

ENDOMETRIAL TUBERCULOSIS

(A Histopathological Study Of 100 Cases)

by

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Genital tuberculosis is fairly common in our country as compared to the other parts of the world. Endometrial biopsy has proved to be a diagnostic procedure in such cases. Morphological presentation of the disease shows a marked variation in the endometrium as the lesions are generally washed away during the menstrual cycle. Sometimes the lesion is discovered unexpectedly without any particular symptomatology or manifestation of systemic tuberculosis (Malkani and Rajani 1953; Devi 1962; Hafeez *et al* 1973; Bhaskara Reddy *et al* 1975).

Material and Method

The present communication deals with the morphological variations experienced by the authors in 100 cases of endometrial tuberculosis diagnosed on histo-

pathological examination in the Department of Pathology, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, during the year 1969 to March 1976.

The cases of endometrial tuberculosis were further investigated for any correlation of the disease with age, religion and symptomatology. A search was also made clinically, bacteriologically and radiologically to detect any evidence of extragenital tuberculosis in these cases. Besides routine haemotoxylin and eosin staining, acid fast staining by Ziehl Neelsen technique was done in all the endometria to demonstrate mycobacterium tuberculosis.

Results

During the above period 3,275 endometrial biopsies were received in the Histopathology Section and the cases of endometrial tuberculosis comprised 3.08% only.

Religion: There was equal number of cases belong to the Hindus and the Muslims (50% of each community).

Age Incidence: Maximum number of the cases (51%) belonged to the age group of 21 to 25 years of age, followed

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by 16% in the age group of 26 to 30 years, 15% between 30 to 35 years, 2% between 35 to 40 years and 1% above 40 years. 15% cases were below 20 years of age.

Thus tuberculosis of the endometrium was seen mostly in the child bearing age, particularly the earlier half (82% below 30 years of age).

Symptomatology: Main complaint of these cases was failure to conceive in 43% or of secondary infertility in 5% of the cases. Amenorrhoea and functional uterine bleeding was seen in 35% and 8% cases respectively. The clinical diagnosis of tuberculous endometritis was made in 16% cases only. In other cases the presenting clinical features were suggestive of incomplete abortion (3%), prolapse uterus (3%), uterine malignancy (2%), fibromyoma (1%) and ovarian cyst (3%).

The incidence of tuberculosis in relation to the above symptomatology has been shown in Table I.

and diffuse infiltrate in 11%. It was experienced that the tuberculous lesion could be easily observed under low magnification as a small light stained area in comparison to the rest of the endometrial tissue. The earliest lesion to be seen was a mere collection of lymphocytes and epithelioid cells in the stroma (Fig. 1).

The lesion was comprised of caseating granulomas in 28% of the cases, non-caseating in 32% and both the types in 40%. Extensive caseation replacing more or less the entire endometrial structure was seen in 7% of the cases.

The granulomas or diffuse type of lesion were characterised by the presence of central area of caseation, epithelioid cells, Langhans type of giant cells surrounded by a rim of lymphocytes in 57% of endometria. However, in the rest of the cases besides above cellular morphology, neutrophils were also present in 35% and neutrophils and eosinophils in 8%. The tuberculous lesion was

TABLE I
Showing Incidence of Tuberculous Endometritis in Various Groups

Types of Cases	Total Number	Tuberculous endometritis	
		Number	Percentage
Total endometrial biopsies	3275	100	3.08
Infertility	1541	48	3.11
Primary infertility	1290	43	3.33
Secondary infertility	251	5	1.99
Functional uterine bleeding	648	8	1.08
Primary amenorrhoea	7	2	28.57
Secondary amenorrhoea	110	33	30.00
Miscellaneous	999	9	0.90

Histopathological Study

The diagnosis of tuberculous endometritis was made on the presence of well formed circumscribed granulomas in 42% of the cases, localised granulomas and diffuse tuberculous infiltrate in 47%

mainly seen in the lamina propria of the superficial part of the endometrium or at times destroying the glandular structure so that the entire epithelium was replaced by the tuberculous infiltrate.

Besides characteristic tuberculous lesion, unusual morphological picture

was seen in certain cases. Sometimes the granuloma consisted of giant cells only replacing the glandular epithelium (Fig. 2). In other sections the lesions were in the form of micro abscesses; the neutrophils and nuclear debris figuring in the centre of the lesion surrounded by palisading histiocytes and a rim of lymphocytes (Fig. 3). These abscesses were of oval or serpentine nature as they were formed around the arterioles.

