Failed-Back Syndrome as a Complication of Epidural Free Fat Grafts

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Peridural fibrosis is responsible for 3%-5% lumbar disk surgery failures and may be a cause of recurrent back and leg pain after lumbar decompression and discectomy. Langenskiold and Kiviliuoto first described the use of autologous free fat grafts between the dural sac and posterior elements of the spine to prevent the formation of peridural scar tissue. This article reports a severe complication related to this technique.

CASE REPORT

A 43-year-old woman presented with back and radicular leg pain on the left side of 19 months' duration. Symptoms and signs were significant for lateral recess stenosis with entrapment of the left fifth lumbar-nerve root into the radicular canal between the fifth lumbar and first sacral vertebrae.

Preoperative examination showed a positive straight leg raise test, sensory deficit, and partial weakness in dorsiflexion of the feet. Diagnosis was confirmed by radiographs and computed tomography (CT) (Figure 1). Three months of conservative care did not improve symptoms.

Lumbar hemilaminectomy with enlargement of the radicular canal and nerve root decompression was performed. An autologous free fat graft retrieved from a subcutaneous layer of surgical wound was placed over the exposed dural sac without suture fixation. The globular fat graft was 30x25 mm.

On postoperative day 1, the symptoms were relieved and neurologic deficits began to resolve. On postoperative day 3, back and leg pain returned with weakness in plantar flexion of the left foot and hypoesthesia in the perineal area. Magnetic resonance imaging showed a large soft-tissue mass with the same signal intensity of the fat occupying the laminotomy defect and extending into the vertebral canal, compressing the dural sac (Figure 2). On postoperative day 4, the patient underwent reoperation, which revealed the large free fat graft prolapsed through the laminotomy defect (Figure 3).

The graft was excised, achieving dural sac decompression. The patient had complete recovery of motor and sensory function 3 weeks postoperatively.

DISCUSSION

A variety of biologic and nonbiologic materials have been studied to minimize peridural fibrosis including autologous fat grafts,7-9 Surgicel,9 sodium hyaluronate,10 carbohydrate polymer,6 and ADCON-L anti-adhesion barrier gel.5 The use of free fat graft is more econom-
Figure 3: Intraoperative photograph showing a bulky free fat graft above the laminotomy defect.

ic than other methods offering similar guarantees about the inhibition of peridural scar tissue formation. This technique has been used by many authors with low rates of complications.4

Based on 484 lumbar disk surgeries in which free fat grafts were used to prevent scarring tissue, the only reported complication was related to the displacement of the fat graft into the spinal canal with dural sac compression. It may be safer to suture the fat graft above the laminotomy defect to prevent its migration related to the contraction of the paraspinal muscles and size.11 Magnetic resonance imaging is the procedure of choice to confirm the diagnosis, and reoperation must be performed immediately.

REFERENCES