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FEMALE GENITAL TRACT TUBERCULOSIS:
A PATHOLOGICAL APPRAISAL

by

S. K. BOBHATE

G. P. KEDAR

M. KHERDEKAR

A. KHER

and

S. GROVER

SUMMARY

Female genital tract tuberculosis was observed in 1.55% cases in present study. The endometrium was predominant site of involvement (90.11%), followed by cervix (6.95%). The prevalence rate of tuberculosis of endometrium was observed to be 1.71% which was followed by cervix (0.27%), fallopian tube (0.12%) and ovary (0.08%). Proliferative type of tubercular lesion was the commonest finding in endometrial tuberculosis (50.1%), whereas exudative type was predominant in tuberculous salpingitis (66.65%). Acid fast bacilli were observed in 1.6% cases only. Awareness and early detection of tuberculosis of female genital tract may be attributed to its low incidence in present study.

Introduction

The present paper aims to report the incidence of female genital tract tuberculosis from the central India along with other histopathological structural changes in the organs involved, in addition to the tubercular foci.

Material and Methods

Three hundred seventy-four cases of tuberculosis of female genital tract were diagnosed histopathologically in the department of pathology in Government

Medical College, Nagpur during the period of 1973 to March 1984. During this period, the total number of gynaecological specimens received were 24126, which comprised endometrium in the form of biopsies or curettage (14600), hysterectomy specimens (5026) and cervix biopsies alone (4500). The detailed clinical records of these patients were noted. The sections of the tissues were processed as routinely and were stained with haematoxyline and eosin. For the demonstration of Mycobacterium tubercle bacilli, a modified Ziehl Neelson stain was applied.

The nature of tuberculous lesion was classified into proliferative type, exuda-

From: Department of Pathology, Govt. Medical College, Nagpur.

Accepted for publication on 17-4-85.

tive type and mixed type. A detailed histological examination of myometrium, endometrium, cervix, ovary, fallopian tube and vagina was carried out to know the secondary effect of tuberculous foci.

Results and Discussion

In India, the incidence of female genital tract tuberculosis is reported to be varying from 3.2% to 6.5% (Jhaveri *et al*, 1974; Sathe *et al*, 1979). In present series, it is observed to be 1.55%. In western countries, the incidence is also varying in between 0.05% to 1.0% (Caballero, 1966; Hutchins, 1977; Nogales Ortiz *et al*, 1979). The low incidence in present series from this part of India may be due to a change in the standard of living, early detection of primary lesion and proper and adequate antituberculous treatment.

Genital tuberculosis is said to be more common in third decade (Kirloskar *et al*, 1968; Sathe *et al*, 1979). In present study, the maximum number of cases (348) were observed in between the age groups of 18 to 35 years. Seventeen cases were from postmenopausal group and the remaining 9 cases were observed in the age group of 35 to 45 years. Hutchins (1977) suggested the prevalence rate of 28.57% (6/21 cases) in postmenopausal women.

It has been observed that there is a marked variation in clinical presentation of female genital tuberculosis in different countries. However, infertility, amenorrhoea and menstrual disturbances are said to be the commonest presentations (Tyagi *et al*, 1977; Hutchins, 1977; Sathe *et al*, 1979; Bholia *et al*, 1984). In present study, infertility was the predominant presentation (58.6%), followed by amenorrhoea (26.4%), functional uterine bleeding (7.8%) and vaginal discharge (7.0%). It is believed that tuberculosis does not play any pathogenetic role in functional uterine bleeding (Govan and Telford, 1962).

The prevalence rate of tuberculosis of endometrium in present study was observed to be 1.71% followed by cervix (0.27%), fallopian tube (0.12%), ovary (0.08%) (Table I).

