PAPER SESSION 7: TAA

Moderators:
Stuart D. Miller, MD (Baltimore, Maryland)
Naomi N. Shields, MD (Wichita, Kansas)

7:58 am
Periprosthetic Osteolysis after Total Ankle Arthroplasty

Presenting Author:
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Summary:
Osteolysis associated with TAA may indeed be common in the postoperative period, but most of the ostelytic lesions were relatively quiescent. Early diagnosis and careful evaluation of the osteolysis provide a clinical opportunity to receive limited revision surgery for the ankle with impending failure of the prosthesis.

Introduction:
The incidence of osteolysis after TAA has been reported to vary between 0% and 94.7%, but previous reports merely focused on the clinical outcomes and survival rate of the prosthesis rather than osteolysis and its relationship with clinical outcomes. In the present study, we report the incidence, characteristics and etiology of periprosthetic osteolysis and its association with clinical outcomes.

Methods:
Between May 2004 and April 2010, 126 primary TAAs were performed on 115 patients, including 11 patients who underwent bilateral procedures. For this review, we excluded 27 ankles with a follow up of less than 24 months, leaving 99 ankles in 90 patients with a mean follow-up 40.8 months (24 to 89) available for study. Clinical and radiographic follow-up was performed at 6 weeks, 3 and 6 months, 1 year after the operation, and yearly thereafter. Pain and clinical outcomes were assessed using the visual analogue scale and the American Orthopaedic Foot and Ankle Society score. Fluoroscopy was utilized to ensure that radiographs provided optimum visualization of the bone-implant interfaces. Computed tomography (CT) was carried out on 25 ankles that had progression of osteolysis.

Results:
Radiographs revealed 37 of the 99 ankles showed radiological evidence of osteolysis. When progression was identified on sequential radiographs, 12 ankles had no progression of the osteolytic lesion through the followup period. Fifteen ankles demonstrated limited progression of the osteolytic lesions that progressed for a variable period of 6 to 12 months after first appearing and then became static. Continuous progression was seen in 10 ankles through the followup period. Twenty-one of 37 ankles showed osteolysis within 1 year and 90.5% of those showed no progression or limited progression. In contrast, 50% of 16 ankles that had osteolytic lesion after 1 year showed continuous progression. Helical CT scan was more accurate than radiographs for identifying and measuring periprosthetic osteolysis for TAA. None of the demographic parameters was found to be significantly different between two groups of subjects either with or without osteolysis. No significant association was found between the presence of osteolysis and clinical and radiologic outcomes.

Conclusion:
The early diagnosis of osteolysis of the ankle is challenging and critical, because patients often are asymptomatic until after considerable bone loss. Better understanding of common anatomic lesions as well as the incidence and the natural history of osteolysis may improve the likelihood of identifying this problem. Our study suggested that osteolysis associated with TAA may indeed be common in the postoperative period, but most of the ostelytic lesions were relatively quiescent. Early diagnosis and careful evaluation of the osteolysis provide a clinical opportunity to receive limited revision surgery for the ankle with impending failure of the prosthesis.