KNEE JOINT SPARING DISTAL FEMORAL REPLACEMENTS
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INTRODUCTION
When managing malignant bone tumours in the distal femur with limb salvage, resection and reconstruction with a distal femoral replacement (DFR) conventionally entails prosthetic replacement of the knee joint. In younger patients it is desirable to try to preserve the knee joint and the growth plate. While the former allows them a better range of movement and preserves proprioception, the latter allows them to progress with the normal growth and attain equal leg lengths at the end of growth phase. We now use a new Joint-Sparing distal femoral prosthesis in those cases where it is possible to resect the tumour and preserve the femoral condyles. The residual epiphyseal bone segment measures less than 2 cm in thickness. The purpose of study was to look at our early results with knee joint preserving DFR’s.

METHODS
Between June 2001 and March 2004 the prosthesis was implanted in 10 patients (7 males and 3 females) aged between 8 and 15 years at the time of surgery. The diagnosis was osteosarcoma in 8 cases and chondrosarcoma in 2 cases. All patients were followed regularly. Radiographic documentation involved x-rays, and clinical examination involved documenting the knee range of movement and any complications that occurred. Patients were functionally evaluated using the MSTS Scoring System.

RESULTS: Eight of the patients had a mean follow-up of 20 months (range 8-33) while two patients had a follow up of less than 6 months. In the first group 6 had good knee flexion with a mean flexion of 122° (110-130), 1 patient had fair flexion of 60° and 1 patient had poor flexion of 20°. The patient with poor flexion required an arthrolysis and because of the poor result is under consideration for conversion to a conventional DFR. In the second group the two patients had follow-up periods of 6 months or less and are still in their early rehabilitation period. One patient in this group developed sepsis that resolved after an open washout.

DISCUSSION
Our early results with this prosthesis, in the patients with adequate follow-up, have been good in the majority but the two cases of fair and poor knee flexion are disappointing. This particular problem may relate to design and technical factors, which will be discussed in detail with an aim to refine the surgical implant design to perfection.