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Beyond the graft: A rare iliac crest hernia case report

Vijayendra Kedage, Ayshath Nejima, Manasa Ubarale, K. Rajgopal Shenoy

Abstract

Iliac crest bone grafts are a cornerstone in reconstructive and orthopedic surgery due to their superior biological properties. Yet they carry a risk of rare complications, such as herniation at the donor site, with an incidence of 5%–9%. This report highlights an uncommon case of herniation through a bone graft donor site in a 67-year-old male, focusing on its clinical and surgical management. The patient presented with progressively enlarging, reducible lumbar swelling following two iliac crest bone grafts performed during revision surgeries for total hip replacement complications. Imaging revealed a posterior abdominal wall defect with herniation of abdominal contents. The surgical intervention involved an open hernioplasty with mesh repair, leading to an uneventful recovery and no recurrence. This case underscores the importance of meticulous surgical technique and early recognition of donor site complications. Tension-free hernioplasty is effective in managing such cases, while preventive measures, including preserving the iliac crest structure and considering alternative grafting materials, may mitigate risk.

Keywords:

Bone graft, hernioplasty, iliac crest hernia

Background

Bone grafts harvested from the iliac crest are widely utilized for reconstructive and orthopedic procedures due to their superior biological properties.^[1] Although complications are uncommon, herniation at the graft site is a rare yet impactful condition with an incidence of approximately 5%–9%.^[2] This report presents an unusual case of herniation through a bone graft donor site, emphasizing its clinical and surgical management.

Case Report

A 67-year-old male presented with a 1-year history of left lumbar swelling. The patient had undergone a total hip replacement in 2007, followed by a revision procedure a decade later due to pain and a detected lytic lesion in the proximal femur. Bone grafting

from the left iliac crest was performed during this surgery, and histopathology revealed changes associated with the prosthesis.

Six months after the revision surgery, the patient sustained a periprosthetic fracture and underwent open reduction with internal fixation. Another iliac crest bone graft was harvested during this procedure. Subsequently, the patient noticed a reducible swelling over the left lumbar region, which progressively enlarged.

Clinical findings

Physical examination revealed a 10 × 8 cm reducible swelling in the left lumbar area, with an evident cough impulse and no signs of infection.

Imaging

Contrast-enhanced computed tomography (CECT) imaging showed:

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Department of General Surgery, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India

Address for correspondence:

Dr. Ayshath Nejima,
Department of General Surgery, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal 576104, Karnataka, India.
E-mail: ayshath.kmcmpl2022@learner.manipal.edu

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- A posterior abdominal wall defect measuring 6.2 cm in the left lumbar region [Figure 1].
- Herniation of descending colon and omental fat through the inferior lumbar triangle [Figure 2].
- Bone defects corresponding to prior graft harvesting sites [Figure 3].

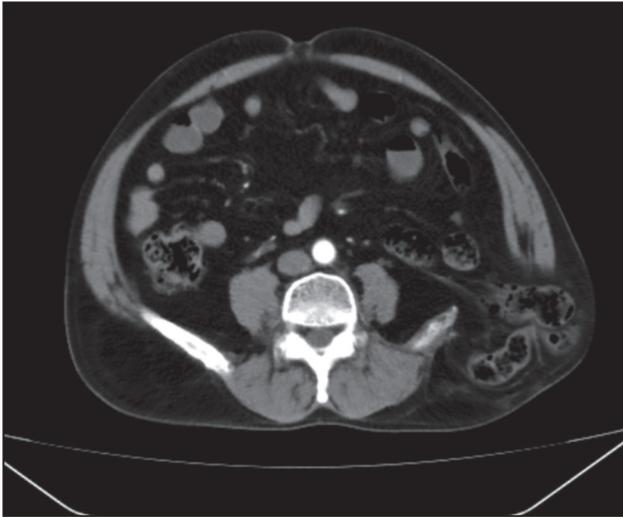


Figure 1: Axial view depicting herniated bowel loops



Figure 2: Coronal view depicting herniated bowel loops

Surgical management

An open hernioplasty was performed using a transverse lumbar incision. A 6 cm defect was identified between the external oblique and latissimus dorsi muscles. A 15 × 12 cm polypropylene mesh was placed in the pre-peritoneal plane and anchored transfascially. The patient's postoperative recovery was uneventful. An abdominal binder was put post-operatively to prevent recurrence and the patient was counseled to avoid heavy weight lifting. The patient was lost to follow-up after 1 year.

