NEET SS 2024 Diploma Obstetrics and Gynaecology Question Paper 3 with Solutions

Time Allowed :3 Hours	Maximum Marks :100	Total Questions :10

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hours duration.
2. The question paper consists of 10 questions. The maximum marks are 100.
3. Each Question is of 10 marks.

Q1. a) Write the differential diagnosis of adnexal masses in postmenopausal women. [3]

Solution:

Step 1: Differential Diagnosis.
The differential diagnosis of adnexal masses in postmenopausal women includes:

(1) Ovarian Cancer - The most concerning diagnosis. Risk increases with age and family history.
(2) Benign Ovarian Tumors - Such as serous cystadenomas, mucinous cystadenomas, or dermoid cysts.
(3) Endometriomas - Usually associated with endometriosis, may present as cystic masses.
(4) Fibromas or Thecomas - These are benign tumors of the ovary, often asymptomatic.
(5) Hydrosalpinx - Fluid-filled fallopian tubes, typically caused by infection.
(6) Metastatic Tumors - Masses may arise from metastasis, commonly from the gastrointestinal tract.

Quick Tip

In postmenopausal women, any adnexal mass should be evaluated for ovarian cancer, but benign causes are also common.

Q1. b) What is RMI? [2]

Solution:

Step 1: Definition of RMI.
RMI stands for Risk of Malignancy Index. It is a scoring system used to predict the likelihood of an ovarian mass being malignant. The RMI combines the following factors:

(1) Menopausal Status (1 point for premenopausal, 3 points for postmenopausal)
(2) Ultrasound Features (1-3 points based on features like multilocularity, solid areas, etc.)
(3) CA-125 Level (Measured in U/mL, with higher levels indicating greater risk).

Quick Tip

RMI is used as a simple, effective tool for stratifying ovarian masses based on risk, guiding management decisions.

Q1. c) What is the role of RMI in a postmenopausal woman presenting with an adnexal mass? [5]

Solution:

Step 1: Purpose of RMI.
The role of RMI in postmenopausal women presenting with an adnexal mass is to aid in risk stratification for malignancy. The RMI helps to differentiate benign from malignant ovarian masses, which is crucial for planning further management.

Step 2: Clinical Application.
In postmenopausal women, an adnexal mass raises concern for ovarian cancer. The RMI helps clinicians determine the urgency and type of further investigations, including whether to proceed with surgical intervention. A higher RMI indicates a greater likelihood of malignancy, guiding the decision for more aggressive management.

Step 3: RMI Calculation.
The RMI is calculated as:

$$\text{RMI} = \text{CA-125} \times \text{ultrasound score} \times \text{menopausal status score}.$$

If the RMI value is high, it suggests a need for surgery or further diagnostic procedures like CT or MRI scans.

Step 4: Prognosis and Follow-Up.
For low RMI values, conservative management and periodic follow-up may be appropriate. High RMI values require more urgent and aggressive treatment plans, including possible surgical removal and biopsy.

Quick Tip

RMI is particularly helpful in postmenopausal women, where the likelihood of malignancy is higher. It helps stratify risk and guide management decisions.

Q2. a) What is the POPQ classification of genital prolapse? [5]

Solution:

Step 1: Introduction to POPQ Classification.
The POPQ (Pelvic Organ Prolapse Quantification) system is a standardized method used to classify and assess the severity of genital prolapse. It evaluates the position of the pelvic organs using specific anatomic landmarks.

Step 2: Components of POPQ Classification.
The POPQ classification is based on 6 points:

(1) Point Aa (Anterior vaginal wall) - The position of the anterior vaginal wall relative to the hymenal ring.
(2) Point Ba (Posterior vaginal wall) - The position of the posterior vaginal wall relative to the hymenal ring.
(3) Point C (Cervix) - The descent of the cervix or uterus in relation to the hymenal ring.
(4) Point D (Posterior vaginal fornix) - The descent of the posterior vaginal fornix.
(5) TVL (Total vaginal length) - The length of the vagina measured from the hymen to the cervix.
(6) Point Ap (Apical prolapse) - The position of the apex of the vagina (in cases of hysterectomy).

These measurements are used to grade the prolapse from Stage 0 (no prolapse) to Stage 4 (complete prolapse).

Step 3: Grading of Prolapse.
- Stage 0: No prolapse.
- Stage 1: Descent of the pelvic organs to the hymen.
- Stage 2: Descent of the pelvic organs halfway to the hymen.
- Stage 3: Descent of the pelvic organs past the hymen but not completely outside the vagina.
- Stage 4: Complete vaginal prolapse (the organ completely outside the vagina).

Quick Tip

The POPQ system is essential in assessing the degree of prolapse, guiding treatment decisions, and providing a clear understanding of the prolapse's severity.

Q2. b) Write the management of a 32-year-old P2 presenting with third-degree cervical descent. [5]

Solution:

Step 1: Introduction.
A 32-year-old woman, P2 (parity 2), presenting with third-degree cervical descent indicates a significant pelvic organ prolapse (POP). In this case, the cervix has descended past the hymenal ring but has not fully prolapsed. The management approach should aim at relieving symptoms and preventing further descent.

