Obstetrics & Gynaecology - Topic 28 - Infertility

Understanding Infertility

Definition and Timing of Assessment

Definition and Primary or Secondary Patterns

- Infertility is failure to achieve a pregnancy after twelve months or more of regular unprotected intercourse.
- Primary infertility means that no previous pregnancy has occurred, while secondary infertility follows a previous pregnancy, irrespective of its outcome.

When to Begin Evaluation

- Evaluation commonly begins after twelve months when the woman is younger than thirty-five, or after six months at thirty-five or older.
- Earlier assessment is appropriate above forty years or when there is amenorrhoea, known tubal disease, significant male-factor risk or another clear concern.

Couple-Based Assessment and Outcome Goals

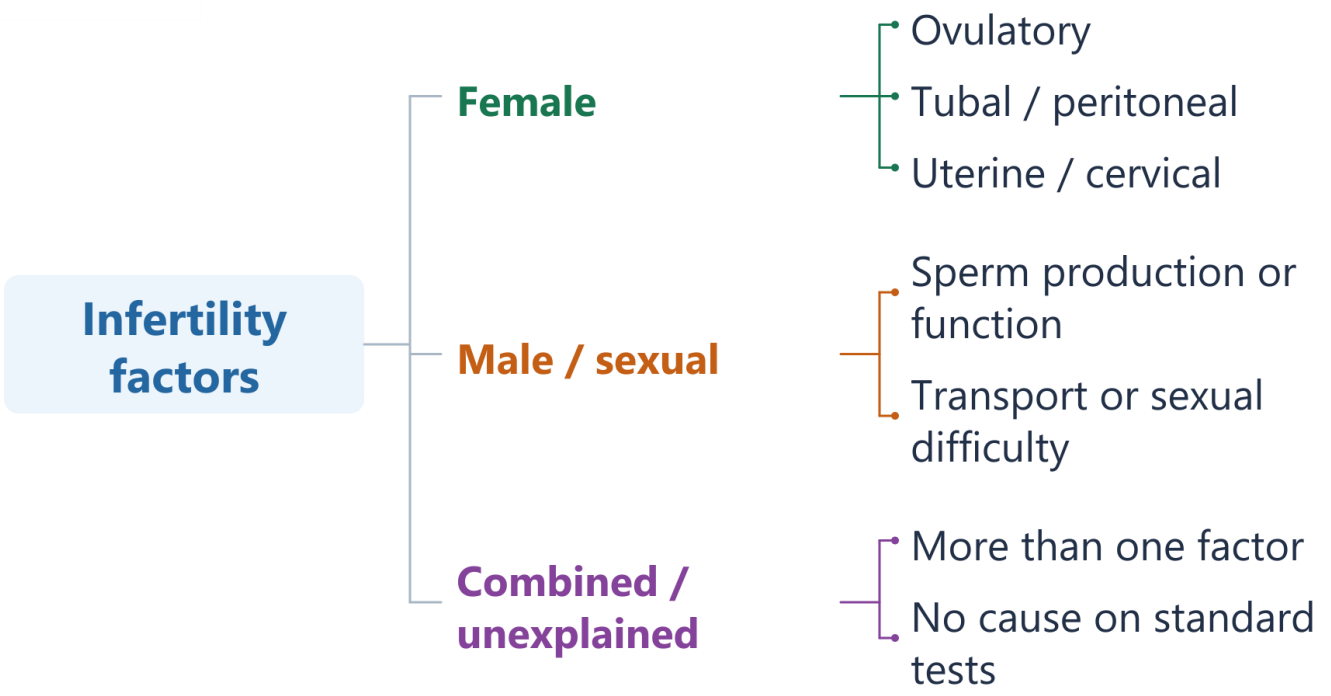
- The investigation should involve both partners from the beginning rather than assuming that infertility is a female problem.
- The outcome that matters is a healthy live birth with acceptable risk, not merely a positive pregnancy test.

What Normal Conception Requires

- A mature oocyte must be released, sperm must reach it, and fertilisation usually occurs within a functioning fallopian tube.
- The early embryo must travel to a receptive uterine cavity and implant successfully.
- Failure at any of these steps can reduce fertility, and more than one factor may be present.

