Thursday: X-ray: 2:06 – 2:12 pm

Classification of asymmetric osteoarthritis and risk factors for treatment failure after supramalleolar osteotomies

Presenting Author
Markus Knupp, MD – Liestal, Switzerland

Additional Authors:
Lilianna Bolliger, MSc
Sjoerd A. Stufkens, MD
Alexej Barg, MD
Beat Hintermann, MD

Summary:
Supramalleolar osteotomies have gained increasing popularity for the treatment of osteoarthritis of the ankle joint. In this study 92 patients were treated with a supramalleolar osteotomy and additional procedures according to an algorithm. We found that preoperative distinction of different subgroups of asymmetric osteoarthritis was helpful for determination of ancillary procedures and to define risk factors for treatment failure.

Background:
Supramalleolar osteotomies have gained increasing popularity for the treatment of asymmetric osteoarthritis (OA) of the ankle joint. However, numerous underlying etiologies have been identified and therefore the indication for supramalleolar osteotomies and the use of ancillary procedures is not clearly defined.

Purpose:
The purpose of this study was to determine the usefulness of a novel classification system for asymmetric OA. The classification was used to determine ancillary procedures and to assess the outcome of the different subgroups.

Method:
92 consecutive patients (94 ankles) with asymmetric OA of the ankle joint were classified and treated according to an algorithm (Table I). All patients underwent a supramalleolar osteotomy and additional procedures (calcaneal osteotomy, ligament reconstruction) where needed. Prospective data collection included clinical (AOFAS Hindfoot score, VAS) and radiological outcome parameters (angle of the joint surface, Hindfoot view, Takakura score). The follow up time was 43 months (12 to 126 months). The outcomes were analyzed and the different subgroups compared.

Results:
All but one group (varus Group III) showed significant improvement of the clinical scores (p<0.05). Significant improvement of radiological signs of OA was found in midstage OA (p<0.05). Age and gender did not affect the outcome. Worse outcomes were found for patients with postoperative joint incongruency (e.g. inadequate length / position of the fibula), joint instability, OA in the medial gutter. Ten ankles were converted to a total ankle replacement (nine cases) or fused (one case).

Discussion:
Earlier good results of supramalleolar osteotomies were confirmed in a large patient group with midstage OA. However, certain subgroups have a tendency towards a worse outcome and additional surgery may be required to appropriately balance the joint. Risk factors for treatment failure of after supramalleolar osteotomies include postoperative joint incongruency due to fibular malposition, joint instability and advanced stages of OA in the medial gutter.

Conclusion:
Defining different subgroups of asymmetric OA of the ankle joint eases preoperative planning of supramalleolar osteotomies and determination of additional procedures. Furthermore, it allows isolating patients at risk for treatment failure.
Table I: Treatment algorithm for asymmetric osteoarthritis of the ankle joint. (SMOT: supramalleolar osteotomy, OT: osteotomy)