Well formed aggregates of lymphocytes were seen in 3% of the sections. However, the presence of irregular mass of the lymphocytes intermingling with the stroma aroused the possibility of tuberculous lesion. This occurred in 4 cases where on deeper sections a well formed granulomatous lesion was visualised.

Eosinophilic exudation inside the lumen of the glands was present in 27% of the endometria. The exudation consisted mostly light stained pink material with neutrophils in 12%, neutrophils lymphocytes and epitheloid cells in 11% and eosinophils in 4%.

Normal proportion between glands and stroma was ascertained in 22% of the endometria while in the rest the glands were atrophied to a variable extent. Arbitrarily, moderate degree of destruction of glands was seen in 28%, marked degree (where one to two glands were seen in the biopsy) in 32% and in 18% of the biopsies there was complete replacement of the endometrium by the tuberculous infiltrate. The endometrial reaction was proliferative in 58%, cystic hyperplasia in 3%, irregular ripening in 1%, secretory in 20% while no glands were present in 18% of the biopsies.

Besides normal presence of lymphocytes and neutrophils in the stroma at the various phases of the cycle, plasma

cells were seen in 20% of the sections. Fibrosis in variable amount was seen in 65% of the biopsies. Generally this was present around the granulomas or where the granulomas had healed up. Marked degree of fibrosis replacing the entire endometrial tissue was witnessed in 3% only. The blood vessels were found to be thickened in 8%.

Cervical tissue was seen in 18 biopsies. The tuberculous lesion was present in 16 cases while in 2 there was infiltration of the lamina propria by lymphocytes and plasma cells.

Mycobacterium tuberculosis could not be demonstrated in any of the sections.

Out of 100 cases, only 60 turned up in the Tuberculosis Out-patient Section for check up. Three had primary lesion of the lung, whereas active adult lung tuberculosis was seen in 9. Other lesions present were abdominal tuberculosis in 8, hilar adenitis in 1, cervical adenitis in 2, inguinal adenitis in 1, and pleural effusion in 2 cases).

Discussion

The incidence of tuberculous endometritis in relation to total endometrial biopsies in the present series was 3.08%—a finding similar to that of (Devi, 1962; Sant and Limaye, 1966 Munjay *et al*, 1970). The frequency of the disease in the Muslim females was high as compared to the Hindus as 50% of the cases were the Muslims when the Muslim females constituted only 10.6% of the entire female population of the Aligarh District (1961 census). The reasons are obvious—the poor economic and hygienic conditions and the orthodox 'Purdah' system.

Tuberculous endometritis is a disease of the child bearing period. In the present study maximum occurrence (67.0%) was observed in the age group

of 21 to 30 years which was comparable to the figures reported by others (Devi, 1962, 70; Sant and Limaye 1966, 69; Bhaskara Reddy *et al*, 1955, 58%). Females less than 20 years were 15%. This finding was in accord to that of (Munjal *et al*, 1970, 17.8%; Bhaskara Reddy *et al*, 1975, 20%).

The incidence of the disease in infertility cases has been found to vary from 0.8% (Rewell, 1958) to 10.6% (Botella, 1958). The finding of the present study (3.11%) was in agreement with that of Heines Magnus (1958), Francis (1964), Munjal *et al* (1970) and Hafeez *et al* (1973). The incidence of endometrial tuberculosis was high in primary infertility (3.33%) as compared to that in secondary infertility (1.99%). Most of the Indian workers (Malkani and Rajani, 1953; Hafeez and Tandon, 1966; Ganguly *et al*, 1972) have reported a higher incidence in secondary infertility.

Most of the cases presented themselves with infertility. In the present study 48% of the cases were infertile (Bhaskara Rao (1959); and Hafeez *et al* (1973) have also observed similar results.

On histopathological examination the earliest form of the lesion observed was a light stained area as compared to the rest of the field comprised of lymphocytes and epithelioid cells. Such lesions could be overlooked if the section is unduly thin or the intensity of staining with eosin is insufficient.