Step 2: Conservative Management.
In cases of mild to moderate symptoms or in women who wish to delay surgery, conservative management options include:

(1) Pessary Use - A vaginal pessary can provide support for the prolapsed organs and prevent further descent. This is often recommended for women who do not want immediate surgery or are poor surgical candidates.
(2) Pelvic Floor Exercises - Kegel exercises to strengthen the pelvic floor muscles and provide support to the pelvic organs.

Step 3: Surgical Management.
For a third-degree cervical descent, especially if conservative methods fail, surgery is typically recommended. Options include:

(1) Vaginal Hysterectomy with Pelvic Floor Repair - Removal of the uterus (if desired by the patient) along with repair of the pelvic floor to correct the prolapse.
(2) Uterine Suspension (if uterus is preserved) - Suspension of the uterus to restore its normal position.
(3) Colpocleisis - A procedure that is an option for older women or those with limited sexual activity, where the vaginal canal is closed, offering relief from prolapse.

Step 4: Postoperative Care.
Post-surgery, women should follow a rehabilitation plan involving pelvic floor exercises to strengthen the muscles and prevent recurrence of prolapse.

Quick Tip

The management of prolapse depends on the severity, symptoms, and patient preference. Surgical options are recommended for significant prolapse, while conservative management can be a trial for those with mild symptoms.

Q3. a) Write the etiology of various genital fistulae. [4]

Solution:

Step 1: Introduction to Genital Fistulae.
Genital fistulae are abnormal connections between the genital tract and other structures such as the bladder, rectum, or perineum. The etiology of genital fistulae varies depending on the

location and the underlying cause.

Step 2: Etiology of Genital Fistulae.
The common types of genital fistulae and their causes include:

(1) Vesicovaginal Fistula (VVF):
- Most commonly caused by obstetric trauma, especially prolonged labor leading to pressure necrosis.
- Surgical complications such as during hysterectomy or cesarean section.
- Radiation therapy for pelvic cancers can cause necrosis leading to fistula formation.

(2) Rectovaginal Fistula (RVF):
- Childbirth trauma (e.g., perineal tear) during vaginal delivery.
- Pelvic surgery (especially rectal surgery).
- Crohn's disease or other inflammatory bowel diseases.

(3) Urethrovaginal Fistula:
- Caused by trauma during childbirth or pelvic surgery.
- Infection or radiation therapy.

(4) Cervicovaginal Fistula:
- Obstetric injury or surgical complications.
- Rarely associated with cancer or radiation damage.

Step 3: Conclusion.
The most common etiology of genital fistulae is obstetric trauma, but surgery, radiation therapy, and inflammatory diseases also play a significant role.

Quick Tip

Genital fistulae, particularly vesicovaginal and rectovaginal fistulae, are often caused by childbirth trauma, but surgical complications and radiation therapy are also significant contributors.

Q3. b) How will you manage a case of vesicovaginal fistula detected on the second day of abdominal hysterectomy? [6]

Solution:

Step 1: Immediate Management.
The detection of a vesicovaginal fistula (VVF) on the second day post-abdominal hysterectomy requires prompt management. The management plan involves both conservative and surgical approaches.

Step 2: Conservative Management (if the fistula is small or asymptomatic).
- Catheterization: Immediate placement of a Foley catheter is essential to divert urine from the vagina and allow the fistula to heal. The catheter should remain in place for a minimum of 2-3 weeks.
- Antibiotic therapy: To prevent infection, broad-spectrum antibiotics are started.
- Observation: If the fistula is small, it may close spontaneously over time with catheterization. The patient should be closely monitored for healing.

Step 3: Surgical Management (if the fistula persists or is large).
If conservative management fails or if the fistula is large or symptomatic, surgical intervention is required:

- Fistula Repair: The most common surgery for VVF repair is transvaginal fistula repair. This involves excising the fistulous tract and suturing the bladder and vaginal tissues to restore the normal anatomical continuity.
- Postoperative Care: After surgery, a catheter is usually retained for a period of 2-4 weeks to ensure healing and prevent recurrence.
- Follow-up: Close follow-up is required to ensure the fistula has healed properly, with regular voiding cystourethrograms (VCUG) or cystoscopy to check for any leakage.

Step 4: Prevention and Long-Term Care.
- Prevention: Prevention of VVF during abdominal hysterectomy involves careful surgical technique, especially when dissecting the bladder away from the uterus.
- Long-Term Care: For patients with chronic VVF, options include more complex repairs, possibly using tissue grafts if initial repairs fail.

Quick Tip

Early identification and catheterization are key to preventing complications in VVF cases after hysterectomy. If conservative management fails, surgical repair is the definitive treatment.

Q4. a) Long-acting reversible contraception. [5]

Solution:

Step 1: Introduction to Long-Acting Reversible Contraception (LARC).
Long-acting reversible contraception refers to birth control methods that provide effective contraception for an extended period without requiring user intervention. These methods are highly effective and can be reversed when desired.

