

# Case-Based Diagnosis Training

## Patient

Gender: *female*

Age: *63*

## Clinical history and working diagnosis on the referral:

Acute presentation with lower abdominal pain, raised CRP, slightly tachycardic. Diverticulitis vs appendicitis?

## Features and exact location of lesion in question:

An approximately 6 cm x 5.5 cm cystic structure is noted within the pelvis, between the uterus and rectum and in close relation to the sigmoid colon, with surrounding fat stranding and small amount of free fluid within the pelvis. The cyst contains low attenuation fluid, slightly more dense than urine, and the walls appear thickened and enhancing. The wall of the sigmoid colon, which is closely related to this structure, is slightly thickened but there is no evidence of focal diverticula and there is no free intraabdominal gas.

The left ovary is noted separate from these changes but the right ovary is not clearly identified.

## Submitted by:

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and Dr Dwarkanath (Consultant Radiologist,  
Countess of Chester hospital, UK)

Please add pictures (radiograph, ultrasound, CT or MR images) by clicking on the symbols within the boxes below:



**Picture 1:** Axial portal venous phase CT slice through the pelvis demonstrating an approximately 6 x 5.5cm cystic mass in the region of the Pouch of Douglas with enhancing walls and surrounding inflammatory changes.



**Picture 2:** Oblique axial portal venous phase CT slice through the pelvis demonstrates that the cystic lesion is in close contact with the sigmoid but there are no convincing sigmoid (or other colonic) diverticula.

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## **Additional information**

### **Potential pitfall:**

The CT was misinterpreted and reported as 'inflammatory changes in the sigmoid colon with wall thickening and a 6 cm x 5.4 cm adjacent enhancing pelvic collection in the pouch of Douglas, suggestive of acute diverticulitis with contained perforation'. As the appearance of the low attenuation 'collection' with surrounding inflammatory change could be mistaken for a pelvic abscess, it is important to consider the alternative diagnosis of a haemorrhagic cyst and to perform a pelvic ultrasound before any intervention is undertaken – this can help to characterise a pelvic 'collection' / 'mass' seen on CT and avoid putting the patient through an unnecessary procedure.

### **Important to rule out or recommend:**

The reporting radiologist was perhaps misled by the clinical history, which suggested differentials of appendicitis vs diverticulitis, and the reactive fat stranding involving the adjacent sigmoid colon was misinterpreted as diverticulitis despite there not being any diverticula to see within the sigmoid and remainder of the colon. It is important to interpret the images without allowing the clinical history to bias our interpretation.

If a pelvic mass is identified on CT in a female patient, it is valuable to obtain an US for further evaluation, as this can provide more information about characteristics of the 'mass' as well as its relation to the pelvic organs and whether these are themselves normal or abnormal. Haemorrhagic cysts should resolve within 2 menstrual cycles therefore follow-up US (e.g. after 10 weeks) can be considered as long as there are no concerning features. MRI is not usually required if the US features are typical and can therefore avoid over investigation if there are no features to suggest an ovarian tumour.

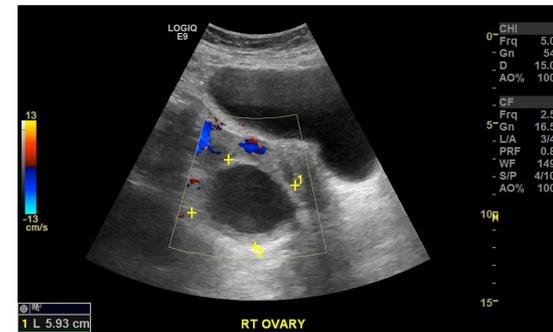
### **Final diagnosis:**

Haemorrhagic right ovarian cyst.

In case you want to submit further pictures, please add these (radiograph, ultrasound, CT or MR images) by clicking on the symbols within the boxes below:



**Picture 3:** Axial portal venous phase CT slice through the pelvis shows that the cystic lesion has an average density of 25 HU (higher than simple fluid of urine in the bladder).

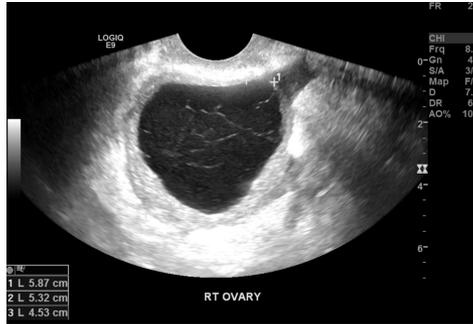


**Picture 4:** Static transabdominal ultrasound image demonstrates that the approximately 6 cm cystic pelvic mass is located within the right ovary; no internal Doppler flow is seen, which is reassuring against a sinister mass.

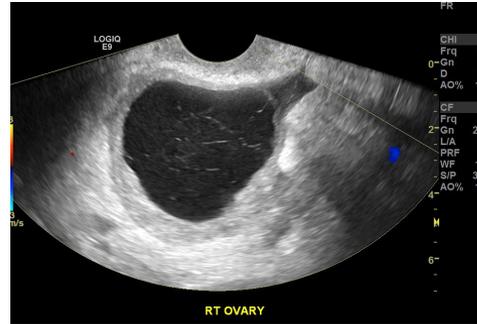
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## **Additional pictures**

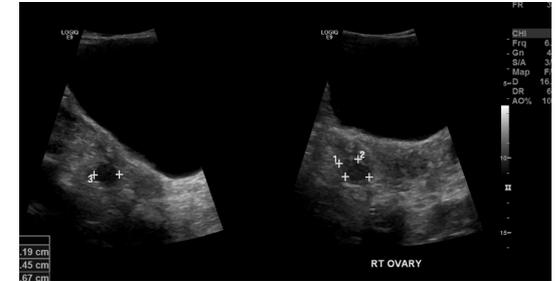
In case you want to submit further pictures, please add these (radiograph, ultrasound, CT or MR images) by clicking on the symbols within the boxes below:



**Picture 5:** Pictures 5 & 6 represent transvaginal images of the right ovary demonstrate that the cystic structure is contained within the right ovary and contains multiple fine septations but no internal vascularity, in keeping with a haemorrhagic ovarian cyst.



**Picture 6:** Pictures 5 & 6 represent transvaginal images of the right ovary demonstrate that the cystic structure is contained within the right ovary and contains multiple fine septations but no internal vascularity, in keeping with a haemorrhagic ovarian cyst.



**Picture 7:** Transabdominal ultrasound images of the right ovary in transverse (left) and longitudinal (right) section demonstrate resolution of the haemorrhagic cyst and normal appearance of the right ovary on follow up scan.