

Evaluation of Decellularized Xenogenic Porcine Auricular Cartilage as a Novel Biocompatible Filler

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Background

The object of this study is to evaluate the feasibility of decellularized xenogeneic cartilage as a long-lasting material for soft tissue augmentation and compare with other commercially available long-lasting materials (ArtesenseTM and Radiesse[®]) in the aspects of the complication such as foreign body reaction and local inflammation around injected substances.

Methods

Porcine auricular cartilage was harvested under Institutional Animal Care and Use Committee(IACUC) approval. After freezing and grinding of harvested cartilage, we processed a decellularization protocol with 1% Triton X-100. Then we injected decellularized xenogeneic cartilage flakes, Radiesse[®], and ArtesenseTM into the subcutaneous layer of twelve Sprague-Dawley rats respectively.

Results

Giant cell infiltration around injected substances was sig-

nificantly lower in the decellularized xenogeneic cartilage injection group compared with Radiesse[®] and ArtesenseTM injection group. Neutrophil infiltration was seen in the xenogeneic cartilage injection group and ArtesenseTM injection group at 1 month, but it was much decreased and almost not detected in the 3 months, same degree with Radiesse[®] injection group.

Conclusion

Decellularized xenogeneic cartilage has excellent advantage in the aspects of foreign body reaction compared with existing commercially available injection materials.

In the future, it is thought to be a quite feasible and biocompatible material in the fields of both soft tissue filler and injection laryngoplasty.

Keywords

Decellularization, Xenogenic implant, Cartilage engineering, Natural filler, Injectable filler, Foreign body reaction