Step 2: Types of Long-Acting Reversible Contraception.
The main types of LARC include:

(1) Intrauterine Devices (IUDs):
- Copper IUD (Cu-IUD): Non-hormonal device that releases copper to prevent sperm from fertilizing the egg. It can remain effective for up to 10 years.
- Hormonal IUD (Levonorgestrel IUD): Releases a small amount of progestin to thicken cervical mucus and prevent ovulation. It is effective for 3-7 years depending on the type.

(2) Implants:
- A small, flexible rod inserted under the skin of the upper arm that releases progestin to prevent ovulation. It can be effective for up to 3 years.

Step 3: Advantages of LARC.
- Highly effective in preventing pregnancy.
- Low maintenance once inserted.
- Reversible: Fertility returns quickly after removal.
- Suitable for most women, including those who have not had children or those with certain health conditions.

Step 4: Disadvantages of LARC.
- May cause side effects such as irregular bleeding (with hormonal methods) or pain during insertion.
- Initial cost may be higher, though cost-effective in the long term.

Quick Tip

LARC methods are the most effective forms of contraception for women who do not want a daily or frequent reminder.

Q4. b) Emergency contraception. [5]

Solution:

Step 1: Introduction to Emergency Contraception.
Emergency contraception (EC) is a method used to prevent pregnancy after unprotected sex or contraceptive failure. It is most effective when used as soon as possible after intercourse but can work up to 72-120 hours (depending on the method).

Step 2: Types of Emergency Contraception.

(1) Emergency Contraceptive Pills (ECPs):
- Levonorgestrel (Plan B): A single pill taken within 72 hours to prevent ovulation. It is available over-the-counter in many places.
- Ulipristal Acetate (ella): A prescription-only pill that can be taken up to 120 hours after unprotected sex. It works by delaying or inhibiting ovulation.

(2) Copper IUD:
- The copper IUD can also be used as emergency contraception if inserted by a healthcare provider within 5 days of unprotected sex. It works by preventing fertilization and implantation.

Step 3: Mechanism of Action.
Emergency contraception primarily works by:

- Inhibiting or delaying ovulation.
- Interfering with fertilization by altering the cervical mucus.
- Preventing implantation of a fertilized egg in the uterus (in the case of the IUD).

Step 4: Timing and Effectiveness.
- ECPs are most effective within 24 hours, but still reduce the risk of pregnancy if taken up to 72-120 hours after intercourse.
- Copper IUD is the most effective method of emergency contraception and can be used up to 5 days after unprotected sex.

Step 5: Side Effects and Considerations.
- ECPs may cause nausea, fatigue, or changes in menstrual bleeding.
- The copper IUD may cause pain or bleeding upon insertion.
- Emergency contraception does not protect against sexually transmitted infections (STIs).

Quick Tip

The sooner emergency contraception is used after unprotected sex, the more effective it will be in preventing pregnancy.

Q5. a) Write the symptoms and signs in a suspected case of gestational trophoblastic neoplasm. [2]

Solution:

Step 1: Introduction to Gestational Trophoblastic Neoplasm (GTN).
Gestational trophoblastic neoplasm refers to a group of pregnancy-related tumors that arise from abnormal trophoblastic tissue. The most common form is choriocarcinoma, but other types include invasive mole and placental site trophoblastic tumor. Symptoms and signs vary depending on the type and extent of disease.

Step 2: Symptoms and Signs of GTN.
- Vaginal Bleeding: Irregular or heavy bleeding, often after a recent pregnancy (miscarriage, molar pregnancy, or full-term delivery).
- Enlarged Uterus: The uterus may be enlarged or of a size inconsistent with the stage of pregnancy or postpartum status.

- Pelvic Pain: Abdominal or pelvic pain, which may indicate metastatic disease or local invasion.
- Elevated hCG Levels: Persistent elevated or rising levels of human chorionic gonadotropin (hCG) after pregnancy, which is indicative of trophoblastic disease.

Quick Tip

Persistent or abnormal elevation of hCG levels after pregnancy is a key sign in diagnosing gestational trophoblastic neoplasms.

Q5. b) Discuss the workup and evaluation of a suspected case of gestational trophoblastic neoplasia. [3]

Solution:

Step 1: Initial Evaluation.
The evaluation of suspected gestational trophoblastic neoplasia (GTN) involves both clinical and laboratory investigations to confirm the diagnosis and assess the extent of the disease.

Step 2: Laboratory Workup.
(1) Serum hCG Measurement: Persistent or rising hCG levels post-pregnancy are a strong indication of GTN. hCG levels are monitored regularly to assess for resolution or progression.
(2) Ultrasound: A pelvic ultrasound may reveal abnormal growths or remnants of molar tissue in the uterus. It can also help identify any uterine mass or metastasis.
(3) Histopathological Examination: In cases of suspected molar pregnancy, tissue examination is critical to confirm the presence of trophoblastic tissue and differentiate benign from malignant disease.

Step 3: Imaging and Further Testing.
(1) Chest X-ray or CT Scan: For suspected metastasis, a chest X-ray or CT scan can identify lung involvement, which is common in metastatic GTN.
(2) MRI: An MRI may be used for further assessment of the extent of pelvic or uterine involvement, especially in invasive mole or choriocarcinoma cases.
(3) Liver and Brain Imaging: If symptoms suggest liver or brain involvement, CT or MRI imaging is necessary to evaluate these sites.

