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MID-TERM SURVIVORSHIP AND FUNCTIONAL OUTCOME FOLLOWING ENDO-PROSTHETIC REPLACEMENT FOR BONE TUMORS

Background:
The use of modular endo-prosthetic replacements (EPRs) around the proximal and distal femur are established techniques for limb salvage in tumour surgery. There has been a gradual decrease in mortality from bone tumors and there has been an increased interest in determining patient function and quality of life following limb salvage surgery with EPR.

Questions:
The aims of this retrospective, consecutive case series study were to define the early/mid-term survival and functional outcome following tumour resection and limb salvage around the hip and/or knee with EPR.

Methods:
Since 2007, 155 EPRs (distal femur: 83, proximal femur: 72) were performed for the treatment of bone tumour in a single tertiary centre by two surgeons. The prostheses used had modular components together with a cemented stem and a hydroxyapatite collar. The study’s mean follow-up was 3 years (range: 1-8). The majority of patients were female (n=52, 65%) and the mean age at surgery was 69 years (range: 28–93). Overall, primary bone tumour was the indication for EPR for the majority of cases. Most tumours around the knee were 1° (77%), whilst more tumours around the hip were metastatic (64%). Patient survival was established at 5-yrs for primaries and 1-yr for metastatic cases. Implant survival was established, with revision or further surgery with removal of components as end points. Functional outcome was determined using the Toronto Extremity Salvage Score (TESS).

Results:
By latest follow-up, the majority of patients were alive (55%). The 5-yr patient survival for 1° bone tumor was 60% for the hip and 81% of the knee. The 1-yr survival for metastatic disease was 60% for the hip and 60% for the knee. Complications encountered included infection (7%), local recurrence (5%), dislocation 3%. 5-year survival of EPR was 94% (88 – 100%). There was no difference between hip (97%) and knee (93%) EPRs (log rank= 0.4). The median outcome was 67% (20 – 98%). There was no difference in TESS between hip and knee (p=0.1).

Conclusions:
The implant survivorship for this type of EPR used for the treatment of metastatic and primary bone tumors has promising early/mid-term survival. Functional outcome is comparable to those reported in the existing literature. Continued surveillance of functional outcome measures is important in determining the true effect of using mega-prostheses on patients’ quality of life.