# GYNAECOLOGY

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HEALTHCARE TRAINING

## PRECOURSE WORKBOOK

# GYNAECOLOGY

**SESSION: GYNAECOLOGY**

Develop skills in history taking and triage of patients presenting with gynecological conditions in primary care settings.

**OBJECTIVES**

**This session aims to develop your skills in :**

- Develop a structured approach to history taking of patients with gynecological presentations in primary care.
- Develop awareness of common gynecological presentations
- Identify red flags and refer or manage appropriately

**SESSION DETAILS**

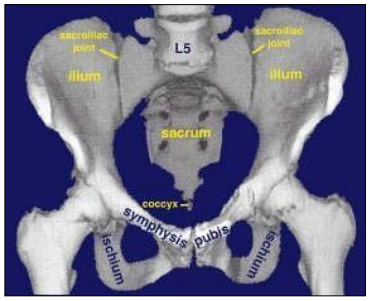
- Review of anatomy and physiology of the female pelvic organs
- Overview of common gynae disorders
- Structured history taking
- Overview of common gynaecological disorders including PCOS, PID, Endometriosis, Adhesions, Gynaecological cancer.
- Identification of red flags and emergencies

**RECOMMENDED READINGS**

Impey, L. and T. Child (2016) Obstetrics and Gynaecology Wiley-Blackwell; 5th ed. edition (30 Dec. 2016)
ISBN-10: 1119010799

ISBN-13: 978-1119010791

## SKELETAL




The pelvic girdle is the central section of the axial skeleton.
It is a bony ring positioned between the lower end of the spine, which it supports and the lower extremities, upon which is rests.
It is composed of four bones:

**Sacrum** - posterior

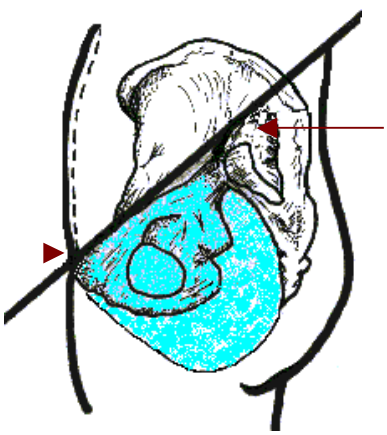
**Coccyx** - posterior

Two innominate bones which consist of the fusion of the ilium, ischium and the pubis - anterior and lateral
The pelvis is divided into two regions based on an imaginary plane running from the sacral prominence to the upper margin of the symphysis pubis.
FALSE PELVIS sits above this plane and is bounded by the iliac wings. It is a broad shallow cavity and its purpose is to support the intestines.

**TRUE PELVIS sits below this plane and is further divided into the:**

- pelvic inlet bounded by pubic bones anteriorly and the sacral promontory sacrum posteriorly.
- pelvic outlet bounded by the ischial tuberosities laterally and by the coccyx posteriorly

False Pelvis



sacral prominence

laterally and by the coccyx posteriorly

Symphysis pubis

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## LIGAMENTS

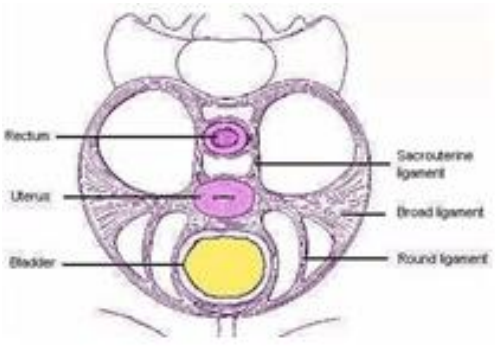
Pelvic ligaments can be classified as those which bind the pelvic bones together (osseous) and those which support the uterus and ovaries (suspensory)

**OSSEOUS LIGAMENTS**

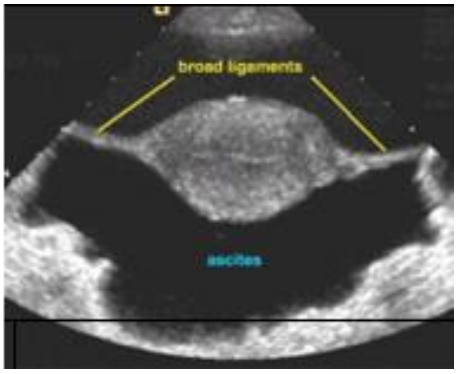
- Sacroiliac — attaches the sacrum and iliac bones
- Sacro sciatic — attaches the sacrum, iliac and coccyx
- Sacrococcygeal — attaches the sacrum and coccyx
- Pubic — attaches the pubic rami

