Management of a paediatric nonunion femoral neck fracture with non-vascularized fibular graft: A case report

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INTRODUCTION:

Nonunion of paediatric femoral neck fracture is not uncommon, with the reported incidence of 6-10% in all non-neglected paediatric hip fracture.[1] At present, there are limited level of evidence on the best treatment modality for nonunion femoral neck fracture with concurrent avascular necrosis. We would like to share our experience by presenting a case of nonunion paediatric femoral neck fracture treated with non-vascularized fibular graft. We managed to obtain solid union and reasonably satisfactory functional outcome.

REPORT:

A 13-year-old boy presented to our centre with Delbet II right femoral neck nonunion 18 months post trauma. His neck of femur fracture was initially treated with cannulated screw fixation, but was complicated with infection. Upon presentation, he had nonunion of Delbet II right femoral neck fracture, shortened femoral neck due to bone resorption, avascular necrosis Ratliff 1 involving the whole femoral head, and loosening of screws. He experienced pain whenever he flexed his right hip to 90 degrees. He underwent removal of distal screw and single non-vascularized fibular graft insertion at 18 months post trauma. Unfortunately, the nonunion of femoral head failed to unite. At 24 months post trauma, we decided to remove the proximal screw and insert another fibular graft. He was on non-weight bearing for 2 months. Inferior part of neck of femur showed signs of union 2 months post operation as evidenced by bridging trabeculae across the nonunion site and pain-free hip flexion. These findings were confirmed by post-operative MRI. Solid union was achieved 6 months post operation. Final clinical outcome revealed a Trendelenburg gait, limb length discrepancy of 3 cm, and limited abduction and internal rotation. Despite some compromised range of motion, he was happy that he could have pain free ambulation and there was complete range of motions for kneeling and sitting cross-legged. Our aim to achieve solid union and pain free ambulation has achieved.

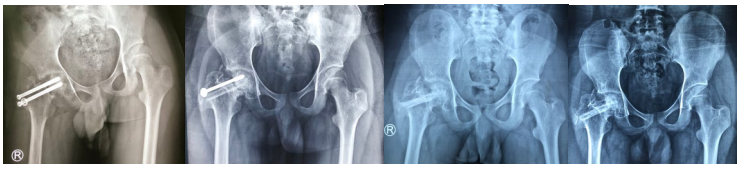

Figure 1(a): Pelvis x ray at presentation. (b) 8 months post single fibular strut graft. (c) 2 months post second fibular strut graft showed inferior neck union. (d) 6 months post second fibular strut graft.

Figure 2 (a): MRI 2 months post second fibular strut graft showed inferior neck union and Ratliff 1 AVN. (b) Clinical picture 2 months post second fibular strut graft. (c) Clinical picture 6 months post second fibular strut graft.

CONCLUSION:

Fibular strut graft as a standalone surgery is a technically simple option for nonunion paediatric femoral neck fracture with Ratliff 1.

REFERENCES:

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