MRI and Histology of Collagen Template Disc Implantation and Regeneration in Rabbit Temporomandibular Joint: Preliminary Report. (doi: 10.1016/j.transproceed.2004.05.049)

賴文福
Chan WP;Lin MF;Fang GL;Lai WF

摘要

Abstract

Introduction

We aimed to evaluate regeneration of injured temporomandibular joint (TMJ) discs following reconstituted collagen template implantation in rabbits using contrast-enhanced magnetic resonance imaging (MRI) and to correlate these findings with histology.

Methods

Twenty-four adult rabbits were divided into five groups: group A, partial discectomy without implantation (n = 6); group B, partial discectomy with collagen template implantation (n = 6); group C, partial discectomy with subdermal graft implantation (n = 6); group D, sham operation (n = 4); and group E, control (n = 2). All rabbits received baseline MRI scans before surgery and follow-up MRI studies at 3 months after surgery. All rabbits were sacrificed for histologic analysis after the follow-up MRI.

Results

In group A, follow-up MRI showed marked joint effusion in all six injured TMJs, which was accompanied by bony erosion at the tympanic fossa and mandibular condyle. In group B, MRI showed a homogenous low signal intensity in five of six discs, suggestive of regeneration. One disc showed higher signal intensity at its lateral portion than that of the original disc, indicating partial regeneration. MRI of group C depicted a low signal intensity, bandlike regenerative structure in four of the six discs. One disc with partial regeneration demonstrated relatively high signal intensity. The disc in the sixth animal of this group showed no evidence of regeneration. All of the MRI findings were in agreement with the histologic findings.

Conclusion

TMJ discs can regenerate following implantation of a reconstituted collagen

template in discectomied rabbits. Contrast-enhanced MRI can be used to monitor and determine the degree of disc regeneration.