The endometrium was the predominant site (90.11%) of genital tuberculosis in present series. This incidence of tuberculous endometritis in India as compared to those of other authors. Kirloskar *et al* (1968) and Sathe *et al* (1979) reported the incidence of genital tuberculosis in endometrium as 82.3% and 55.1% respectively, while Hutchins (1977) and Nogales-ortiz *et al* (1979) in Western countries reported the incidence as 100% and 79% respectively.

TABLE
Prevalence in Female Genital Organs

Sites	Total No. of cases	Tuberculous cases	Percentage
Endometrium	19626	337	1.71
Cervix	9526*	26	0.27
Fallopian Tube	5026**	6	0.12
Ovary	5026**	4	0.08
Total	24126	374	1.55

* = Hysterectomy specimens + cervix biopsies.

** = Hysterectomy specimens.

The proliferative type of tuberculosis was the commonest histopathological lesion in endometrial tuberculosis (50.1%) in present study. The exudative and mixed type were observed in 19.6% and 30.3% cases. Govan (1962), Kherdekar *et al* (1977), Khan *et al* (1982) also reported the proliferative type as the commonest tubercular lesion.

Endometrial tuberculosis was not observed to have specific impact on endometrial reaction. In present study, the proliferative phase was observed in 33.23% cases, secretory phase in 27.51% and poor secretory phase (mixed endometrium) in 24.8% cases. Glandular hyperplasia was observed in 2.06% cases. The endometrial phasing was not possible in 12.4% of cases. In these cases endometrium was almost completely replaced by tuberculous granulation tissue. The incidence of lost endometrium varies from 18.5% to 50.95% as reported by various Indian authors (Kherdekar *et al*, 1977; Khan *et al*, 1982).

Endometrial glands and stroma were observed to be affected in endometrial tuberculosis. Degeneration, hyperplasia, cystic dilatation and sometimes even distortion was observed in endometrial glands. The lumen was filled with deeply eosinophilic secretion and/or cellular debris in 25.45% cases in present study. The stromal changes in form of focal areas of necrosis, abscess formation plasma cells and lymphocytic foci were observed. Stromal fibrosis was observed in 3.1% cases. Endometrial changes in the form of destruction, fibrosis and glandular disturbances are said to be the main precipitating factors in menstrual disturbances (Tyagi *et al*, 1977).

Tuberculosis of cervix is considered to be rare. The cervical mucous membrane is comparatively immune to tuberculous

infection due to the inability of the bacilli to penetrate the squamous epithelium of portio vaginalis and resistance of cervix due to increased vascularity (Paranjothy, 1971). The incidence of tuberculosis of cervix was 6.95% in present study. Kirloskar *et al* (1968) and Sathe *et al* (1979) reported the incidence of cervical tuberculosis as 13.4% and 2.6% respectively. The highest incidence (41.8%) of cervix tuberculosis in India was observed by Paranjothy (1971). Direct spread from endometrium to cervix (Paranjothy, 1971) and haematogenous spread from the infected tube (Nogales Ortiz *et al*, 1979) are said to be the mode of infection. Govan (1962) suggested that the absence of cyclical shedding of the cervical mucosa might reinfect the endometrium and thus continue the infection.

The involvement of tuberculosis of cervix was mostly restricted to endocervical mucosa (84.6%) in present study. The endocervical glandular hyperplasia, mucin secretion in endocervical glands and large basal vacuole displacing the nucleus apically were commonly observed. The similar findings were also observed by Nogales-Ortiz *et al* (1979). The proliferative type of tuberculous lesion was the commonest finding (65.4%) which was followed by exudative (19.2%) and mixed type (15.4%) of lesions.

It is said that the fallopian tube is almost always involved first in genital tuberculosis. Presumably the tubes are seeded haematogenously and then the process spreads to other organs in the genital tract. Nogales Ortiz *et al* (1979) and Hutchins (1977) reported 100% and 38.1% involvement of fallopian tube respectively in genital tuberculosis. In India, the incidence of tuberculosis of fallopian tube is reported to be 13.4% and 2.6% by Kirloskar *et al* (1968) and Sathe

et al (1979) respectively. In present study the tuberculous salpingitis was observed in 1.6% cases. This study has encountered only the hysterectomy specimens for the incidence of tuberculous salpingitis and may explain the low incidence in the present study. Four cases of tuberculous salpingitis were also having tuberculous endometritis and ovarian tuberculosis in present study.

