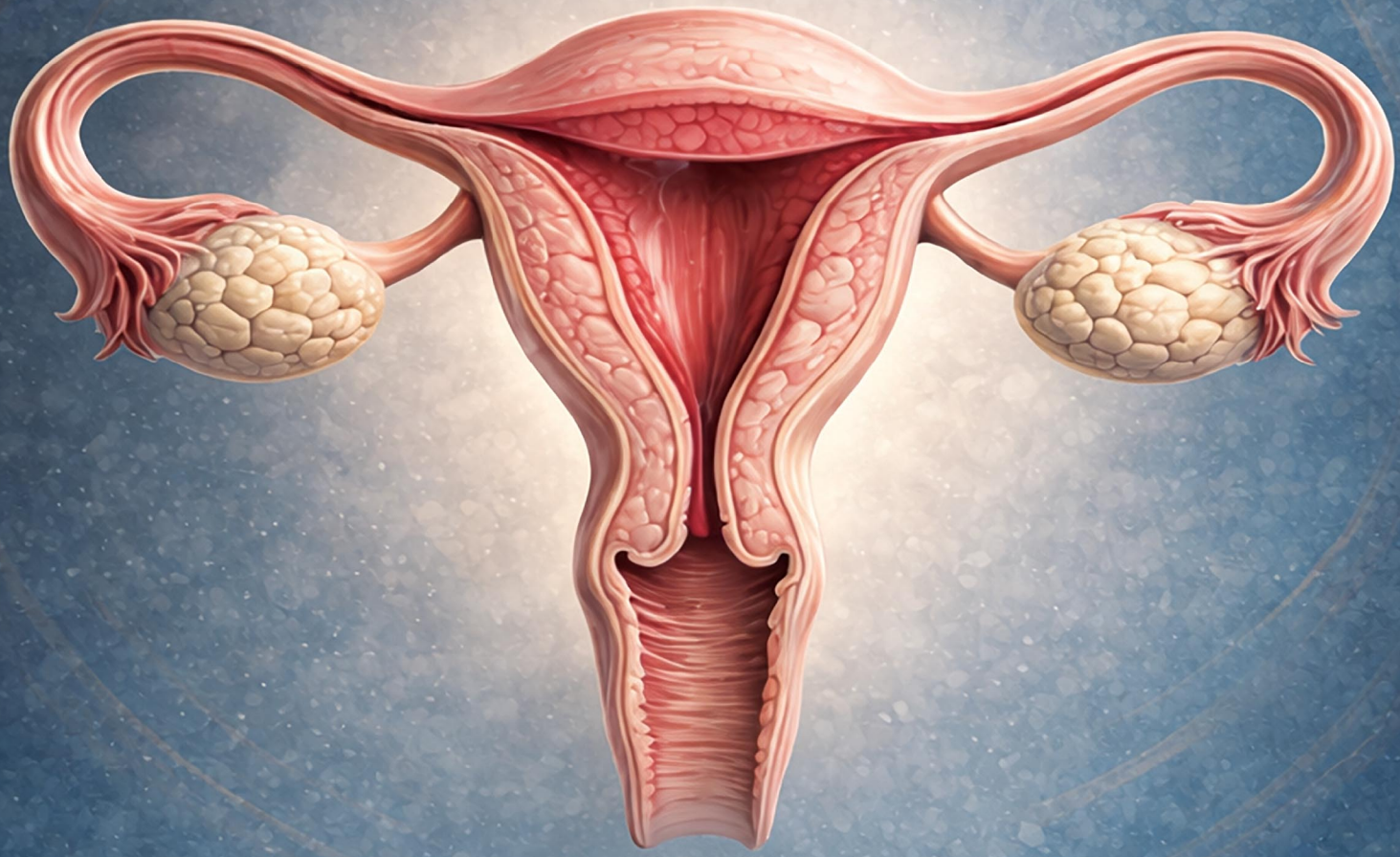
BASIC GYNECOLOGY

for Postgraduate Students



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JAYPEE

Contents

CHAPTER 30

Contraception

Q1. What do you mean by contraception?

Contraception means all measures taken temporary or permanent to prevent pregnancy due to coital act.
Ideal contraception method should be highly effective acceptive safe, reversible, cheap, having non contraceptive benefit, simple to use and requiring minimal motivation, maintenance and supervision.

Q2. What are the methods of contraception?

