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Communication about incisional hernia through an iliac crest bone harvest site after reoperative cervical anterior fusion☆

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ABSTRACT

We report the case of an incisional hernia through the wound made for iliac bone harvest for re-operative cervical fusion surgery. A 50-year old woman underwent revision anterior cervical discectomy and fusion (ACDF) using a poly ether ether ketone cage and titanium alloy locking plate for adjacent segment disease after prior ACDF. As an autograft, iliac cancellous bone was again harvested from the left iliac crest, using the prior surgical scar. Although only cancellous bone from the medial side of the iliac bone was collected, leaving the iliac crest intact, she complained of a protrusion from the left lower abdomen, of which diagnosis was an incisional hernia through the iliac bone harvest site. Formation of an incisional hernia at the iliac bone harvest site is a possible complication after spine surgery. Care must be taken for oblique abdominal muscle repair around the iliac bone harvest site, particularly in re-operative cases.

1. Introduction

An incisional hernia occurs through a previously made incision in the abdominal wall, i.e. the scar left from a previous surgical operation [1]. The abdominal wall layers are typically re-approximated with sutures. Sometimes this closure simply comes apart early on, fails to heal properly in the first place, or comes apart over time. An incisional hernia through an iliac bone harvest site is a rare complication after spinal surgery [2].

Herein we report the case of an incisional hernia through the wound made for iliac bone harvest for re-operative cervical fusion surgery.

2. Case presentation

A 50-year old woman presented with decreased coordination of her hands and bilateral gait disturbance. Physical exam demonstrated spastic gait and the need for a cane to support ambulation. Neurological examination revealed bilateral lower extremity hyperreflexia, intrinsic weakness of both hands, and decreased sensation on pin-prick test of the bilateral lower extremities, all of which were suggestive of cervical myelopathy. She had a history of C5/6 anterior cervical discectomy and fusion (ACDF) for myelopathy, at which time a bone graft was harvested from the left iliac crest. A flexion-extension functional X-ray showed hypermobility at the C4/5 intervertebral level (Fig. 1B, C). Magnetic resonance imaging and computed tomography-myelogram showed cord compression by a protruded disk and the ligamentum flavum at the C6/7 intervertebral level (Fig. 1D, E). She was thus diagnosed with adjacent segment disease after C5/6 ACDF, and underwent C4/5 and 6/7 ACDF using a poly ether ether ketone (PEEK) cage and titanium alloy locking plate (Fig. 1F). As an autograft, iliac cancellous bone was again harvested from the left iliac crest, using the prior surgical scar. Only cancellous bone from the medial side of the iliac bone was collected, leaving the iliac crest intact. The perioperative course was uneventful. She showed rapid and marked recovery of neurological function. She became ambulatory without assistance.

