Hemoperitoneum: Beyond Trauma

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LEARNING OBJECTIVES
1) To recognize the manifestations of hemoperitoneum on imaging, including active extravasation.
2) To review and categorize non-traumatic causes of hemoperitoneum.
3) To identify imaging characteristics that potentially alter patient management.

BACKGROUND
The causes of hemoperitoneum are numerous. However, history and imaging clues usually rapidly narrow the differential in the atraumatic setting. In this representative pictorial review, we show various causes of hemoperitoneum on multiple imaging modalities, with an emphasis on CT.

VASCULAR
Elderly males presenting with significant abdominal pain of acute onset. Figure 1 reveals a focus of contrast outside the lumen of the aortic aneurysm, consistent with aortic rupture (blue arrow). Both patients have substantial hemoperitoneum which extends into the pelvis.

IATROGENIC
Figure 3: Thoracic aortic aneurysm repair with subsequent distal abdominal aortic injury

GYNECOLOGICAL
Figure 6 displays a young female with dehiscence of a cesarean section repair (blue arrow) performed 4 days prior with hemoperitoneum. Multifocal air pockets are present likely secondary to communication with vaginal canal.

NEOPLASTIC
Figure 9a left and 9b above: Young female (9a) and male (9b) patients presenting with sudden-onset severe abdominal pain in the setting of known hepatic adenomas. CT examinations showed ruptured adenomas with resultant hemoperitoneum. A high-density component in the peripancreatic collection (arrow, 9b) is consistent with sentinel clot.

SUMMARY
Hemoperitoneum has numerous causes. In particular, imaging with CT (the modality of choice), permits accurate and rapid diagnosis. By using specific imaging features, the source of hemorrhage can be determined and a differential diagnosis can be generated.