

Background

Female genital tuberculosis (FGTB) –

- Caused by Mycobacterium tuberculosis
- Important cause of infertility
 - Fallopian tubes (90% cases) – Salpingitis, Hydrosalpinx, Pyosalpinx, Tubo-ovarian masses, Adhesions and Tubal blockage
 - Uterus (70%) – Uterine cavity distortion, Intrauterine adhesions
 - Ovaries (25%) – Adhesions and tubo-ovarian masses
 - Cervix (5 to 15%)
 - Vagina or vulva (1 to 2%)
- Symptoms - Menstrual irregularities, chronic pelvic inflammatory diseases, infertility causing recurrent implantation failure or recurrent miscarriages.
- Diagnosis - History, clinical examination, TVS pelvis, laparoscopy, hysteroscopy, endometrial biopsy for bacterial cultures and polymerase chain reaction (PCR)
- Clinical suspicion plays most important role in diagnosis
- Composite reference standard (CRS) - Detect higher number of FGTB cases
 - High degree of clinical suspicion with combination of reliable tests
- Multiple drug therapy including rifampicin, isoniazid, pyrazinamide, and ethambutol for 6 to 9 months
- Start fertility treatment after 2 months of medication

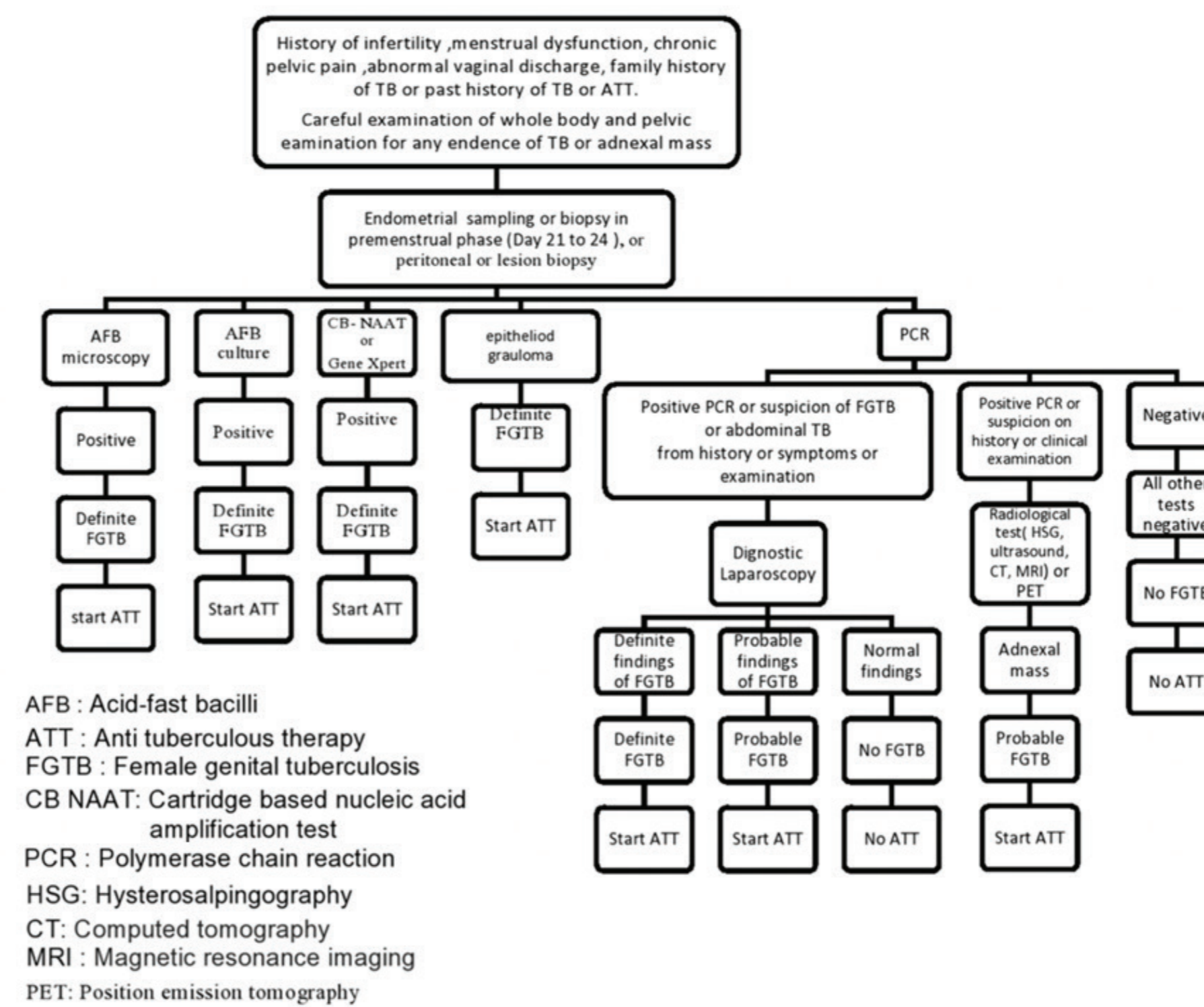


Fig. 4 Use of composite reference standard (CRS) and diagnostic algorithm for FGTB

Objective

To evaluate the role of anti-tubercular treatment (ATT) in infertility

Study Design

Retrospective analysis



Materials and Methods

- Subjects - 45 infertility patients in 4 years duration
- Inclusion criteria -
 - Age group - 23 to 35 years
 - Case of thin endometrium
 - H/o repeated IVF failure
 - H/O recurrent miscarriages
 - H/o Hysteroscopic or laparoscopic adhesiolysis
- Pre IVF hysteroscopy with endometrial biopsy for TB PCR in all cases
- Based on composite reference standard (CRS) in all females -
 - Akt 4 Kit (combination of four medicines – Isoniazid 300 mg, rifampicin 450 mg, ethambutol 800 mg and pyrazinamide 750 mg) for 2 months with supportive medicines followed by AKT 2 (combination of two medicines – Isoniazid 300 mg and rifampicin 450 mg) for 4 months
- Fertility treatment started after 2 months of Akt 4 medication in all cases
- Frozen embryo transfer planned with tab estradiol valerate 6 to 8 mg in divided doses followed by endometrial thickness scanning
- Embryo transfer planned when endometrial thickness > 8 mm in TVS pelvis