On the first postoperative outpatient examination 3 weeks after the

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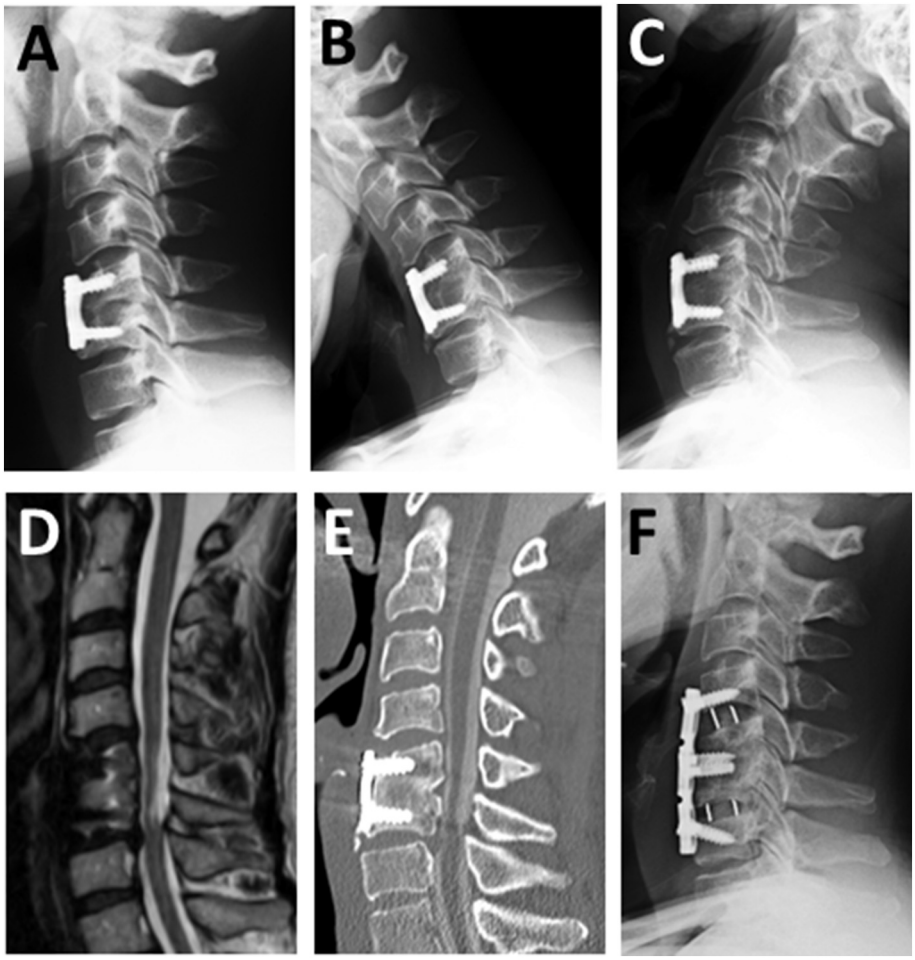

Fig. 1. Pre- and post-revision surgery images. Dynamic radiograph (A-C) showed posterior slip of C4 vertebral body on extension (C). MRI(D) and CT myelogram (E) before revision surgery revealed antero-posterior spinal cord compression at C6-7. Therefore we performed C4-5 and 6-7 anterior discectomy and fusion surgery (F).

Fig. 2. Appearance of incisional hernia after revision surgery. Protrusion of left lower abdomen was apparent at the standing position.

revision surgery, she complained of a protrusion from the left lower abdomen (Fig. 2). The protrusion decreased upon lying supine and increased upon standing. Palpation revealed that there was continuity between the protrusion and left iliac crest surgical scar. After consultation with the general surgery department, an incisional hernia through the iliac bone harvest site was diagnosed. The protrusion gradually was conservatively observed because the protrusion gradually attenuated during one year follow-up period.

3. Discussion

The present case describes an incisional hernia from an iliac bone harvest site, which is a rare complication after spine surgery. Most of the previously reported cases are related to a large iliac bone defect due to the harvest of large bone grafts [2–6]. In the present case, the size of the iliac bone graft was very small because we used a PEEK cage as the interbody graft; therefore, only a small amount of cancellous bone was needed to fill the cage. We collected cancellous bone from only the medial side of the iliac bone, leaving the iliac crest intact.

One possible reason for the occurrence of an incisional hernia in the present case is the fact that this was the second time the tissue planes over the iliac crest had been violated. It is possible that the insertion of the oblique abdominal muscle to the iliac crest weakened in the setting of scar formation. Despite the placement of careful sutures to close the defect, weak scar tissue at the bone harvest site may have led to dehiscence [7].

Although the reoperative nature of the surgery in the present case is theorized to be the cause of hernia formation, none of the cases of incisional hernia at the iliac bone harvest site in the literature occurred after re-operative surgery.

4. Conclusion

Formation of an incisional hernia at the iliac bone harvest site is a possible complication after spine surgery. Care must be taken for oblique abdominal muscle repair around the iliac bone harvest site, particularly in re-operative cases. More rigorous suture of the oblique

abdominal muscle insertion to the iliac crest with anchor suture and/or drilling to the iliac crest might be a possible prevention for this complication.

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