) diagnosed as pulmonary tuberculosis (RNTCP, 2012) along with some gynecological problems who were on with or without anti-tubercular treatment were enrolled. The gynecological problems included amenorrhoea, menorrhagia, dysmenorrhoea and other menstrual irregularities. The females with primary or secondary infertility cohabiting with their husbands were also included. (Kriplani et al 2017) The women with extrapulmonary tuberculosis and genital infection with other non tubercular infection were excluded from the present study.

A detailed history was undertaken and general physical examination; respiratory system as well as pelvic examination was carried out on all subjects. Pervaginal examination was performed on all women to observe any abnormality in vagina, cervix and uterus or adnexal mass if any. In all selected subjects the endometrial samples were taken for microscopic examination for AFB and histopathological examination. The patients were kept on antitubercular treatment under RNTCP.

The basic characteristics, clinical findings, radiological observations and laboratory data were noted in a case record form. The data were analysed using MS Excel.

### Results:-

Among total 62 women with pulmonary tuberculosis in the study sample, 59.68% (n=37) were in the age group of 21-30 years. (Table-1) Among them 51.61% (n=32) had far advanced pulmonary lesion on chest X-ray (radiological status, table-2) As mentioned in table-3 the menstrual irregularities in most of the women were secondary amenorrhoea (48.39%; n=30) However menorrhagia and irregular cycle were two other commonest presentations next to secondary amenorrhoea observed in 16.13% (n=10) and 14.52% (n=9) patients respectively. Dysmenorrhoea was also one of the complain in 6.45% (n=4) patients. Maximum number of the study population presented with secondary amenorrhoea were in the first year of development of pulmonary tuberculosis. (0-6 months: n=9 and 7-12 months: n=14) The women with irregular cycle were also observed within 0-6 months (n=6) and 7-12 months (n=2).

On per vaginal examination the vaginal discharge was observed in 24.19% (n=15) of patients. Cervical lesion including erosion (25.81%; n=16) and ulceration (12.09%; n=8) were also noted. (Table-4) The uterine size was normal in 25.81% (n=16) and small in 16.13% (n=10) females. Adnexal mass was also found in 9.68% (n=6) women. (Table-4)

In our study population, the maximum histological pattern with the proliferative endometrium was observed in 38.71% (n=24) females. The secretory endometrium was seen in 25.81% (n=16) women. When the endometrial tissues of both histological patterns were subjected for Z-N staining for AFB, all were found to be negative. (Table-

5) The endometrial reaction is said to be present when there is local infiltration of lymphocytes intermingling with stroma or well defined lymphocytic aggregation or presence of plasma cells. In this study 12.90% (n=8) cases were taken as chronic endometritis due to endometrial reaction. In histopathological examination of endometrium, the non caseating granuloma and caseation alone were taken as the surest evidence of tubercular endometritis. 4 cases (6.45%) showed evidences of tubercular endometritis on histopathological examination and were also found to be AFB positive on Z-N staining of endometrium. All cases of histologically proved endometritis occurred within 1 year of development of symptoms of pulmonary tuberculosis.

**Table No. I :-** Distribution of cases according to age groups

Age in Years	No. of cases	Percentage
15-20	10	16.13
21-25	17	27.42
26-30	20	32.26
31-35	7	11.29
36-40	5	8.06
41-45	3	4.84
<b>Total</b>	<b>62</b>	<b>100.00</b>

**Table No 2:-** Distribution of cases according to radiological status of lungs in pulmonary tuberculosis

Radiological Status	No. of Cases	Percentage
Minimal Lesion	5	8.06
Moderately advanced	25	40.32
Far Advanced	32	51.61
<b>Total</b>	<b>62</b>	<b>100.00</b>

