Intercalary Prosthesis vs. Allograft/Bone Reconstruction Bone Defects

vs

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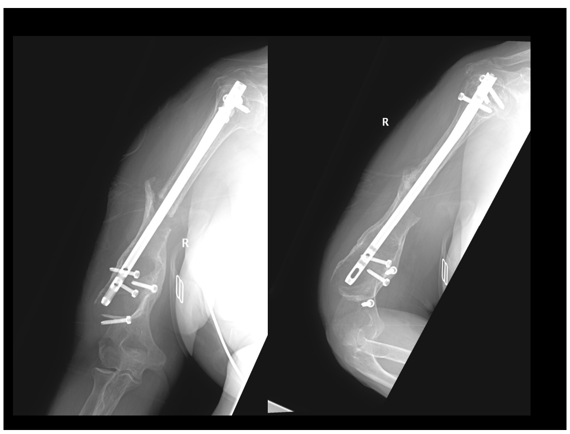
Why I use metal rather than dead bone

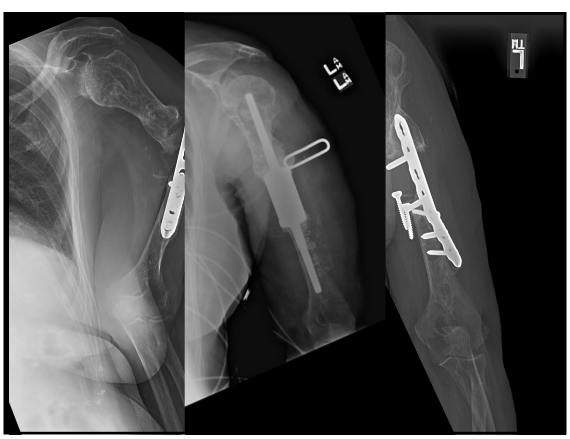
- Worst problems for patients with intercalary resections:
  - Infection (length of procedure)
  - Fracture (higher in allografts)
  - Non-union (only allografts)
  - Disability due to weight bearing restrictions- loss of job and independence (no restrictions for metal)
  - Deformity (malunion, collapse of graft)
  - Pain (persistent non union, delayed union)

Where metal works the best

- Metastatic disease, lymphoma, myeloma (pathologic fractures with segmental bone loss)
- Elderly patients (>75 yrs) with non unions; failed hardware with segmental diaphyseal bone loss (humerus and femur).

- Anatomically
  – Humerus
  – Forearm (mostly ulna)
  – Femur
  – Tibia



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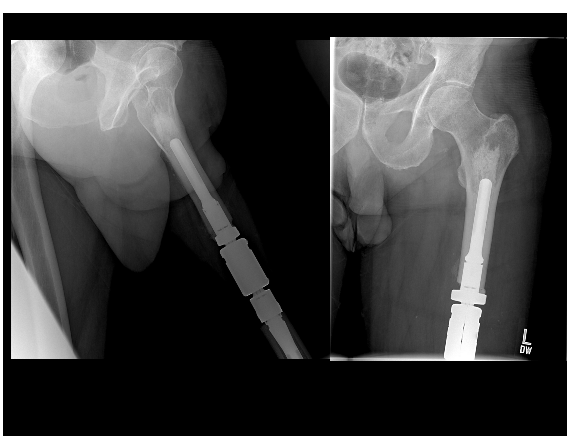

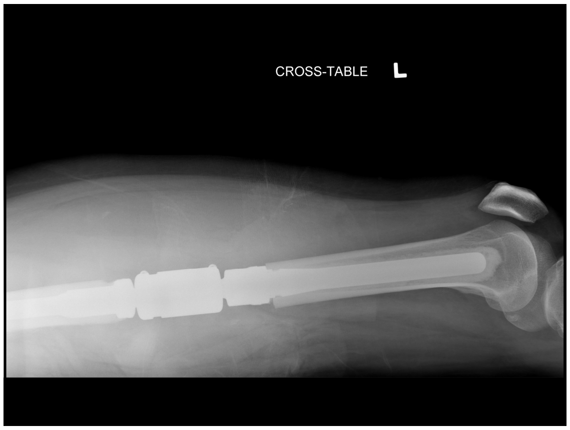
CROSS-TABLE
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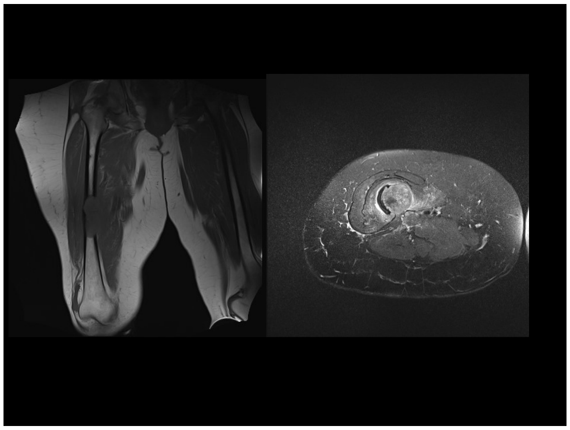

