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Shepherd Crook Deformity with Left Femur Shaft Fracture in Fibrous Dysplasia Treated with Locking Compression Plate - A Case Report

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Abstract: ***Fibrous dysplasia (FD) is a rare benign bone disorder characterized by abnormal fibrous tissue replacing normal bone, often leading to deformities and fractures. We present a case of a 40 - year - old female with a mid - shaft femur fracture and proximal femoral shepherd's crook deformity following a fall. Diagnosis was confirmed through imaging and histopathology. The patient underwent open reduction and internal fixation with a locking compression plate, followed by early mobilization and physiotherapy. Postoperative recovery was uneventful, and regular follow - up showed significant improvement. This case underscores the importance of timely surgical management and rehabilitation in complex Fibrous Dysplasia associated fractures.***

Keywords: Fibrous Dysplasia, Proximal Femur, Shepherd Crook Deformity

1. Introduction

Fibrous dysplasia is a benign fibrous bone tumor that accounts for 5% to 10% of benign bone tumors. It can manifest as simple fibrous dysplasia (70%–80%), polyostotic fibrous dysplasia (20%–30%), with approximately the same incidence in men and women [(1)] Fibrous dysplasia of the proximal femur presents with heterogeneous clinical manifestations dictating different surgical approaches. However, to date there are no clear recommendations to guide the choice of surgical approach and no general guidelines for the optimal orthopedic management of these lesions [(2)] This case report highlights successful treatment protocol and rehabilitation of a patient presenting with left femur shaft fracture with Fibrous Dysplasia with proximal femoral shepherd crook deformity.

2. Case Report

A 40 - year female, presented to emergency department with complaints of left thigh pain and inability to bear weight following alleged history of self fall. On examination, there was swelling, tenderness, crepitus, deformity and abnormal mobility present over the left thigh at middle third region. Range of movement at left hip and knee restricted due to pain. Active ankle and toe movements present. Distal sensations intact and peripheral pulse was palpable.

Blood investigations done showed Hb (10.7 gm%), ALP (150 U/L), Calcium (8.3 mg/dL), Inorganic Phosphorous (3.3 mg/dL).
Xray AP & lateral view of left thigh showed displaced mid shaft fracture of left femur with shepherd crook deformity of left proximal femur. (Fig 1 & 2) Histopathological Examination - features suggestive of Fibrous Dysplasia.

Figure 1

Figure 2

After taking informed consent for surgery, patient underwent open reduction internal fixation of left femur shaft fracture with locking compression plate under spinal anaesthesia. Post operative period was uneventful. Post operative xrays at day 1 (Fig 3 & 4).

Figure 3

Figure 4

Figure 5

Figure 6

On post operative day 2, wound on inspection appeared healthy, sterile dressing was applied. On post operative day 4, non weight bearing mobilization with walker assistance was started. Regular physiotherapy static and dynamic quadriceps strengthening exercises were taught and done. Patient improved symptomatically. Follow up xray at 2 months given in Fig 5 & 6. Regular follow - ups have shown satisfactory radiological outcomes.

3. Discussion

The concept of "fibrous dysplasia" was introduced by Lichtenstein in 1938, which is a benign fibrous bone tumor in which fibrous tissue replaces normal bone tissue with metaplastic young woven bone. [3] Shepherd's deformity is a deformity that develops through osteoporosis and constant micro - fracture and fracture repair and is associated with limb pain, lameness, and femoral neck fractures. [4] Regarding the treatment of fibrous dysplasia associated fractures, there are many treatment options. Initially, there were simple curettage and bone grafting to treat related deformities. Later, related treatment methods such as osteotomy, plate fixation, and intramedullary nailing appeared. ([5, 6] This case reinforces the need for prompt diagnosis, individualized surgical planning, and comprehensive postoperative care in managing Fibrous Dysplasia associated fractures.

4. Conclusion

This case underscores the importance of a patient centered, individualized approach in managing complex fractures associated with fibrous dysplasia, emphasizing the need for tailored surgical techniques, early rehabilitation, and multidisciplinary follow - up for optimal outcomes.

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