

[Laryngorhinootologie](#). 2009 Apr;88(4):241-6. Epub 2009 Apr 3.

[Investigation of a new highly porous hydroxyapatite matrix for obliterating open mastoid cavities - application in guinea pigs bulla]

[Article in German]

[Punke C](#), [Zehlicke T](#), [Boltze C](#), [Pau HW](#).

Klinik und Poliklinik für Hals-Nasen-Ohrenheilkunde, Kopf und Halschirurgie Otto Körner der Universität Rostock, Rostock. christoph.punke@med.uni-rostock.de

BACKGROUND: Many different techniques for obliterating open mastoid cavity have been described. The results after the application of alloplastic materials like Hydroxyapatite and Tricalciumphosphate were poor due to long-lasting resorption. Extrusion of those materials has been described. We investigated the applicability of a new high-porosity ceramic for obliterating large open mastoid cavities and tested it in an animal model (bulla of guinea pig). **METHODS:** A highly porous matrix (NanoBone) bone-inductor fabricated in a sol-gel-technique was administered unilaterally into the opened bullae of 30 guinea pigs. In each animal the opposite bulla was filled with Bio-Oss, a bone substitute consisting of a portion of mineral bovine bone. Histological evaluations were performed 1, 2, 3, 4, 5 and 12 weeks after the implantation. **RESULTS:** After the initial phase with an inflammatory reaction creating a loose granulation tissue, we observed the formation of trabecular bone within the fourth week in both groups. From the fifth week on we found osteoclasts on the surface of NanoBone and Bio-Oss with consecutive degradation of both materials. **CONCLUSION:** In our animal model study we found beneficial properties of the used bone-inductors NanoBone and Bio-Oss for obliterating open mastoid cavities.