Quick Tip

The most important diagnostic tool in GTN is measuring hCG levels. Any unusual rise or persistence after pregnancy warrants further investigation.

Q5. c) What are the indications and protocols of chemotherapy in this case? [5]

Solution:

Step 1: Indications for Chemotherapy in GTN.
Chemotherapy is the primary treatment for gestational trophoblastic neoplasia (GTN), especially in cases of choriocarcinoma and invasive mole. The following factors indicate the need for chemotherapy:

(1) High-risk GTN: This includes patients with high hCG levels, evidence of metastatic disease, or large uterine masses.
(2) Invasive Mole or Choriocarcinoma: Chemotherapy is indicated when the disease is invasive or metastasized beyond the uterus (common sites include the lungs, liver, and brain).
(3) Failure of Surgery or Persistence of Disease: If the tumor does not resolve after uterine evacuation or if symptoms persist with elevated hCG levels, chemotherapy is indicated.

Step 2: Chemotherapy Protocols.
The standard chemotherapy regimen for GTN is EMA-CO, which includes:

(1) Etoposide (50 mg/m^2 IV on days 1 and 2)
(2) Methotrexate (0.4 mg/kg IV on days 1, 3, and 5)
(3) Actinomycin D (0.5 mg/m^2 IV on day 1)
(4) Cyclophosphamide (500 mg/m^2 IV on day 2)

For high-risk cases, a more aggressive protocol, such as EMA-EP (adding etoposide and cisplatin), may be used.

Step 3: Monitoring During Chemotherapy.
- hCG levels are measured regularly (every 1-2 weeks) to assess the response to treatment. A drop in hCG indicates effective treatment.
- Supportive care: Anti-nausea medications, hydration, and blood count monitoring are essential during chemotherapy to manage side effects.

Step 4: Post-Treatment Follow-up.
After successful treatment, patients should continue to be monitored for several months (up to 1 year) to ensure the disease does not recur. Any rise in hCG levels warrants re-evaluation and possible further treatment.

Quick Tip

The key to effective chemotherapy in GTN is close monitoring of hCG levels to guide treatment decisions and adjust protocols as necessary.

Q6. a) What is the revised ASRM classification of endometriosis? [5]

Solution:

Step 1: Introduction to ASRM Classification.
The American Society for Reproductive Medicine (ASRM) developed a classification system for endometriosis to assess the severity of the disease. This system helps in determining the appropriate management and prognosis. The revised classification uses a scoring system based on the extent, depth, and location of endometrial lesions.

Step 2: Revised ASRM Classification.
The revised ASRM classification of endometriosis includes four stages, from Stage I (minimal) to Stage IV (severe):

- Stage I (Minimal):
Small, superficial lesions or small endometriomas confined to the ovaries. Minimal adhesions are present.

- Stage II (Mild):
More widespread lesions, with mild adhesions, usually involving the ovaries and peritoneum. Some deep infiltrating endometriosis may be present.

- Stage III (Moderate):
Multiple deep lesions, possibly involving the ovaries, fallopian tubes, and/or posterior cul-de-sac. Adhesions are moderate, and endometriomas may be present.

- Stage IV (Severe):
Large endometriomas (often involving both ovaries), deep lesions, significant adhesions, and damage to the ovaries or other pelvic organs (e.g., rectum, bladder). This is the most advanced stage of endometriosis.

Step 3: Scoring.
Each lesion is given a score based on its size and location. The total score for the extent of the disease helps to categorize it into one of the four stages. For instance:
- Superficial lesions: 1-4 points
- Endometriomas: 1-4 points
- Adhesions: 1-4 points

The higher the score, the more severe the disease.

Quick Tip

The revised ASRM classification helps guide treatment decisions and provides an accurate staging system for endometriosis.

Q6. b) How will you manage a case of 16-year-old girl presenting with bilateral endometriomas of size 8cmx8cm? [5]

Solution:

Step 1: Initial Assessment.
A 16-year-old girl with bilateral endometriomas of 8cm x 8cm requires careful management, as large endometriomas can lead to pain, fertility issues, or complications. The first step is to confirm the diagnosis, assess her symptoms, and evaluate the impact on her reproductive health.

Step 2: Conservative Management (If Symptoms Are Mild).
If the patient has minimal symptoms or if fertility preservation is a priority, conservative management options should be considered. These include:

(1) Hormonal Therapy:
- Combined Oral Contraceptives (COCs): Used to suppress ovarian function and reduce endometriosis activity.
- Progestins or IUDs: Help in controlling the growth of endometriomas and reducing symptoms such as dysmenorrhea.
- GnRH Agonists: Can induce a temporary menopausal state to reduce endometrial growth, though long-term use is typically avoided due to side effects (bone loss).
- Danazol: A synthetic androgen that suppresses ovarian function and helps in shrinking endometriomas.

(2) Pain Management:
Non-steroidal anti-inflammatory drugs (NSAIDs) can be used to manage the pain associated with endometriomas.

