

## **Subcutaneous reactions and degradation characteristics of collagenous and noncollagenous membranes in a macaque model**

Type:

Article

Abstract:

**Background** Collagenous and noncollagenous membranes have been investigated in many animal systems but their effects in the macaque model are unknown. **Objective** To determine subcutaneous cellular reactions and degradation characteristics following implantation of collagenous and noncollagenous membranes in a macaque model. **Methods** Six adult male *Macaca fascicularis*, aged above 7 years, were used. Six commercially available collagenous (Bio-Gide (R) [BG], Tissue Fleece (R) [TFL], TissueFoil E forte (R) [TFO], Lycoll (R) [LC], Surgicoll (R) [SG] and Tutodent (R) [TU]) and two noncollagenous (Tabotamp (R) [TA] and Gelita-Tampon (R) [GT]) membranes (size 2 x 2 cm each) were implanted in unconnected subcutaneous pouches in the monkey's back and wounds were allowed to heal by primary intention. The total sample size for each membrane was six. Two monkeys were sacrificed for each experimental period of 4, 14 and 28 days. Explanted specimens were prepared for histologic and histomorphometric analysis. Digitized images of implant sites were systematically sampled using an Image Analyzer with a grid containing 35 intersection points. Four parameters were quantified: membrane degradation, foreign body reaction, tissue organization and vascularization. **Results** Biodegradation rate and vascularization scored higher in collagenous than in noncollagenous membranes. Except for TFL and TU, the remaining six membranes showed a moderately intense foreign body reaction at week 2. Tissue organization was initiated early in four out of six collagenous (TFL > LC > SG > TFO > BG > TU) compared with one of two noncollagenous (TA > GT) membranes. **Conclusions** The results suggest that differences in membrane structure and composition underlie their different cellular reactions and degradation characteristics. To cite this article: Siar CH, Toh CG, Romanos G, Ng KH. Subcutaneous reactions and degradation characteristics of collagenous and noncollagenous membranes in a macaque model. *Clin. Oral Impl. Res.* 22, 2011; 113-120. doi: 10.1111/j.1600-0501.2010.01970.x.

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