Clinical and Radiographic Characteristics of Patients Treated with Subchondroplasty of Ankle

Background:
Subchondroplasty (SCP) of the ankle is a novel procedure developed in 2007 that uses fluoroscopically guided injection of a calcium phosphate biologic into an osteochondral defect (Cohen & Sharkey, 2015). Osteochondral defects can be caused by trauma, osteoarthritis, and osteonecrosis. SCP is used to stabilize these defects in order to minimize pain associated with the procedure. SCP is predominantly utilized in treating osteoarthritis of the ankle and the knee, and the majority of the literature revolves around this indication. SCP of the ankle, being such a new procedure, has not been well described in the literature; this is an issue that can cause confusion in many areas of patient care. More specifically, the lack of a radiological description of post-operative SCP can lead to mistakes in diagnosis and treatment of these patients if treating physicians are not yet familiar with the procedure. There are reports that describe the radiographic characteristics of knee SCP (Nevalainen et al., 2016). A similar study on the radiographical appearance of ankle SCP would prove to greatly improve the care of patients receiving this procedure, and avoid unnecessary imaging and pathological work ups.

Hypothesis:
There are specific radiographic characteristics that can be identified and described in imaging of the foot and ankle following Subchondroplasty (SCP). These characteristics can be used to differentiate SCP from other procedures and/or pathologies on ankle imaging.

Study Design:
The purpose of this study is to identify key characteristics found on the foot and ankle following Subchondroplasty (SCP) is performed in order to establish a standard radiographic appearance of patients’ foot and ankle joints post surgery. With a well described radiographic appearance, we hope this novel technique will be less misdiagnosed as other procedures or pathologies. In order to establish these characteristics, patients that have received SCP within or near the ankle joint will be identified by their surgeons and organized into a spreadsheet. This spreadsheet will use electric medical record (EMR) to include date of birth, date of surgery, and listing of any x-rays, MRIs, or CT scans taken before or after surgery. Additionally, the spreadsheet will denote whether each patient has been scheduled for follow up. If there is no follow up scheduled for the patient, contact will be made to arrange an office visit. At follow up appointments, post-surgery imaging will be taken for patients who have not yet had any. When all post-surgery imaging has been collected, the radiology department will use the picture archiving and communication system (PACS) to compare, characterize, and describe the appearance of patient imaging after SCP. Individual reports will then be collected and summarized into a single report describing the general characteristics of post-SCP imaging.

References