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## One stage surgical correction of a hypertrophic non-union fracture femur with implant failure and a severe sagittal plane deformity of 90 degree: A case report

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**Introduction:** The femur shaft is one of the most commonly fractured long bones in children. A relatively infrequent complication is non-union which can result in shortening, angular malalignment or rotational deformities. The factors that cause non-union may be considered as those inherent in the fracture, patient (host) factors and surgical (treatment) factors. Unstable fixation, excessive iatrogenic stripping of the periosteum, infection, malnutrition, chronic alcoholism and injudicious interventions by traditional bonesetters are other risk factors. Non-union with severe angulation following surgery of the midshaft femur fractures presents with a twin problem of cosmetic and functional derangements. It is a challenge to the Surgeon, especially in the presence of a precarious soft tissue envelop from poorly managed concomitant open injuries. Deep soft tissue scarring are other sources of management challenge for the Surgeon.

**Case Report:** A 13-year old Indian boy presented to us with a 1-year history of severe deformity of his midshaft right thigh and difficulty in walking. He was involved in a trauma at a construction building site when a heavy block of stone fell on his right thigh. He sustained an open injury to his right thigh and was treated with (rush) nailing for his midshaft femur fracture of right femur. On examination, he had a short limb of right lower limb with an anterior angular deformity of the right thigh. There was a surgical scar of about 15 cm and a non-surgical scar of 7 cm present over anterior aspect the right thigh. Gross muscle wasting of 2 cm was noted on thigh component. Clinically there was no abnormal mobility and non-united fracture of the midshaft femur with anterior angulations of the thigh measuring 90 degrees. There was a limb length discrepancy of 12 cm on right side.

**Investigations:** Radiograph of right thigh in AP & Lateral view was done, which showed feature of non-union fracture of right femur with fracture gap, sclerosis of fracture ends, rounding of fracture end, obliteration of medullary cavity and osteoporosis of fracture fragments.

**Treatment:** The first stage conservative management comprised of upper tibial skeletal traction using 5 kg weight gradually increasing to 9 kg where the limb were kept on Bohler Braun splint for 4 weeks. The operative stage: An open reduction, implant removal, freshening of sclerosed ends and internal fixation with inter locking nailing was done. At 16 weeks post operatively, there was clinico-radiologic evidence of union and the patient was allowed to progress on weight bearing as tolerated.

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