**SUSPENSORY LIGAMENTS**

- **Cardinal:** arise superiorly and laterally from the uterus and inferiorly from the vagina to form primary support for uterus.
- **Broad:** (lateral) one on each side of the uterus, attaches to the pelvic side wall.
- **Sacro-uterine:** attach the uterus, at the level of the internal os, to the sacrum
- **Round:** situated between the broad ligaments anterior and inferior to the fallopian tubes. Attaches the uterine cornu to the anterior pelvic wall




Pelvic suspensory ligaments.
Axial view seen from above.




Transverse transabdominal sonogram demonstrating the broad ligaments in a patient with pelvic ascites

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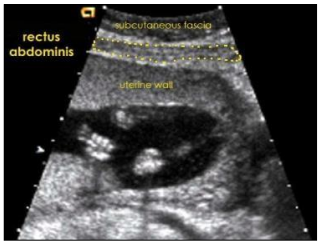
## MUSCULATURE

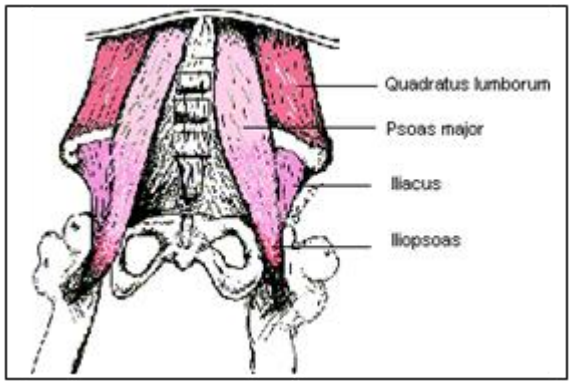
Most pelvic muscles are paired structures that form the limits of the pelvic space.

They can be divided into the following groups:

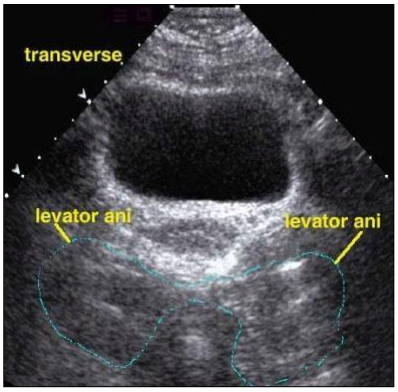
**FALSE PELVIS MUSCLES (ABDOMINO-PELVIC)**
Since the false pelvis sits well above the pelvic floor, few muscles are required to support the organs found within.

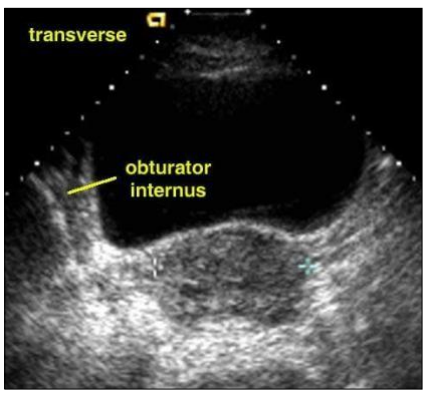



Cross-section through the abdomen in a gravid patient demonstrating the rectus abdominis muscle.




- Rectus abdominis forms the anterior margin of the abdominal and pelvic spaces. It extends from the symphysis pubis to the costal margin.
- Psoas major originates at the lower thoracic vertebrae and extends lateral and anterior as it courses through the lower abdomen. It separates from the vertebral column at the level of L5 and
- courses through the pelvis to insert on the lesser trochanter. Just inferior to the iliac crest it merges with the iliacus muscle creating the iliopsoas muscle. It forms part of the lateral margins of the pelvic basin.
- Iliacus arises at the iliac crest and extends inferiorly until it merges with the psoas major. It forms the iliac fossa on both of the pelvic sidewalls.

