

Canine choledochotomy closure with diode laser-activated fibrinogen solder.

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Abstract:

BACKGROUND: An alternative to mechanical stapling or hand suturing is needed to permit laparoscopic common bile duct exploration. We evaluated the strength and healing characteristics of canine choledochotomies sealed with a fibrinogen solder and a diode laser.

METHODS: After creation of a 0.5 cm longitudinal choledochotomy, the edges were coapted with forceps, and a fibrinogen solder mixed with indocyanine green dye was applied. The solder was sealed in place with an 810 nm diode laser (125 W/cm²).

RESULTS: Immediate mean leakage pressure was 264 +/- 7 mm Hg compared with 83 +/- 66 mm Hg in suture controls. This increased to 364 +/- 115 mm Hg at 2 days and was more than 510 mm Hg at 7 days. On histologic examination rapid reabsorption of the solder with no signs of inflammation or stenosis was seen. No episodes of dehiscence or peritonitis occurred.

CONCLUSIONS: Laser soldering provides a watertight choledochotomy closure with adequate immediate strength allowing a reliable, technically feasible common bile duct exploration via a laparoscopic approach.