Pin Tract Infections in Diabetic Patients Undergoing Surgical Correction of Charcot Foot with a Circular External Fixator

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Conflict to Disclose

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Our disclosures are in the Final AOFAS Mobile App

- Elissa Finkler- No disclosures
- Christopher Kasia- No disclosures
- Ellen Kroin- No disclosures
- Victoria Davidson-Bell- No disclosures
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Introduction

- Diabetes-associated Charcot Foot arthropathy negatively impacts quality of life
- Traditional accommodative treatment has not improved quality of life in affected individuals
- Controversy exists on role of augmented internal fixation with super construct compared with external fixation with tensioned wires
• Pin tract infection is common complication associated with external fixation, occurring in up to forty percent of patients. Rate of pin tract infection difficult to determine; two accepted grading systems are descriptive at best.
• Many who use external fixation employ elaborate methods of pin care to avoid this complication, yet there is no consensus on a prevention strategy.
• Hypothesized that a minimalist approach to dressing and pin site care would result in pin tract infection rates as low as those reported in literature

• Performed retrospective review of large cohort of high risk diabetic patients who underwent single stage correction of Charcot Foot deformity in foot or ankle with statically applied fine wire circular external fixator
Methods

• IRB approved

• Reviewed medical records of 283 consecutive diabetic patients who underwent single stage correction of Charcot foot or ankle deformity by a single surgeon (MP) between the years 2003 and 2014.

• Consistent surgical technique used in all patients with minimal surgical exposure and limited soft-tissue stripping.
• No implants used
• Skin tension avoided at pin-skin interface, relieving skin with #10 scalpel blade when necessary
• External fixation construct consistent in all patients, using a closed foot ring on the foot and a two level tibial block
• Pin sites dressed with Xeroform gauze with no attempt to obtain compression. Dressings removed at 48 hours and patients encouraged to shower after 72 hours

• Pin sites cleaned with solution of 50% chlorhexidine and 50% hydrogen peroxide as long as drainage from pin sites

• Pin site infection defined as any peri-pin site erythema or discharge during the period external fixator was applied. Patients with known surgical site osteomyelitis were included in the analysis.
Results

• Fifty-nine patients (20.8%) developed pin tract infection. Higher rates of pin site infections observed in patients with osteomyelitis (25.6%) than those patients without evidence of infection, (17.8%) although not statistically significant. (p=.1184)

• No correlation between BMI and pin site infection. (p=.288) Statistically significant trend (p < .05) for higher rates of pin tract infection in patients with elevated Hemoglobin A1C levels.
• Erythema and drainage resolved in all patients with local pin care and empiric oral antibiotic therapy
• No wires removed prematurely, and all infections resolved following removal of circular external fixture at scheduled time
Conclusions

• Association between higher HemoglobinA1C and higher pin tract infection rates supports optimizing controllable risk factors prior to elective surgery
• Acquired pin site infections do not add morbidity or require additional surgery to resolve
• Minimalist approach to pin care in patients with external fixation results in low rate of pin associated morbidity in high-risk group