Method of Contraception

Temporary methods:

- *Barrier methods:*
  - Mechanical:
    - Male: Condom
    - Female:
      - Female condom
      - Vaginal diaphragm
      - Cervical occlusion cap
  - Chemical (vaginal contraceptives)
    - Cream
    - Jelly
    - Foam
    - Sponge
  - Combination: E.g., condom along with a spermicidal
- *Natural contraception:*
  - Rhythm method
  - Coitus interruptus.
  - Lactational amenorrhea method
  - Basal body temperature method
- *Intrauterine contraceptive devices (IUCDs):*
  - Non-medicated: E.g., Lippies loop
  - Medicated:
    - Copper devices: Cu-T
    - LNG-IUS
- *Steroidal/Hormonal contraceptives:*
  - Oral contraceptives:
    - Combined pills
    - Sequential pill
    - Progesterone only pill (mini pill)
    - Post coital pill (emergency pill)
  - Parenteral preparations (progestogens)

- Injections: E.g., DMPA, NET-EN
- Sub dermal implants e.g., Norplant

Permanent methods:

- Female:
  - Tubal ligation
  - Tubal occlusion
- Male: Vasectomy

Intrauterine Contraceptive Device

IUCD: Intrauterine contraceptive device are the devices with small plastic carrier placed in the uterus for the purpose of contraception.

Types of IUCD:

- Non medicated or inert IUCDs: E.g., Lippies loop
- Medicated IUCDs:
  - Cu releasing IUCDs:
    - Cu-7
    - Cu T 200
    - Multiload Cu 250
    - Multiload Cu 375
    - Cu T 380 A
    - Cu T 380Ag
  - Hormone releasing IUCDs:
    - Progestasert
    - Levonorgestrel IUCD

Mechanism of action of 1st and 2nd generation IUCDs:

- IUCD causes a foreign body reaction in the uterus causing cellular and biochemical changes in the endometrium and uterine fluid. These changes impair the viability of the gamete and thus reduce its changes of fertilization rather than its implantation.
- 2nd generation medicated IUCD affects the enzyme in the uterus by altering the biochemical composition of cervical mucus.
- Copper ion may affect sperm motility, capacitation and survival.

Mechanism of action of 3rd generation IUCDs:

- Progesterone of 3rd generation IUCDs increases the thickness of cervical mucus and prevents sperm from entering the cervix.
- It decreases the thickness of endometrial mucosa and thereby prevents implantation.

Timing of IUCD insertion:

- *At the end of menstruation:* It is preferable to insert 2-3 days after the period is over.
- *Postabortal:* Following termination of pregnancy by evacuation or D&C, or following spontaneous abortion.
- *Postpartum:* Following delivery insertion is usually done after 6 weeks.
- *Postplacental delivery:* Following the delivery of the placenta.

Advantages of IUCD/Cu-T:

- Less expensive.
- Simplicity in techniques of insertion.
- Prolong contraceptive protection after insertion and suitable for the rural population of developing countries.
- Systemic side effects are nil.

- Suitable for hypertensive, breastfeeding women.
- Reversibility to fertility is prompt after removal.

Disadvantages of IUCD:
- Require motivation.
- Limitation in its use.
- Adverse local reactions manifested by menstrual abnormalities, PID, pelvic pain and heavy periods.
- Risk of ectopic pregnancy.

Complications of IUCD/Cu-T:
Immediate:
- Cramp like pain.
- Syncopal attack.
- Partial or complete perforation.

Delayed:
- pain.
- Abnormal menstrual bleeding.
- PID
- Spontaneous expulsion.

Contraindications of IUCD:
- Pregnancy or suspected pregnancy.
- Undiagnosed per vaginal bleeding.
- Acute pelvic infection.
- Distortion of the shape of the uterus or uterine cavity as fibroid.
- Severe dysmenorrhea.
- Known or suspected uterine or cervical neoplasia.
- Sexually transmitted diseases (STDs)
- Gestational trophoblastic diseases.
- Immunosuppressive disorders.
- Breast cancer

Indications of removal of IUCD:
- Persistent excessive regular or irregular uterine bleeding.
- Flaring up of salpingitis.
- Uterine perforation.
- Partial expulsion of the device.
- Suspected pregnancy.
- Missing thread.
- One year after menopause.

Management of missing Cu-T:
History: Questions about:
- When did she feel the thread last?
- Is the tread torn out?
- Is there any pain?
- Is there any missed period?

Examination:
- Breast examination: Is there any signs of pregnancy
- Abdominal and pelvic examination: Signs of pregnancy, any tenderness?