Discussion

Autogenous bone grafting from the iliac crest is a reliable method for managing skeletal defects but is associated with rare complications like herniation.^[3] Since its first description in 1945, fewer than 40 cases of iliac crest graft site hernias have been reported in the literature.^[4] Risk factors for this condition include advanced age, obesity, hypertension, and the harvesting of large or full-thickness grafts.^[2,3] Preserving the inner table and middle portions of the iliac crest may reduce the risk of herniation.^[5] Patients often present with a reducible swelling, pain, or discomfort.^[6] The hernia sac may contain retroperitoneal fat, bowel loops, or other abdominal contents.^[7] Computed tomography (CT) imaging is the diagnostic modality of choice, as it provides detailed visualization of the defect, hernial contents, and surrounding musculature.^[8] Prabhu *et al.*^[2] reported a 73-year-old male who developed cecum herniation, confirmed by CT, within 11 days of



Figure 3: 3D reconstruction showing areas of iliac crest bone graft harvesting sites with defects

surgery—the shortest onset. Pande *et al.*^[5] described a 65-year-old obese female presenting with swelling and bowel loops on CT, occurring 4 months postoperatively. Gawhale *et al.*^[6] reported an 80-year-old female who experienced symptoms 10 months after surgery, with CT revealing a full-thickness iliac defect and bowel herniation. De Castro *et al.*^[8] reported an incisional hernia with transosseous repair, confirmed via CT, presenting 3 months after iliac crest grafting. In our case, the patient presented with lumbar swelling appearing 1 year after iliac graft harvesting, with CECT imaging showing a 6.2 cm posterior abdominal wall defect and herniation of the descending colon. These cases emphasize the variability in onset and the diagnostic value of CT imaging. Repair typically involves tension-free hernioplasty with mesh placement, either through an open or laparoscopic approach.^[5,8] Ensuring proper closure of the periosteum and musculature during the initial surgery may help prevent herniation.^[2,3] Prabhu *et al.*^[2] and De Castro *et al.*^[8] performed mesh repairs with no recurrence. Pande *et al.*^[5] used titanium mesh but observed recurrence after 3 years. Gawhale *et al.*^[6] patient refused further surgical repair. In our case, open hernioplasty with a 15 × 12 cm polypropylene mesh placed in the pre-peritoneal plane but the patient was lost to follow-up after 1 year. This analysis highlights the diversity of hernia presentations post-bone grafting and emphasizes the critical role of imaging and individualized surgical techniques. The comparison underscores how patient factors and surgical choices influence outcomes. Effective management requires a patient-centered approach, careful surgical planning, and vigilant follow-up to minimize recurrence and improve long-term results.

Conclusion

Iliac crest graft site hernias are rare complications that require a high index of suspicion for diagnosis. Prevention through meticulous surgical technique and appropriate selection of grafting materials, such as bioceramics or synthetic substitutes, is essential. Early surgical repair ensures optimal outcomes and reduces the risk of complications such as incarceration or strangulation.

Author contributions

We certify that we have participated sufficiently in the intellectual content, conception and design of this work or the analysis and interpretation of the data (when applicable), as well as the writing of the manuscript, to

take public responsibility for it and have agreed to have our name listed as a contributor.

Ethical policy and institutional review board statement

Not applicable.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Data availability statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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Nil.

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