

**Surgical Management of Benign Tumors of the Proximal Fibula:  
A Clinicopathological Study of 120 Patients**

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**Background:** Benign tumors of the proximal fibula are rare. Only 2.5% of primary bone tumors are found in the fibula. Approximately one-third of these tumors are benign. Selected patients with benign tumors in the proximal fibula require surgical management. Most of these cases are managed by intralesional or marginal excision. However, aggressive tumors of the proximal fibula are better suited to en bloc resection. Two of the main concerns associated with proximal fibula resection are postoperative knee instability and peroneal nerve palsy. As such, the purpose of this study was to analyze the epidemiologic data, and the diagnostic and therapeutic options, for benign tumors of the proximal fibula, with special attention to operative techniques, reconstructions methods, and postoperative complications. To our knowledge, this series represents the largest in the literature.

**Methods:** This is a retrospective review of our institution's tumor, pathologic, surgical, and medical databases from January 1, 1994 – December 31, 2007. We searched for benign tumors of the proximal fibula that required surgical intervention. Patients of all ages were included. The patients' medical records, operative reports, radiographs, and histologic specimens were analyzed. There were 29 patients with 26 benign tumors of the proximal fibula. Twelve male and 14 female patients with an average age of 26.6 years were identified (range, 10 – 51 years). The average follow-up was 34 months (range, 0 – 147 months).

**Results:** The most common diagnosis was osteochondroma (51.7%), followed by enchondroma (20.7%), giant cell tumor (13.8%), chondroblastoma (7%), osteoid osteoma (3.4%), and nonossifying fibroma (3.4%). Eight patients (30.8%) suffered from multiple hereditary osteochondromatosis. Patients most frequently presented with pain (90%). Two patients also presented with a pathologic fracture and 3 patients presented with peroneal nerve symptoms. Of the 29 tumors, 10 underwent an intralesional resection, 10 underwent a marginal resection, and 9 had an en bloc resection. All patients undergoing a Malawer Type I en bloc resection had their lateral collateral ligament (LCL) and biceps femoris tendon reconstructed to the lateral aspect of the tibia. Post-operative complications included two transient peroneal nerve palsies, one deep venous thrombosis, and one wound dehiscence. Two patients had local recurrences, with one developing pulmonary metastases. At latest available follow-up, all living patients were ambulating without knee instability, pain, or peroneal nerve symptoms.

**Conclusions:** Benign bone tumors of the proximal fibula are rare. Most common lesions in this anatomic location are osteochondromas followed by enchondromas. Selected patients with aggressive tumors may require surgical intervention. Most can be treated with intralesional or marginal resections. However, those tumors with a high predisposition for recurrence or malignant transformation should be treated with an en bloc resection. The insertions of the LCL and biceps femoris tendon must be meticulously repaired and then reconstructed to the lateral aspect of the tibia with Malawer Type I en bloc resections. Subsequent rehabilitation should be similar to that after an acute injury of the lateral structures of the knee.