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Strategies for Achieving Long-Term Stability of Proximal Humeral Reconstruction in Sarcoma Surgery

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Aims: Bony sarcomas of the proximal humerus often require complete resection of the humeral head as well as the rotator cuff apparatus. Options for reconstruction include free fibula with physis transfer and proximal humeral endoprostheses. Historically, dislocation has been the predominant problem with such operations. There are various surgical strategies which can be employed to stabilise the endoprosthesis. This paper critically appraises the surgical options available.

Methods: Twelve cases of bone sarcoma of the proximal humerus are presented in which various strategies have been used to stabilise the endoprosthesis. Patients were recruited sequentially into this observational study.

Results: Using a combination of these surgical strategies we have significantly reduced our endoprosthesis dislocations and have had an improved outcome in terms of patients TESS scores and functional outcome measures. We present the residual complications we have experienced, revision surgery where required, long-term stability and overall functional outcome.

Conclusions: Stabilising the proximal humeral replacement remains surgically challenging. There are, however, several strategies which can be employed to minimise the chance of dislocation. The relative pros and cons of the various methods including use of the MUTARS tube, pedicled muscle transfer, vascularised 1st rib transfer, coracoid interposition and glenoidplasty are discussed along with the relevant surgical techniques.

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