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Clinical and functional results of surgical treatment of osteochondral lesions of the talus by matrix-induced autologous chondrogenesis technique (AMIC)

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Introduction: There is still no consensus on the ideal method for treating osteochondral lesions of the talus (OCL). Matrix-induced autologous chondrogenesis (AMIC), with the application of a collagen membrane, aims to enhance cartilage regeneration and promote restoration of the articular surface. This technique has been used as a promising alternative in the management of talar OCLs. The objective of this study was to evaluate the clinical and functional results of the AMIC technique in the treatment of talar OCL and to analyze the association between outcomes and lesion characteristics, procedures performed, and imaging findings at follow-up.

Methods: A retrospective multicenter study that included 36 patients undergoing the AMIC technique. The outcomes evaluated were the AOFAS, VAS scores, and the rate and time of return to physical activities. Area, depth, quadrant, presence of subchondral cyst, and lesion containment were analyzed. Associated procedures, use of bone graft, and surgical approach (open/arthroscopic) were also evaluated. The presence of bone edema or cysts on postoperative magnetic resonance imaging (MRI) was also correlated with clinical outcomes.

Results: The mean age of the patients was 40.69 years, with a mean follow-up of 39.11 months. Significant improvement in AOFAS and VAS scores was observed ($p < 0.001$). The rate of return to physical activity was 83%, with a mean time of 8.6 months. The only significant correlation found was between bone edema on postoperative MRI and lower AOFAS score ($p = 0.033$). The other variables analyzed did not show a significant correlation with the outcomes.

Conclusion: The AMIC technique led to significant clinical and functional improvements, with a high rate of return to physical activities. The characteristics of the lesion and the associated procedures did not influence the results in this patient sample, whereas the persistence of bone edema on MRI was associated with a lower functional score.

Keywords: Talus; Chondrogenesis; Treatment Outcome.

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