



PIPADOR REVISION

MRCOG Part 1 Revision Notes

The Pelvic Peritoneum

ANATOMY • LECTURE 6

VISUAL EXAMINATION REVISION NOTES

2026 Edition

MRCOG Part 1 Revision Notes

Lecture 6: The Pelvic Peritoneum

Anatomy • Visual revision edition

COLOUR CODE USED THROUGHOUT THESE NOTES

PERITONEUM	VESICOUTERINE POUCH	POUCH OF DOUGLAS	RECTOVESICAL (MALE)	BLADDER
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LEARNING OBJECTIVES — tick off as you go

- ☐ Identify peritoneal reflections in the female pelvis.
- ☐ Recognise the vesicouterine and rectouterine pouches.
- ☐ Identify peritoneal pouches and folds (rectovesical in males, paravesical and pararectal fossae).
- ☐ Describe the broad ligament as a peritoneal fold.
- ☐ Apply to clinical scenarios — Pouch of Douglas, culdocentesis, ascites, peritoneal carcinomatosis.

1 Overview

IN ONE LINE: A serous membrane: **PARIETAL** lines the walls, **VISCERAL** covers the organs — in the pelvis it drapes over the viscera like a sheet.

The drape creates **reflections, pouches and folds** — the basis of intra-operative anatomy, peritoneal spread of disease and surgical access.

2 Peritoneal Reflections — Tracing the Sheet

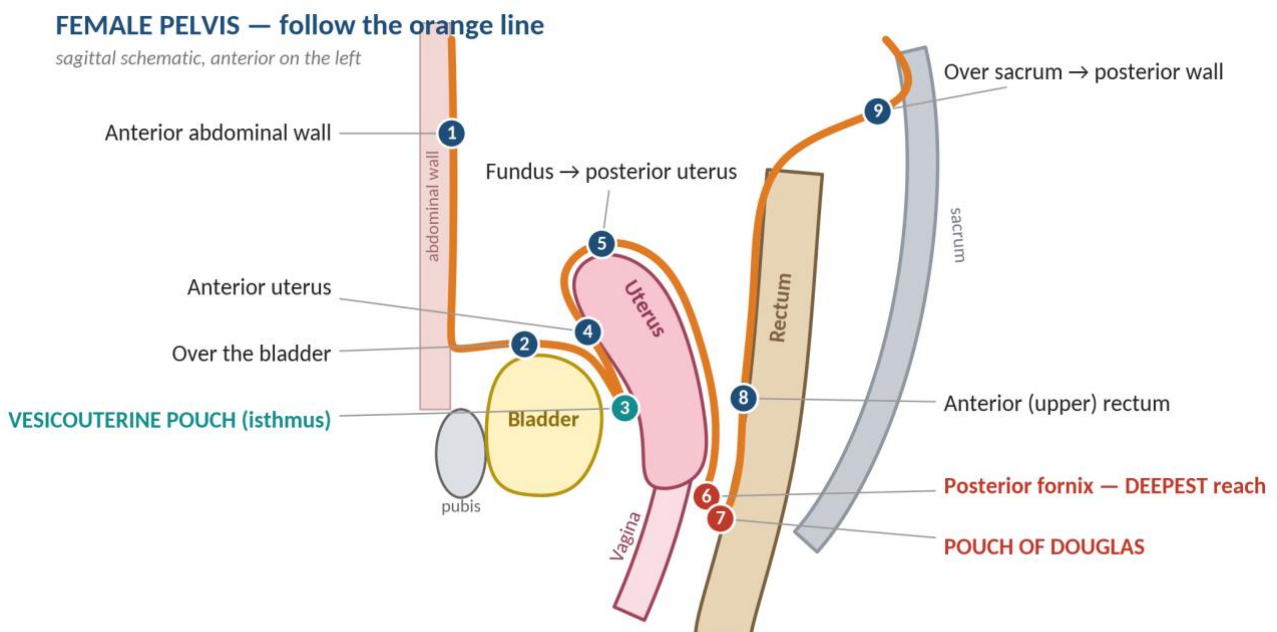


Figure 1. Nine steps, front to back. Say them aloud while tracing the orange line.

