Lumbar Artery Injury Combined with a Transverse Process Fracture of the Lumbar Spine Presenting with Hypovolemic Shock after a Fall

- A Case Report -

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There are many reports on lumbar artery injuries. However, there are only a few case reports of a lumbar artery injury presenting with hypovolemic shock from either a blunt or penetrating trauma. We described a 47-year-old man with a retroperitoneal hemorrhage secondary to a lumbar artery injury presenting as hypovolemic shock after a 3 m fall.

Key Words: Lumbar artery injury, Hypovolemic shock, Fall

An injury to the lumbar arteries is relatively rare,1-9 Nevertheless, once damaged they can become a significant source of hemorrhage, particularly because these injuries can be easily overlooked. A lumbar artery injury can cause a potentially fatal hemorrhage if not diagnosed and treated promptly. We report a patient with a retroperitoneal hemorrhage secondary to a lumbar artery injury who presented with hypovolemic shock after a 3 m fall.

CASE REPORT

A 47–year–old man was transferred by ambulance after sustaining pain to the lower back and left wrist injury after a 3m fall. The patient was awake and alert and denied any loss of consciousness. He had no medical history of any bleeding disorders. The initial evaluation at a local clinic revealed obvious hemodynamic instability with resuscitation being performed. The patient was then transferred to the authors’ institution 18 hours after his initial injury for definitive care. The vital signs upon arrival to the authors’ institution are as follows: a heart rate of 160 beats per minutes and a systolic blood pressure of 80 mmHg. The laboratory data showed a low hemoglobin level (6.9 g/dl). The patient was intubated and further resuscitated with lactated Ringer’s solution and...
packed red blood cells,

The physical examination revealed abdominal pain and distention, low back pain, and an open fracture of the left wrist. The radiographic survey documented a fracture of the left second, third and fourth lumbar transverse processes (Fig. 1) in addition to a comminuted fracture of the left wrist. A computed tomography (CT) scan of the abdomen and pelvis revealed a retroperitoneal hematoma extending from the diaphragm to the pelvis (Fig. 2).

The patient required an additional 7 units of packed red blood cells before his vital signs had stabilized. Emergent arteriography was performed because he showed signs of continuous hemorrhage. No pelvic arterial hemorrhage was noted. However, arteriography revealed a second lumbar artery bleeding actively on the left (Fig. 3). The lumbar artery was embolized successfully using Gelfoam (Spongostan®, Johnson & Johnson Medi—

Fig. 1. Anteroposterior radiograph of the lumbar spine shows a fracture of the left second, third and fourth lumbar transverse processes (arrows).

Fig. 2. Enhanced abdominopelvic computed tomographic scan at the level of the third lumbar vertebrae shows a large retroperitoneal hematoma.

Fig. 3. Arteriography shows an actively bleeding second lumbar artery (arrow).

Fig. 4. Arteriography shows the cessation of bleeding after embolization (arrow).
Fig. 5. Control computed tomography scan at the level of the third lumbar vertebrae 3 months after embolization shows a markedly decreased retroperitoneal hematoma.

cal Limited, Gargrave, Skipton, UK) with a cessation of the hemorrhage (Fig. 4). After embolization, the tachycardia had resolved, the hemorrhage ceased and no further transfusions were required. He underwent successful closed reduction and percutaneous pinning of his wrist fracture. His transverse processes fractures were treated by wearing a corset for 6 weeks. He was eventually discharged after a 4 week hospital stay. The CT scan performed 3 months after embolization showed a marked decrease in the retroperitoneal hematoma (Fig. 5).

DISCUSSION

An early diagnosis of a lumbar artery injury is important because complications can occur, such as aneurysmal expansion, rupture, hemorrhage, thrombosis, and ischemia. Unfortunately, a diagnosis of a pseudoaneurysm in the lumbar artery can be difficult for many reasons. These include nonspecific symptomatology and signs, an unawareness of this condition, delayed presentation, and neglecting the condition in the differential diagnosis.

The plain radiographs can reveal fractures of the pelvis, lumbar vertebrae, or lower ribs, and can suggest an associated retroperitoneal hematoma. A suspicion of a lumbar artery pseudoaneurysm should be heightened in patients with these fractures who are symptomatic. An enhanced CT scan is useful for diagnosing retroperitoneal bleeding in patients with abdominal or pelvic injuries and suspected vascular injuries. A hemodynamically unstable patient with a large retroperitoneal hematoma and no obvious intra-abdominal injury should undergo emergency arteriography.

A lumbar arterial hemorrhage is a relatively rare cause of retroperitoneal hemorrhage and shock in patients who have fallen from a height. The possibility of a lumbar artery injury must be considered in all such patients.

REFERENCES


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요추 동맥 손상에 대한 여러 보고가 있으나 둔상이나 관통상에 의한 요추 동맥 손상으로 발생한 혈류 감소성 쇼크에 대한 보고는 드물다. 이에 저자들은 3 m 높이에서 낙상하여 2번째 요추 동맥 손상으로 후복막 출혈을 보인 47세 남자 환자를 보고하고자 한다.
색인 단어: 요추 동맥 손상, 혈류 감소성 쇼크, 낙상