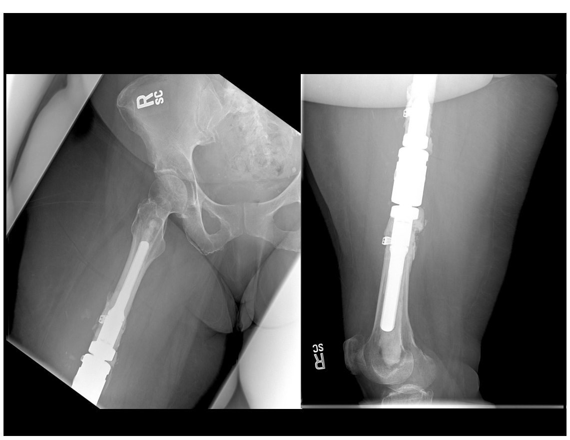
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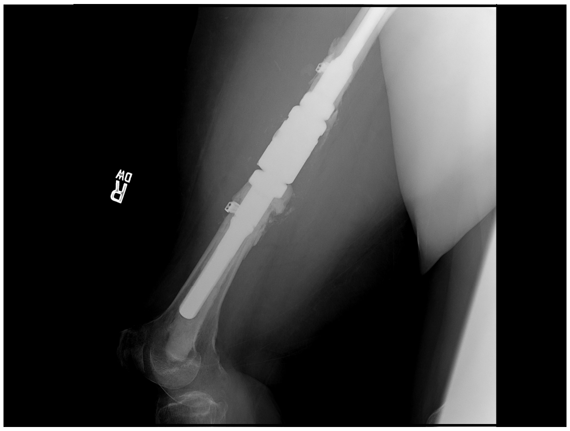

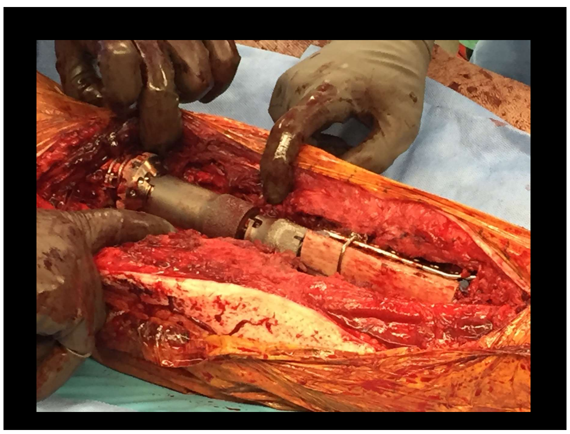

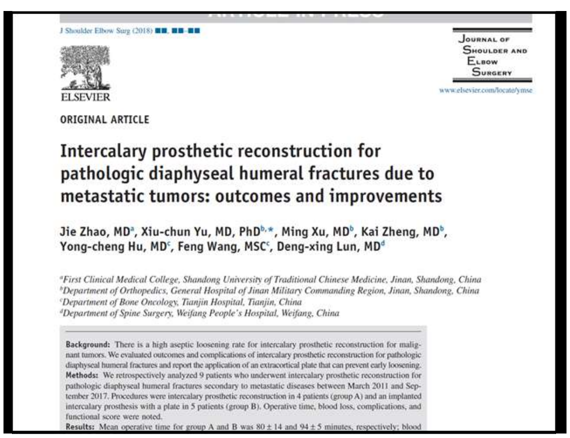

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ORIGINAL ARTICLE

Intercalary prosthetic reconstruction for pathologic diaphyseal humeral fractures due to metastatic tumors: outcomes and improvements

