MANAGEMENT OF GENITAL TUBERCULOSIS

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Global Prevalence

- 1995: 22 million cases
- 1997: 1.86 billion cases

Causes of Increased Prevalence

- Emergence of resistant strains
- HIV
Incidence of TB in 1997 by WHO Regions
(rate/100,000 persons)

- Africa: 259
- Southeast Asia: 129
- Eastern Mediterranean: 120
- Western Pacific: 202
- The Americas: 52
- Europe: 51
Pathogenesis

- Lungs: 80% → 20%
  - Renal
  - Bone
  - CNS
  - Genital

- Fallopian Tubes: 50-100%
- Uterus: 27-79%
- Ovaries: 9-11%

Genital Tuberculosis
OBJECTIVE

- Discuss the diagnostic and treatment issues in female genital tuberculosis

- Describe the factors that improve the fertility rate in women with genital tuberculosis
METHODS

- Computerized search in Medline
- 14 original articles are analyzed
## RESULTS: Incidence

Incidence of genital TB in gynecologic in-patients and infertile women

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Prevalence Pulmonary TB *</th>
<th>Incidence Genital TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chattopadhyay</td>
<td>Saudi Arabia</td>
<td>73</td>
<td>0.45%</td>
</tr>
<tr>
<td>Saracoglu</td>
<td>Turkey</td>
<td>66</td>
<td>0.03%</td>
</tr>
<tr>
<td>Falk</td>
<td>Sweden</td>
<td>5</td>
<td>0.002%</td>
</tr>
<tr>
<td>Firuza</td>
<td>India</td>
<td>505</td>
<td>2.3%</td>
</tr>
<tr>
<td>Soussis</td>
<td>United Kingdom</td>
<td>19</td>
<td>0.4%</td>
</tr>
<tr>
<td>Figueroa</td>
<td>Mexico</td>
<td>61</td>
<td>0.59%</td>
</tr>
<tr>
<td>Gini</td>
<td>Nigeria</td>
<td>383</td>
<td>0.2%</td>
</tr>
<tr>
<td>Klein</td>
<td>United States</td>
<td>6</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

* per 100 000 inhabitants
**RESULTS: Age**

Mean age of patients with genital tuberculosis

<table>
<thead>
<tr>
<th>Study</th>
<th>Mean Age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcus (1994)</td>
<td>38.5 +/- 3.5</td>
</tr>
<tr>
<td>Figueroa (1996)</td>
<td>32.0 +/- 6.1</td>
</tr>
<tr>
<td>Soussis (1998)</td>
<td>33.0 +/- 4.0</td>
</tr>
<tr>
<td>Aka (1997)</td>
<td>25.0 +/- 6.5</td>
</tr>
</tbody>
</table>
**RESULTS: Symptoms**

Presenting symptoms and signs in patients with genital tuberculosis.

<table>
<thead>
<tr>
<th>Study</th>
<th>Asymptomatic</th>
<th>Symptoms (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infertility</td>
<td>A U B*</td>
</tr>
<tr>
<td></td>
<td>1&lt;sup&gt;ary&lt;/sup&gt;</td>
<td>2&lt;sup&gt;ary&lt;/sup&gt;</td>
</tr>
<tr>
<td>Figueroa</td>
<td>33.3</td>
<td>100</td>
</tr>
<tr>
<td>Merchant</td>
<td>33</td>
<td>86.1</td>
</tr>
<tr>
<td>Bazaz</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Chattopadhyay</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Klein</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>Saracoglu</td>
<td>71.4</td>
<td>47.2</td>
</tr>
<tr>
<td>Aka</td>
<td>71.4</td>
<td>71.4</td>
</tr>
<tr>
<td>Soussis</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Marcus</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Parikh</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Gurgan</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Gini</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Falk</td>
<td>11.2</td>
<td>12.8</td>
</tr>
<tr>
<td>Nogales</td>
<td></td>
<td>12.8</td>
</tr>
</tbody>
</table>

* PMB: Postmenopausal bleeding  
** AUB: Abnormal uterine bleeding
Symptoms and signs in patients with genital tuberculosis

- Pelvic Mass
- Pelvic Pain
- PMB
- Amenorr
- AUB
- 2 ary
- 1ary
- Infertility

Graph showing the prevalence of various symptoms and signs in patients with genital tuberculosis.
DIAGNOSTIC TECHNIQUES

MANTOUX TEST (PPD)
- 62-100%

CHEST X-RAY
- Positive: 10-66%
- Normal x-ray does not rule out diagnosis

DIRECT SMEAR (GENITAL TRACT)
- AFB stain
- $10^5$ organisms/ml

CULTURES (GENITAL TRACT)
- Positive: 30%
- 10-100 organisms/sample
- Repeated samples
- Requires 40 days

HYSTEROSALPINGOGRAPHY
- Positive: 60-100%
DIAGNOSTIC TECHNIQUES

HISTOLOGY
- Positive: 50-100%
- Genital tract structures
- Optimal time for sampling endometrium
- Granulomas

LAPAROSCOPY
- Positive: 90-100%
- Deformity of salpinges
- Hydrosalpinx
- Tubal nodes
- Tubal blockage
- Pelvic adhesions
- Frozen pelvis
DIAGNOSTIC TECHNIQUES

- HYSTEROSCOPY
- VAGINAL ULTRASOUND
- POLYMERASE CHAIN REACTION
TREATMENT

MEDICAL
- Short courses effective
- Increased resistance from 2.5% to 8.8% after 1976

SURGICAL
- Indications
  - persistent or recurrent pelvic mass following 6 month chemotherapy
  - persistent or recurrent disease following medical treatment
  - persistent or recurrent symptoms
  - presence of nonhealing fistulas
  - multiple drug-resistant disease
TREATMENT

INFERTILITY

- Tubal microsurgery
  - 7.3% successful: disease stage > II
  - 27% success if disease stage I-II
  - overall success: 22%
  - 11.8% more than one term pregnancy

- IVF-ET
# TREATMENT

## INFERTILITY

### Results of IVF-ET in patients with genital TB

<table>
<thead>
<tr>
<th></th>
<th>Figueroa</th>
<th>Parikh</th>
<th>Marcus</th>
<th>Soussis</th>
<th>Gurgan</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB</td>
<td>5</td>
<td>30</td>
<td>10</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Non TB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preg. R/C *</td>
<td>2 (40%)</td>
<td>5 (16%)</td>
<td>6 (60%)</td>
<td>6 (28.6%)</td>
<td>4 (9.1%)</td>
</tr>
<tr>
<td>Imp. R/E **</td>
<td>NM*</td>
<td>16.6%</td>
<td>22.2%</td>
<td>37.5%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Delivery</td>
<td>-</td>
<td>5 (16%)</td>
<td>4 (40%)</td>
<td>4 (31%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>Abortion</td>
<td>2 (40%)</td>
<td>-</td>
<td>1 (10%)</td>
<td>2 (15%)</td>
<td>75%</td>
</tr>
<tr>
<td>Ectopic</td>
<td>-</td>
<td>1 (3%)</td>
<td>1 (10%)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* Clinical pregnancy rate per cycle

** Implantation rate per embryo

+ Not mentioned

NS non significant
CONCLUSIONS

- Increased incidence of pulmonary TB
- Increased incidence of genital TB
- Asymptomatic
- Infertility as the most frequent complaint
- No unique diagnostic technique
- Definite diagnosis: Histology/Laparoscopy
- Medical treatment
- IVF-ET treatment of choice for selected women