Original article

Tuberculous endometritis - a worrying recrudescence for infertility

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ABSTRACT

Aim: i) To determine tuberculous endometritis as an etiological factor in primary and secondary infertility. ii) To study age incidence and clinical presentation of cases with tuberculous endometritis. Method: Prospective study of 5 years was conducted from 2005-2010, at department of pathology, M R Medical College, Gulbarga, Karnataka. Endometrial curettings received from 230 cases of primary and secondary infertility were included. The diagnosis of endometrial tuberculosis was made on histological grounds with H&E stained slides, Z-N staining for Acid Fast Bacillus (AFB) positivity and culture of AFB on Lowenstein Jensen's medium. Results: Seven cases of tuberculous endometritis were diagnosed from 230 cases presenting with infertility and accounted to 3.9 % of cases. All these patients belong to primary infertility group, with majority in the age group of 17-25 years (71.5 %). Clinically, five cases (71%) presented with history of secondary amenorrhoea and two cases (28%) with irregular menstrual pattern. On histopathology, all cases were diagnosed as tuberculous endometritis, in which five cases showed epithelioid granulomas with Langhan's giant cells and two cases showed caseation only. These 7 cases, when subjected to modified Zeihl Neelsen's stain, two cases (28.5 %) showed AFB positivity and when allowed to culture on Lowenstein Jensen's medium, four cases (57%) were positive. Conclusion: Therefore, clinicians need to have an in depth knowledge of pathology, be aware that isolation of Tuberculosis requires special methods, especially while dealing with patients dwelling in countries with high prevalence of Tuberculosis in infertility and the diagnostic means with which to discover it early and correct therapeutic modalities, to over come.

1. Introduction

Tuberculosis as a cause of infertility is still a major problem in the developing countries. Today, though it has become much less common because of improved socioeconomic conditions, it has been suggested that any women with infertility, that cannot be attributed to a specific cause, should be investigated for tuberculosis.[1] Incidence of extra pulmonary tuberculosis has increased world wide.[1] Female genital tract is one of the commonest type of extra pulmonary tuberculosis and clinically, infertility is the most common presentation.[2] Morgagni first described in his autopsy findings the lesions of genital tuberculosis in women, while Kiwish described tuberculosis of the uterus. Steinsickin first reported on the relation of endometrial tuberculosis and sterility and later on Klein (1976) and Munshi (1993), explained precisely the association of tuberculous endometritis and infertility. Schafer in his autopsy findings revealed that 4-12% of women who died from pulmonary tuberculosis have evidence of genital tuberculosis.[3]

Tuberculous endometritis is far more common in India compared to developed countries like USA and UK and these patients usually present with infertility. Tuberculous infection secondarily reaches the genital tract, but initially to the tubes and in majority cases through blood stream from primary lesion, commonly from the lung.[4]
2. Materials and methods

A 5-years prospective study of 230 cases of primary and secondary infertility from 2005 to 2010 was done at the department of pathology, M.R. Medical College, Gulbarga, Karnataka. The endometrial curetting specimens were collected in 10% formalin for histopathological study and in normal saline, for bacteriological examination. The diagnosis of endometrial tuberculosis was made on histological grounds with H&E stained slides, Ziehl Neelsen’s staining for AFB positivity and culture of AFB on Lowenstein Jensen’s medium.

The patients who did not conceive after one year of unprotected coitus were considered under primary infertility and the patients who did not conceive after achieving a previous conception were considered under secondary infertility category.

3. Results

Out of 230 cases of infertility, 178 (77.4%) cases were of primary infertility and 52 cases (22.6%) were of secondary infertility. 7 cases were diagnosed as tubercular endometritis accounting to 3.9% of total number of cases. All these cases belonged to primary infertility category and were in the age group of 17-30 years. Not a single case of secondary infertility showed tubercular etiology in this study.

Out of 7 cases, 5 cases (71.5%) presented with history of secondary amenorrhoea, other two (28.5%), with irregular menstrual pattern.

Table 1 Clinical Presentation

<table>
<thead>
<tr>
<th>Age</th>
<th>Menstrual Pattern</th>
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<tr>
<td>17 Years</td>
<td>+</td>
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<tr>
<td>20 Years</td>
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<td>19 Years</td>
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<td>23 Years</td>
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<tr>
<td>26 Years</td>
<td>+</td>
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<tr>
<td>28 Years</td>
<td>+</td>
</tr>
<tr>
<td>5 Cases</td>
<td>71.5%</td>
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</tbody>
</table>

*p < 0.001 considered significant

Fig 1-The histopathology showed epithelioid cell granulomas along with Langhans type of giant cells were seen in the background of extensive inflammatory cell infiltrate and caseation necrosis. (H & E, 10X)

4. Discussion

Female genital tuberculosis is a rare disease in developed countries, but is a frequent cause of chronic pelvic inflammatory disease and infertility in under-developed and developing countries.

