Effect of polyglycolic acid sheets with fibrin glue (MCFP technique) on the healing of wounds after partial resection of the border of the tongue in rabbits: A preliminary study.

Authors: Yonezawa H., Yamada S.-I., Yanamoto S., Yoshitomi I., Kawasaki G., Umeda M.

Publication Date: 2012

Abstract:

The aim of this study was to examine the effectiveness of covering wounds to the tongue with a polyglycolic acid (PGA) sheet and fibrin glue. Eighteen mature male Japanese white rabbits had a unilateral glossectomy involving an area 10 mm x 10 mm x 2 mm. After glossectomy the tongues were covered with PGA sheets 8 mm x 8 mm in size and fibrin glue (mucosal defect covered with fibrin glue and polyglycolic acid sheet = MCFP) 1 week after the operation (n = 3), after 2 weeks (n = 3), and after 4 weeks (n = 3). In control groups, after 1, 2, and 4 weeks (n = 3 in each group), the partially resected tongues were closed with absorbable sutures (polyglactin 910). One week (experimental and control groups 1), 2 weeks (experimental and control groups 2) and 4 weeks (experimental and control groups 3) after operation the tongues were harvested and stained for microscopic examination. Histological examination showed that the covered wound surface had not epithelialised and the basal layer had yet to form in experimental group 1, but had formed in experimental group 2. However, in control group 1, epithelialisation of the sutured wound had begun. Immunohistochemical examination showed that, in experimental group 1, the non-uniform epithelial layer of the covered wound surface expressed cytokeratin AE1/AE3, and the epithelial and connective tissue layers stained strongly for FGF-2. Similar results were obtained in experimental group 2, whereas in experimental group 3, FGF-2 was expressed only in the connective tissue layer, and epithelialisation was complete. However, in control group 1, AE1/AE3 was expressed in the epithelial layer, and FGF was expressed in the connective tissue layer beneath the basal layer. In

control groups 2 and 3, AE1/AE3 and FGF-2 were expressed in patterns similar to those in experimental groups 2 and 3. We suggest that this method is useful and the operation is simple. However, further testing of the method is needed and it should be widely used clinically before it is recommended.