**Table No. 3:-** Menstrual pattern and its relation to duration of pulmonary tuberculosis

Menstrual pattern	No. of cases	Percentage	Duration of pulmonary tuberculosis (In months)				
			0-6	7-12	13-18	19-24	24+
Normal Cycle	5	8.06	1	-	3	1	-
Primary amenorrhea	-	0	-	-	-	-	-
Secondary amenorrhea	30	48.39	9	14	2	1	4
Oligomenorrhea	4	6.45	1	3	-	-	-
Menorrhagia	10	16.13	-	5	1	2	2
Irregular cycle	9	14.52	6	2	1	-	-
Dysmenorrhea	4	6.45	3	1	-	-	-
<b>Total</b>	<b>62</b>	<b>100.00</b>	<b>20</b>	<b>25</b>	<b>7</b>	<b>4</b>	<b>6</b>

**Table No. 4:-** Results of vaginal examination of all cases studied

Results	No. of cases	Percentage
(1)Vaginal discharge	15	24.19
(2)Cervical lesion		
(a) Erosion	16	25.81
(b) Ulceration	8	12.09
(3)Uterine size of Length		
(a) Normal	16	25.81
(b) Small	10	16.13
(4)Adnexal mass	6	9.68

**Table No .5:-** Histopathological pattern and z-n staining of endometrium in cases of pulmonary tuberculosis

Histological pattern	No. of cases	Percentage	Z-N staining status	
			+ve	-ve
Secretory	16	25.81	-	16
Proliferative	24	38.71	-	24

Tubercular endometritis	4	6.45	4	-
Chronic endometritis	8	12.90	-	8
No endometrium	10	16.13	-	10
<b>Total</b>	<b>62</b>	<b>100.00</b>	<b>4</b>	<b>58</b>

### Discussion:-

Pulmonary tuberculosis is a communicable disease usually involves the lungs but may involve the other organs particularly genital organs though rare. Genital TB occurs mostly secondary to pulmonary tuberculosis, commonly spreads by the haematogenous route in a manner similar to spread to other extra-pulmonary sites like urinary tract, bones and joints etc. The fallopian tubes are affected in almost 100% of the cases of genital tuberculosis followed by the endometrium in 50%, ovaries in 20%, cervix in 5% cases. Also vagina and vulva are other commonly involved sites. (Weerakiet et al, 1999) Endometrial tuberculosis though uncommon, still an important clinical entity in developing countries like India. (Hassimoto A et al, 1994, Haider P et al, 1992, Hunter B et al, 1998, Jhon M et al, 1999)

In the present study, it was observed that 59.68% patients of pulmonary tuberculosis associated with gynaecological problems were in the age group of 21-30 years. Our study observations corroborate with that of Nawaz et al, 2005 who reported the TB endometritis is more common in the reproductive age group mostly between 20-45 years.

In this study sample, the commonest menstrual disorder was observed to be secondary amenorrhoea (48.39%) and the patients had it in the first year of development of pulmonary tuberculosis. Menorrhagia was another symptom which was found in patients with far advanced lesion of lungs in pulmonary tuberculosis (16.13%) and dysmenorrhoea in 6.45% of cases. In an earlier study, Samal *et al.* reported that the patients of genital TB had oligomenorrhoea in 54%, menorrhagia in 19.0%, and amenorrhoea in 14.3% of cases.

Histopathological observations of endometrial tissue in our study revealed proliferative endometrium in 38.71% cases but when these endometrium were subjected to Z-N staining for AFB, came out to be negative. The endometrial tissue obtained in secretory phase (25.81% of cases) and chronic endometritis (12.90% cases) were also negative for AFB in Z-N staining. Tubercular endometritis was seen in 6.45% of cases and all these endometrium obtained in these females were bacteriologically positive for AFB in Z-N staining. But in the study of Butt et al., 2003. microscopic examination by Z- N staining revealed absence of AFB in all endometrial tissues even in a larger sample size.

### Conclusion:-

As endometrial tuberculosis is one of the causes of infertility and other gynecological complications, the bacteriological examination of endometrium with Z-N staining for AFB should be done along with histopathological evaluation for early diagnosis. As tuberculosis is amenable to modern drug treatment, the importance of early diagnosis becomes more relevant.

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