Step 3: Surgical Management (If Symptoms Are Severe or Fertility Is A Concern).
If the endometriomas cause significant pain, fertility issues, or are growing, surgical intervention may be necessary. Surgical options include:

(1) Laparoscopic Cystectomy:
- This minimally invasive procedure removes the endometriomas while preserving the ovarian tissue to maximize fertility potential.
- The goal is to remove as much of the cyst as possible while minimizing damage to the ovaries.
- Laparoscopy can also help assess the spread of endometriosis and treat other areas with lesions.

(2) Ovarian Drilling (If Needed):
In some cases, ovarian drilling may be done during laparoscopy to reduce the size of the endometriomas.

Step 4: Follow-Up and Long-Term Management.
After surgery, the patient should be closely monitored for recurrence of symptoms and endometriomas. Hormonal therapy (e.g., COCs or IUD) may be continued to prevent recurrence.

Step 5: Fertility Considerations.

Given her age, fertility preservation is a significant concern. If the patient wishes to preserve fertility, ovarian tissue preservation (e.g., cryopreservation of eggs) or assisted reproductive techniques may be discussed.

Quick Tip

Surgical management should aim at preserving ovarian function to maintain fertility, especially in adolescents with large endometriomas.

Q7. a) Enumerate the different ovulation inducing drugs. [2]

Solution:

Step 1: Introduction to Ovulation Induction.
Ovulation induction is a process used to stimulate ovulation in women who have difficulty ovulating naturally. Several medications can be used to induce ovulation, and these drugs work by stimulating the ovaries to produce one or more eggs.

Step 2: Ovulation Inducing Drugs.
The most common ovulation-inducing drugs are:

(1) Clomiphene Citrate (CC):
A selective estrogen receptor modulator (SERM) that blocks estrogen receptors in the hypothalamus, increasing gonadotropin release and stimulating ovulation.
- First-line treatment for women with anovulation, particularly polycystic ovary syndrome (PCOS).

(2) Gonadotropins (FSH, hCG):
Injectable hormones that directly stimulate the ovaries to produce eggs.
- Used when clomiphene citrate fails or for women undergoing assisted reproductive techniques (ART) like in vitro fertilization (IVF).
- Includes FSH (Follicle-Stimulating Hormone) and hCG (Human Chorionic Gonadotropin).

(3) Letrozole:
An aromatase inhibitor used off-label for ovulation induction. It decreases estrogen production, leading to increased FSH secretion and follicular growth.
- Often used for women with PCOS, especially those who do not respond to clomiphene citrate.

Quick Tip

Clomiphene citrate is the most commonly used ovulation-inducing drug, especially for women with PCOS.

Q7. b) What is OHSS? [2]

Solution:

Step 1: Introduction to OHSS.
OHSS (Ovarian Hyperstimulation Syndrome) is a condition that occurs when the ovaries become excessively stimulated in response to fertility medications, particularly gonadotropins used for ovulation induction.

Step 2: Pathophysiology of OHSS.
OHSS is characterized by the following:
- Ovarian enlargement: Multiple ovarian follicles develop, leading to swollen ovaries.
- Fluid shift: Fluid leaks from the blood vessels into the abdomen, causing abdominal distention, and can lead to ascites and pleural effusion.
- Electrolyte imbalances: Electrolyte abnormalities, including hypovolemia and hypercoagulability, may occur in severe cases.

Step 3: Risk Factors.
- High doses of gonadotropins.
- Polycystic ovary syndrome (PCOS) women are at higher risk.
- Young age and low body weight.

Quick Tip

OHSS is most common after ovarian stimulation for in vitro fertilization (IVF) and requires careful monitoring to avoid severe complications.

Q7. c) Discuss the complications of ovulation induction in assisted reproductive techniques. [6]

Solution:

Step 1: Introduction to Ovulation Induction in ART.
Ovulation induction is an essential part of assisted reproductive techniques (ART), such as in vitro fertilization (IVF), to stimulate the ovaries to produce multiple eggs for fertilization. However, several complications can arise during this process.

Step 2: Complications of Ovulation Induction.

(1) Ovarian Hyperstimulation Syndrome (OHSS):
OHSS is the most common and significant complication of ovulation induction, particularly

when gonadotropins are used. It leads to ovarian enlargement, fluid accumulation in the abdomen, and may cause severe complications such as renal failure or thromboembolism in extreme cases.

(2) Multiple Pregnancies:
Ovulation induction with gonadotropins or other drugs increases the risk of multiple pregnancies (twins, triplets, or higher-order multiples). Multiple pregnancies have higher risks of preterm labor, gestational diabetes, preeclampsia, and cesarean delivery.

(3) Ovarian Torsion:
Ovarian torsion occurs when enlarged ovaries (due to ovulation induction) twist around the supporting ligaments, causing pain and potentially leading to ovarian necrosis.

(4) Ectopic Pregnancy:
There is an increased risk of ectopic pregnancy (implantation outside the uterus) in ART procedures, particularly when embryos are transferred into the fallopian tube during procedures like gamete intrafallopian transfer (GIFT).

(5) Endometrial Receptivity Issues:
Excessive ovarian stimulation can lead to altered endometrial receptivity, affecting embryo implantation and reducing the chances of a successful pregnancy.

