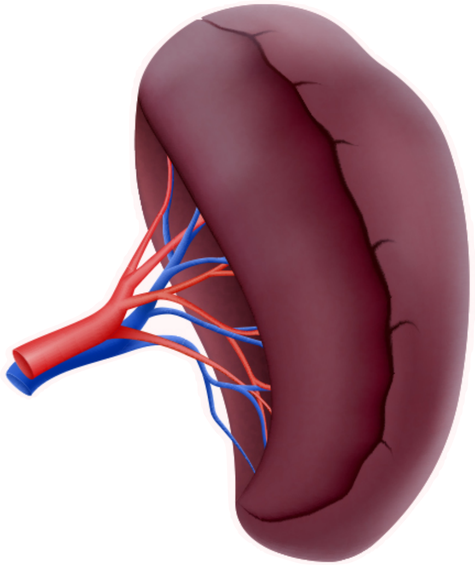
A Wanderful Surprise



Dr Asad Younis
ST5 Clinical Radiology, University Hospitals of Leicester NHS Trust

Dr Nadin Jallad
Consultant Radiologist, University Hospitals of Leicester NHS Trust

Case Synopsis

Clinical Presentation

- A 73-year old female patient presented to her general practitioner with urinary urgency, urge incontinence, early satiety and reduced appetite.
- No abdominal bloating, weight loss, dysuria or history of postmenopausal bleeding.
- Her past medical and surgical history were unremarkable apart for a total of six prior pregnancies.
- Clinical examination revealed a large palpable pelvis mass.
- Referred for an urgent pelvis ultrasound for further evaluation.

Case Synopsis

Ultrasound

- Transabdominal and transvaginal pelvic ultrasound revealed a solid mass containing multiple large cystic extending into the left adnexa with hypervascular septa.
- Normal uterus demonstrated with no fibroids. Normal right ovary however the left ovary was not separately visualised.
- Appearances concerning for ovarian malignancy and further evaluation with MRI advised under 2 week wait pathway.

