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The "Clot sign", a valuable imaging clue for radiologists and surgeons

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Observation

A 28-year-old female presented to the emergency department with acute abdominal pain in the right iliac fossa. Clinical examination revealed a pale and tachycardic patient with tenderness in the right iliac fossa. Following an ultrasound that showed a moderate amount of peritoneal fluid, an abdominal CT scan was requested, revealing hemoperitoneum with clot sign (Figure 1) and contrast extravasation in the pelvic region (Figure 2).

Discussion

When imaging reveals a hemoperitoneum, it is essential to identify the source (1). The "clot sign" is a radiological tool that can assist in determining the location of the bleeding and guide surgical intervention. The presence of blood clots is widely recognised as a sign of the body's attempt to stop haemorrhaging.

On the CT scan, a recently formed clot displays a comparatively high density (45-70 HU) when compared to the non-clotted bleeding surrounding it (30-45 HU) or chronic haemoperitoneum, which exhibits a more liquid-like density (0-10 HU) (Figure 1). Consequently, areas of greater density can indicate the location of the bleeding and may suggest the responsible organ. Moreover, this sign becomes more valuable if it is linked to extravasation of the contrast medium (Figure 2). Therefore, haemoperitoneum in a young childbearing age woman associated with a sentinel clot and extravasation of contrast medium in the pelvis around the uterus most likely indicates ectopic pregnancy rupture until proven otherwise (3).

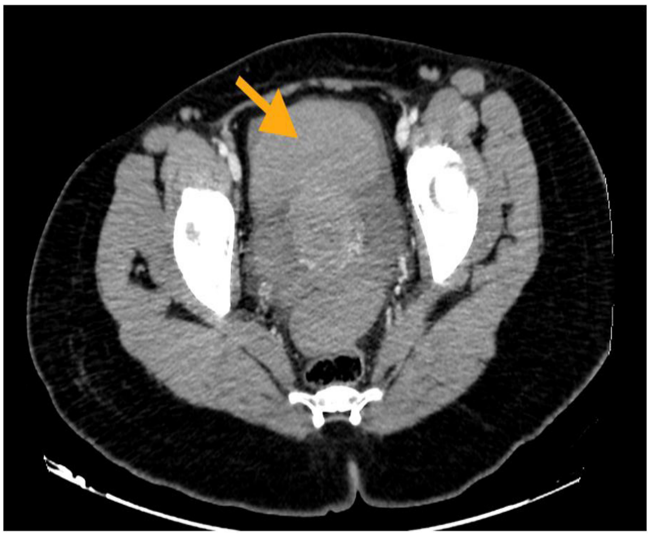

Figure 1: *Axial section revealing the sentinel clot in the pre-uterine area, suggesting that the bleeding is of pelvic origin. This occurrence was observed in a young patient of childbearing age with no prior history.*

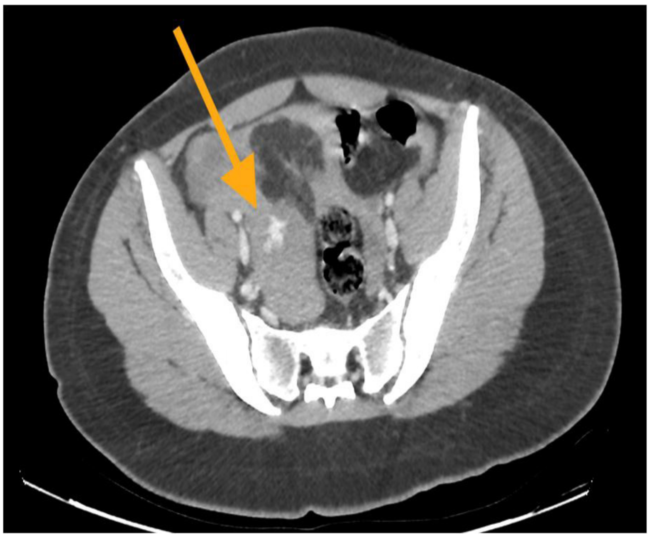

Figure 2: *Axial section indicating leakage of contrast medium in the right lateral uterine area.*

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