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EXPERIMENTAL STUDIES ON THE HEALING PROCESS IN CANINE GASTROTOMY

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The healing process in canine gastrotomy was investigated to obtain basic data on it. Gastrotomy was performed at a total of 6 sites in the proximal and distal fundi and the pyloric part of the partial and visceral faces of the gaster. The gastric incisions were closed by the Albert-Lembert (A-L) suture or the layer to layer (L-L) suture at each gastric face using polyglycolic acid sutures. The healing processes after gastrotomy were compared among the 3 sites and between the two suture methods for 84 days postgastrotomy (*p.g.*) using 24 mongrel dogs.

The results were summarized as follows:

(1) On the gross findings: The proptosis (inversion) of closure sites into the gastric lumen was marked on the A-L suture sites as compared with the L-L suture sites. Congestion and edema at the A-L suture area remained until the 14th day *p.g.*. However, they almost disappeared on the 7th day *p.g.* at the L-L suture area. (2) On the micro-angiographic findings: The avascular area which was found immediately after closure was reduced until the 14th to the 21st days *p.g.* at the A-L suture sites and until the 7th to 14th day *p.g.* at the L-L suture sites. Revascularization in three avascular areas tended to be active in the pyloric part rather than in the gastric fundus. (3) On the histological findings: Cellular infiltration with mainly neutrophils was shown in early phase, followed by mononuclear cells after the 5th to 7th day *p.g.*. But inflammatory reaction and partial decudation of mucosa appeared temporarily at the A-L suture sites on about the 21th days *p.g.*. The regenerated mucoepithelium from both ends of the incised wall were already connected to each other on the 3rd or 5th day *p.g.*. Then, the connected epithelia entered concavely between the contact faces of the incised wall. These concave mucoepithelia were gradually pushed off by the granulation tissue which grew between the contact faces of the incised wall from the 7th to 14th day.

From the results mentioned above, it was shown that the L-L suture was superior to the A-L suture for the healing of incised wounds in canine gastrotomy and that wound healing on incised portions of gastric wall tended to be fastest in the pyloric part, followed in order by the distal fundus, and the proximal fundus of gaster.