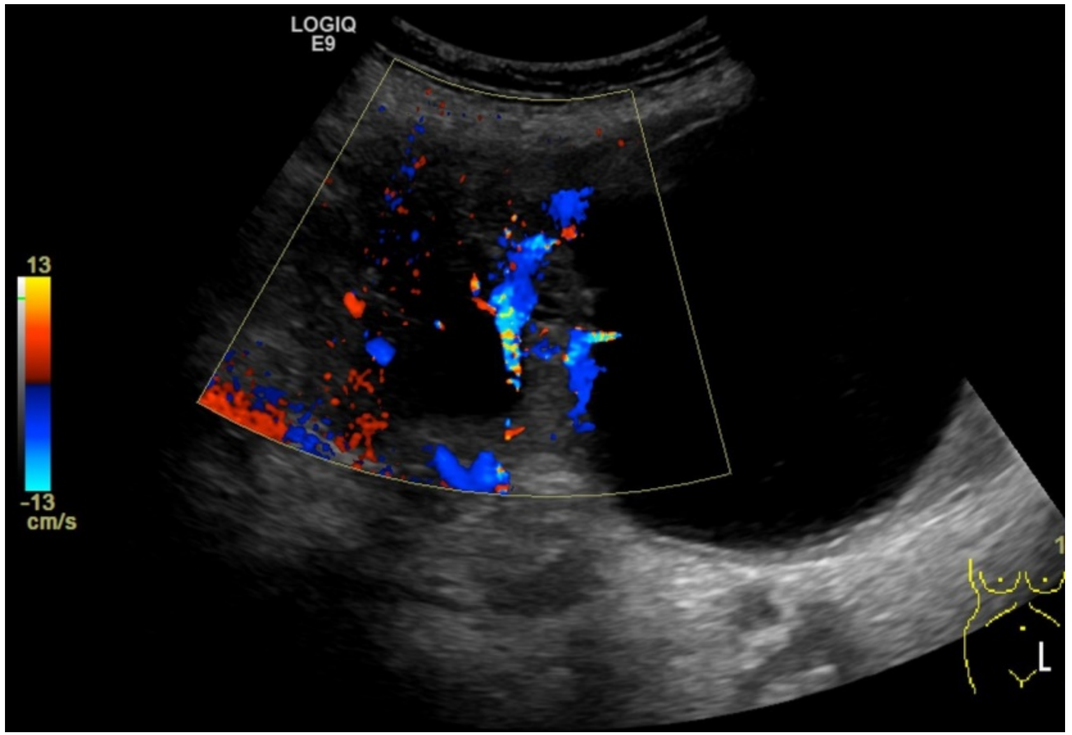


Figure 1. Ultrasound with Doppler demonstrated a large cysts within the left adnexa separated by a hypervascular septum.

Case Synopsis

MRI

- MRI confirmed presence of a large complex pelvic mass containing solid and cystic components.
- Evidence of mass effect upon the urinary bladder. The mass was not separately identified from either of the ovaries.
- The uterus, cervix and vagina were normal and there was no free fluid or pelvic lymphadenopathy to suggest extra uterine disease.

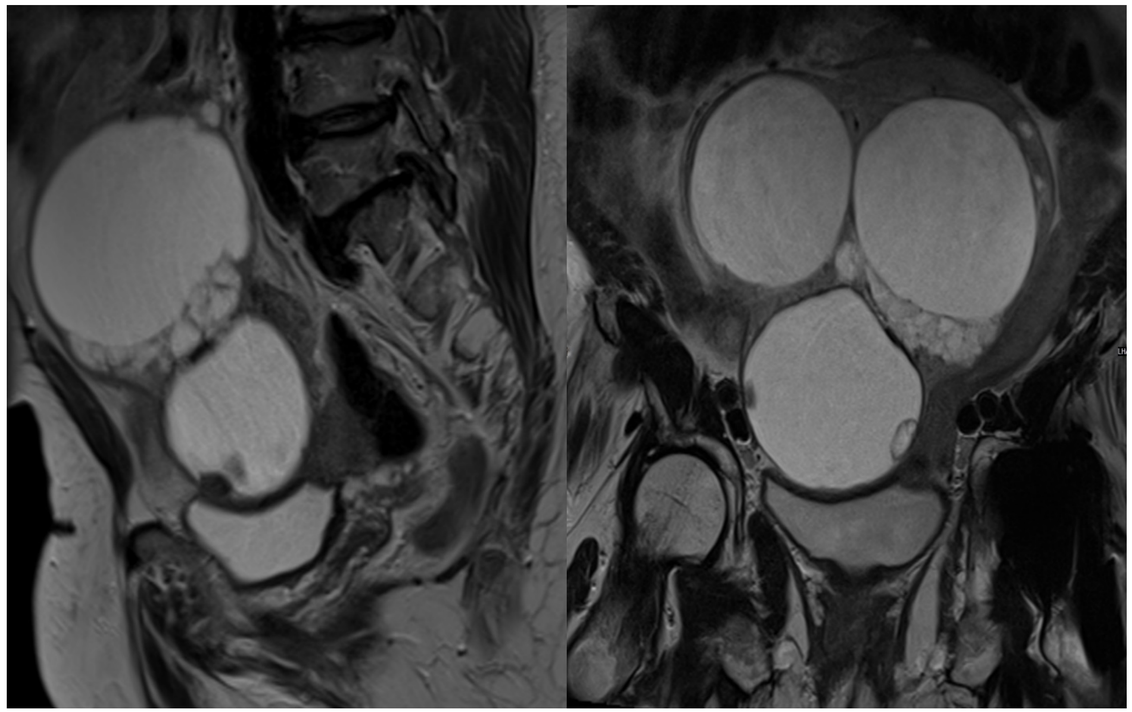


Figure 2 and 3. MRI Pelvis sagittal and coronal demonstrating a solid mass containing multiple cysts of varying complexity within the pelvis.

Case Synopsis

MDT

- Case referred to the Gynae-oncology MDT.
- Interestingly, CA 125 was normal.
- Staging CT (chest, abdomen and pelvis with contrast) was arranged.