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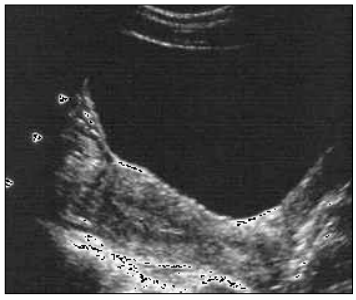
## URINARY BLADDER

The urinary bladder is a musculo-membranous, highly distensible sac located between the symphysis pubis and the vagina. The ureters insert in the inferior third of the posterior wall on either side. The superior concavity of the bladder is called the dome. The walls of the bladder are composed of three layers of tissue, the outer epithelial, the middle muscularis and the inner mucosal. When the bladder is empty, the mucosal layer is quite thick and can be demonstrated sonographically. When the urinary bladder is distended, the mucosa is stretched and can no longer be recognized as a distinct layer.



The urethra, which allows for the excretion of urine, arises along the inferior middle portion of the urinary bladder. At its point of exit, it is surrounded by a thickened region of bladder wall referred to as the internal urethral sphincter.

The bladder is adequately full for transabdominal pelvic sonography when the dome of the bladder extends above the fundus of the uterus.

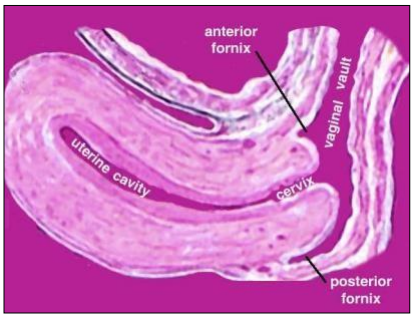
# VAGINA

The vagina is a muscular tube approximately 7 - 10cm in length extending from the cervix to the external vaginal introitus. It is composed of smooth muscle, elastic connective tissue and is lined with stratified squamous epithelium, which is similar to skin. The upper portion attaches circumferentially to the cervix approximately half way up. A ring-like blind pouch surrounds the cervix and is known as the vaginal fornix and is categorized as follows:

Posterior Fornix surrounds the posterior aspect of the external cervix. The frequent site of vaginal fluid collections due to gravity dependence

Lateral Fornices surrounds the lateral aspect of the external cervix on either side

Anterior Fornix surrounds the anterior aspect of the external cervix





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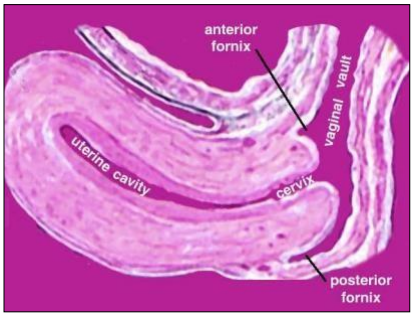
# UTERUS

The uterus is a muscular structure suspended by ligaments normally located in mid sagittal plane of the true pelvis. The uterus is divided into the following sections:

- Fundus is the rounded, superior aspect above the point of insertion of the Fallopian tubes. The narrow lateral portions of the fundus form the cornu (horns) of the uterus.
- Body (Corpus) is the largest portion of the uterus that contains the uterine cavity. The uterine cavity is shaped like an inverted triangle. The widest portion is at the fundus and the narrowest portion is at the isthmus.
- Isthmus is the transition area between the body and the cervix. In a gravid uterus, it is sometimes called the lower uterine segment.



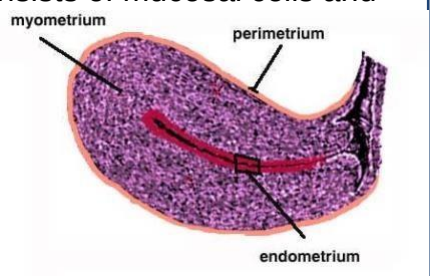


Cervix is the cylindrical neck of the uterus containing more fibrous and less muscular tissue. It is normally 2 - 3cm in length in nulliparous females.