(6) Emotional and Psychological Stress:
The emotional toll of ovulation induction, including stress related to fertility treatment, hormone injections, and the uncertainty of treatment success, can significantly affect the mental well-being of patients undergoing ART.

Step 3: Management of Complications.
Careful monitoring during ovulation induction, including regular ultrasound and blood tests, can help detect complications early. OHSS can be mitigated by adjusting medication doses and, in some cases, by canceling the IVF cycle.

Quick Tip

Proper monitoring during ovulation induction can help minimize complications and improve the chances of a successful outcome in ART.

Q8. a) What is the FIGO classification of leiomyoma uterus? [2]

Solution:

Step 1: Introduction to Leiomyoma Uterus.
Leiomyomas, also known as fibroids, are benign smooth muscle tumors of the uterus. The FIGO (International Federation of Gynecology and Obstetrics) classification system categorizes these

fibroids based on their location within the uterus.

Step 2: FIGO Classification of Leiomyoma Uterus.
The FIGO classification of uterine fibroids is as follows:

- Type 0: Submucosal fibroids – These are located just beneath the endometrium (inner lining of the uterus) and may protrude into the uterine cavity.
- Type 1: Intramural fibroids – These are located within the muscular wall of the uterus but do not distort the uterine cavity.
- Type 2: Subserosal fibroids – These are located just beneath the outer lining of the uterus (serosa) and may protrude outward.
- Type 3: Pedunculated fibroids – These are fibroids that grow on a stalk either inside the uterine cavity or on the outer surface of the uterus.

Quick Tip

The FIGO classification is useful for determining the location of fibroids and helps in deciding the best treatment approach.

Q8. b) What are the complications of leiomyoma uterus? [4]

Solution:

Step 1: Introduction to Complications.
Leiomyomas are common, but they can cause a variety of complications depending on their size, location, and number. The complications may affect the uterus, surrounding organs, and overall health.

Step 2: Common Complications of Leiomyoma Uterus.

(1) Menorrhagia (Heavy Menstrual Bleeding):
The most common complication of uterine fibroids, particularly submucosal fibroids, which can lead to heavy, prolonged periods. This can result in anemia due to blood loss.

(2) Pain and Discomfort:
Fibroids can cause pelvic pain, pressure, or back pain, particularly if they are large or growing rapidly. This is common with intramural and subserosal fibroids.

(3) Infertility and Pregnancy Loss:
Fibroids, especially those located in the submucosal or intramural areas, may interfere with embryo implantation or the growth of the fetus, leading to infertility or recurrent miscarriages.

(4) Urinary and Bowel Issues:
Large fibroids can press against the bladder, causing frequent urination or urinary retention.

In some cases, they may also cause pressure on the bowel, leading to constipation.

(5) Obstructed Labor:
Large fibroids may obstruct the birth canal during labor, leading to complications such as prolonged labor or the need for cesarean delivery.

(6) Degeneration:
Fibroids may undergo degenerative changes, including red degeneration, where the fibroid outgrows its blood supply, causing acute pain and swelling.

Quick Tip

While fibroids are common, complications such as heavy bleeding, pain, and infertility require careful management to improve quality of life and reproductive outcomes.

Q8. c) Write the medical management of intramural leiomyoma of size 4cmX4cm in a 50-year-old woman. [4]

Solution:

Step 1: Medical Management Goals.
The medical management of leiomyomas, particularly in a 50-year-old woman, aims to alleviate symptoms, control bleeding, and minimize the impact on fertility (though fertility preservation may be less of a concern in this age group). The focus is typically on managing heavy bleeding, pain, and other symptoms.

Step 2: Medical Treatment Options.

(1) Hormonal Therapy:
- Progestins (oral or IUD): Progestins can help control abnormal bleeding associated with fibroids. A levonorgestrel intrauterine device (IUD) can be particularly helpful for controlling heavy menstrual bleeding and improving symptoms.
- Combined Oral Contraceptives (COCs): These can help regulate menstrual cycles and reduce bleeding, though they are generally not used long-term in perimenopausal women.
- GnRH Agonists: Gonadotropin-releasing hormone (GnRH) agonists, like leuprolide, can shrink fibroids temporarily by inducing a hypoestrogenic state. These are used for short-term management, especially before surgery, but should be used cautiously due to potential side effects like bone loss.

(2) Tranexamic Acid:
- A non-hormonal treatment option that can help reduce heavy menstrual bleeding associated with fibroids. It works by preventing fibrinolysis (clot breakdown) and is used during periods of heavy bleeding.

(3) Non-steroidal Anti-inflammatory Drugs (NSAIDs):
- NSAIDs such as ibuprofen can help manage pain and reduce inflammation. They are useful for managing the discomfort caused by fibroids, particularly in smaller fibroids.

(4) Aromatase Inhibitors:
- Letrozole is an aromatase inhibitor that reduces estrogen production, which may help in shrinking fibroids. However, this is generally not a first-line treatment and is used in specific cases.

Step 3: Management of Symptoms.
In a 50-year-old woman, especially one approaching menopause, the symptoms of fibroids may decrease naturally as estrogen levels decline. For persistent symptoms, a more aggressive treatment, such as surgery, may be considered if medical management is not effective.