- Efficacy of ATT - Assessing endometrium thickness before embryo transfer, pregnancy rates and clinical pregnancy rates



Results

- Age of the females - Between 23 to 35 years
- No difference regarding demographic variables, egg reserve (used donor eggs in low egg reserve cases), sperm parameters, number of embryos transferred and embryo quality in all cases.
- Overall pregnancy rate was 68.8% (31 out of 45 patients)
- Clinical pregnancy rate was 64.4% (29 out of 45 patients)

| Inclusions | No. of cases | Positive cases | Pregnancy rate |
|-------------------------------|--------------|----------------|----------------|
| Thin endometrium | 08 | 05 | 62.5% |
| IVF failures | 28 | 18 | 64.3% |
| Recurrent miscarriages | 03 | 02 | 66.7% |
| Adhesiolysis | 06 | 06 | 100% |
| Total | 45 | 31 | 68.8% |

Discussion

- Female genital TB (FGTB) - Important for implantation of embryo in endometrium
- Earlier studies
- Genital TB produces extensive damage on the uterine lining and fallopian tubes leading to recurrent implantation failures¹
- Significant alterations in endometrial tissue metabolites, largely related to energy metabolism and amino acid biosynthesis and imbalance of these endometrial receptivity markers leads to recurrent implantation failure²
- FGTB alters the cytokines level in endometrium with increased prevalence of IFN- γ and TNF- α in endometrial tissue and aspirate in TB positive cases which may lead to implantation failure or recurrent miscarriage^{3,4,5,6}

- Our study
 - Strong clinical suspicion and on the basis of CRS⁷, antituberculosis treatment recommended
 - Initially daily dose of rifampicin, isoniazid, pyrazinamide and ethambutol given for 2 months followed by 4 months of daily therapy of rifampicin and isoniazid
 - Fertility treatment was started after 2 months of start of treatment



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Conclusions

- Great role of anti-tubercular treatment (ATT) in infertility in case of thin endometrium not responsive to medications, repeated IVF failure, recurrent miscarriages or hysteroscopic or laparoscopic adhesiolysis
- Definitely improved the endometrial thickness, pregnancy rate and the clinical pregnancy rate
- Further well-designed studies required to predict the pregnancy rate and the clinical pregnancy rate more precisely