#	Step	What happens
1	Anterior abdominal wall	parietal peritoneum down to the symphysis
2	Superior surface of bladder	reflects from the wall onto the bladder
3	Vesicouterine pouch	bladder → anterior uterus at the isthmus / internal os
4	Anterior uterus	down to the isthmus
5	Fundus + posterior uterus	continues over the top and down the back
6	Posterior vaginal fornix	DEEPEST extension of peritoneum in the female
7	Pouch of Douglas	posterior vagina/cervix → anterior rectum
8	Anterior (upper) rectum	upper part covered
9	Posterior abdominal wall	over the sacrum and upwards

3 The Pelvic Pouches

VESICOUTERINE POUCH — shallow, anterior

- Between bladder dome and anterior uterus at the **isthmus**
- Opened at **caesarean section** and hysterectomy — bladder reflected down off the lower segment
- Endometriotic deposits; adhesions after surgery

POUCH OF DOUGLAS — deep, posterior

- Between rectum and posterior vagina/uterus
- **DEEPEST point of the female peritoneal cavity**
- Lateral boundary: **rectouterine (uterosacral) folds**
- Fluid collects here: blood, pus, ascites

EXAM HOOK

The Pouch of Douglas is the most dependent point in the **upright** patient. In the **supine** patient, free fluid also pools in the hepatorenal pouch (Morison's) — both are checked on a FAST scan.

3.3 In the male

MALE PELVIS

no uterus — bladder straight to rectum

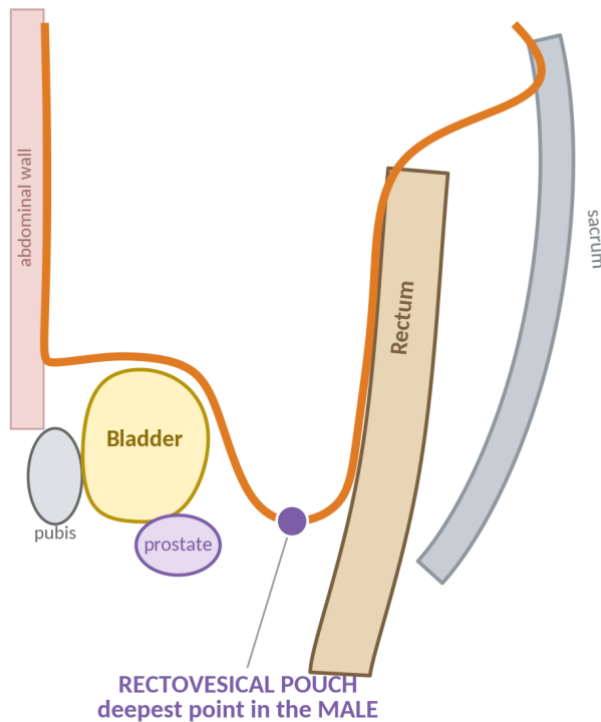


Figure 2. Without a uterus, peritoneum passes straight from bladder to rectum.

PARAVESICAL FOSSAE

- Bilateral shallow pouches beside the bladder
- Lateral: pelvic wall • Medial: bladder
- Landmarks for side-wall dissection

PARARECTAL FOSSAE

- Bilateral shallow pouches beside the rectum
- Lateral: pelvic wall • Medial: rectum
- Opened to reach the **ureter** retroperitoneally

4 Peritoneal Folds and 'Ligaments'

IN ONE LINE: Most pelvic 'ligaments' are peritoneal folds draped over something — not true ligaments.

4.1 Broad ligament

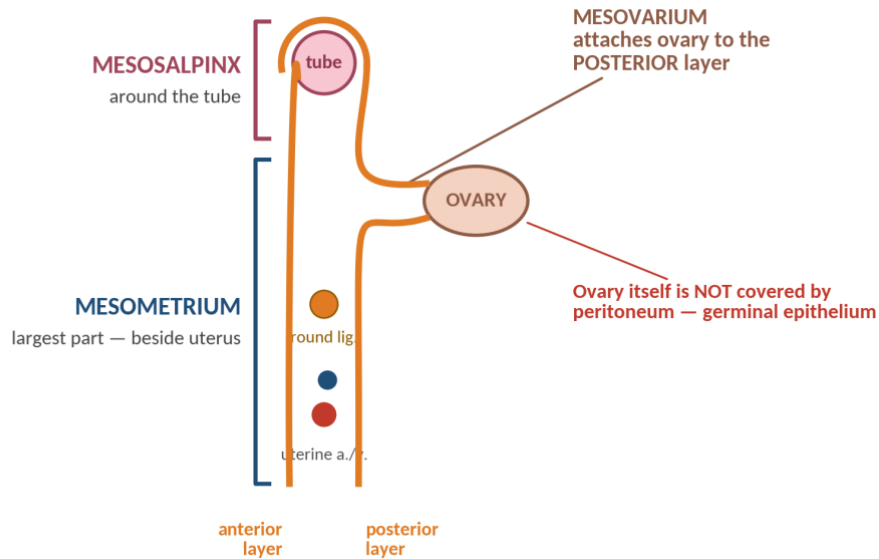


Figure 3. Three parts of the broad ligament, seen in sagittal section.