Case Synopsis

CT

- Uniformly enhancing pelvic soft tissue containing multiple non-enhancing cysts. One of the cysts demonstrated rim calcification.
- No evidence of metastatic disease or lymphadenopathy.
- During review of the of the abdominal viscera, lack of spleen in the left upper quadrant was noted.
- Upon closer interrogation of the abdominal vasculature, a large vessel could be seen between the pelvic mass and the liver.
- This was correctly identified as the splenic vein.

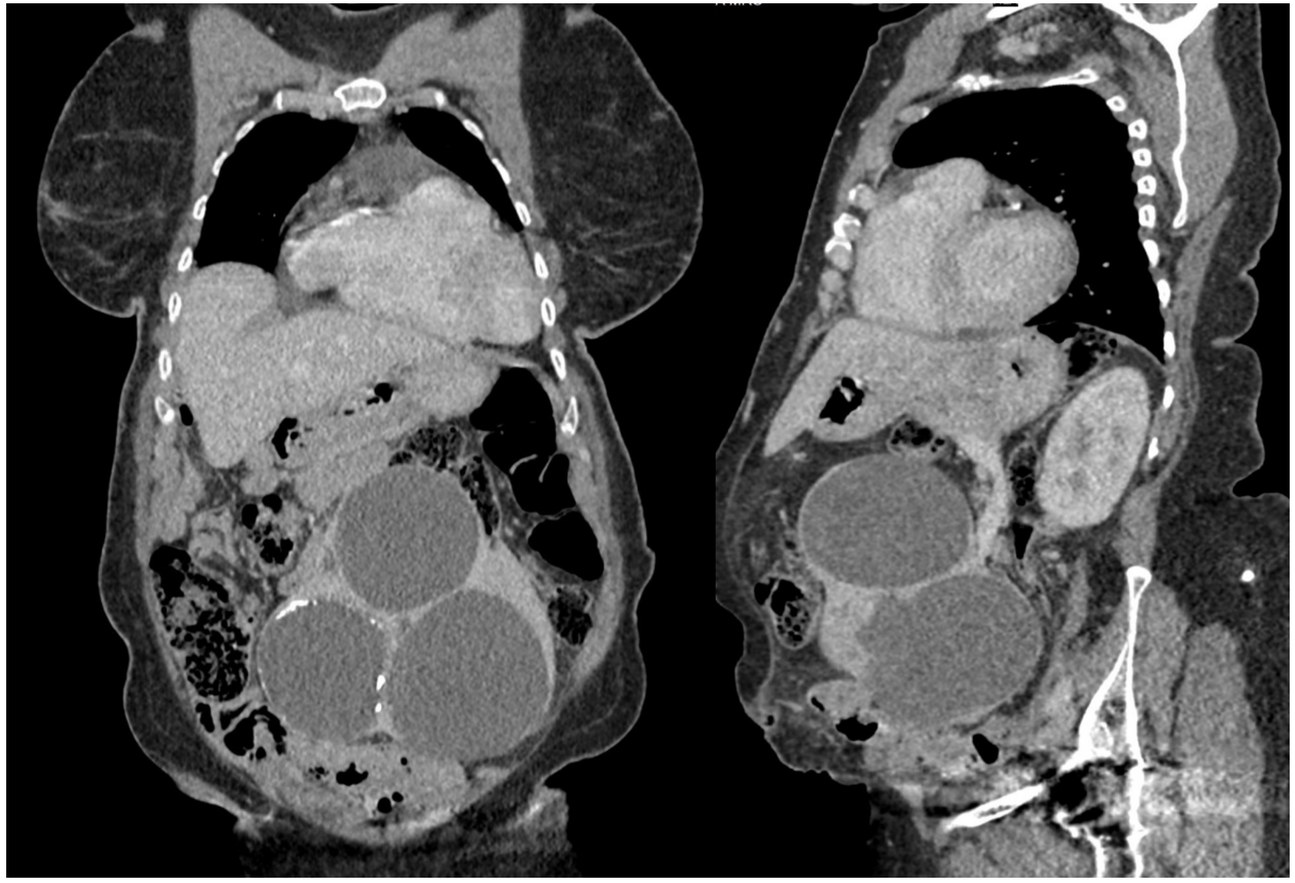


Figure 4. Lack of spleen in the left upper quadrant and cystic pelvic mass well demonstrated on coronal images.

