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Prospective Interventional Study on Giant Cell Tumor of the Head of Fibula: Analysis of 30 Cases Treated at BSMMU

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Keywords

Giant Cell Tumor,
Fibular Head,
Surgery,
Bone Tumor,
Functional Outcome

Abstract

Giant Cell Tumor (GCT) of the head of the fibula is a rare occurrence. This prospective interventional study was conducted at Bangabandhu Sheikh Mujib Medical University (BSMMU) from 2019 to 2021, evaluating the outcomes of 30 patients treated surgically. The aim was to assess the clinical presentation, surgical approach, complications, and functional outcomes.

Introduction

GCTs are locally aggressive benign bone tumors with unpredictable behavior. The head of the fibula is an uncommon location for GCT, and its management requires careful consideration due to its proximity to neurovascular structures. Surgical interventions include intralesional curettage, wide excision, and reconstruction, with the goal of minimizing recurrence while preserving limb function.

Methods

- **Study Design:** Prospective interventional study
- **Study Period:** January 2019 - December 2021
- **Study Setting:** Department of Orthopedic Surgery, BSMMU
- **Sample Size:** 30 patients
- **Inclusion Criteria:** Patients diagnosed with GCT of the head of the fibula confirmed by histopathology
- **Exclusion Criteria:** Patients with metastasis at diagnosis or prior treatment for GCT
- **Surgical Approaches:** Intralesional curettage with bone grafting or cementation, wide resection with or without reconstruction
- **Outcome Measures:** Pain relief, functional recovery, recurrence rate, and complications
- **Follow-up Duration:** Minimum of 12 months

Results

The clinical and surgical outcomes of the patients are summarized below:

Parameter	Value
Total Patients	30
Mean Age (years)	28.4 (range 18-45)
Male: Female Ratio	2:1
Common Symptoms	Pain (100%), Swelling (80%), Weakness (20%)
Surgical Procedures	Intralesional curettage (12), Wide resection (18)
Reconstruction	Autograft (6), Cementation (8), No reconstruction (16)
Postoperative Complications	Peroneal nerve palsy (4), Wound infection (2)
Recurrence Rate	3 cases (10%)
Functional Outcome (MSTS Score)	Mean 85% recovery
Mean Follow-up (months)	18 (range 12-24)