Investigation:
USG of lower abdomen and pelvis
- Hysteroscopy
- X-ray pelvis

Treatment:
- If device inside the uterine cavity—uterine curette or hysteroscopic removal
- If the device is outside the uterine cavity but inside the abdominal cavity—laparoscopy or laparotomy.

Levonorgestrel-IUS (Mirena):
Mechanism of action:
- It induces strong and uniform suppression of endometrium.
- Cervical mucus becomes very thick and scanty. It impedes sperm motility and access to the upper genital tract.
- Anovulation and insufficient literal phase activity has also altered.
- Decreases tubal motility.

Advantages of LNG-IUS:
- Higher efficacy with lowest pregnancy rate.
- Can be used for longer duration of action (for 5-10 years)
- Lower expulsion rate and fewer indications for medical removal.
- Used as reduction in the risk endometrial and cervical carcinoma.
- Can be used as fertility sparing treatment of early stage endometrial carcinoma.
- Safe and effective as an alternative to sterilization method.
- It can provide the benefits of hormone replacement therapy.

Disadvantages of LNG-IUS:
- Expensive.
- Not available everywhere
- Can cause amenorrhea.
- Long duration of use can cause infertility or abortion.

Steroidal Contraceptions
Types of Hormonal or steroidal contraceptives:
- Oral contraceptives (oral pills)
  - Combined oral pills:
    - Monophasic
    - Biphasic
    - Triphasic.
    - Emergency/post-coital pill.
  - Single preparation:
    - Estrogen only pill.
    - Progesterone only pill.
    - Sequential pill.
- Parenteral preparations:
  - Injectable:
    - DMPA
    - NET-EN
  - Implants:
    - Implanon
    - Norplant-||
    - LNG Rod.

- Device:
  - IUD: LNG-IUS
  - Vaginal ring
- Transdermal patches: Nesterone.

Mechanism of actions of oral pill:

- Inhibition of ovulation by suppression of LH surge.
- Alteration in the composition of cervical mucus. The cervical mucus becomes thick, viscid, and scanty and prevents sperm penetration.
- Atrophy of the endometrium that prevents implantation of the fertilized ovum.
- Interference with the mobility and secretion of the fallopian tubes.

Selection criteria of a client for OCP:

Thorough history, examination and some investigations may be needed to exclude contraindications.

From history and examination:

- Age: If the patient is more than 35years OCP should be prescribed with caution and regular check-up.
- History of smoking
- Menstrual history should be taken to exclude pregnancy.
- Obstetrical history including breast feeding.
- Family history of cerebrovascular disease including hypertension or breast carcinoma.
- Medical history regarding thromboembolic episodes, jaundice, epilepsy, hypertension, diabetes, migraine etc should be excluded.
- Weight and blood pressure should be noted.

Investigations:

- Lipid profile
- Serum bilirubin
- Cervical smear

Choice of pill—should be one, containing the lowest effective dose of estrogen and progesterone.

Instructions:

- OCP should be started on the first day of menstruation.
- Patient should be instructed to take pill at the same time everyday, preferably at night.
- Patient should starts with the white pill and after completing one strip, new strip should be started without any interval.
- If one tablet is missed, it must be taken immediately as soon as she remembers, in addition to the scheduled one.
- If two consecutive tablets are missed additional contraceptive protection such as barrier method should be taken along with the rest of the tablets.
- For lactating mothers, OCP should be commenced 6months after delivery because estrogen-progesterone preparations affect the quality and quantity of the milk.

Indications of combined oral contraceptives:

According to WHO category:

Category-1: (No restriction of use)

- Age: Menarche to 40years.
- Postabortion.
- Anemia (iron deficiency, malaria)
- HIV or AIDS (additional to condom use)
- GTN following normal hCG level.

- History of ectopic pregnancy.
- Endometriosis, uterine fibroid, ovarian or endometrial carcinoma.
- Dysmenorrhea, DUB.
- Pelvic inflammatory disease
- Epilepsy
- Thyroid disease
- Varicose vein
- Tuberculosis
- Benign breast disease.

Contraindications of COC's

Relative contraindications:

WHO category-2:

- Age >40 years.
- Smoker <35 years
- History of jaundice
- Mild hypertension
- Gallbladder disease
- Diabetes
- Sickle cell disease
- Headache
- Cancer cervix or CIN

WHO category-3:

- Unexplained vaginal bleeding.
- Hyperlipidemia.
- Liver tumors (benign)
- Breastfeeding (postpartum 6weeks to 6months)
- Heavy smoker (>20 cigarettes/day)
- Past breast cancer.