| UTERINE SIZE | | |
|---|---|---|
| **Age (yrs.)** | **length (mm)** | **AP (mm)** |
| 2 - 8 | 3 | 7.5 |
| 9 – menarche | 3 | 13 |
| Nulliparous | 0 | 30 |
| Multiparous | 0 | 40 |
| Postmenopausal | Varies based on parity and time since onset of menopause | |
| A pediatric uterus has a relatively larger cervical length and width. | | |
| A postmenopausal uterus has normal cervical proportions. | | |

## LAYERS OF THE UTERUS

Mucous (Endometrium) is the innermost lining of the uterus. It consists of mucosal cells and varies in thickness with the different stages of the menstrual cycle. Thickness of each side varies from 1mm immediately following menstruation to 6mm just prior to the beginning of menstruation. These measurements are obtained sonographically measuring the antero-posterior (AP) dimension.




Muscularis (Myometrium) Is an extremely thick, muscular layer That is continuous with that of the fallopian tubes and vagina. It also extends into the ovarian and round ligaments.

## OVARIES

The ovary is an ovoid shaped solid structure suspended within the pelvic peritoneal sac. Internally, it is structurally divided into an outer cortex and an inner medulla. Follicles and corpus lutea are found in the cortex. The ligaments that support the ovary are the:

- OVARIAN
- SUSPENSORY
- MESOVARIAN

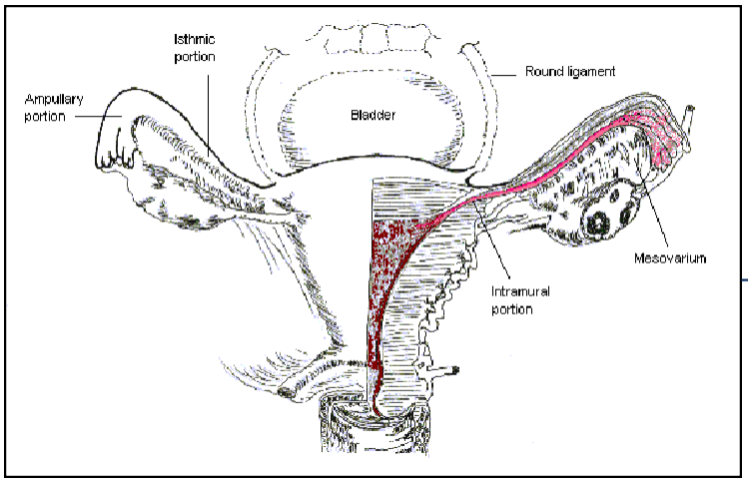
The ovarian parenchyma contains a large number of primordial follicles which give rise to functional ovarian cysts (follicular cysts). The fluid content of the follicles allow for good acoustic transmission creating the increased echogenicity that is frequently identified posterior to the ovary. This physical phenomenon can assist in localizing and positively identifying ovaries during sonographic examination.

Normal ovary with large follicle. Note posterior acoustic enhancement behind

## FALLOPIAN TUBES

The fallopian tubes are musculomembranous tubes extending from the uterine cornu laterally to the ovary. Regions of the tube include:

- Intramural the narrowest portion of the tube that traverses the cornu of the uterus.
- Isthmic the longest portion of the tube connecting the intramural and ampullary portions.
- Ampullary (also called the FIMBRIATED portion) the trumpet shaped; open portion of the tube adjacent to the ovary. Small finger-like projections called fimbria surround the ovary and capture the released ovum following ovulation.
- Infundibulum the inner, funnel-shaped cavity of the ampullary portion

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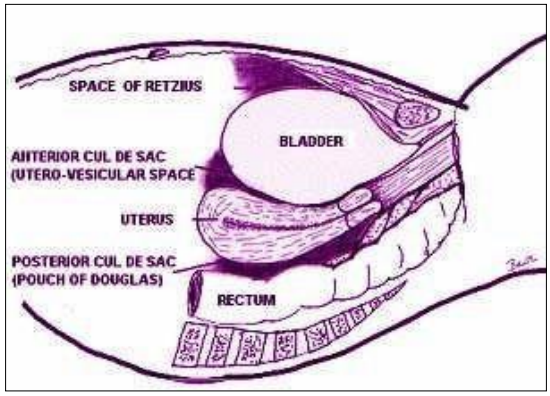
## PELVIC RECESSES

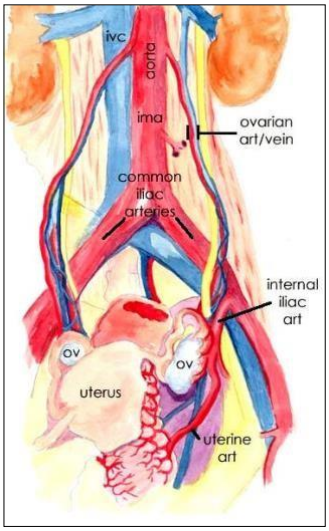
Several potential spaces are found in the female pelvis as the result of the apposition of normal anatomic structures against each other. The following diagram demonstrates these recesses.



