# Traumatic parenchymal laceration in a horseshoe kidney

An 18-year-old man was transferred to the authors' institution after a motor vehicle collision in which he was a restrained front seat passenger. The referring hospital performed contrast-enhanced computed tomography which revealed a previously undiagnosed horseshoe kidney with a laceration of the right lower pole moiety. On transfer, he was pale and mildly tachycardic but normotensive.

Arterial and delayed phase computed tomography was performed to assess for renal pedicle injury. This demonstrated complete transection across the right lower pole moiety of the horseshoe kidney with non-enhancement of the lower pole renal parenchyma (*Figures 1* and *2*). Active contrast extravasation from the right side of the isthmus and inferior aspect of the upper pole moiety was identified along with significant haemoperitoneum.

At the time of scanning, retained contrast from the prior computed tomography was present within the collecting system, opacifying a duplicated system on the right with an apparently intact upper moiety ureter and an avulsed lower moiety ureter, from which contrast extravasation occurred in the excretory phase, consistent with urinoma. The left moiety collecting system had a grossly dilated and clubbed appearance, which was thought to be long-standing. A right nephrectomy was performed via laparotomy. He made a good recovery and was discharged on the seventh postoperative day.

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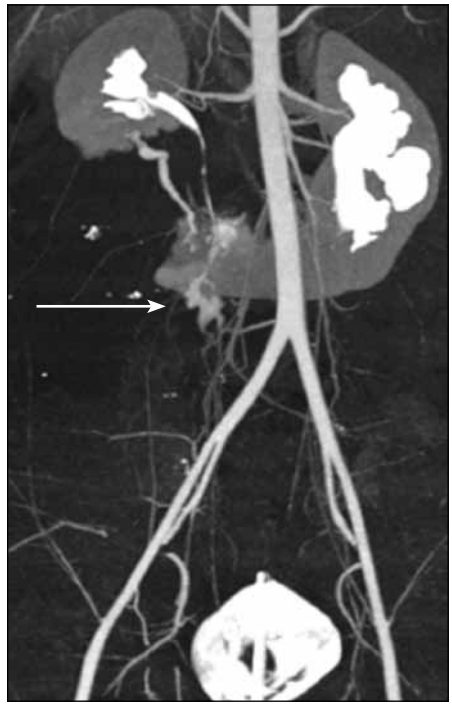
***Figure 1. Coronal reformatted image from arterial phase computed tomography renal angiogram demonstrating complete transection of the right lower pole moiety of a horseshoe kidney with non-enhancing renal parenchyma. A duplicated collecting system is present on the right with avulsion of the lower pole ureter, with evidence of urinoma accumulation in the region of the lacerated right side of isthmus and lower pole moiety (arrow).***



## Discussion

Horseshoe kidney is the most common congenital fusion anomaly, occurring in 1 in every 400 births, twice as commonly in males. The renal parenchyma of a horseshoe kidney is vulnerable to blunt abdominal trauma as a result of its low position and presence of the midline isthmus which is prone to compression across the lower lumbar vertebrae, usually at L4, the maximum point of lordosis. The isthmus varies from a thin fibrous band to a thick mass of functioning parenchyma as in this case,

***Figure 2. Coronal reformatted image showing bone detail demonstrates the vulnerability of the midline isthmus to trauma as it becomes compressed across the lower lumbar vertebrae.***