Figure 5. Sagittal imaging demonstrated presence of a large vascular structure coursing from the pelvic mass towards the liver.

Case Synopsis

Final Diagnosis

- In the absence of a history of splenectomy and normal tumour markers, the diagnosis of a **wandering spleen with pseudocysts** was made based on the CT findings.
- This case was rediscussed at the to the Gynae-oncology MDT. Patient was discharged and referred to hepatobiliary surgery to consideration of splenectomy.
- Unfortunately, the patient developed COVID-19 and pulmonary emboli complicated by right bundle branch block. A multidisciplinary decision was made to stabilise her chest and cardiac symptoms prior to considering surgical intervention.

Case Synopsis

Serial Imaging

- Upon comparing serial MRI and CT coronal images, the change in configuration of the splenic cysts between each scan confirms rotation of the spleen on its vascular pedicle whilst there is also mobility along the craniocaudal axis.

Figure 6. Initial MRI pelvis which prompted referral to Gynae-oncology MDT

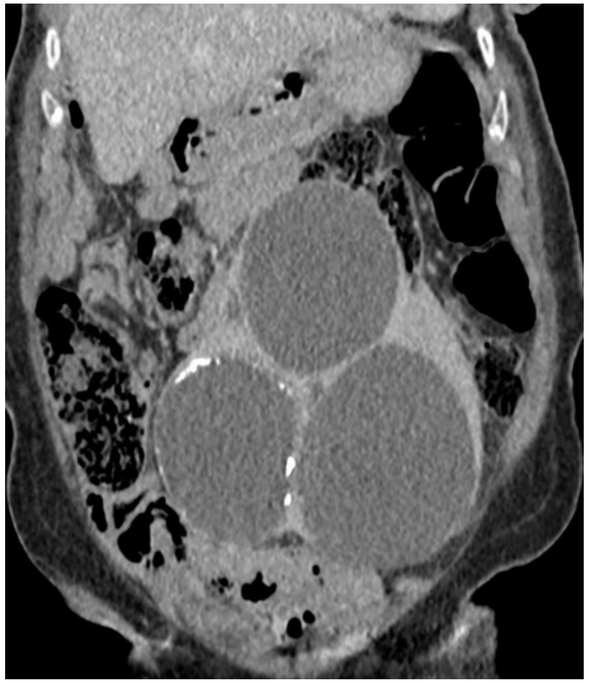


Figure 7. Staging CT performed 2 weeks later showing change in cyst configuration

Figure 8. Subsequent CT performed 3 months later shows how spleen has rotated back to its initial position and sits lower in the pelvis