Absolute contraindications:

WHO category-4:

- Circulatory disease:
  - Arterial or venous thrombosis
  - Severe hypertension
  - History of stroke
  - Valvular heart disease
  - Ischemic heart disease
  - Diabetes with vascular complications
  - Migraine with focal neurological symptoms.
- Disease of liver:
  - Active liver disease.
  - Liver adenoma, carcinoma.
- Others:
  - Pregnancy
  - Breast feeding (postpartum 6 weeks)
  - Major surgery or prolong immobilization.
  - Estrogen dependent neoplasm e.g., breast cancer.

Disadvantages or complications of COC's:

- *Minor complications:*
- Nausea, vomiting, headache and leg cramps.
- Mastalgia
- Weight gain
- Cloasma and acne
- Menstrual abnormalities
  - Breakthrough bleeding or spotting.
  - Hypomenorrhea.
  - Menorrhagia.
  - Amenorrhea.
- Loss of libido.
- Leukorrhea.

Major complications:

- Depression
- Hypertension
- Vascular complications:
  - Venous thromboembolism
  - Arterial thrombosis
- Cholestatic jaundice
- Neoplasia
  - Breast cancer
  - Cervical cancer

Progesterone only pill

Mini pill/Progesterone only pill: Mini pill contains only very low dose of progesterone and devoid of estrogen. The commonly used forms are:

- Levonorgestrel 75 microgram
- Norethisterone 350 microgram
- Desogestrel 75 microgram
- Norgestrel 30 microgram
- Lynestrenol 500 microgram

Mechanism of action:

- Thickening of cervical mucous hinders sperm penetration.
- Endometrial atrophy prevents blastocyst implantation.
- Ovulation inhibition in 2% cases.
- Abnormal luteal function.
- Decrease tubal motility.

Timing of starting mini pill: The pill should be started from the first day of the cycle, one pill per day, throughout the cycle, without break in between the packs.

Indications:

- Patients aging more than 35 years.
- Patients whom estrogen is contraindicated.
- Lactating mother.

Complications:

- Acne, mastalgia, headache.
- Breakthrough bleeding or at times amenorrhea.

- Simple ovarian cyst may be seen.
- Failure rate about 0.5 to 2 per 100 women per year.

Contraindications:
- Pregnancy
- Unexplained vaginal bleeding.
- Breast carcinoma.
- Arterial disease.
- Thromboembolic disorders.
- Epilepsy patients.

Injectable contraceptives

Types of injectable contraceptives:
- Depot medroxy progesterone acetate (DMPA) 150 mg 3 monthly.
- Norethisterone oenanthate (NET-EN) 200 mg 2 monthly.

Mode of action:
- Inhibition of ovulation by suppressing the mid cycle LH peak.
- Making cervical mucus thick, thus prevent implantation of sperm.
- Endometrium is atrophic that prevents blastocyst implantation.

Advantages of injectable contraceptives:
- Does not required regular medication.
- Can be used safely during lactation. It can increases the milk secretion without altering its composition.
- No estrogen like side effects.
- Menstrual symptoms e.g, menorrhagia, dysmenorrhea are reduced.
- Protective against endometrial cancer.
- Reduce PID, endometriosis, ectopic pregnancy and ovarian cancer.
- DMPA reduces the risk of:
  - Salpingitis.
  - Endometrial cancer.
  - Iron deficiency anemia.
  - Sickle cell problems.
  - Endometriosis.

Timing of injection:
- In menstruating women, the first injection should be given within 5 days of the menstrual period.
- Incase of post-abortion or termination of pregnancy, injection should be given on the same day of procedure.
- Postpartum: 5-6 weeks after delivery.

Side effects of injectable contraceptives:
- Irregular bleeding.
- Amenorrhea.
- Weight gain.
- Delayed return of fertility.
- Galactorrhea.
- Mild androgenic effect.
- Enuresis.
- Others, like depression, loss of libido, vaginal dryness, headache, leg cramps, etc.

Contraindications:
- Suspected pregnancy.
- Patients wants to conceive
- Acute or chronic liver disease.
- Undiagnosed abnormal genital tract bleeding.
- Thromboembolic disease.
- Recent trophoblastic disease.
- Obesity
- HTN

Norplant/Implanon

Norplant is a single implant containing 68 mg etonogestrel, the metabolite of Desogestrel and releasing about 60 microgram/day initially later 30 microgram/day over 3 years.

