Treatment of Extended Osteochondral Lesion of Talus by a Free Vascularized Bone Graft from Medial Condyle of Femur

Presenting:
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Summary:
The use of a vascularized bone graft of medial condyle of femur for the treatment of an extended osteochondral lesion (OCL) of talus was found to be a promising treatment option in young and active patients.

Introduction:
Though marked progresses have been seen in the surgical treatment of OCL, available techniques have mostly failed in extended lesions of more than one third of talar surface. First reports with fresh-frozen allograft are promising; they are not available in many countries, however. An alternative technique is the use of a vascularized bone graft. We have identified the medial condyle of the femur as ideal location for harvesting of a solid vascularized bone graft that fulfills the required criteria of 1) being large enough, 2) being solid enough, 3) having a consistent affering artery, 4) having a contour alike the talar surface, and 5) having a periosteum cover. The purpose of this study is to present our first results on 14 patients with symptomatic OCL treated by this technique.

Methods:
Since August 2004, 14 consecutive patients (females, 5; males, 9; age 35 [20 - 54] years) were treated for an extended OCL (> 1/3 of talar articular surface) with the use of a vascularized bone graft from medial condyle of femur. All but one patient had minimally one previous surgery (mean, 1.8 [0 – 4] surgeries: debridement and microfracturing, 11; drilling (Bridy), 3; debridement and filling with cancellous bone, 3; AMIC membrane, 5; OATS, 3; and mosaicplasty, 3. OCL of medial talus (n = 13) were approached by medial arthrotomy through an osteotomy of medial malleolus; whereas, OCL of lateral talus (n = 1) were exposed by a lateral arthrotomy and dissection of lateral ankle ligaments. The OCL was debrided to vital bone, and a vascularized bone graft harvested from the medial femur condyle was inserted in a press-fit manner. Attention was paid to get a surface without any step, and to preserve the periosteum layer on articulating surface. If primary stability was critical, a screw fixation was considered. Postoperatively, continuous passive motion was started after 5 days. Further, the foot was protected by a splint and walker, respectively. Only partial weight-bearing was permitted during the first 8 weeks. Besides of standard X-rays, CT scan was used preoperatively, after 8 weeks and 12 months for assessment of size of OCL and osteointegration of the graft, respectively. Clinical assessment included pre- and postoperative AOFAS hindfoot score and VAS score for pain.

Results:
No intra- or perioperative complications were recorded. While complete bone graft incorporation was confirmed by CT-scan after 8 weeks in 12 ankles, it was in the 2 other ankles in an additional CT after 11 and 13 weeks, respectively. The AOFAS score increased from preoperatively 65 [41-70] to 81 [54-92] at latest follow-up of 3.1 (2 - 7) years. VAS score decreased from 5.8 [5-8] to 1.8 [0-4]. Three patients needed arthroscopic debridement for anterior ankle impingement, and in 2 patients removal of screws was done. Thirteen patients were satisfied/very satisfied with the obtained result. All but 2 patients turned back to the former level of sports activity; whereas, 2 patients did not practice sport before and thereafter.

**Conclusion:**
Our first series of treatment of extended OCL by a vascularized bone graft from medial condyle of femur yielded excellent with regard of restoring the integrity of talar surface, joint motion and pain relieve. Thus, we continue with this technique for the treatment of symptomatic extended OCL of talus, in particular after previous failed treatment and in sportive patients.