Talar OsteoPeriostic Grafting from the Iliac Crest (TOPIC): Long Term Sustained Clinical Success of Osteoperiosteal Autograft for Medial Osteochondral Lesions of the Talus

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INTRODUCTION: Large osteochondral lesions of the talus (OLTs) may be treated using an osteoperiosteal autografting. The novel technique Talar OsteoPeriostic grafting from the Iliac Crest (TOPIC), uses a press-fit osteoperiosteal autograft from the ipsilateral iliac crest. However, no long-term results of this technique are available. Therefore, the primary aim is to assess the Numeric Rating Scale (NRS) of pain during walking at 5-year follow-up after a TOPIC procedure for a medial OLT. The secondary aim is to prospectively evaluate the other clinical, radiological and safety outcomes at 5-year follow-up.

METHODS: A prospective cohort study of patients who underwent the TOPIC procedure for a medial OLT with a follow-up of more than 5-years was conducted. The primary outcome was the NRS of pain during walking. Other clinical outcomes included the NRS during rest and stairclimbing, the Foot and Ankle Outcome Score (FAOS), the Mental (MCS) and Physical Component Score (PCS) of the Short Form-36 (SF-36), and the AOFAS ankle-hindfoot score. All clinical outcomes were measured preoperatively and after 1-year, 2-years and 5-years of follow-up. Computed tomography (CT) scans were performed pre- and postoperatively to assess osteotomy union, graft incorporation and cyst development. Additionally, complications, reoperations and hardware removal were recorded.

RESULTS: 33 patients were assessed with 100% follow-up. The NRS of pain during walking improved from 7 [5-8] preoperatively to 2 [1-3] at 5-year follow-up ($p < 0.001$). The NRS during rest and stairclimbing improved with 2 ($p < 0.05$) and 4 points ($p < 0.001$), respectively. All FAOS subscales improved significantly. The SF-36 PCS improved (32 to 35; $p < 0.05$) and the MCS improved (39 to 47; $p = 0.002$). On CT, 100% osteotomy union and 100% graft consolidation was found. No major complications occurred.

DISCUSSION AND CONCLUSION:

Talar OsteoPeriostic grafting from the Iliac crest results in sustained clinically effective outcomes for large, complex osteochondral lesions of the medial talar dome, with the NRS of during walking improving from 7 points pre-operatively to 2 points at 5-year follow-up, thereby surpassing beyond clinically relevant changes.