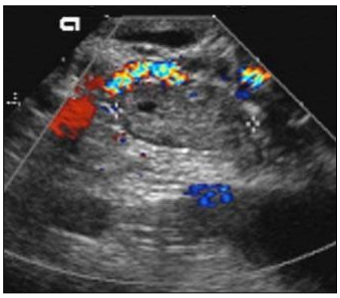

## MISSED CONTRACEPTIVE PILLS AND EC:

Blood supply to the major pelvic organs is provided by major branches of the distal abdominal aorta. The aorta bifurcates at the level of L3 into the right and left common iliac arteries (CIA). These vessels course along the pelvic sidewall and exit the pelvis via the iliac fossa. The CIA bifurcates into the external and internal (hypogastric) arteries. The hypogastric dives deep into the pelvis and gives rise to branches which supply the reproductive tract. These include:

- OBITUAROR ARTERY UMBILICAL
- ARTERY UTERINE VAGINAL
- SUPERIOR VESICULAR ARTERY

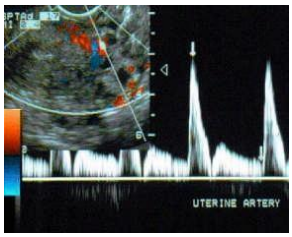


## OVARIAN ARTERY



Since the embryonic ovaries originate in the abdominal cavity and descend into the pelvis during gestation, they bring their original blood supply with them. The ovarian arteries, frequently called gonadal arteries, originate directly from the abdominal aorta or, alternatively from the renal artery.
The primary source of blood to the ovary is provided by the ovarian artery. While it usually originates from the abdominal aorta, it may also arise from the renal artery. It courses through folds of the suspensory ligaments and pierces the ovary at its hilus. Branches radiate circumferentially from the hilus into the ovarian parenchyma.

## UTERINE ARTERY




Blood is supplied to the uterus primarily by the uterine artery which is a terminal branch of the hypogastric artery. It ascends along the lateral aspect of the uterus on either side giving off branches which penetrate into the myometrium.

## COLLATERAL PATHWAYS

Along the lateral aspects of the uterus, many branches of the uterine and ovarian arteries interconnect and form a collateral network. In the event that the source vessel of either artery become occluded, perfusion can be maintained.

## VENOUS ANATOMY

Venous anatomy of the pelvis directly parallels the arterial anatomy.

## CERVICAL ATRESIA

Congenital absence of the cervix.

## UTERINE AGENESIS

Congenital absence of the uterus.

## Anatomic Variations

**UTERINE POSITIONAL VARIANTS**
The size of the uterus varies markedly with age and number of pregnancies. Most commonly the uterus is anteflexed, that is, in the presence of an empty urinary bladder the fundus bends forward and rests over the lower uterine segment. The position of the uterus may vary within the pelvis. Its long axis may deviate to either side of midline or it may be flexed posteriorly. When posterior flexion is present it may be categorized as follows:

**nteverted/Anteflexed**

uterine corpus, fundus and cervix in normal position

**Retroverted**

Uterine corpus and fundus maintain normal position, cervix tiltedbackwards

**Retroflexed**
Uterine corpus and fundus tilted backwards, cervix maintains normal horizontal orientation

**Retroverted/Retroflexed**
Uterine corpus, fundus and cervix all tilted backwards

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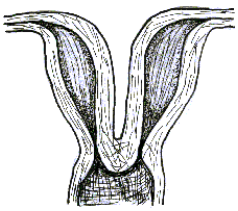
## Uterine Anomalies

