

## Case Report

# Transiliac hernia: a case report with short review of literature

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### ABSTRACT

The Iliac crest is considered gold standard among all types of bone graft available-natural or synthetic. There are many reported complications of bone graft harvestation but one of the rarely reported ones is hernia from the donor site. Not more than 15-20 cases have been reported in the last 10 years. We hereby report a case of hernia from the iliac crest used to harvest bone graft for a case of Femur shaft non-union and also review the relevant literature. The risk factors for this particular complication to occur are morbid obesity, female sex and old age. Bone graft substitutes should therefore be strongly considered in these patients. When harvested, the periosteum and soft tissue should be meticulously closed and repaired. CT scan is a fairly conclusive investigation for diagnosis.

**Keywords:** Iliac crest, Hernia, Bone graft, Transiliac

### INTRODUCTION

The Iliac crest is considered gold standard among all types of bone graft available-natural or synthetic because of its osteoconductive, osteoinductive and osteogenic properties besides safe approach and abundant supply.<sup>1</sup> The complications of the procedure are reported are 10% minor and 5.8% major<sup>2</sup> and 19.37% as per a more recent metaanalysis<sup>3</sup> but one of the rarely reported ones is hernia from the donor site. Not more than 15-20 cases have been reported in the last 10 years.<sup>4</sup> We hereby report a case of hernia from the iliac crest site used to harvest bone graft for a case of femur shaft non-union.

### CASE REPORT

A 58 years old female suffered a fracture of the femur shaft and was treated with osteosynthesis with a dynamic compression plate 8 and half years back. The weight of the patient was 110 kilograms and height 158 cm. The body mass index was 44.06 which is classified as morbid obesity.<sup>5</sup> The fracture did not show any signs of union even after a year and subsequently the implant failed. The

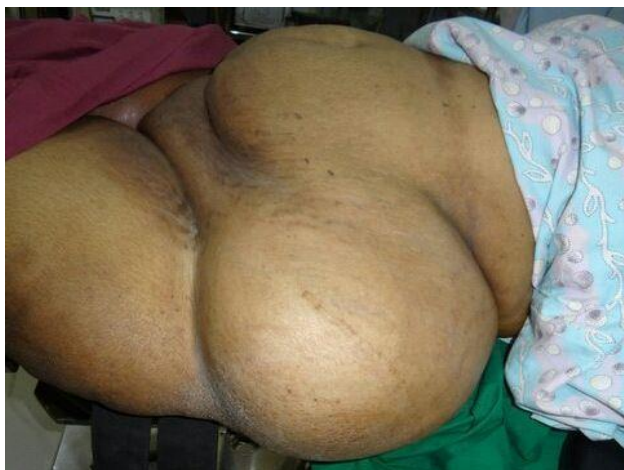
non-union of the fracture was then treated with intramedullary interlocking femur nail and bone grafting using the autologous iliac crest from the same side. The follow up of the patient revealed good union and patient also started walking full weight bearing with good range of motion.

After eight years of the second surgery, patient started complaining of swelling at the site of donor iliac crest. The swelling was gradually increasing in size with soft doughy consistency with positive cough impulse. Bowel sounds could be auscultated over the swelling which further lead to the suspicion of hernia. The patient however did not show any signs or symptoms of strangulation or obstruction. Figure 1 shows the clinical presentation of the swelling at the iliac crest. A CT scan was done to confirm the diagnosis which showed herniated bowel in the swelling (Figure 2).

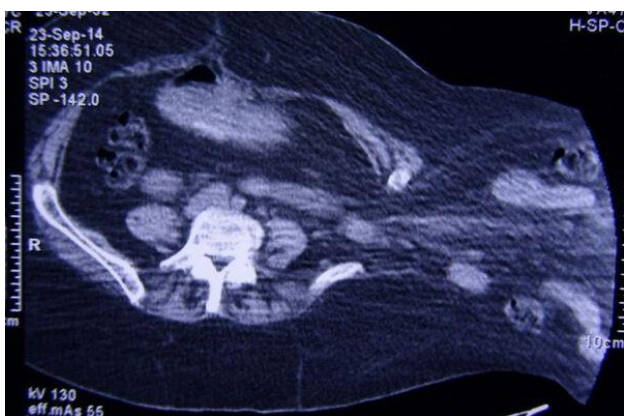
The patient was operated for hernia reduction and repair. Intraoperative findings included a hernia sac that was formed by thinned out internal and external oblique muscles with the peritoneum. The contents of the sac

were transverse colon with omentum (Figure 3). Reduction was done and repair was accomplished with a surgical mesh. The radiograph of the pelvis shows the defect created after harvesting the iliac crest (Figure 4).