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Background: There is a high aseptic loosening rate for intercalary prosthetic reconstruction for malignant tumors. We evaluated outcomes and complications of intercalary prosthetic reconstruction for pathologic diaphyseal humeral fractures and report the application of an extracortical plate that can prevent early loosening.
Methods: We retrospectively analyzed 9 patients who underwent intercalary prosthetic reconstruction for pathologic diaphyseal humeral fractures secondary to metastatic diseases between March 2011 and September 2017. Procedures were intercalary prosthetic reconstruction in 4 patients (group A) and an implanted intercalary prosthesis with a plate in 5 patients (group B). Operative time, blood loss, complications, and functional score were noted.
Results: Mean operative time for group A and B was 80 ± 14 and 94 ± 5 minutes, respectively; blood

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ORIGINAL PAPER

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R. M. Tillman

Endoprosthetic replacement of diaphyseal bone defects. Long-term results

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Abstract We retrospectively studied 35 patients who underwent endoprosthetic reconstruction of diaphyseal bone defects after excision of primary sarcomas. The patients were treated between February 1979 and May 1999 and had more than 5 years follow-up. There were 22 males and 13 females and the median age at diagnosis was 29 (8–75) years. The bone defect measured a mean of 19 (10–27.6) cm. There were 29 femoral reconstructions, three tibial and three humeral. Cumulative overall survival for all patients was 65% at 10 years. Cumulative overall survival for prosthetic reconstruction, using revision surgery as an end point, was 63% at 10 years. Cumulative risk of failure of reconstruction, including infection, fracture, aseptic loosening, local recurrence and amputation, was 60% at 10 years. Tibial and humeral reconstructions fared less well than femoral. Endoprosthetic replacement is a useful method of reconstructing long intercalary de-

à 10 ans. Les reconstructions tibiales et humérales sont allées moins bien que les fémorales. Le remplacement endoprothétique est une méthode utile pour reconstruire de longues pertes de substance intercalaires, surtout si elles sont situées sur le fémur.

Introduction

The options for reconstruction of diaphyseal bone defects after excision of bone tumours include structural autologous bone graft, allograft or prostheses. Structural autograft, such as fibula struts, are perfect for treatment of short bone segments but disadvantages include difficulty in matching, limited sources, prolonged time for rehabilitation and complication at the donor site [20]. Allograft allows the reconstruction of soft tissue and accurate match

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Intercalary endoprosthetic reconstruction for diaphyseal bone tumours

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Custom-made intercalary endoprostheses may be used for the reconstruction of diaphyseal defects following the resection of bone tumours. The aim of this study was to determine the survival of intercalary endoprostheses with a lap joint design, and to evaluate the clinical results, complications and functional outcome. We retrospectively reviewed six consecutive patients, three of whom underwent limb salvage with intercalary endoprostheses of the tibia, two of the femur, and one of the humerus. Their mean age was 42 years (28 to 64). The mean follow-up was 21.6 months (9 to 58). The humeral prosthesis required revision at 14 months owing to aseptic loosening. There were no implant-related failures. Musculoskeletal Tumour Society functional outcome scores indicated that patients achieved 90% of premorbid function.

Custom intercalary endoprostheses result in reconstructions comparable with, if not better than, those of allografts. Using this design of implant reduces the incidence of early complications and difficulties experienced with previous versions.

Segmental resection of the diaphysis for pri- is also the potential for disease transfer from

JSCR

Journal of Surgical Case Reports

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doi:10.1093/jscr/rju014

Case Report

Intercalary endoprosthesis for salvage of failed intraoperative extracorporeal autogeneous irradiated bone grafting (IORBG) reconstruction

Kenichiro Hamada[1,*], Nofirumi Naka[1], Shinsuke Omori[1], Hidetatsu Outani[1], Kazuya Oshima[2], Susumu Joyama[2], Nobuhito Araki[2] and Hideki Yoshikawa[1]

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Intraoperative extracorporeal autogeneous irradiated bone grafting (IORBG) after femoral

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Summary

- Intercalary prosthesis
  - Diaphyseal bone loss from mets, lymphoma, myeloma
  - Non-unions with segmental bone
  - Metal is readily available
  - Minimal pre operative planning
  - Shorter OR time
  - Shorter hospital stay
  - NO POST OP RESTRICTIONS
  - Early mobility, return to work and independence