Intermediate-Term Results Following First Metatarsal Cheilectomy

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Summary
The primary goal of this study was to determine how long a cheilectomy can be expected to last before an arthrodesis or joint destructive procedure is performed, if ever. We examined 189 cheilectomies. Analysis showed five repeat cheilectomies, one interpositional arthroplasty, and only two arthrodeses subsequently performed. This retrospective study provides intermediate term evidence that cheilectomy is an appropriate procedure for stages one, two, and three first MTP degenerative joint disease with reliable, lasting results.

Introduction
Hallux rigidus is a term describing degenerative joint disease (DJD) to the first metatarsal phalangeal joint (MTP). It is the most common DJD encountered in the foot and is the second most common pathology of the great toe behind hallux valgus. The goal of a cheilectomy is to relieve pain and increase MTPJ motion. The primary goal of this study was to determine how long a cheilectomy can be expected to last before an arthrodesis or joint destructive procedure is performed, if ever.

Methods
A retrospective radiographic and chart review of 197 consecutive cheilectomies was performed on 189 patients (8 bilateral) with hallux rigidus between 2003 and 2010 at a single institution. The diagnosis of hallux rigidus was made by combining clinical and radiographic findings as follows: A clinical exam eliciting pain with range of motion activities and soft tissue swelling combined with a radiographic display of dorsal osteophytes and/or joint narrowing, yet maintaining a congruous joint. Preoperative grading using the Coughlin scale was performed and recorded, stage one through three, based upon preoperative radiographs. Success was determined by lack of joint destructive subsequent first MTP surgery.

Results
The study population consisted of 189 consecutive patients after excluding patients who had a primary cheilectomy with interpositional arthroplasty, primary arthrodesis, failed implant revision, gout, rheumatoid arthritis or osteomyelitis. This group was comprised of 71 males and 118 females with a mean age of 49±10.5 years (range, 13 to 80 years). Eight of these cases were bilateral. The mean radiographic follow up time was 235±405 days (0.64±1.11 years) and the mean chart review follow-up time was 1184±831 days (3.23 ±2.28 years). The failure rate of the cheilectomy procedure was found to be 1.5% in this study, with failure defined as subsequent arthrodeses or another type of joint destructive procedure. No significant correlation was found between these failures and the demographics, radiographic grading, longevity or adjunct procedures, using the Pearson coefficient in SPSS statistical software (SPSS 13.0, Chicago IL).

Conclusions
Our study cohort ranged from grades one to three and we found no significant correlation with the success of the cheilectomy and preoperative grade. Although we did not include operative cartilage findings, outside of OCD drilling, this has been noted in other studies and may be beneficial to perform in future studies. We found that the cheilectomy was a successful procedure for Coughlin grades I, II, and III hallux rigidus after a mean of three years. This adds to the existing literature leading to the favorability of this procedure.