MNEMONIC / MEMORY HOOK

The Greek tells you what it wraps: meso-**salpinx** = tube • meso-**varium** = ovary • meso-**metrium** = uterus (the largest part)

- Runs from the lateral pelvic wall to the uterus; contains **uterine vessels**, ovarian vessels (via mesovarium), **ureter** (at its base), round and ovarian ligaments, lymphatics and nerves. (Detail: Lecture 10.)

4.2 – 4.4 The other folds

Fold / ligament	Runs	Why it matters
Suspensory (infundibulopelvic)	Ovary → lateral pelvic wall	Contains ovarian vessels — ligated at oophorectomy
Round ligament	Uterine cornu → broad ligament → deep ring → inguinal canal → labium majus	Gubernaculum remnant; helps hold the uterus anteverted; usually the first structure divided at abdominal hysterectomy
Uterosacral / rectouterine folds	Cervix and upper vagina → sacrum (S2–S4)	Lateral boundary of POD; hypogastric nerves / pelvic plexus run alongside; affected in deep endometriosis

4.5 – 4.7 Umbilical folds (anterior wall)

Anterior abdominal wall from inside (laparoscopic view)

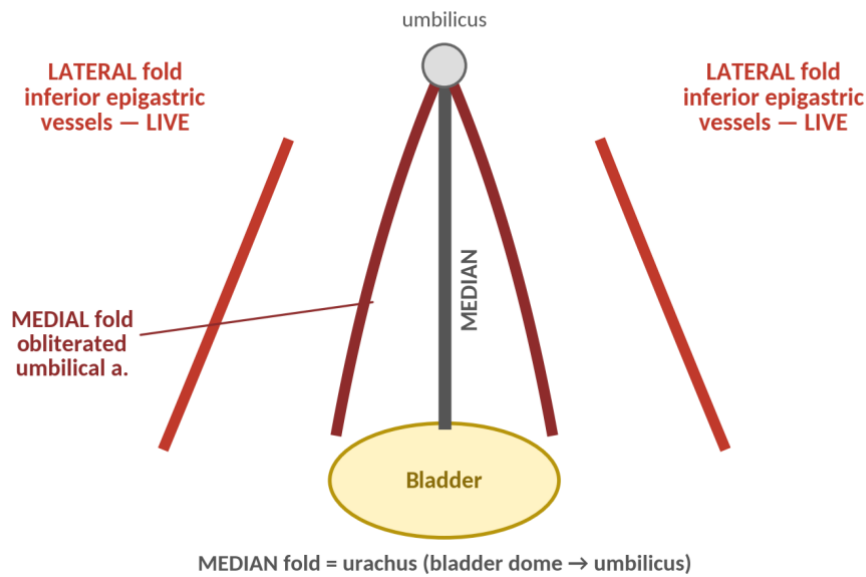


Figure 4. The five folds you see on the anterior wall at laparoscopy.

MNEMONIC / MEMORY HOOK

MEDIAN = the middle urachus • **MEDIAL** = obliterated umbilical arteries (dead vessels) • **LATERAL** = inferior epigastric vessels — the only Live ones, so Look before lateral ports.

