An alternative sutureless repair technique with amelogenin for duodenal perforation.

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Abstract:

Background : Among the various sutureless techniques, fibrin glue has proved to be effective in the treatment of peptic ulcer perforation as an alternative to classical suture repair. Albeit rare, a potential disadvantage of fibrin glue use is viral transmission or anaphylaxis. The aim of this study is to introduce a new technique for the closure of duo - denal perforation using a novel recombinant enamel protein called amelogenin. Methods : In this case-control experimental study, 32 adult male Wistar Albino rats weighing 250-300 g were randomly divided into four groups, each containing 8 rats. Duodenal perforation of 0.2 cm were performed in the postpyloric region in all rats. Each group received primary repair, primary repair with omentoplasty, fibrin glue, and amelogenin, respectively. All animals were killed on the postoperative day five and the bursting pressure measurements, hydroxyproline levels and histopathologic values of the wound site were evaluated. Results : Bursting pressure levels of the fibrin glue and amelogenin groups were significantly lower than the primary repair and primary repair with omentoplasty groups ($P < 0.05$) However, no significant difference existed between the fibrin glue and amelogenin groups in this respect ($P > 0.05$). There was also no statistically significant difference among all groups regarding tissue hydroxyproline levels and histopathologic values ($P > 0.05$). Conclusion : Application of amelogenin as an alternative sutureless repair technique did not improve wound healing in this animal model of duodenal perforation.