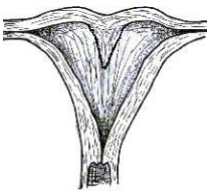
Most uterine, cervical and vaginal anatomic variants are the result of the abnormal embryonic development of the Müellerian duct from which these structures develop. They are referred to as Müllerian anomalie

## UTERUS SUBSEPTUS

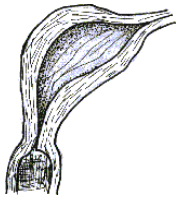
The presence of two intrauterine cavities separated by a septum



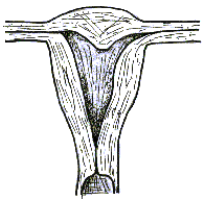
**UTERUS DIDELPHYS**
The presence of two separate uterine bodies and two separate cervices and usually the presence of a vaginal septum



**BICORNUATE UTERUS**
The presence of two uterine horns contained within a single body communicating with a single cervix and vagina



**UNICORNUATE UTERUS**
The presence of a single uterine horn which may or may not communicate with the cervix.



# GYNAECOLOGY

**PC**
**PV Bleed**

**HPC**
Onset – when did the symptom start? / was the onset acute or gradual?

Duration – minutes / hours / days / weeks / months / years

Severity – e.g. if symptom is vaginal bleeding – how many sanitary pads are they using?

Course – is the symptom worsening, improving, or continuing to fluctuate? Intermittent or continuous? – is the symptom always present or does it come and go?
Precipitating factors – are there any obvious triggers for the symptom?

Relieving factors – does anything appear to improve the symptoms

Associated features – are there other symptoms that appear associated e.g. fever/malaise?

Previous episodes – has the patient experienced this symptom previously?

**Key symptoms to ask about in a pregnant patient**

- **Nausea/vomiting** – if severe may suggest hyperemesis gravidarum
- **Abdominal pain** – may suggest the need for imaging
- **Vaginal bleeding** – fresh red blood / clots / tissue
- **Dysuria/urinary frequency** – urinary tract infection
- **Fatigue** – may suggest anaemia
- **Headache/visual changes/swelling** – pre-eclampsia
- **Systemic symptoms** – fever/malaise

## MEDICATION

- Pregnancy medications: Folic acid, Iron, Antiemetics, Antacids
- Teratogenic drugs: ACE inhibitors, Sodium valproate, Methotrexate, Retinoids, Trimethoprim
- Document all regular medications

## ALLERGIES

- Over the counter drugs – ensure nothing is unsafe/teratogenic
- Always take a detailed drug history

## OBSTETRIC HISTORY

- Is this the patient's first pregnancy?
- How was the pregnancy confirmed? – home testing kit / hCG blood test / ultrasound scan
- Last menstrual period (LMP) – first day of the LMP
- Was the patient using contraception? – are they still? (e.g. COCP / implant / coil)
- Estimated date of delivery (EDD) – estimated by scan or via dates (LMP + 9 months + 7 days)
- Did the patient take folic acid during the first trimester?

Any other scans or tests whilst being pregnant? – dating scan / anomaly scan

- Growth of the fetus – within normal limits?
- Placental location – placenta praevia may alter delivery plans
- Fetal movements – usually experienced at around 18-20 weeks' gestation
- Labour pains – more relevant in the third trimester
- Planned method of delivery – vaginal / C-section
- Medical illness during pregnancy – if so, are they taking any medications?

## PREVIOUS OBSTETRIC HISTORY

Gravidity – defined as the number of times a woman has been pregnant regardless of the outcome
Parity – X = (any live or stillbirth after 24 weeks) | Y = (number lost before 24 weeks)
Details of each pregnancy: Date of delivery, Length of pregnancy Singleton / twins / or more? Spontaneous labour or induced? Mode of delivery ,Weight of babies, current health of babies

**Complications of previous pregnancies:**

Antenatal – IUGR / hyperemesis gravidarum / pre-eclampsia

- Labour – failure to progress / perineal tears / shoulder dystocia
- Postnatal – postpartum haemorrhage / retained products of conception

Miscarriages/terminations – needs to be asked sensitively in an appropriate setting
Immunisations up to date?