Case Synopsis

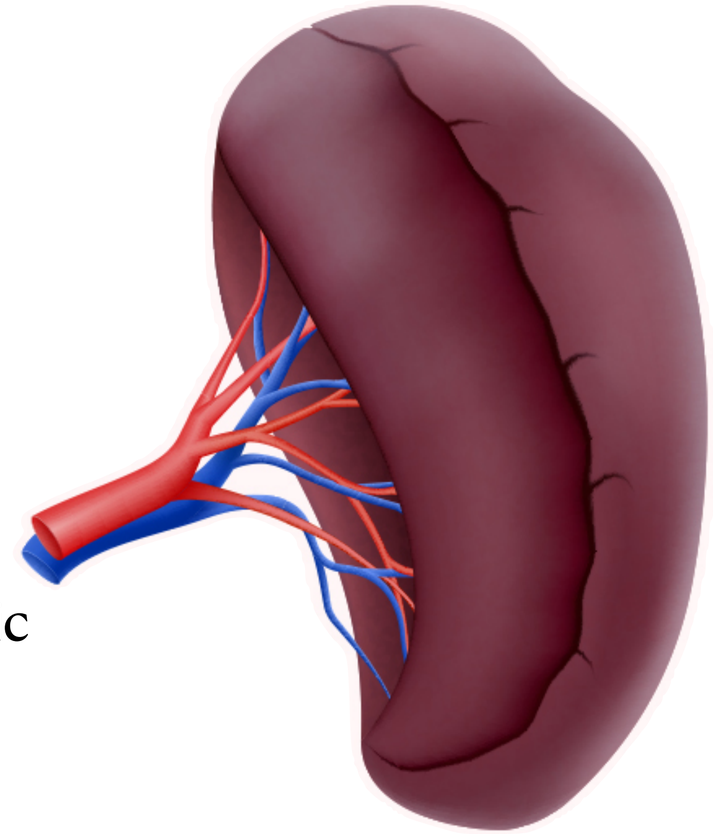
Previous Imaging

Figure 9. Soft tissue density with rim calcification overlying the left iliac crest can be appreciated in retrospect on an pelvic X-ray performed 8 years prior.

Discussion

Wandering Spleen

- Wandering spleen (also referred to as floating spleen, splenoptosis or hypermobile spleen) is an uncommon clinical entity with an incidence of under 0.5%.
- Characterised by abnormal migration of the spleen from the left upper quadrant to the lower abdomen and pelvis.
- Wandering spleen is usually found incidentally however patients can present in a non-specific manner either acutely with abdominal pain or with symptoms of mass effect from the ectopic location of the spleen.
- Regardless of the presentation, radiological input essential to confirm the diagnosis.



Discussion

Wandering Spleen

- Most cases are found in children less than 10 years of age or women of childbearing age and causes include:
  - Congenital: due absence or hypoplasia of the splenic suspensory ligaments.
  - Acquired: due to weakening of the suspensory ligaments which may be secondary to trauma, connective tissue diseases or multiparity although the exact mechanism is poorly understood.
- In the case presented, although not obvious initially, the history of 6 previous pregnancies may have been of relevance!

Discussion

Wandering Spleen

- The main complication of wandering spleen is splenic torsion and consequential infarction due to the long vascular pedicle and the mobile nature of the spleen.
- The lack of splenic fixation leads to an excessive mobility of the spleen. Intraperitoneal portion of the pancreas is also usually involved due to its close relationship with the splenorenal ligament.
- The mobile nature of the spleen is demonstrated on serial imaging in the case we have presented (see Figure 6-8).

Discussion

Splenic Pseudocysts

- Cystic splenic lesions are fairly common benign lesion which rarely cause symptoms unless particularly large. When discovered incidentally on imaging, they are not usually of clinical relevance and hence rarely undergo further investigation.
- Approximately 20% are primary lesions representing true cysts whereas the remaining 80% are secondarily acquired pseudocysts.
- Majority of splenic pseudocysts are secondary to trauma however infarction is also a recognised cause.
- Due to the risk of torsion associated with a wandering spleen, it is likely that the pseudocysts in this case were sequelae of previous infarcts. Furthermore, the relatively small amount of splenic tissue would also support previous infarction.

Discussion

Diagnostic Challenges

- The case presented a diagnostic dilemma for a number of reasons:
    1. The patient was not in the typical cohort for presentation of a wandering spleen and presentation was non-specific.
    2. Initial ultrasound and MRI findings were very suggestive of a gynaecological malignancy.
    3. The limited field of view of the MRI precluded assessment of the remaining abdominal viscera and vasculature and would also have contributed to the initial misdiagnosis.
    4. The radiological assessment was further complicated by the presence of splenic pseudocysts which simulated a complex solid-cystic pelvic mass - mimicking a common imaging appearance of malignant ovarian tumours.
    5. Lack of previous cross-sectional imaging available to review.

Learning Points

- Although very rare, this case demonstrates that wandering spleen may present symptomatically at any age.
- Routine radiological assessment of all abdominal viscera and associated vasculature is essential to avoid misdiagnosis, regardless of clinical presentation and patient demographics.
- Cross-sectional imaging is necessary to confirm diagnosis in most cases. Occasionally radionuclide imaging, in the form of a technetium sulfur colloid scan, may be needed to confirm presence of splenic tissue when CT/MRI findings are ambiguous.
- Correlation with tumour markers in the assessment of abdominopelvic mass lesions is essential to guide diagnosis and aid management.