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Causes and Clinical Clues



Aetiological Categories

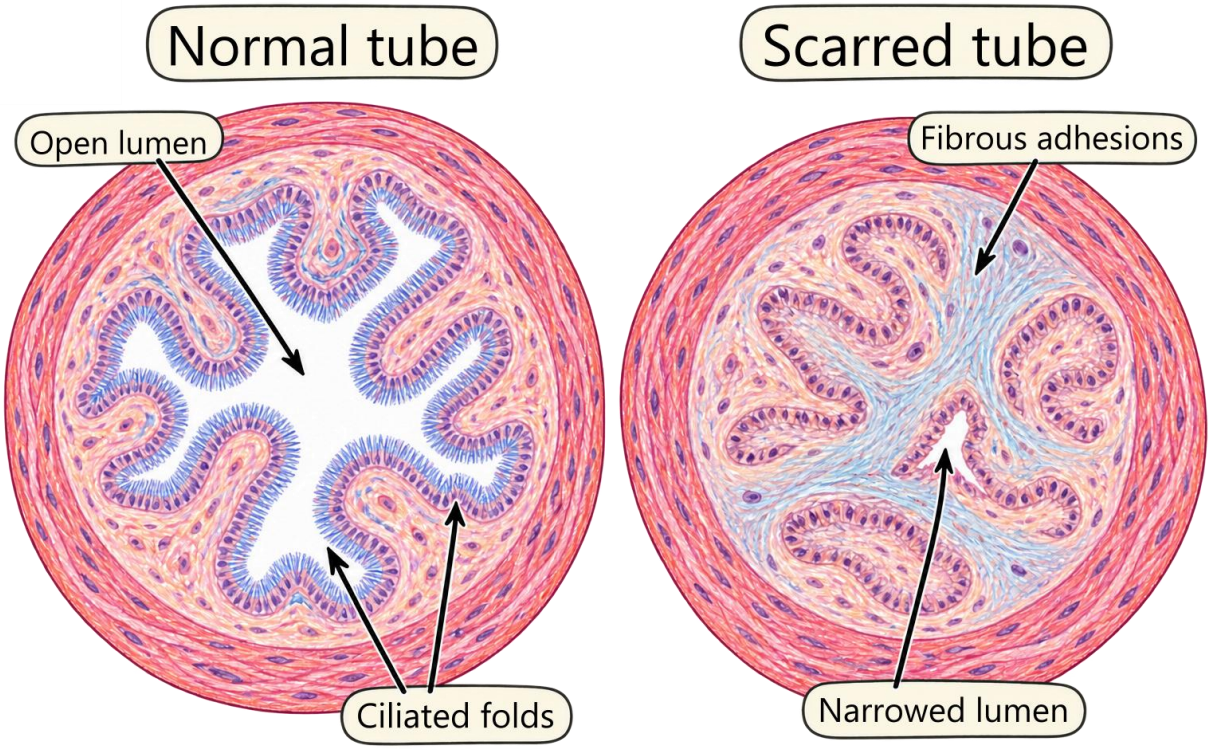
1. Ovulatory Factors

- Polycystic ovary syndrome, hypothalamic dysfunction, hyperprolactinaemia and ovarian insufficiency can cause absent or infrequent ovulation.
- Irregular or absent periods are important clues, while age-related decline may occur despite regular cycles.
- A reduction in oocyte number and quality with age affects both spontaneous conception and assisted reproduction.

2. Tubal and Peritoneal Factors

- Previous PID, genital tuberculosis, ectopic pregnancy or pelvic surgery may obstruct or damage the tubes.
- Endometriosis and pelvic adhesions can disturb tubal movement and the relationship between ovary and fimbria.
- A tube may be technically open but function poorly because cilia and mucosal folds are damaged.

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Tubal patency does not guarantee normal function when inflammation has damaged folds and cilia

3. Uterine and Cervical Factors

- Polyps, cavity-distorting fibroids, intrauterine adhesions and some congenital uterine abnormalities may interfere with implantation.
- Cervical stenosis can affect sperm passage or access for treatment, although cervical-factor infertility is less common than many other causes.
- Not every incidental fibroid or uterine variation is responsible for infertility, so intervention requires a clear clinical rationale.

4. Male and Sexual Factors

- Reduced sperm production, impaired motility, abnormal morphology or obstruction of sperm transport may contribute.
- Erectile or ejaculatory difficulties and infrequent or painful intercourse may prevent adequate exposure to sperm.
- Testicular disease, genetic abnormalities, gonadotoxic treatment and exogenous testosterone or anabolic steroids are relevant history points.

