

Prospective Diagnosis of Corona Mortis Hemorrhage in Pelvic Trauma

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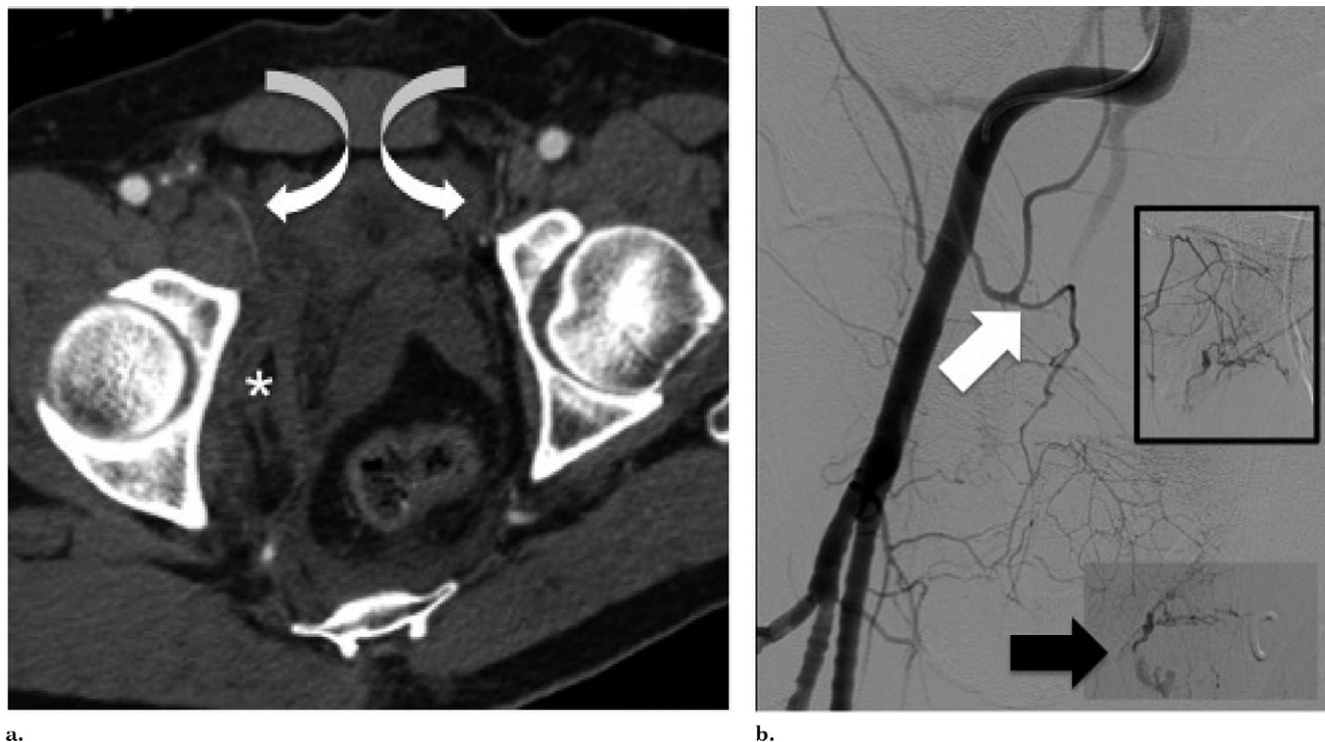


Figure. (a) CT scan shows hematoma over the right obturator canal (asterisk) and bilateral CM (curved arrows). The latter is in the typical location, crossing over the anterior lip of the acetabulum. Pubic rami fractures and diastasis of the right sacroiliac joint were present (not shown). (b) Right external iliac angiogram shows right CM with the aberrant right obturator artery (white arrow) arising from the right inferior epigastric artery. An area of extravasation over the superior pubic rami is noted (black arrow) and seen more clearly with superselective catheterization of the CM artery (inset). Embolization of the aberrant obturator artery was successfully performed (not shown).

Editor:

We read the article, “The Corona Mortis, a Frequent Vascular Variant Susceptible to Blunt Pelvic Trauma: Identification at Routine Multidetector CT,” by Smith et al (1) with much interest. In the article, the authors described the incidence and detection of corona mortis (CM) on multidetector computed tomography (CT) in normal subjects and alluded to the possibility of a positive impact on treatment if CM is detected prospectively in blunt abdominal trauma.

A 55-year-old man involved in a motor vehicle accident sustained a pelvic fracture involving the right superior and inferior pubic rami and diastasis of the right sacroiliac joint. During admission, he presented with several episodes of hypotension, and 64-slice multidetector CT at 2.5-mm collimation was performed. Multidetector CT showed the presence of bilateral CM and hematoma in the right obturator canal (Fig, a) with active contrast extravasation from the aberrant right obturator artery, which arose from the right CM. Based on multidetector CT findings, pelvic embolization via a left common femoral artery approach was performed.

Angiography confirmed the presence of an aberrant

right obturator artery arising from the CM, as a branch distal to the right inferior epigastric artery with active bleed, as per multidetector CT findings (Fig, b). Embolization of the aberrant right obturator artery was performed beyond the origin of the right inferior epigastric artery using gelatin sponge slurry followed by coil embolization (2 mm × 3 mm VortX coil; Boston Scientific, Natick, Massachusetts) achieving complete stasis. In addition, embolization of active extravasation from a small branch arising from the profunda femoris was performed until stasis using a gelatin sponge slurry followed by coil embolization. Angiography of the right internal iliac artery (IIA) showed no focus of arterial bleeding, and prophylactic embolization using a gelatin sponge slurry was performed until stasis, to avoid collateral flow to the site of the hemorrhage. The patient’s condition stabilized after embolization. He was discharged 4 days later.

Our case confirmed the postulation by Smith et al (1) that multidetector CT can detect CM prospectively in patients with blunt abdominal trauma with important treatment implications. First, preoperative knowledge of a CM-related hemorrhage aids in the decision regarding the site of vascular access; for instance, a “crossover” or contralateral approach may facilitate cannulation of the CM, given that the CM arises in close proximity to the common femoral artery. Second, because the CM arises from the external

iliac artery (EIA) and not the IIA, prior knowledge of a CM-related bleed helps direct initial angiography toward the EIA territory rather than the IIA territory, the latter being the traditional approach for pelvic embolization in trauma (2). Identification and embolization of the bleeding vessel are expedited, saving crucial time in the context of severe trauma. From our case, interrogation of the EIA territory in the presence of lower pelvic fractures (acetabulum and rami) would seem to be mandatory, regardless of the findings of IIA angiography. This finding is particularly important given that CM can be seen in 30% of patients (1). Further studies using newer “on-table” angiographic techniques such as cone-beam CT or hybrid CT angiography for detection of CM in trauma would be relevant.

REFERENCES

1. Smith JC, Gregorius JC, Breazeale BH, Watkins GE. The corona mortis, a frequent vascular variant susceptible to blunt pelvic trauma: identification at routine multidetector CT. *J Vasc Interv Radiol* 2009; 20:455–460.
2. Travis T, Monsky WL, London J, et al. Evaluation of short-term and long-term complications after emergent internal iliac artery embolization in patients with pelvic trauma. *J Vasc Interv Radiol* 2008; 19:840–847.