Step 4: Surgery Considerations.
If medical management is insufficient or if there is significant discomfort, myomectomy (removal of the fibroids) or hysterectomy (removal of the uterus) may be considered, especially if the woman has completed her family planning.

Quick Tip

In perimenopausal women, managing symptoms with hormonal therapy or NSAIDs is often effective, but surgical intervention may be needed for larger fibroids or when symptoms persist.

Q9. a) Enumerate the causes of acute pelvic inflammatory disease. [2]

Solution:

Step 1: Introduction to Acute Pelvic Inflammatory Disease (PID).
Pelvic inflammatory disease (PID) is an infection of the upper genital tract, including the uterus, fallopian tubes, and ovaries. Acute PID often occurs as a result of ascending infections from the lower genital tract.

Step 2: Causes of Acute PID.
The most common causes of acute PID are:

(1) Sexually Transmitted Infections (STIs):
- Neisseria gonorrhoeae (gonorrhea)
- Chlamydia trachomatis (chlamydia)

(2) Post-abortion or Post-surgical Infection:
- After a miscarriage, abortion, or pelvic surgery, bacteria from the cervix or vagina can ascend

into the uterus, leading to PID.

(3) Bacterial Vaginosis (BV):
- An imbalance of normal vaginal flora can increase susceptibility to PID.
- Overgrowth of Gardnerella vaginalis and other anaerobic bacteria can ascend into the upper genital tract.

(4) Other Microorganisms:
- Mycoplasma genitalium, Ureaplasma urealyticum, and Escherichia coli can also contribute to PID.

Quick Tip

The most common causes of acute PID are sexually transmitted infections, especially gonorrhea and chlamydia.

Q9. b) Discuss the clinical features and investigations in a case of acute PID. [4]

Solution:

Step 1: Clinical Features of Acute PID.
The clinical presentation of acute PID varies, but the most common symptoms include:

(1) Pelvic Pain:
- Dull, aching lower abdominal pain or pelvic pain that is usually bilateral. The pain can be sudden and severe in some cases.
- Pain may increase with sexual intercourse or during pelvic examination.

(2) Fever and Malaise:
- Fever (usually ¿38°C) is common and often accompanies the infection.
- Malaise, fatigue, and general ill-feeling are also frequently reported.

(3) Vaginal Discharge:
- Abnormal vaginal discharge, often foul-smelling, which may be purulent or mucopurulent.
- Increased white blood cell count in the discharge.

(4) Dysuria and Dyspareunia:
- Painful urination (dysuria) and pain during intercourse (dyspareunia) are also symptoms.

(5) Abnormal Menstrual Bleeding:
- Irregular bleeding or spotting between periods may occur.

Step 2: Investigations in Acute PID.

(1) Clinical Examination:
- Tenderness on bimanual pelvic examination, particularly in the adnexa (ovaries and fallopian tubes).
- Cervical motion tenderness (CMT) is a classic sign of PID.

(2) Microbiological Tests:
- Endocervical swabs for Neisseria gonorrhoeae and Chlamydia trachomatis.
- Vaginal discharge cultures to identify other pathogens like Escherichia coli or Mycoplasma genitalium.

(3) Ultrasound:
- Pelvic ultrasound may show signs of tubal and ovarian abscesses, thickened fallopian tubes, and free pelvic fluid (which suggests inflammation).

(4) Laboratory Tests:
- Blood tests may reveal leukocytosis (elevated white blood cell count) and elevated C-reactive protein (CRP).

(5) Laparoscopy (If Needed):
- In severe or complicated cases, laparoscopy may be performed to directly visualize the pelvic organs and assess the extent of damage or infection.

Quick Tip

Fever, pelvic pain, and cervical motion tenderness are key clinical features of acute PID. Investigations should focus on identifying the causative organisms.

Q9. c) Discuss the treatment of acute PID. [4]

Solution:

Step 1: General Treatment Goals.
The primary goals of treatment for acute pelvic inflammatory disease (PID) are to eliminate the infection, alleviate symptoms, and prevent complications such as infertility, abscess formation, or chronic pelvic pain.

Step 2: Antibiotic Therapy.

The first-line treatment for acute PID is empiric antibiotic therapy aimed at covering the most common pathogens, including Neisseria gonorrhoeae, Chlamydia trachomatis, and anaerobes.

- Outpatient treatment: For mild cases with no signs of severe infection or abscess formation, a combination of oral antibiotics is typically used:
- Ceftriaxone (250 mg IM once) plus

- Doxycycline (100 mg orally twice a day for 14 days) with or without
- Metronidazole (500 mg orally twice a day for 14 days) to cover anaerobic bacteria.

- Inpatient treatment: For more severe cases, or if the patient cannot tolerate oral medication, intravenous antibiotics are used:
- Cefotetan (2 g IV every 12 hours) or Cefoxitin (2 g IV every 6 hours) plus
- Doxycycline (100 mg IV or orally every 12 hours).
- If an abscess is present, more extensive treatment and drainage may be required.

Step 3: Additional Treatment and Monitoring.

- Pain Management: Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen can be used for pain relief.
- Rest and Hydration: Adequate rest and hydration are essential to support recovery.

