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Herniation from Right Iliac Crest Secondary to Autogenous Bone Grafting: A Rare Case Presentation

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ABSTRACT: Development of Hernia after iliac bone harvesting was described for the first time by Oldfield in 1945. Hernia is one of the complications that patients undergoing iliac crest bone harvesting for grafts may develop, occurance being 5-9%. These hernias usually remain asymptomatic but can present with pain as the most relevant symptom when they occur. Abdominal Ultrasonography or Computed Tomography scan of the abdomen and pelvis can help the surgeon reach a diagnosis by delineating the defect of the iliac crest. The tension-free mesh repair can be performed with a transabdominal, retroperitoneal or laparoscopic approach. Hernia developed through an iliac crest defect following bone graft harvesting is a not only a rare but one of the major complication. Attention should be paid while harvesting bone graft so that this complication can be avoided.

KEY WORDS: Bone grafting, Hernia, Iliac crest.

INTRODUCTION

The iliac crest is a most common donor site for autogenous bone grafts. Reported complications include arterial injury, nerve injury, ureteral injury, ileus, hematoma, pelvic instability, fracture, and herniation.[1] Lumbar hernias occur within the superior and inferior lumbar triangle. Both of the triangles are areas of relatively weakness in the postero-lateral abdominal wall. Traumatic lumbar hernias located on the inferior lumbar triangle i.e. Petit's triangle are usually associated with iliac bone graft donor site. The diagnosis of this rare presentation of abdominal hernia needs a high index of clinical suspicion. Surgical repair must be done against the possibility of incarceration (25%) and strangulation (10%).[2] We report a case of iliolumbar incisional hernia presented in a 59 year-old female two years after an iliac bone harvesting.

CASE SUMMARY

A 59-years-old woman with hypertension was presented with a swelling in the right flank region, which had been gradually increasing in size. She was operated for excision of Giant Cell Tumour on right humerus and bone grafting was done, which was taken from right iliac crest in year 2020. The swelling which was easily reduced during the physical examination caused pain but was not creating any symptoms of obstruction.

A hernia originating from the inferior right lumbar triangle was revealed through the previous bone grafting incision over the right flank region. A 12X10 cm defect extending from the right iliac crest to the subcostal region superiorly and from the lateral border of the anterior rectus sheath to the paraspinal muscles posteriorly was noted (figure 1). There was an evidence of bowel herniation lateral to the right iliac crest. X-ray of pelvis showed a large full-thickness defect of the right iliac crest bone grafting site (Figure 2). The defect as seen in intra operative picture (figure 3) was repaired using a 15X15cm expanded polytetrafluorene ethylene mesh subsequently, the musculoaponeurotic tissue was re-approximated over the mesh . There were no postoperative complications. The patient was discharged on the fifth day. She was on regular followup. At 1 years of follow up, she did not have any evidence of recurrence at the operative site nor any other complaint.

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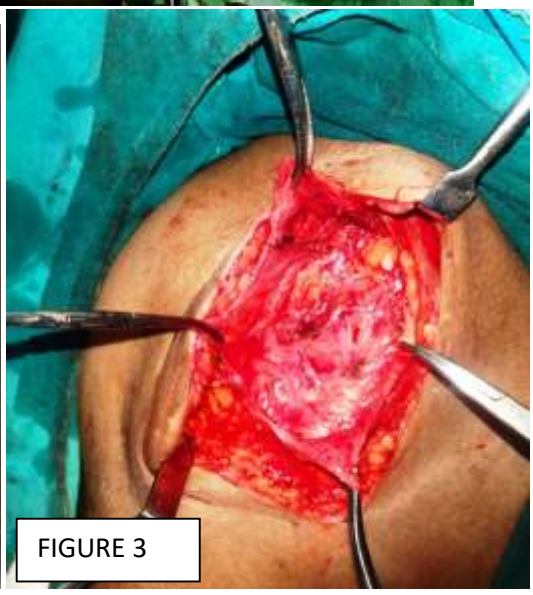

FIGURE 1. Preoperative Clinical Photo
FIGURE 2. Plain radiographs show gas above a bony defect in the Right iliac crest.
FIGURE 3. Intra Operative Clinical Picture

DISCUSSION

Development of Hernia after iliac bone harvesting was described for the first time by Oldfield in 1945.[3] The occurance of lumbar hernia development after iliac crest bone harvesting is 5-9%.[4] Hernia is one of the complications that patients undergoing iliac crest bone harvesting for grafts may develop. Hernias can be found emerging through the potential defect created between the iliac bone and the muscles inserted on it. Hence they must therefore be considered as true incisional hernias [5,6] rather than lumbar hernias, although their location corresponds with an anatomical site known as Petit triangle, where lumbar congenital hernias occur. These hernias usually remain asymptomatic but can present with pain as the most relevant symptom when they occur. Incarceration or strangulation are extremely rare complications. Patients can develop symptoms from within a few days of the primary bone graft

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harvest to many years after the surgery. The lumbar area is a space bordered by the iliac crest inferiorly, the lower edge of the twelfth rib superiorly, the erector spinae muscle and the lumbar spinous processes medially, and the external oblique muscle laterally. This area is divided into two compartments i.e. superior traingle (Grynfeltt hernia) and inferior triangle (Petit hernia).[7] The superior lumbar triangle is bordered superiorly by the twelfth rib, medially by quadrates lumborum muscle and laterally by the internal oblique muscle. The inferior lumbar triangle, is bounded by the latissimus dorsi posteriorly, the external oblique anteriorly, and the iliac crest inferiorly, which is the base of the triangle. The floor of the triangle is the internal oblique muscle.

In our patient, the hernia was located in the inferior lumbar triangle. Abdominal Ultrasonography or Computed tomography scan of the abdomen and pelvis can help the surgeon reach a diagnosis by delineating the defect of the iliac crest, defining the fascial planes, and displaying the contents of the herniated sac.[8] Repairing such hernias can be done by patching up the soft tissue, or by reinforcing the soft tissue with fascial flaps, bone transfer or mesh. The tension-free mesh repair can be performed with a transabdominal, retroperitoneal or laparoscopic approach. Attaching the mesh to the iliac bone is facilitated by corkscrew anchors or suture bone anchors. Another technique of soft tissue transfer involves using the fascia transversalis, abdominal musculature, and tensor fascia lata. Alternatively the anterior superior iliac spine can be moved inferiorly and posteriorly to cover the defect in the iliac bone.[7]We chose to repair the hernia of the iliac crest defect using an extraperitoneal approach with an onlay mesh.

CONCLUSION

Hernia developed through an iliac crest defect following bone graft harvesting is a not only a rare but one of the major complication. Attention should be paid while harvesting bone graft so that this complication can be avoided. Surgical interventions are required to prevent further hernia related complications.

Informed consent

Written informed consent was obtained from patient who participated in this study.

Conflict of interest

No conflict of interest was declared by the authors.

Financial disclosure

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