Mechanism:
- It inhibits ovulation in 90% of the cycles for the 1st year.
- Atrophy changes in the endometrium, thus prevents implantation.
- Making cervical mucus thick, thus prevent penetration of the sperm.

Time of insertion:
- During menstruation or the 1st day of menstruation.
- Immediately after abortion.
- 3 weeks after postpartum.

Site of insertion: The implants are placed in a fan shaped manner subdermally in the medial aspect of the non-dominant upper arm, 6-8 cm above the elbow fold.

Advantages:
- Highly effective for long term use and rapidly reversible.
- Suitable for women who have completed their family but do not desire permanent sterilization.
- Efficacy of Norplant is extremely high. This safe and effective method is considered as 'reversible sterilization'
- It eliminates regular medication as imposed by oral pill.
- It can be used safely during lactation.
- Menstrual symptoms e.g., menorrhagia, dysmenorrhea are reduced.
- Productive against endometrial.
- Reduction in PID, endometriosis, ectopic pregnancy and ovarian cancer.

Disadvantages:
- May disturb menstrual cycle.
- Irregular and prolong bleeding in most common compliant.
- Heavy bleeding and amenorrhea seldom occurs.

Emergency contraceptives

Emergency contraception is any drug or device used after unprotected intercourse to prevent pregnancy. The dose should be taken within 72 hours.

Available preparations:
- Levonorgestrel *(E. pills)*: 0.75 mg, 2 doses given at 12 hours interval.
- Ethinyl estradiol: 2.5 mg 12 hourly for 5 days
- Conjugated estrogen: 15 mg 12 hourly for 5 days.
- Ethinyl estradiol: 2.5 mg 12 hourly.
- Mifepristone: 100 mg single.

Complications:
- Nausea and vomiting.
- Failure leading to pregnancy.
- Ectopic pregnancy.

Sterilization

Sterilization/Permanent contraception: Sterilization is a surgical method where the reproductive function of an individual (male/female) is purposefully and permanently damaged.

Methods:
- For female: Tubal ligation/Tubectomy.
- For male: Vasectomy.

Tubal ligation/Tubectomy: It is an operation where resection of a segment of both fallopian tubes is done to achieve permanent sterilization.

Selection criteria of a patient for Tubectomy:
- Family must be completed.
- Age of the last child must above 3 years
- Written consent of husband.

Indications:
- For the purpose of family planning.
- To limit the size of the family.
- Socioeconomic purpose.
- In some medical conditions like diabetes, renal disease, heart disease where further pregnancy can be hazardous for the maternal health.

Time for sterilization:
- Intrapartum: During cesarian section.
- During puerperium: 24-48 hours following delivery.
- Random: following the menstrual period in the proliferative phase.
- Combined with MTP.

Methods of Tubectomy:
- Abdominal:
  - Laparotomy/Conventional:
    - Pomeroy method (A loop of the fallopian tube is tied with absorbable suture and the cut)
    - Parkland method (A segment of the fallopian tubes are excised and then the ends are ligated separately).
    - Irving's method (The cut end is buried in the myometrium and the distal end is tied and left free).
    - Uchida technique (A segment is cut and the proximal end is buried in the mesosalpinx).
    - Madlener's technique/fimbriectomy.
  - Minilaparotomy:
    - Small abdominal incision (2-3 cm) is made just above the pubic hairline.
    - Common in post-partum and interval sterilization.
    - Often done under local or regional anesthesia.
- Laparoscopic sterilization:
  - Performed using laparoscopy through a small abdominal port.
  - Tubes are occluded using: falope rings, Filshie clips, electrocautery.

Vasectomy: It is a permanent sterilization procedure done in the male where a segment of vas deferens of both side is resected and cut ends are ligated.

Methods:
- Conventional vasectomy
- Non scalpel technique
- Open ended vasectomy
- Chemical occlusion.

Post-operative care:
- In 1st 3 months the couple must use other methods like condoms
- Follow up semen analysis reports must confirm sterility.

Complications:
- Immediate:
  - Wound sepsis.
  - Cellulitis.
  - Scrotal hematoma.
- Delayed:
  - Frigidity or impotency.
  - Sperm granuloma.
  - Antisperm antibody formation.
  - Spontaneous recanalization leading to pregnancy.