The typical tuberculous granulomas were seen in 40% of the biopsies and diffuse lesions in 11% while in the rest both the lesions were seen. Similar observations have been reported by Munjal *et al* (1970). In 68% of the biopsies caseation was seen. Extensive caseation was present in 7%.

These granulomas were seen encroaching upon the endometrial glands, at times completely replacing the glandular structure. This destruction of the glands may be responsible for the various disturbances of menstruation that are noticed generally in these cases. In the event of the progress of the lesion healing occurs and one would notice fibrosis either surrounding the well formed granulomas or bands of fibrous tissue of variable thickness may be seen traversing the stroma. Extensive fibrosis was seen in 3% of the cases—a finding similar to that of Bhaskara Reddy *et al* (1975). This fibrosis is responsible for atrophy of the glands, amenorrhoea, infertility and scanty or no endometrial tissue on biopsy in such cases. Extensive destruction of the glands was noticed in cases of amenorrhoea as normal proportion between glands and stroma was seen only in 1 (2.9%), moderate degree of damage to the glands in 6 (17.1%), marked degree in 12 (34.3%) and complete loss of the glands in 16 endometria (45.7%).

The diagnosis of endometrial tuberculosis is based on the presence of granulomatous lesion on histology. Endometrium is one of the few tissues in which the granulomas that simulate tuberculosis are so rare that for all practical purposes their occurrence may be almost disregarded (Hughesdon and Synmers, 1966). Thus, on seeing a smallest single granuloma one always thinks of endometrial tuberculosis, specially in our country where the disease is much common though Langley (1975) has raised the possibility of leprosy in such cases and that should be ruled out.

At times the authors had observed microabscesses. Similar morphological change has been described by Hughesdon and Synmers (1966) though Indian wor-

kers have not described such lesions.

The presence of inflammatory exudate inside the glands was observed in 27% of the cases, comprising mostly of neutrophils besides lymphocytes, eosinophils and epitheloid cells. The authors are of the opinion that presence of such lesion should arouse the possibility of tuberculous infection and search should be made for it.

Normally one would come across collection of lymphocytes or well formed lymphoid follicles in the endometrial stroma 1957 (Ishihama and Makino, 1970), though Bourne and William (1962) have emphasised that they should be considered to be tuberculous in origin unless proved otherwise. The authors experienced that the presence of irregular mass of lymphoid tissue should arouse suspicion of tuberculous endometritis. On deeper sections one would be able to get typical lesions in these cases as had been observed in the present study.

Cervix may also be involved secondary to endometrial tuberculosis and the lesion was seen in 16 out of 18 cases in whom the cervical tissue was also present in the biopsy. Other workers have also noticed involvement of cervix in these cases (Malkani and Banerjee, 1959; Phatak, 1965). Sutherland (1952) and Telford (1962) have emphasized that cervical biopsy along with endometrial curettage should be done in at least those cases where there is a visible lesion in the cervix.

None of the endometria revealed acid fast bacilli on staining a finding similar to that of Bhaskara Reddy *et al* (1975) and contrary to Hafeez *et al* (1973) who were able to demonstrate the bacilli in 30% of the cases.

Summary

The incidence of endometrial tubercu-

losis was 3.08% of all the endometrial biopsies, 3.33% of primary infertility and 1.99% of secondary infertility cases. Besides infertility, amenorrhoea was the other common complaint seen in 35% of the cases.

Maximum number of the cases (67.0%) came in the age group of 20 to 30 years.

The Muslim females were more affected by the disease as compared to the Hindus.

Earliest lesion present was characterised by the presence of epitheloid cells and lymphocytes. Well circumscribed granulomas were seen in 42% sections, localised granulomas and diffuse infiltrate in 47% and diffuse tuberculous infiltrate in 11%. Caseation was seen in 68% sections Frank caseous material was present in 7%.

Besides typical tuberculous lesions, granulomas comprising of giant cells or in the form of micro abscesses were also visualised.

Importance of the presence of irregular focal collection of lymphocytes and eosinophil exudate inside the glands has been discussed.

Marked fibrosis was present in 3%. Endometrial cycle was nonovulatory in 61%. Complete absence of the endometrial glands was observed in 45.7% of amenorrhoea cases. Cervix was involved in 16 out of 18 biopsies in whom it was accidentally removed. Acid fast bacilli could not be demonstrated in any section.

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See Figs. on Art Paper V