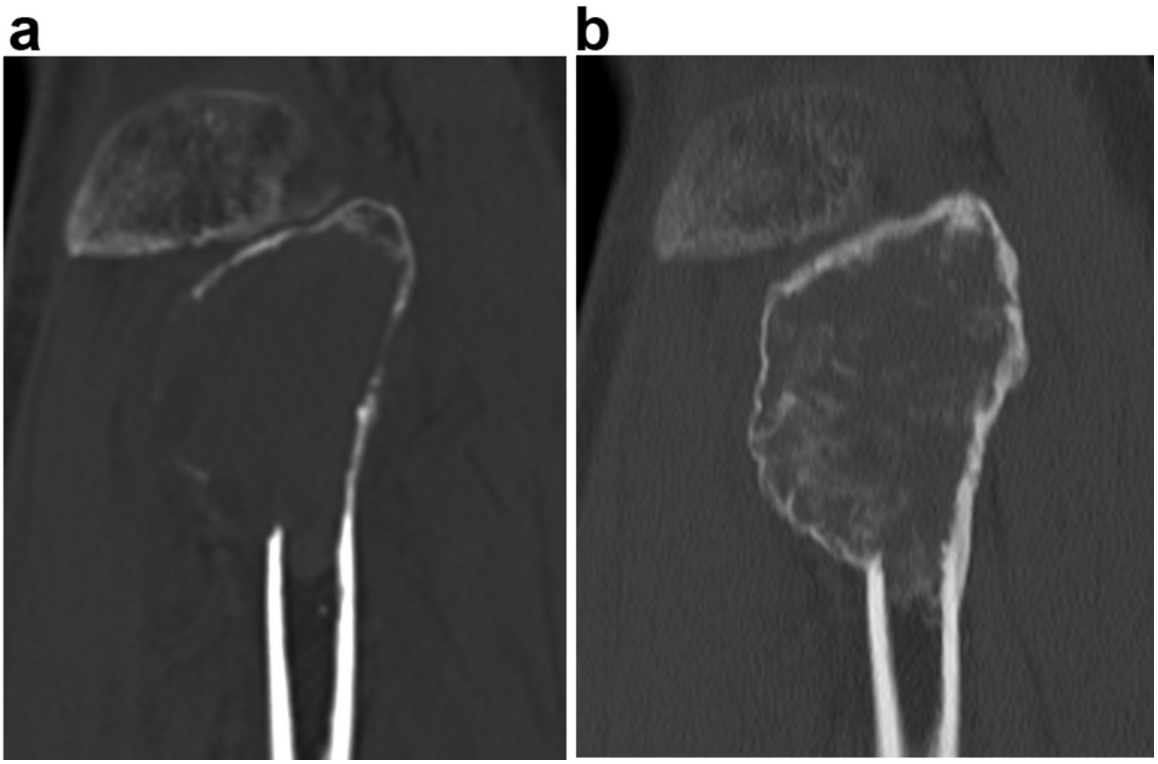

Fig:-1

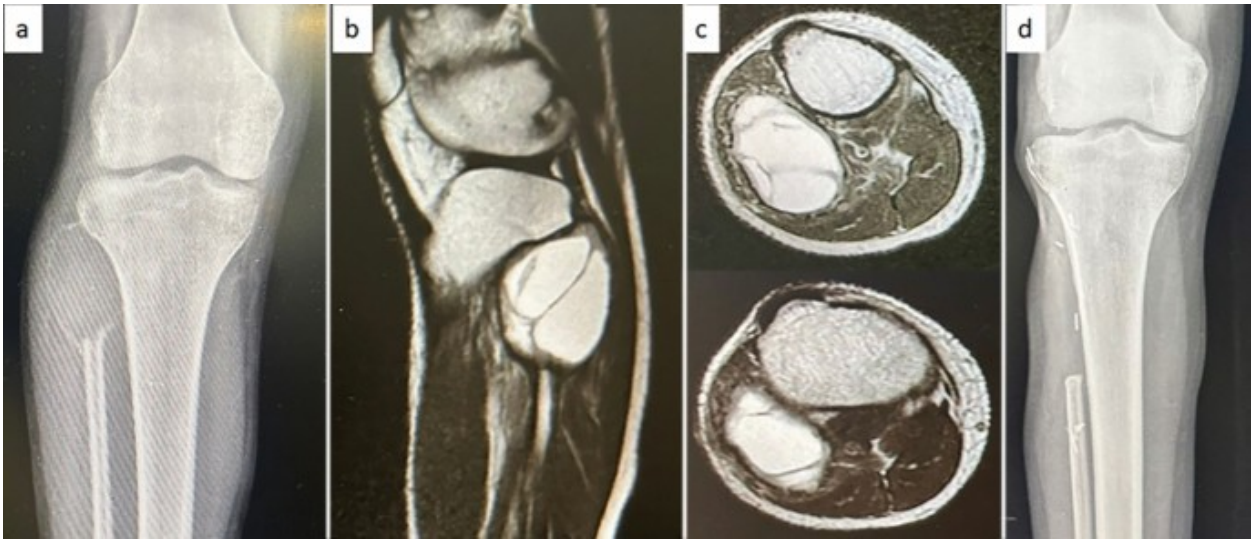

Fig-2

Discussion

Surgical excision remains the mainstay of treatment for GCT of the fibular head. Wide resection had a lower recurrence rate but posed a risk to peroneal nerve function. Curettage with adjuvants showed satisfactory outcomes but had a slightly higher recurrence rate. Functional outcomes were favorable in most patients, with early return to normal activities.

Conclusion

GCT of the head of the fibula can be effectively managed with surgery, with careful consideration of recurrence and functional impairment. Wide excision offers better recurrence control, whereas curettage preserves function but carries a higher risk of recurrence. Longer follow-up is needed to assess long-term outcomes.

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