Barrier methods of contraception

Types of barrier methods:
- *Mechanical barrier:*
  - Male: Condom
  - Female:
    - Female condom
    - Vaginal diaphragm
    - Cervical occlusion cap
- *Chemical barriers:*
  - Vaginal cream e.g., Delfen
  - Jelly e.g., koromex
  - Foam e.g., aerosol foam
  - Sponge

Advantages of condom:
- Easily available
- Cheaper with no contraindications
- Non-hormonal, no systemic side effects.
- Easy to carry, simple to use and easily disposable.
- Protection against sexually transmitted diseases.
- Protection against pelvic inflammatory disease.
- Fertility returns immediately after discontinuation.
- No need of medical supervision.

Disadvantages:
- Risk of accidentally break or slip off during coitus, so failure rate is high.
- Inadequate sexual pleasure.
- Latex allergy.
- Have to discard after one time use.

Natural Contraception

Natural contraceptives: These methods are based on the recognition of fertility and infertile phases of a menstrual cycle from the symptoms and signs of ovulation and to remain abstain from sexual intercourse during the fertile period.

Fertility awareness methods are:

- *Safe period/calendar method:* Avoid intercourse during the fertile period (typically day 10-18 in a 28 days cycle)
- *Basal body temperature method:* A women's body temp slightly raises after ovulation (0.3-0.5°C), avoid intercourse until 3 days after the temp raise.
- *Cervical mucus method:* Observes changes in vaginal discharge and avoid intercourse during fertile mucus.
- *Symptothermal method:* It combines BBT, cervical mucus and calendar methods.
- Lactational amenorrhea method (LAM).
- Coitus interruptus/withdrawal method.

Lactational Amenorrhea Method (LAM)

Lactational amenorrhea:

The Lactational amenorrhea method is based on the fact that breastfeeding provides 98% protection during the first six months postpartum if the baby is exclusively breastfeeding and the mother has not yet had a menstrual period.

Failure rate is 0.5-0.6%

Mechanism:

- During breastfeeding, high level of prolactin thus inhibits ovarian response to FSH.
- Hypo-estrogenic state cause no menstruation.
- If the patient does not breastfeed the baby, her menstruation would return by 6th week following delivery in about 40% and 80% by 12th week.

Limitations:

- It is temporary, only works for first 6 months postpartum.
- Requires exclusive breastfeeding.
- Not effective once menstruation returns or feeding is reduced.
- May not be reliable if feeding patterns are inconsistent.

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Salient Features

- This book comprehensively addresses the written aspects of "Obstetrics and Gynecology" catering to postgraduate examinations of MS phases A and B
- It presents nearly ideal written discussions commonly encountered in daily obstetric and gynecological practice, structured in question-and-answer format by experienced teachers involved in clinical management and academic examinations
- It covers almost all frequently seen questions in both obstetrics and gynecology
- The book includes commonly asked questions for written examinations. Within a single topic or case, multiple scenarios are developed to cover a broad range of possible questions
- Recent developments and advances in the respective topics have also been incorporated
- It serves as a valuable resource for both trainees and practicing clinicians in obstetrics and gynecology.

Tripti Rani Das MBBS FCPS (Obs & Gyne) MS (Obs & Gyne) is a respected Academician and Clinician in the field of Obstetrics and Gynecology from Bangladesh. She completed her undergraduate medical training (MBBS) followed by postgraduate specialization with an MS in Obstetrics and Gynecology and has achieved the prestigious FCPS from the Bangladesh College of Physicians and Surgeons. She has 75 national and international publications. She is Professor, Department of Obstetrics and Gynecology, Bangladesh Medical University, Shahbagh, Dhaka, Bangladesh. She has extensive clinical and surgical experience in the management of a wide spectrum of obstetric and gynecological conditions. Her professional expertise includes high-risk obstetrics, operative obstetrics, and advanced gynecological surgeries, with a particular interest in improving maternal and reproductive health outcomes. Over the years, she has been actively engaged in clinical service, academic teaching, and postgraduate training, contributing significantly to the development of skilled healthcare professionals in the field.

In addition to her clinical work, she has been involved in medical education, research, and scholarly activities, reflecting her commitment to evidence-based practice and continuous advancement of women's health care. Her academic contributions and dedication to patient's care have earned her recognition among peers, students, and the wider medical community. Through her clinical expertise, teaching, and academic endeavors, Professor Tripti Rani Das continues to contribute meaningfully to the advancement of Obstetrics and Gynecology.

Shelving Recommendation
OBSTETRICS & GYNECOLOGY

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