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Unicondylar Allograft Transplantation For Bone Tumors Around The Knee Joint

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Abstract

Background Allogeneic bone graft is a biological reconstruction and an important method for repairing bone defect. Unicondylar allograft transplantation is a traditional reconstructive method for unicondylar defect resulting from bone tumor around knee joint. But the long-term results need further observation.

Purposes To investigate the outcomes of tumor controlling, involved limb function and complications after unicondylar allograft transplantation.

Patients and Methods This was a retrospective study. Between 1990 and 2014, there were 11 patients, 8 males and 3 females with the average age 34 years (22- 46 years), treated with around knee bone tumor resection and unicondylar allograft transplantation and internal fixation. The tumors were located at the medial femoral condyle in two cases, the lateral femoral condyle in eight and the medial tibial condyle in one. The tumor types included 8 bone giant cell tumors, 1 fibrous histiocytoma and 2 malignant fibrous histiocytoma (MFH). The allogeneic bone of distal femur or proximal tibia was customized preoperatively. The involved condyle was resected en bloc through normal bone. Then according to the bone defect, the allogeneic bone was trimmed and transplanted to reconstruct the defect. The allografts were fixed with plate and screws. The disconnected ligament and joint capsule were repaired. One patient with MFH treated with chemotherapy pre- and post-operatively. All the patients were followed up to observe allograft union, limb function and tumor controlling.

Results The mean follow-up time was 170 months (12-283 months). One patient with MFH was dead of lung metastasis 60 months later postoperatively. There was not recurrence and metastasis in the other patients. Allograft rejection occurring in one patient with low fever, swelling and pain which was improved gradually two months later. The osteotomy lines were unclearly gradually and the average union time was 18 months. The internal fixation was removed in two patients. According to MSTS scoring system, the involved limb function score in 10 patients was 90%.

Conclusion Unicondylar allograft transplantation is a good biological reconstruction for the bone tumors involving unicondyle around knee joint with satisfactory limb function and tumor control.