In tuberculosis, infertility is due to functionally altered endometrium or associated with tuberculous salpingitis [7] and this infection greatly suppresses the sensitivity of the endometrium to ovarian hormones which leads to deficient secretory phase with defective secretion of glycogen[8] and also altering the implantation of ovum.[9]
The proportion of tuberculous endometritis in the present study is 3.8% and is comparable with the study of Vishnu Gopal (1969), [10] where as there was a slight higher incidence noted (4.9%) by R. Mishra in his study.

Age: In the present study, all 7 cases had an incidence in the age group of 17-30 years, which correlated with the study of Mridu Manjari et al, [5] where the cases were in the age group of 20-30 years.

Clinical presentation: In the present study, 5 cases presented with secondary amenorrhoea and the other 2 cases with irregular menstrual pattern. The cases of tuberculous endometritis predominantly presented with secondary amenorrhoea and similar findings were reported by Mukherjee et al[14] and Sathe et al. [15] Sathe et al further explained the cause of secondary amenorrhoea in cases of tubercular endometritis, attributing to end organ failure by caseation, improper healing, scarring, severe fibrosis and adhesions. He also stated that, in these cases there is total replacement of endometrium by granulomas and concluded that caseation is often lacking in case of abnormal uterine bleeding.[15]

All 7 cases belonged to primary infertility in this study, which correlated with the study of Gupta, N, where the commonest clinical presentation was primary infertility. [16]

This study comprised of seven cases of tubercular endometritis, which corroborated with various studies conducted by Hutchins, [17] Bombhate, [18] and Gupta et al[16] and Rajiv Mishra [11] on genital tuberculosis, where in they found that endometrium is the most common site of involvement.

Diagnosis: The diagnosis of endometrial tuberculosis in this study was made on histological grounds, Z-N staining for AFB positivity and culture of AFB on LJ medium.

a)Histopathology: Among 230 cases of infertility, 7 cases (3.9%) of tubercular endometritis were histologically proven, which was slightly higher when compared with the findings of P R Pant (1.24%).[1]

b)Z-N staining: In this study, AFB positivity by ZN stain was seen in 3 out of 7 cases (42.8%), which corroborated with the study of P. Kumar et al (47%) [19] where as the incidence of AFB positivity varied from 0 to 63.5% as reported by Malkani [20] Chabra [21] and Tripathy SN. [22]

c)Culture on LJ medium: Out of 7 cases in this study, culture positivity for AFB was seen in 4 cases (57.1%), which was higher when compared to the studies of P. Kumar et al (32.3%) [19] and P R Pant (30%).[1]

Granulomatous endometritis even with a negative acid fast stain and culture is generally presumed to be of tuberculous origin (Novak and Woodruff, 1979).[23] The typical and almost pathognomic lesion of tuberculous endometritis is the non-caseating granulomas composed of epitheloid cells, Langhans giant cells and peripherally lymphocytes.

5. Conclusion

Tuberculosis of the Endometrium, especially among all cases presenting with Genital tuberculosis, is now undergoing a worrying recrudescence. This condition would be more frequently diagnosed, if this possibility was considered in the evaluation of every infertile patient in the area, where tuberculosis is endemic. The present study confirms the presence of strong relationship between endometrial tuberculosis and infertility, because of use of histological and bacteriological methods together, which in turn increased the efficiency of diagnosis. Though the incidence of tuberculosis in infertility in India is only 1.5%, the patients treated for these conditions in some centers were not managed systematically, missed the investigations in the line of tuberculosis, though their history was suggestive of some suspicion of tuberculosis.

Hence, patients seeking treatment for infertility should be investigated thoroughly using methods like eliciting clinical data, endometrial histopathology, culture of acid fast bacillus, along with Polymerase Chain Reaction assays, wherever possible and are considered to be the best available modalities for diagnosis of tuberculosis in infertility. Unfortunately, there is no effective treatment for endometrial tuberculosis, as the endometrial tissue after tuberculosis infection, undergoes fibrosis and can become avascular and the only option for these infertile women is either surrogacy or adoption.

For the diagnosis of endometrial tuberculosis in patients presenting with infertility, research for easy establishment of effective medical and surgical intervention with preservation of reproductive capability if needed, must continue.

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6. References


