Soft-tissue case 30. diagnosis

Pelvic trauma: detection of active bleeding by computed tomography

In a patient who has experienced blunt abdominopelvic trauma, the possibility of active bleeding at the site of injury must be considered. In hemodynamically stable patients, this possibility can be investigated with abdominopelvic computed tomography.

Unless contraindicated, patients who have experienced abdominal trauma undergo CT after the administration of oral and intravenous iodinated contrast medium. On contrast-enhanced CT, active bleeding in a recent hematoma appears as an area of higher density (Fig. 1). When there is active bleeding, the multiple, sequential images of a CT scan will allow one to follow the contrast material linearly as it passes through the vessel to the area of hematoma. The site of active bleeding may appear as a focal high-density area surrounded by a large hematoma or as a diffuse area of high density.[1–4] This finding helps localize the vascular origin of the bleeding and has major implications in the treatment of these patients.

Currently, the recommended method for controlling arterial bleeding resulting from pelvic fractures is angiographic embolization. On angiography, bleeding appears as a blush of contrast. The angiogram of this patient confirms that there is bleeding from a pelvic vessel and localizes it to the right obturator artery (Fig. 2). After localizing the site of bleeding, the injured vessel can be occluded, usually with coils, particles or Gelfoam.

In summary, areas of contrast extravasation seen within a hematoma on CT scans after trauma are an indication of active bleeding. In a hemodynamically stable patient, the immediate treatment of bleeding demonstrated on CT is pelvic angiography followed by embolization at the site of bleeding. Identifying these findings and treating them appropriately may avoid operative intervention.

References

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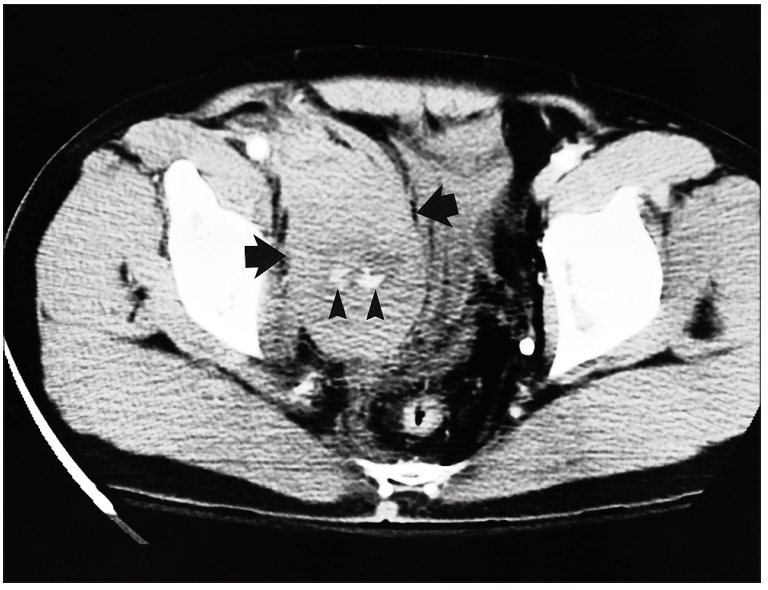

FIG. 1. Computed tomography scan of the pelvis shows a large hematoma (arrows). The area of hyperdensity within the centre of the cavity is contrast extravasation representing active bleeding (arrowheads).

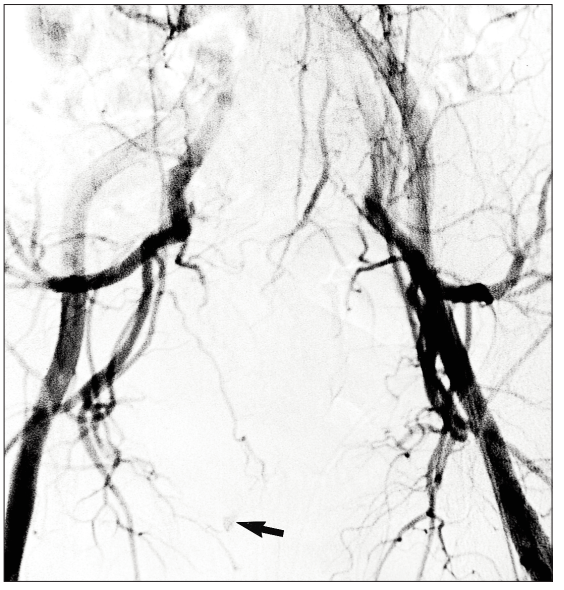

FIG. 2. The angiogram indicates active bleeding from a branch of the right obturator artery, demonstrated by a small pool of contrast (arrow).