

ASAMI North America 10th Annual Scientific Meeting March 13&14, 2000

Abstract

Simultaneous lengthening of femur and tibia with fully implantable distraction nails

Baumgart Rainer, PD Dr. med., University Munich, Surgical Department

Nussbaumstr. 20, D-80336 Munich, Germany, +498951602511, +498951604786

At the femur, lengthening (15) up to 100 mm, lengthening combined with axis corrections (11) and lengthening combined with bone-transport (2) was performed with the fully implantable distraction nail over all in 31 cases. The costs of the implant are high, but there was no infection, a good bone formation around the nail, a comfortable treatment and a brief hospitalization time. Is it possible to get the same results also for the tibia with a fully implantable device?

For the tibia the diameter of the nail was reduced to 10 mm and modified with a special gear and a telescopic tube which allows lengthenings up to 60 mm and axis corrections in the proximal part of the tibia where it is very common. The nail has a diameter of 10 mm and is equipped with an electromotor in its proximal part. The energy is coupled through the skin and received by a subcutaneous antenna.

Till now 3 patients were operated with the new implant at the tibia: In one case tibial lengthening was performed 3 years after tumorresection and bone reconstruction. Another patient was lengthened simultaneously 25 mm at the femur and 30 mm at the tibia. A third patient was treated with 100 mm shortening and 15° varus deformity at the femur and 40 mm shortening and 10° valgus deformity at the tibia. In all cases lengthening was completed. Bone formation was observed around the nail at the tibia in the same way as it is known from the femur. There was a technical problem at the first case that makes a re-operation necessary. During lengthening period partial weight bearing was possible.

Simultaneous treatment of the femur and the tibia needs a long operation time, because all axis corrections had to be done completely intraoperatively while postoperatively only lengthening along the anatomical axis takes place. No further corrections can be done without an additional operation. As already known from our experience with the femur, the fully implantable system for the tibia is suitable to perform lengthening with a high level of comfort for the patients but especially simultaneous treatment of femur and tibia is expensive and takes a long operation time.