

Lumbar artery injury

Lumbar artery injury associated with lumbar spine injury can be a cause of shock leading to life-threatening condition.

Injury of a lumbar artery represents a potential cause of massive, life-threatening, retroperitoneal bleeding. It may be associated with lesions of the abdomen, lower limbs, pelvic bones, and spinal column. Fracture of a transverse process may be responsible for direct laceration of a lumbar artery, but formation of a pseudo-aneurysm is an uncommon event. The diagnosis is difficult and often delayed. The treatment of choice is endovascular embolization ¹⁾.

The artery of Adamkiewicz often bifurcates from a lumbar spine or an intercostal artery at the thoracolumbar junction, where spine injury most commonly occurs. However, in emergency transcatheter arterial embolization for lumbar artery injury, hemostasis has priority and blood supply to the Adamkiewicz artery is not frequently confirmed.

Case report

2015

A 67-year-old woman who was injured in a traffic accident was brought to the emergency room. She was conscious and her hemodynamic condition was stable, but she had paraplegia below L1 dermatome.

Contrast-enhanced computed tomography scan of abdomen and pelvis revealed fracture dislocation of L3/4 along with retroperitoneal hematomas. However, there was no evidence of traumatic injury in both thoracic and abdominal cavity. At that time, her blood pressure suddenly decreased to 60/40 mmHg and her mental status deteriorated. Also, her hemoglobin level was 5.4 g/dl. While her hemodynamic condition stabilized with massive fluid resuscitation including blood transfusion, an angiography was immediately performed to look for and embolize site of retroperitoneal hemorrhage. On the angiographic images, there was an active extravasation from ruptured left 3rd lumbar artery, and we performed complete embolization with GELFOAM and coil. Lumbar artery injury after trauma is rare and endovascular treatment is useful in case of hemodynamic instability ²⁾.

A 58-year-old man was pinned under about 300-kg steel container that fell on his back. He presented with hemorrhagic shock. Contrast-enhanced computed tomography demonstrated L1-2 flexion-distraction injury and the left psoas major muscle swelling with extravasation of contrast medium, which suspected lumbar artery injury. Emergency angiography demonstrated the bilateral 2nd lumbar artery injury. Likewise, the Adamkiewicz artery originated from the distal part of the left 2nd lumbar artery. Fortunately, selective angiography of the left 1st lumbar artery depicted collateral circulation to the Adamkiewicz artery. Embolization of the bilateral 2nd lumbar artery was performed and massive hemorrhage was controlled successfully without spinal cord ischemia.

Close attention must be paid to lumbar artery injury in the management of patients with lumbar spine injury. Once lumbar artery injury is found, transcatheter arterial embolization can be the choice of the treatment with careful attention to the Adamkiewicz artery ³⁾.

1)

Domenicucci M, Ramieri A, Lenzi J, Fontana E, Martini S. Pseudo-aneurysm of a lumbar artery after flexion-distraction injury of the thoraco-lumbar spine and surgical realignment: rupture treated by endovascular embolization. *Spine (Phila Pa 1976)*. 2008 Feb 1;33(3):E81-4. doi: 10.1097/BRS.0b013e3181624b93. PubMed PMID: 18303450.

2)

Eun JP, Oh YM. Traumatic lumbar artery rupture after lumbar spinal fracture dislocation causing hypovolemic shock: An endovascular treatment. *Br J Neurosurg*. 2015 Oct;29(5):742-4. doi: 10.3109/02688697.2015.1039490. Epub 2015 May 11. PubMed PMID: 25958959.

3)

Koakutsu T, Aizawa T, Yuzawa H, Itoi E, Kushimoto S. Lumbar artery injury from which the Adamkiewicz artery originated associated with lumbar spine injury: successfully treated by transcatheter arterial embolization. *Eur Spine J*. 2015 Sep 5. [Epub ahead of print] PubMed PMID: 26342704.

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