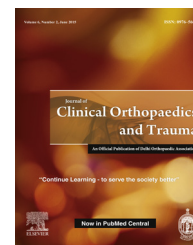


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Case Report

Reconstruction of the elbow by Baksi sloppy hinge total elbow prosthesis following excision of a malignant fibrous histiocytoma

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1. Introduction

Limb salvage for malignant bone tumours is the current flavour in orthopaedic decision making. The fact is that the patient survival has improved from 10–20% to 50–70% with the advent of neo-adjuvant chemotherapy, surgery and adjuvant radiotherapy/chemotherapy.^{1,2} Long-term studies show that limb salvage operations, performed with wide margins and chemotherapy, did not compromise the survival or local control compared to amputation.^{3,4} Reconstruction procedures and principles have been described in literature for the resection of malignant bone tumours at various parts and now follow a standardized protocol.^{5–7} If a useful limb cannot be reconstructed while following resection, then amputation is still preferred over ill-performed resections. We are reporting a case of an extra-compartmental malignant fibrous histiocytoma of the proximal ulna, where both the radius and ulna

were to be resected in the proximal half of forearm, and the patient was considered fit for an above elbow amputation. We opted for an ingenious method of two-stage reconstruction where first the radius was lengthened by a fibular graft and an elbow arthrodesis was done. Later the radio-capitellar arthrodesis was converted into a total elbow arthroplasty (TER) using a constrained TER prosthesis (Baksi sloppy hinge total elbow prosthesis, Fig. 1).⁸ Limb salvage following excision of both proximal radius and ulna has not been described in literature. We are describing the procedure for the ingenious use of orthopaedic principles followed which resulted in a functional and mobile limb for the patient.

2. Case report

A 32-year-old female presented to us with pain and rapidly enlarging swelling of her left proximal forearm since 15 days

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Fig. 1 – Baksi sloppy hinge total elbow prosthesis.



Fig. 2 – Clinical photograph showing extra-articular swelling of proximal forearm.

(Fig. 2). There was no history of immediate trauma but the patient gave a history of removal of a bony exostosis from her proximal ulna 15 years back which was reported benign to her. The swelling was about 14 cm × 12 cm × 12 cm in size, tender, warm with ill-defined margins, irregular surface and variegated consistency (Fig. 1). An X-ray of the forearm with elbow revealed a large, osteolytic, extracompartmental destruction of Ulna from coronoid process to ulna in the proximal third with saucerization defect in the proximal radius suggesting pressure and infiltration (Fig. 3). There was no distal neurovascular deficit. The X-ray reported a malignant bone tumour of the ulna and the patient was advised above elbow amputation by several orthopaedic surgeons. The patient did not want an amputation and had come for further management to our centre. A core needle biopsy was done marking the entry point of the needle which revealed the tumour to be a malignant fibrous histiocytoma. The patient was again advised amputation, but on denial, an ultrasonography of the left arm was performed to assess the vascular status and on finding the brachial vessels anterior to the tumour without infiltration, the patient was planned for surgery.

A 15 cm long anterior midline incision was given on the elbow and forearm, and medial and lateral flaps were raised including the deep fascia in them. The brachial vessels and

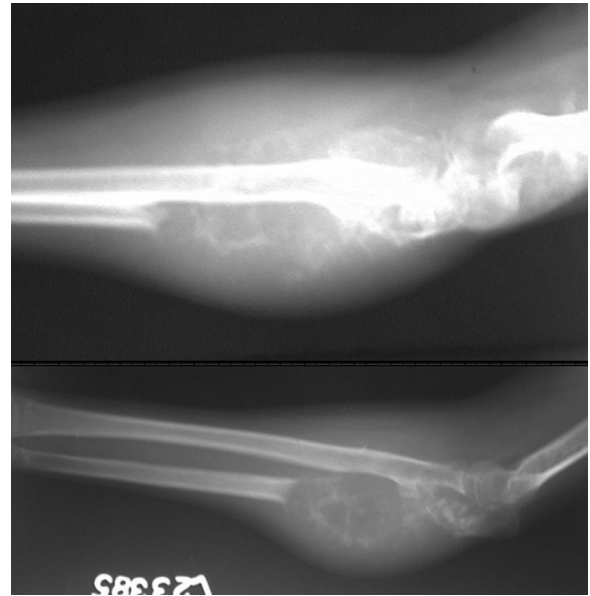


Fig. 3 – Radiograph forearm and elbow showing extra compartmental osteolytic destruction of ulna with saucerization defect of proximal radius.

median nerve were identified medial to tendon of biceps. The tumour was excised en masse along with the proximal half of Ulna and Radius. During the resection, care was taken not to open the tumour, the triceps insertion had to be erased from the olecranon, the Biceps insertion had to be cut 2 cm proximal to its insertion and the brachial vessels, radial nerve, Median nerve and ulnar nerve were preserved proximally (Fig. 4). The radius and ulna were cut in their middle keeping a margin of 2 cm from the tumour. Following excision the distal radial artery pulsations were confirmed and reconstruction was planned.

A 14 cm long diaphyseal fibular graft was removed from left leg and the forearm was reconstructed by a radio-fibular

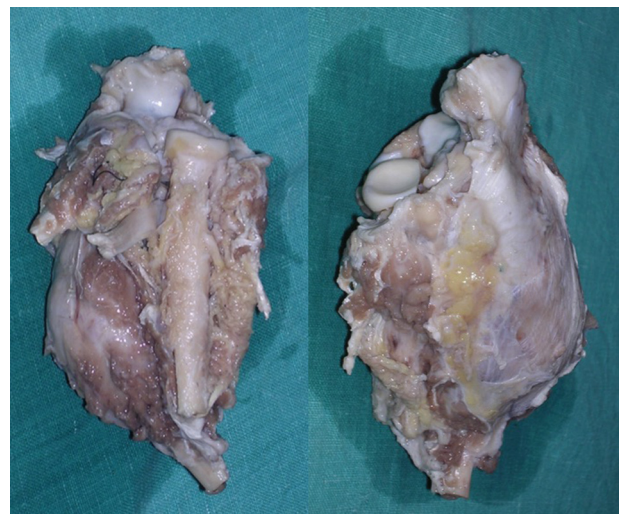


Fig. 4 – Specimen of en masse excised proximal radius and ulna.

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