RESTORATION OF AN OBLITERATED COMMON BILE DUCT IN DOGS

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Bryuno [1] and Klodnitsky [2], studying bilification in dogs with an exposed common bile duct, observed cicatrization of the duct in the region of the papilla in a series of cases.

When we studied bilification in dogs with the common bile duct exposed by I. P. Pavlov's method [3], we also observed cicatrization of the bile duct in the region of the papilla in three dogs.

Bile secretion from the exposed duct was observed in the dogs a few days after the operation. In all three dogs, a different intervals after the operation (4, 8, 10 months), the bile duct became cicatrized in the papilla region and bile secretion from it ceased. At this time, the scleras were jaundiced, the dogs' feces were colorless, and the urine was dark brown and looked like bile.

After a few weeks, the jaundice disappeared from the scleras, the feces and the urine regained their normal colors.

Two of the dogs were sacrificed and the other was left for further examination.

When autopsies were made on the dogs, pressure on the gallbladder in the region of the cicatrices caused normally colored bile to pour out into the duodenum. The whole length of the bile duct was greatly thickened, as is always observed in dogs with an exposed common bile duct.

Histological examination showed this duct to be rather wide and lined with a tall, prismatic epithelium (Fig. 1, a, Fig. 2). The circular and longitudinal muscle layers were well expressed.

At the place where the duct had been brought to the body surface, it was obliterated in the region of its papilla. The individual layers of the duct were undifferentiated and replaced to a considerable extent by connective tissue. Near the former orifice, the bile duct lumen, still differentiated in places, was filled with an abundant infiltration of small cells. Sharply changed, degenerating bile duct glands could be seen in the connective tissue surrounding the lumen of the duct.

One must note that the functional importance of the formations called bile duct glands is still not sufficiently clear. Some consider them to be abortive bile ducts, others, bile reservoirs, and a group of authors declare that their function is secretory.

Benediktov [1] describes the bile duct glands of dogs as broad, weakly-branching tubes, with lumina directed towards the duodenum.

In the region of the cicatrices near the duodenum, the bile duct looked like a large sac, lined with a tall, cylindrical epithelium with a cuticular rim. The mucosa on the inside of the sac was extraordinarily rich in crypts.

There was a well-expressed muscular layer with numerous bile duct glands in the wall of the sac. The muscular layer disappeared at the place where the epithelium lining the inside of the duct contacted the

* Deceased.

mucosa of the duodenum (Fig. 3).

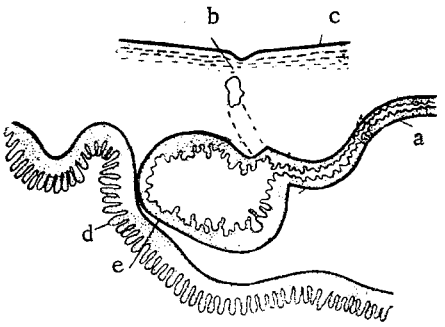

Figure 1. Schematic illustration of relationships in newly formed bile duct orifice. a) bile duct; b) bile duct brought up to skin surface; c) skin; d) mucosa of duodenum; e) newly formed part of bile duct.

Figure 2. Cross-section of a bile duct. Photomicrograph. Magnif. ocular 6 x, objective 15 x.

Histological examination permits the proposal that this is the place at which the bile enters the duodenum. We could not, however, find a clearly-defined bile duct opening. The bile duct glands also participated in the formation of the new bile duct near the duodenum, which was indicated by the presence of bile duct gland ducts directed towards the duodenum.

The possibility of the formation of a new pancreatic duct with a separate opening into the duodenum has often been mentioned in the literature. As I. P. Pavlov and G. A. Smirnov [4] have already described, this happens when the old duct is closed or ligated.

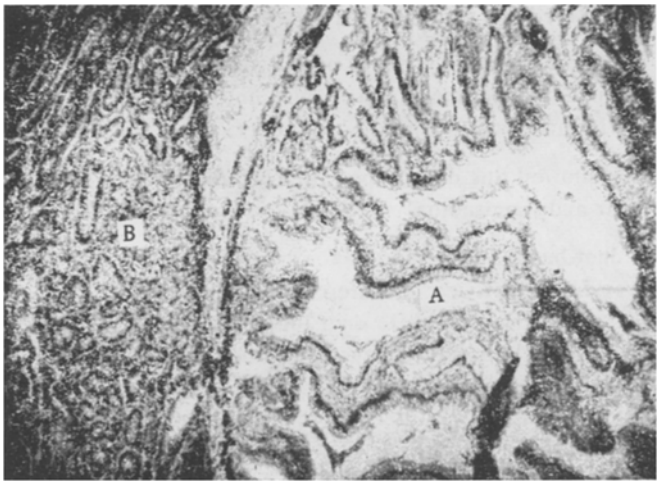

Figure 3. Newly-formed part of the bile duct. A) epithelium of the bile duct; B) mucosa of the duodenum. Photomicrograph. Magnif. ocular 6 x, objective 15 x.

We could not find any data on the formation of a new bile duct in the literature available to us.

The unique regenerative processes occurring in the body are indicated by these extremely interesting cases where new digestive gland ducts are formed.

SUMMARY

The construction of bile duct fistulae resulted occasionally in cicatrization of the duct in the papilla region. Autopsy of two dogs has demonstrated obliteration of the distal part of the duct and the formation of a new connection with the duodenum – restoration of the bile duct.

LITERATURE CITED

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