5. Unexplained Infertility

- Unexplained infertility is considered when a standard assessment shows ovulation, adequate tubal patency and no important semen abnormality.
- This label does not mean that conception is biologically normal in every respect; it means that routine tests have not identified the cause.

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Assessment of the Couple

History and Examination

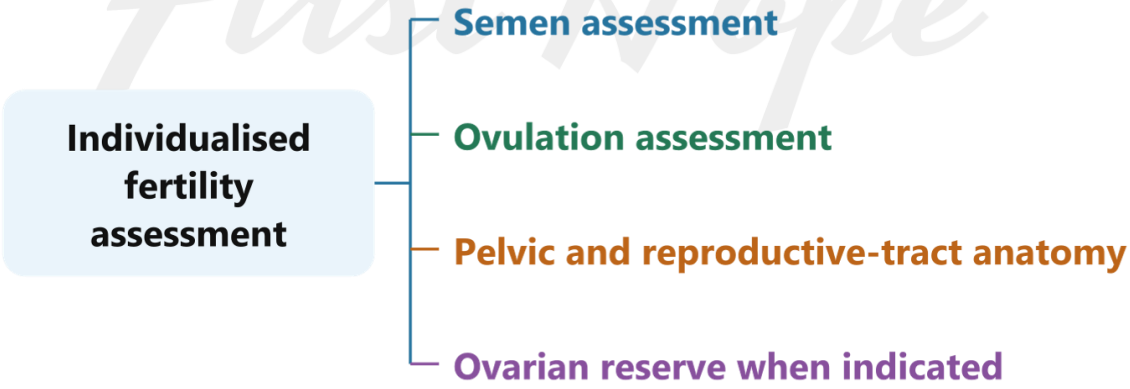
Reproductive and Medical History

- Ask about duration of infertility, previous pregnancies, frequency of intercourse, menstrual pattern and prior fertility treatment.
- Review pelvic infection, TB, operations, endometriosis symptoms, chronic disease, medicines and family history.
- Ask the male partner about puberty, testicular injury or surgery, infections, sexual function, heat or toxin exposure and hormone use.

Lifestyle, Examination and Psychosocial Context

- Discuss tobacco, alcohol, nutrition, exercise and occupational exposures without blaming either partner.
- Examination is targeted to the findings and may include body size, thyroid, androgen signs, pelvic abnormalities and male reproductive examination.
- Identify anxiety, relationship strain, coercion or financial pressures, and offer supportive counselling.

Core Components of the Fertility Evaluation



1. Assess Semen Early

- A semen analysis should be arranged early and collected according to the laboratory's instructions, including the recommended abstinence interval.
- Ensure the entire sample is collected into a suitable container and promptly delivered, and record any collection difficulty.
- Interpret volume, sperm concentration, total count, motility and morphology together rather than declaring fertility from one parameter.
- An abnormal result usually requires confirmation because illness, collection and natural variation can affect the sample.
- Azoospermia or a substantial persistent abnormality requires an appropriate male-fertility assessment rather than treating only the female partner.

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Interpreting Semen Reference Values

Parameter	WHO 2021 lower fifth-centile reference
Semen volume	1.4 mL.
Sperm concentration	16 million per mL.
Total sperm number	39 million per ejaculate.
Total motility	42%.
Progressive motility	30%.
Normal morphology	4% using the specified strict method.
Vitality	54% live sperm.

- These are population reference values from fertile men and are not a sharp boundary between fertility and infertility.
- Interpret the result with the complete sample, repeated testing when indicated and both partners' clinical circumstances.

2. Assess Ovulation

- A regular menstrual history often suggests ovulation, but the need for confirmation depends on the presentation.
- When progesterone is measured, take the sample about seven days before the expected next period rather than on day twenty-one for every cycle.
- A suitably raised progesterone supports recent ovulation but does not provide a complete measure of luteal quality from one sample.
- Urinary LH tests and ultrasound follicular monitoring can be useful in selected treatment or assessment settings.
- Investigate TSH, prolactin and other endocrine causes according to menstrual and clinical findings.

Mittelschmerz (Ovulation Pain)

Meaning, Mechanism and Duration

- **Mittelschmerz** is transient lower abdominal pain associated with ovulation, usually on one side and around the middle of the cycle.
- Follicular distension and irritation from fluid or a small amount of blood released at follicular rupture can contribute to the pain.
- It may last minutes to one or two days and can be accompanied by slight spotting.

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