Common iliac injury following intervertebral discectomy

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ABSTRACT

A 45 years old female developed hypotension in the postoperative ward, immediately after spinal laminectomy and discectomy (L3/L4). Rapid fluid and blood transfusion could not restore the blood pressure. The patient also developed distension of the lower abdomen. Provisional diagnosis of great vessel injury was made, and the patient was immediately taken to the operation theatre. On laparotomy, there were tears in the left common iliac artery, which were repaired using a long saphenous vein as patch graft. Postoperatively, the patient was ventilated, and dopamine drip was on flow. The patient was weaned from this on the 2nd postoperative day, all peripheral pulses were felt on the lower limb, and the patient survived well.

Key words: Diagnosis and treatment, lumbar discectomy, vascular injury, ventral perforation

How to cite this article: Raghuram M, Krishnan VR, Jaya Kumar D, Senguttuvan K. Common iliac injury following intervertebral discectomy. Indian J Surg 2006;68:173.

Vascular and visceral injuries do occur during discectomy, though they are very rare (0.17%). Vascular injury is a potentially catastrophic complication with a vena cava and iliac vessels. Hopefully, prompt recognition of this complication will lead to repair of the injured vessel, with prevention of a potentially fatal outcome.

CASE REPORT

Under general anesthesia, laparotomy was done through midline incision. Hemopertitoneum was present. The descending colon and sigmoid colon were exposed. A vascular clamp was applied on the aorta, near it’s bifurcation.

There was a tear, with loss of part of it’s wall of about 4 x 3 mm, in the posterolateral aspect of the common iliac artery. The aortic clamp was removed after applying clamps over the left common iliac artery, proximal and distal to the tear. A segment of long saphenous vein was taken and used as a patch graft in the tear. 5 units of blood were transfused.

The patient was ventilated for one day. Blood pressure was maintained for a day, using dopamine drip. The patient was weaned from the ventilator and dopamine drip on the second postoperative day. The left lower limb was viable. The left femoral, politel, posterior tibial, and dorsalis pedis arteries were felt on the second post-operative day, otherwise the patient had an uneventful post-operative period. Abdominal sutures were removed on the 8th post-operative day. The wound healed well. There was no palpable mass in the abdomen.

DISCUSSION

Laminectomy and discectomy is one of the common surgeries performed by the neuro-surgeon and orthopaedic surgeon. Violation of the anterior annulus fibrosus (AAF) and anterior longitudinal ligament (ALL) with resultant vascular and visceral injuries, still occurs with an incidence of 17 per 10,000.[1] The first described vascular complication secondary to discectomy (L4/L5) was an arteriovenous fistula between the right common iliac artery and the interior venacava, as reported by Linton and White in 1945.[3]
The most common vascular injury is said to be a tear in the left common iliac artery. The other vessels injured are the aorta, inferior venacava, iliac vessels, branches of the iliac vessels, and bridging veins. Another complication is the formation of arteriovenous fistula. The most common arteriovenous fistula was in between the common iliac artery and the inferior venacava. The most common level of discectomy involved in arteriovenous fistula is L4/L5. The visceral injuries reported were in the bowel, ureter, bladder and pancreas. The incidence of visceral injury is estimated to be about 3.8/10,000 cases. The majority of the visceral injuries are associated with the L5/S1 discectomy.

The clinical manifestation depends on the nature of vascular injury. The perforation of AAL and ALL may not be noted by the surgeon, unless there is a resistance and give away. When blood is briskly coming from the disc space, sudden hypotension occurs.

The sign of hemorrhage may be delayed. Hypotension may not occur unless there is 30-40% loss of blood volume. Bleeding into the retroperitoneal space and peritoneal cavity may not be obvious to the surgeon, leading to delay in diagnosis. If the vein is injured, then the resulting hematoma or abdominal viscera tamponades the opening of the vein. Hypotension may be delayed until the patient is transferred to the recovery room. Abdominal distension and discomfort may occur later. Nausea and vomiting may occur. An absent pulse, pallor, decreased temperature in the lower extremity, and swelling in the lower extremity may be present.

Communication between surgeons, the anesthesiologist and the recovery room staff about the signs and symptoms associated with this complication, may help in detecting this injury at the earliest.

In arteriovenous fistula, the symptoms may be delayed. There may be a pulsating swelling in the abdomen, which may rupture later. There may be widening of pulse pressure, tachycardia, increased venous pressure and total blood volume, leading to high output cardiac failure and cardiomegaly. Immediate laparotomy and exploration of great vessels have been recommended, when “brisk hemorrhage” occurs from the disc space, or when fluid and blood transfusion does not restore the blood pressure.

For those cases in which the diagnosis is in question and the patient is stable, investigations like abdominal ultrasonography, CT scan, or angiography may guide for exploration.

Early recognition and early surgery result in low mortality-24%. Late recognition results in high mortality-50%. When no operation was performed, the mortality was nearly 100%. This very clearly denotes that early recognition and early intervention is very essential.

Including this complication (vascular injury) in the informed consent for discectomy operations, creates the awareness in the surgeon’s mind, so that early detection of this complication may be possible.

ACKNOWLEDGMENT

We Sincerely thank Prof. Chandrasekar, M.S, M.Ch, FRCS. Dr. Jaiganesh, M.S, M.Ch, Dr. Mahendran, M.S, M.Ch and Dr. Vasantha, M.D, D.A. for the timely help.

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