## GYNAE HISTORY

Previous cervical smears – when?/results?Previous gynecological problems and treatments – STDs / PID / Ectopic pregnancy
Current contraception – COCP / POP / Depot / Implant / Implanted uterine deviceGynaecological surgery: Loop excision of transitional zone (LETZ) –↑ risk of cervical incompetence Previous C-sections – ↑ risk of
uterine rupture / placenta accreta /adhesion

## FAMILY HISTORY

Inherited genetic conditions – cystic fibrosis

Pregnancy loss – recurrent miscarriages in mother and sisters

Pre-eclampsia – in mother or sister – increased risk

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## SOCIAL HISTORY

**Smoking** – can cause intrauterine growth restriction

**Alcohol** – How many units a week? – can cause fetal alcohol syndrome Recreational drug use – cocaine use can cause placental abruption Living situation:

- House / flat – stairs / adaptations
- Who lives with the patient? – important when considering discharging home from the hospital
- Any carer input? – what level of care do they receive?

**Activities of daily living:**

- Is the patient independent and able to fully care for themselves?
- Can they manage self-hygiene/housework/food shopping?
- Is the pregnancy interfering with these daily activities?

**Occupation** – light duties / maternity leave

## WHEN TO REFER

SUSPECTED OVARIAN CANCER

1. The recommendations in this section have been incorporated from the NICE guideline on ovarian cancer (NICE guideline CG122, 2011) and have not been updated. The recommendations for ovarian cancer apply to women aged 18 and over.
2. Refer the woman urgently if physical examination identifies ascites and/or a pelvic or abdominal mass (where it is clear that this is not due to uterine fibroids).
3. Carry out tests in primary care if a woman (especially if 50 or over) reports having any of the following symptoms on a persistent or frequent basis – particularly more than 12 times per month:
    a. Persistent abdominal distension (women often refer to this as 'bloating')
    b. Feeling full (early satiety) and/or loss of appetite
    c. Pelvic or abdominal pain
    d. Increased urinary urgency and/or frequency.

4. Consider carrying out tests in primary care if a woman reports unexplained weight loss, fatigue or changes in bowel habit.
5. Advise any woman who is not suspected of having ovarian cancer to return to her GP if her symptoms become more frequent and/or persistent.
6. Carry out appropriate tests for ovarian cancer in any woman of 50 or over who has experienced symptoms within the last 12 months that suggest irritable bowel syndrome (IBS), because IBS rarely presents for the first time in women of this age. Measure serum CA125 in primary care in women with symptoms that suggest ovarian cancer.
7. If serum CA125 is 35 IU/ml or greater, arrange an ultrasound scan of the abdomen and pelvis.
8. If the ultrasound suggests ovarian cancer, refer the woman urgently for further investigation.
9. For any woman who has normal serum CA125 (less than 35 IU/ml), or CA125 of 35 IU/ml or greater but a normal ultrasound:
    a. Assess her carefully for other clinical causes of her symptoms and investigate if appropriate
10. If no other clinical cause is apparent, advise her to return to her GP if her symptoms become more frequent and/or persistent.

## ENDOMETRIAL CANCER

1. Refer women using a suspected cancer pathway referral (for an appointment within 2 weeks) for endometrial cancer if they are aged 55 and over with post- menopausal bleeding (new NICE recommendation for 2015). Unexplained vaginal bleeding is defined as more than 12 months after menstruation has stopped because of the menopause.
2. Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for endometrial cancer in women aged under 55 with post-menopausal bleeding (new NICE recommendation for 2015).
3. Consider a direct access ultrasound scan to assess for endometrial cancer in women aged 55 and over with:

a. Unexplained symptoms of vaginal discharge who:

- Are presenting with these symptoms for the first time or
- Have thrombocytosis or
- Report haematuria, or

b. Visible haematuria and:

- Low haemoglobin levels or
- Thrombocytosis or

High blood glucose levels (new NICE recommendation for 2015)

## CERVICAL CANCER

Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for women if, on examination, the appearance of their cervix is consistent with cervical cancer (new NICE recommendation for 2015).