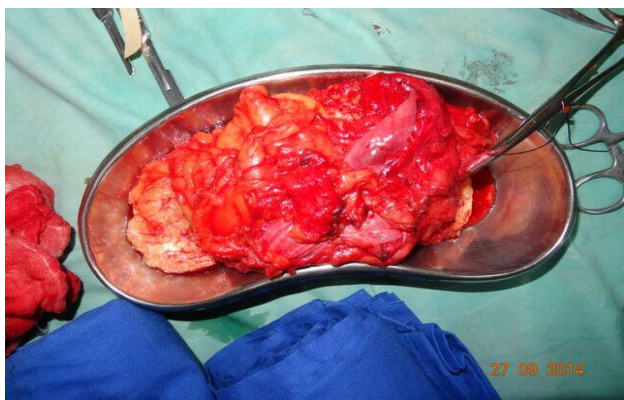
One month follow-up of the patient after this surgery reveals no complaints and has been uneventful.



**Figure 1: Clinical presentation of the patient.**



**Figure 2: CT scan showing transiliac hernia.**



**Figure 3: Content of the hernial sac excised intraoperatively.**



**Figure 4: X-ray of the pelvis after bone graft harvest.**

## DISCUSSION

The first case of hernia following iliac crest bone graft harvestation was reported way back in 1945.<sup>6</sup> The complication being rare presents difficulty in calculation of the true incidence although in one series the incidence has been shown to be as high as five percent.<sup>7</sup> The iliac osseous defect provides a rigid ring against which repeated elevation in abdominal pressure can result in disruption of soft tissues and herniation of the abdominal contents.<sup>8</sup> In the cases that have been reported, the common risk factors appear to be female sex, morbid obesity and old age. The onset of symptoms ranges from twenty-four days<sup>9</sup> to thirty years<sup>10</sup> postoperatively. Our patient noticed symptoms eight years postoperatively.

The symptoms include swelling over the iliac crest which if presents early can be confused with postoperative hematoma and this possibility of misdiagnosis warrants a thorough clinical and radiological work-up.<sup>4</sup> Other signs and symptoms are similar to those of hernia as per the severity of the case which may range from non-strangulated to strangulated and obstructed cases. These clinical features include severe colicky pain, vomiting, cough impulse, constipation and obstipation.<sup>11</sup> Also bowel sounds can be auscultated over the swelling as in our patient. Differential diagnoses include tissue tumor, hematoma, muscle, hernia, and renal tumor.<sup>4,12</sup>

The content of the sac could be the liver,<sup>13</sup> omentum, the large bowel or the small bowel.<sup>14</sup>

CT scan appears to be the investigation of choice to visualize the size, content and bony defect. It can also delineate fascial planes distorted in the previous surgeries. The size of the bony defect can also be measured exactly.<sup>15</sup> The usefulness of CT scan has been reiterated in all the case reports of transiliac hernia previously published. The management as has been stated in almost all the papers is reduction of the hernia followed by repair with polypropylene mesh and may be considered the treatment of choice for such cases.<sup>8,7,15</sup> although certain other methods have also been used like soft tissue repair using advancement of various tissues, fascial flaps and tissue flaps. Another method involves

the modification of the iliac crest in order to remove the notch.<sup>9</sup>

The suggestion to prevent the complication includes identifying the high risk factors which includes female sex and morbid obesity. Consideration should be given to the bone graft substitutes in these patients rather than harvesting iliac crest. When harvested, efforts should be taken to preserve the inner or the outer table which does not allow a defect to develop hernia and also makes repair easy in case the complication arises. The periosteum should be opposed, sutured<sup>16</sup> and soft tissue care taken while harvesting the graft. Some authors recommend primary repair with polypropylene mesh if defect is more than four cm<sup>2</sup>.<sup>7</sup>

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