5 Surgical Spaces of the Pelvis

Pelvic spaces — schematic axial view, anterior at top

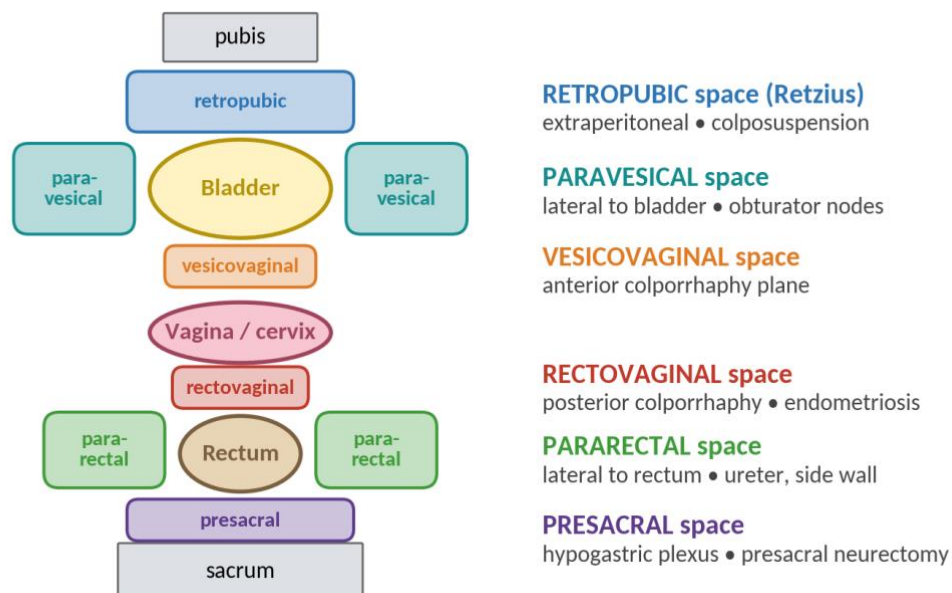


Figure 5. Potential spaces front to back and side to side.

Space	Location	Significance
Retropubic (Retzius)	Pubic symphysis ↔ bladder	Extraperitoneal; colposuspension, bladder neck surgery

Space	Location	Significance
Vesicouterine	Bladder ↔ uterus	Lower segment access at CS
Vesicovaginal	Bladder ↔ vagina	Anterior colporrhaphy plane
Rectovaginal (Denonvilliers in male)	Rectum ↔ vagina	Posterior colporrhaphy; endometriosis
Pararectal	Lateral to rectum	Ureter, lateral side wall
Paravesical	Lateral to bladder	Obturator nodes
Presacral	Anterior to sacrum, behind rectum	Hypogastric plexus; presacral neurectomy
Ischiorectal (ischioanal) fossa	Lateral to anal canal	Abscesses; Alcock's canal in lateral wall

6 Which Organs Are Covered?

INTRAPERITONEAL

- Uterus (mostly)
- Fallopian tubes
- Ovaries — project into the cavity but are NOT covered (see below)

SUBPERITONEAL / EXTRAPERITONEAL

- Lower bladder
- Distal ureter
- Lower rectum, anal canal
- Most of the vagina
- Urethra (and prostate)

THE OVARY IS UNIQUE

Intraperitoneal but **no serosal (peritoneal) covering** — covered by **germinal epithelium** (modified mesothelium).

Hangs from the **posterior** layer of the broad ligament by the mesovarium.

The ovum is released **directly into the peritoneal cavity** — which is why an abdominal ectopic is possible.

7 Spread of Disease via the Peritoneum

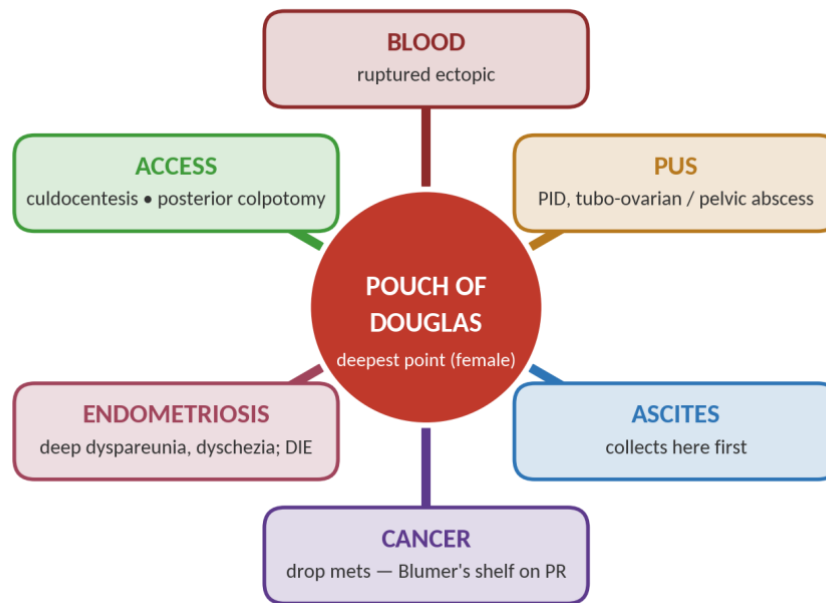


Figure 6. Everything ends up in the Pouch of Douglas.

