Soft-tissue Impingement: A Systematic Review and Case Series

**Purpose**
Arthroscopic diagnosis and treatment of anterolateral ankle soft-tissue impingement yields satisfactory results and is a procedure we perform with regularity at our facility. No study examining the incidence of complications specific to this procedure in isolation has been previously published. We sought to determine the overall incidence of complications regardless of specific etiology, in both the literature and the senior author’s practice following arthroscopic treatment of isolated anterolateral soft-tissue impingement of the ankle joint.

**Methodology**
We performed a systematic review of electronic databases and relevant peer-reviewed sources including OvidSP/MEDLINE (http://ovidsp.tx.ovid.com) and a scientific search engine (http://scholar.google.com) between March and August 2013 with no restriction on date or language and used an inclusive text word query “anterolateral” AND “ankle” AND “impingement” OR “soft-tissue impingement” AND “arthroscopy” in which the all-uppercase words represent the Boolean operators used. Additionally, we manually searched common American, British and European orthopaedic and podiatric scientific literature for relevant articles. Only articles that employed a standard two-port anterior arthroscopic approach for diagnosis and treatment of anterolateral soft-tissue impingement with a minimum mean follow-up of 12-months were considered.

We also performed an observational case series involving a retrospective review of prospectively collected data of 14 consecutive arthroscopic procedures for isolated treatment of anterolateral ankle soft-tissue impingement at our facility between December 2010 and March 2013 (Table 1). Each patient underwent arthroscopic synovectomy and extensive débridement using a standard two-port anterior approach under general anesthesia without distraction and with infrequent use of a thigh tourniquet for hemostasis. All complications were documented as they occurred. Patients demonstrated varied specific intra-articular pathologies, including synovitis in all patients, both an impinging distal fascicle of the anterior-inferior tibiofibular ligament (AITFL) and a meniscoid lesion in six patients, an isolated impinging distal fascicle of the AITFL in five patients, excessive hypertrophy of the synovium to the anterolateral aspect of the ankle in two patients and an isolated meniscoid lesion in one patient (Figure 1).

**Results**
Our systematic review search yielded a total of 52 references, with 15 (28.6%) being included (Table 2). There were 396 patients with 397 ankles, and a 2:1 ratio of men to women. The weighted mean age was 31.2-years and the weighted mean follow-up was 33.7-months. The overall incidence of complications was 4%, with the majority of the reported complications being considered minor as they resolved either spontaneously or following conservative treatment by 12-months postoperatively. Only three complications were considered major as they persisted beyond 12 months or required further treatment, and all were nerve-related.

We retrospectively reviewed 14 of 76 anterior ankle arthroscopic procedures that were performed for isolated anterolateral ankle soft tissue impingement with an almost 4:1 ratio of women to men. The mean age was 43-years and the mean follow-up was 25.1-months. We encountered only one complication which was minor and completely resolved by three weeks postoperative. There were no major complications in this case series.

We found no significant difference between the data of the systematic review and our own, therefore summarized all of the data to yield a total of 411 procedures with an overall incidence of complications of 4.1%.

**Analysis and Discussion**
We found a 4.1% overall incidence of complications after arthroscopic treatment of isolated anterolateral ankle soft-tissue impingement using a standard anterior two-port technique. This was categorically divided into major and minor complications, with a very low incidence of major complications (0.7%) and an acceptably low incidence of minor complications (3.4%). Metacarpal approach to ankle arthroscopy is mandatory as complications are largely related to nerve injury. Based on our findings, when indicated, this is a safe procedure. Additional investigations with patient outcome measures may be necessary to determine if this treatment improves patient function.