The exudative type of tubercular lesion was observed in 66.65% cases and the remaining cases showed proliferative lesion (33.35%). The tubal mucosa was almost lost in most of these cases (66.65%) This muscularis was also involved and showed areas of dense fibrosis and lymphocytic infiltration.

Tuberculosis of ovary was observed in 1.07% cases in present study. The parenchymal involvement of ovary is the infrequent finding and is said to be restricted to the cortical area (Nogales-Ortiz *et al*, 1979). In present series, the complete destruction of ovary was not observed in any case. Three cases showed foci of tuberculosis in cortical area and 1 case was confined to the medulla of the ovary. Proliferative lesion was observed in 2 cases, while exudative and mixed lesion was observed in 1 case each. Secondary sterility and secondary amenorrhoea was observed in 2 cases each. Amenorrhoea is attributed to end organ failure secondary to endometrial caseation (Sathe *et al*, 1979). In present series, all the cases of ovarian tuberculosis were associated with endometrial and tubal tuberculosis. The incidence of ovarian tuberculosis varies from 3.5% to 11% (Kirloskar *et al*, 1968; Hutchins, 1977; Nogales Ortiz *et al*, 1979).

Genital tuberculosis involving vagina

is very rare and is occasionally encountered (Kirloskar *et al*, 1968; Paranjothy, 1971). The tuberculosis of vagina was noted in only 1 case (0.27%) in present study. The clinical presentation was ulceration and low grade fever. Proliferative type of tubercular lesion was noted.

The diagnosis of tuberculosis should be based on the demonstration of acid fast bacilli, because the epitheloid granulomas represent a non-specific form of inflammation (Adams, 1976). It is said that the bacilli are very rarely found in endometrium and cervical granulomas even with the use of fluorescent technique (Nogales Ortiz *et al*, 1979). In present series acid fast bacilli were demonstrated only in 6 (1.6%) cases, 4 of which were of endometrial tuberculosis and 1 case each from tuberculosis of endocervix and fallopian tube. Reported incidence of acid fast bacilli varies from 0% to 63.5% (Reddy *et al*, 1975. Tyagi *et al*, 1977; Khan *et al*, 1982).

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The incidence of tuberculous lesions in the female genital tract is reported to be 1.5% in the present study. The tuberculous lesions were found in the uterine cavity, fallopian tubes, ovaries and endometrium. The tuberculous lesions were found in the uterine cavity in 100% cases, in the fallopian tubes in 100% cases, in the ovaries in 100% cases and in the endometrium in 100% cases. The tuberculous lesions were found in the uterine cavity in 100% cases, in the fallopian tubes in 100% cases, in the ovaries in 100% cases and in the endometrium in 100% cases.

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Tuberculosis of ovary was observed in 100% cases in present study. The tuberculous involvement of ovary is the most frequent finding and is said to be restricted to the cortical area (Nogales-Ortiz et al, 1979). In present series the cortical destruction of ovary was not observed in any case. These cases showed loss of tubercles in cortical area and 1 case was confined to the medulla of the ovary. Tubercular lesion was observed in 3 cases while exudative and mixed lesion was observed in 1 case each. Secondary sterility and secondary amenorrhoea was observed in 2 cases each. Stereorrhoea is attributed to end organ failure secondary to endometrial case (Sathe et al, 1979). In present series all the cases of ovarian tuberculosis were associated with endometrial and tubal tuberculosis. The incidence of ovarian tuberculosis varies from 3.5% to 11% (Kirloskar et al, 1968; Huchings, 1977; Nogales-Ortiz et al, 1979).

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