OVARIAN CANCER

- Spreads mainly by **peritoneal seeding**
- Omentum, POD, **diaphragm**, paracolic gutters, bowel serosa
- Staging: washings, omental and peritoneal biopsies
- Gastric/colonic cancer → ovary: **Krukenberg** tumours

ENDOMETRIOSIS

- Ovary (endometrioma), POD, uterosacrals, vesicouterine pouch, bowel, side wall
- **Sampson**: retrograde menstruation
- POD disease → deep dyspareunia, dyschezia; DIE may **obliterate** the pouch

PID

- Ascends cervix → endometrium → tubes
- Pelvic peritonitis; tubo-ovarian abscess in POD
- **Fitz-Hugh–Curtis**: perihepatitis under the diaphragm

ASCITES

- Ovarian cancer, cirrhosis, heart failure, hypoalbuminaemia, TB, **Meigs' syndrome**, pancreatic disease
- Pelvic ascites fills the POD first

RUPTURED ECTOPIC

- Blood pools in the POD
- Cervical motion tenderness ('chandelier sign')
- Culdocentesis historically — now **ultrasound**

PELVIC ABSCESS

- Pus in the POD
- Drain via **posterior colpotomy**

8 Surgical Considerations

Procedure	Peritoneal steps
Laparoscopy	CO ₂ insufflation; lateral umbilical fold = port landmark; identify medial umbilical ligament, urachus, reflections
Entry	Veress (closed, blind) vs Hasson (open); open favoured after previous surgery / adhesions

Procedure	Peritoneal steps
Caesarean section	Open peritoneum at the vesicouterine pouch → reflect bladder down → lower segment incision
Hysterectomy	Open at round ligament → find ureter ('water under the bridge') → open vesicouterine peritoneum (bladder) and rectouterine peritoneum (rectum). Routine peritoneal closure avoided
Posterior colpotomy	Posterior fornix → POD: vaginal hysterectomy, Douglas abscess drainage, specimen retrieval, vNOTES

Clinical correlations

PNEUMOPERITONEUM

- Free gas under the diaphragm on **erect CXR**
- Perforated viscus — or expected after laparoscopy

ADHESIONS

- After surgery, infection, endometriosis
- Chronic pelvic pain, subfertility, bowel obstruction

DON'T CONFUSE

Hartmann's pouch = gallbladder neck. **Hartmann's procedure** = rectal stump after resection. Neither is a pelvic peritoneal pouch.

9 MRCOG Exam Pearls — Last-Minute Page

Numbers to know

2 Pouches in the female	1 Pouch in the male	3 Parts of the broad ligament	5 Umbilical folds (1+2+2)
9 Steps in the sagittal trace	S2–S4 Uterosacral attachment	8 Surgical spaces	0 Peritoneal covering on the ovary

HIGH-YIELD CHECKLIST

- ☐ Pouch of Douglas = deepest point of the female peritoneal cavity; rectovesical pouch in the male.
- ☐ Vesicouterine pouch: bladder ↔ uterus (anterior), opened at CS.
- ☐ POD lateral boundaries: uterosacral / rectouterine folds.
- ☐ Pelvic fluid collects in the POD: blood, pus, ascites.
- ☐ Ovaries: intraperitoneal but NOT covered by peritoneum (germinal epithelium).
- ☐ Broad ligament: mesometrium (largest), mesosalpinx (tube), mesovarium (ovary).
- ☐ Infundibulopelvic ligament: ovary to side wall; ovarian vessels.
- ☐ Round ligament: inguinal canal to labium majus; first structure divided at hysterectomy.
- ☐ Lateral umbilical fold = inferior epigastric vessels — port landmark.
- ☐ Retropubic space of Retzius: extraperitoneal; colposuspension.
- ☐ Culdocentesis via posterior fornix — historical for ectopic.
- ☐ Ovarian cancer seeds to omentum, POD and diaphragm.

Quick-fire self-test — cover the right-hand column

Question	Answer
Deepest point of the female peritoneal cavity?	Pouch of Douglas (rectouterine pouch)
Deepest point in the male?	Rectovesical pouch
Lowest extent of peritoneum in the female?	Posterior vaginal fornix
What forms the lateral boundaries of the POD?	Uterosacral (rectouterine) folds
Which pouch is opened at caesarean section?	Vesicouterine
Which part of the broad ligament surrounds the tube?	Mesosalpinx
What covers the ovary instead of peritoneum?	Germinal epithelium
What lies under the lateral umbilical fold?	Inferior epigastric vessels
What lies under the medial umbilical fold?	Obliterated umbilical artery
Which space is used for colposuspension?	Retropubic space of Retzius
What is Blumer's shelf?	Drop metastasis in the POD, palpable on PR

10 References

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