

Infection During Motorized Internal Lengthening

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What was the question?

What are the risk factors for infection during limb lengthening using a motorized internal nail?

How did you the answer?

This was a retrospective review of a defined cohort. We identified all patients who had undergone limb lengthening using a motorized internal nail at our institution. We then defined a list of known risk factors for surgical infection and carried out a chart review to identify these risk factors in our cohort. These risk factors included age, BMI, smoking, diabetes mellitus, vascular disease, cancer, prior irradiation, endocrinopathy, neuromuscular disease, previous trauma to lengthened limb, immunosuppressive disease, intravenous drug abuse, steroid use at time of surgery, prior external fixation in that bone, prior external fixation in a different bone, previous infection in the lengthened bone, surgical duration, blood loss, perioperative blood transfusion and antibiotic type and dose at induction at induction.

What are the results?

A total of 158 patents were identified. There were 84 males and 74 females. The average age was 20 years. We had a total of 3 deep infections (1.9%). When the defined list of infection risks were analyzed no factor reached statistical significance as an individual risk factor for infection. This is not surprising given the low rate of infection and the diverse patient cohort. However, when the groups were subdivided into those who had and had not undergone previous external fixation for lengthening in the past all of the infections were in the previous external fixator group. This resulted in an infection rate of 4% in this group. This is a statistically significant difference between the groups in terms of infection rate.

What is your conclusion?

We found 4% in the subgroup with a previous external fixator compared to 0% in those who had no previous external fixator. We suggest that patients with a history of external fixation be counseled in relation to the increased infection risk. For high-risk patients we suggest pre-operative STIR MRI may be helpful. If edema is identified in previous pin sites a staged procedure could be considered. The first procedure would be to debridement of the previous pin sites and insertion of an antibiotic eluting intramedullary device to sterilize any latent infection. At a second procedure the motorized internal nail is inserted for lengthening.