Step 4: Follow-up and Considerations.
- Patients should follow up after 48-72 hours to assess the response to treatment. If symptoms persist or worsen, further investigations or adjustments to the antibiotic regimen may be necessary.
- Sexual partners of the patient should also be treated to prevent reinfection.

Quick Tip

Early and aggressive antibiotic treatment is crucial in PID to avoid long-term complications such as infertility or chronic pelvic pain.

Q10. a) Discuss the scoring system for clinical quantification of Hirsutism in a female. [4]

Solution:

Step 1: Introduction to Hirsutism.
Hirsutism refers to the excessive growth of dark, coarse hair in women in areas where men typically grow hair, such as the face, chest, and back. It is often a sign of an underlying hormonal imbalance, particularly excess androgens.

Step 2: Scoring System for Clinical Quantification of Hirsutism.
The Ferriman-Gallwey (F-G) scoring system is the most widely used tool to assess hirsutism clinically. It evaluates hair growth in 9 body areas:

(1) Upper lip
(2) Chin
(3) Chest
(4) Abdomen
(5) Thighs

(6) Upper arms
(7) Back
(8) Pubic area
(9) Lower back

Each area is scored on a scale from 0 to 4 based on the degree of hair growth:

- 0: No hair growth.
- 1: Fine, light hair.
- 2: Coarse, dark hair covering less than 50- 3: Coarse, dark hair covering more than 50- 4: Thick, coarse hair, resembling male-pattern hair growth.

The total score is the sum of the individual scores for each area. A total score of 8 or more is usually considered indicative of hirsutism.

Step 3: Use of the Scoring System.
The Ferriman-Gallwey scoring system helps quantify the severity of hirsutism and is useful in tracking changes over time, particularly in response to treatment.

Quick Tip

The Ferriman-Gallwey score is a simple, effective tool to assess the severity of hirsutism and monitor treatment progress.

Q10. b) Enumerate the etiology of Hirsutism. [2]

Solution:

Step 1: Introduction to the Etiology of Hirsutism.
Hirsutism is commonly caused by an excess of androgens (male hormones) or an increased sensitivity of hair follicles to these hormones. Several conditions and factors can contribute to hirsutism.

Step 2: Etiology of Hirsutism.
The major causes of hirsutism include:

(1) Polycystic Ovary Syndrome (PCOS):
- The most common cause of hirsutism, characterized by elevated levels of androgens (testosterone) and irregular menstrual cycles.

(2) Congenital Adrenal Hyperplasia (CAH):
- A genetic disorder leading to adrenal gland dysfunction and excess androgen production.

(3) Cushing's Syndrome:
- Overproduction of cortisol by the adrenal glands can lead to increased androgen production and hirsutism.

(4) Androgen-secreting Tumors:
- Ovarian or adrenal tumors that secrete excess androgens, leading to hirsutism.

(5) Medications:
- Certain medications such as anabolic steroids, progestins, and minoxidil can induce hirsutism as a side effect.

(6) Idiopathic Hirsutism:
- In some women, hirsutism occurs without an identifiable underlying condition or hormonal imbalance.

Quick Tip

Polycystic ovary syndrome (PCOS) is the most common cause of hirsutism, often associated with irregular periods and infertility.

Q10. c) Discuss the treatment of Hirsutism. [4]

Solution:

Step 1: Treatment Goals for Hirsutism.
The primary goals in treating hirsutism are to reduce or eliminate unwanted hair growth, treat any underlying causes (if present), and improve the patient's quality of life and psychological well-being.

Step 2: Treatment Options for Hirsutism.

(1) Pharmacologic Treatments:
- Oral Contraceptives (OCPs):
- Combined oral contraceptives (COCs) are the first-line treatment for women with hirsutism, particularly if they have an underlying condition like PCOS. OCPs suppress ovarian androgen production and reduce hirsutism.
- Drospirenone-containing OCPs (e.g., Yasmin) are particularly effective as they have anti-androgenic properties.

- Anti-androgens:
- Spironolactone is a commonly used anti-androgen that blocks androgen receptors and reduces hair growth. It is often used in combination with oral contraceptives.
- Finasteride and flutamide are other anti-androgens that can be used in more severe cases.

- Topical Treatments:
- Eflornithine (Vaniqa): A topical cream that inhibits hair growth by blocking the enzyme ornithine decarboxylase. It is effective for reducing facial hair growth.

(2) Cosmetic Treatments:
- Laser Hair Removal:
- Laser treatments are effective in permanently reducing hair growth by targeting the hair follicles with light. It works best on individuals with fair skin and dark hair.
- Electrolysis:
- A more invasive treatment option that involves using an electric current to destroy hair follicles.

(3) Lifestyle Modifications:
- In cases where hirsutism is associated with obesity or insulin resistance (as in PCOS), weight loss, and exercise can help improve symptoms.

(4) Management of Underlying Conditions:
- If the hirsutism is caused by an underlying condition such as Cushing's syndrome, treatment of the underlying disorder is crucial to managing the symptoms.

Quick Tip

A combination of pharmacologic treatments (OCPs, spironolactone) and cosmetic procedures (laser hair removal) is often the most effective approach to treating hirsutism.