## CASE STUDIES

A 48yr old female presents with intermenstrual bleeding for 2 months. Episodes of bleeding occur any time in the cycle. This is usually fresh blood and lighter than a normal period. Lasts for 1-6 days. No associated pain. No hot flushes or night sweats. Sexually active with no vaginal dryness. She has 3 children and has used progesterone only pill for contraception for 5years. Her last smear was 2years ago and all smears have been normal. No relevant history or medication.
On examination her abdomen is soft and non-tender. Speculum exam shows nil abnormal. On bimanual exam the uterus is non tender and of a normal size. No adnexal masses. She had blood taken recently and they show HB: 12.7 WCC 4.5 and Platelets 401.Transvaginal ultrasound show endometrial polyps.

How would you manage this patient?

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A 31 year old women has been trying to conceive for nearly 3years without success. Her last period started 7montsh ago and she has been having periods sporadically for about 5years. Bleeds 2-7 days every 2-9 months. No dysmenorrhea but does get menorrhagia. Pregnant at age 19years old and had a termination of the pregnancy. Laparoscopy for pelvic pain 4 years ago showed a normal pelvis. Normal smears and no STD's. Diagnosed with IBS at age 25. Uses metoclopramide for gut motility and anti-spasmodic. Her partner is fit and well with 2 children from a previous relationship. Neither one of them drinks or smokes. Investigations : FSH : 3.1, LH 2.9, Day 21 progesterone 12, Prolactin 1274, Testosterone 1.4, TSH 4.1, Free Thyroxine 17
What is the diagnosis?

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How would you investigate and manage this couple?

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## CASE STUDIES

A 17year old girl presents with vulval swelling. She noticed a lump a few weeks ago and it has gotten larger in the last 2 days with increased pain. Cannot walk normally or wear her normal jeans because of the discomfort. Otherwise well in herself. Sexually active since age 14 and uses depo injection for contraception. Does not have periods. Has been with her boyfriend for 8montsh. On questioning mentions she has had unprotected sex with 2 other boys in that period. Sexual health screen in GU unit one year ago was normal. She takes no medication. On examination her temp is 37.7, P: 68, BP: 11/70. Abdomen soft and non-tender. Vaginal exam shows swelling left side posterior labial swelling. Appears red and fluctuant, tense and very tender. Inguinal lymph nodes noted.

What is the diagnosis?

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How would you manage this patient?

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A 21yr old female presents with having has unprotected sex 36hrs ago. She was on holiday and intercourse occurred with man she had just met 4 days before that. LMP: 13 days ago, and she bleeds for 4 days every 27 days. She has had no other episodes of intercourse since her last period. Generally healthy but has a history of epilepsy for which she takes carbamazepine. No other medical history. Abdominal exam nad. Pregnancy test negative.

How would you manage this patient? What options are available to this patient.

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## MULTIPLE CHOICE QUESTIONS

A 22-year-old woman comes to the office because of painful urination for 2 days. She states that in addition to experiencing pain when passing urine, she feels that the urge to pass urine comes on very suddenly. She is sexually active with a new partner and uses no form of contraception, however, says that she has not experienced any vaginal itch or discharge. Her medical history is none of note. Family history includes type 2 diabetes in both parents. T: 36.5 P:72 RR16 BP: 122/76 shows only suprapubic tenderness to palpation. Which of the following is the most likely diagnosis?

a. Cystitis
b. Diabetes mellitus
c. Pyelonephritis
d. Vaginitis
e. Chlamydia urethritis

A 60-year-old woman, gravida 6, para 6, comes to the office because of a bulge in her vagina and pain with intercourse for the past 10 years. She has been experiencing urinary incontinence as well. Her medical history includes six vaginal deliveries without complications. Her last menstrual period was 11 years ago. Pelvic examination shows a bulging anterior vaginal wall with normal cervical positioning. Which of the following is the most likely diagnosis?

a. Vaginal prolapse
b. Cystocele
c. Enterocele
d. Rectocele
e. Uterine prolapse

A 25-year-old woman, gravida 1, para 1, is brought to the obstetrics and gynaecology clinic because of fatigue, amenorrhea, and agalactorrhea. These symptoms have been present for the past 7 months since the birth of her child was complicated by a postpartum haemorrhage, requiring multiple blood transfusions. Which of the following is the most likely explanation for the patient's symptoms?

a. Mullerian agenesis
b. Pituitary adenoma
c. PCOS
d. Premature ovarian failure
e. Sheehan syndrome

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