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Identification of rodent common biliary tract

Rodentlerde ortak safra kanalının saptanması

To the Editor,

In recent years, increasing interest surrounding islet replacement therapies in human has provided the drive for advances in the methods used to isolate islets from humans as well as a host of animal research models (1). Although there are many published islet isolation protocols specific to mouse and rat, few provide the necessary details for researchers to successfully perform the complex procedures (1). The one of the most prevalent approaches for isolating islets from rodent pancreatic tissue differ, primarily, in the way digestive enzymes are introduced to the pancreatic tissue surrounding the islets. In the first approach, collagenase is injected into the common bile duct of an animal. However, it is not easy to identify the rodent common biliary tract, because the tract is observed in enriched fat tissues anatomically.

We infused indocyanine green (ICG) (1.0 ml/body of 10 mg/ml) to the rats during about one minute through the femoral vein before surgery. Araki et al. (2) previously described a method for enhanced visualization of the common biliary tract using ICG and reported its use in 54 patients undergoing cholecystectomy. We have chosen ICG because of its rapid hepatic uptake, efficient biliary excretion, lack of toxicity, and prompt fecal elimination (3). Male Sprague-Dawley rats, weighting 400 to 450 g, were housed in a certified animal care facility and handled according to the *Guide for the Ca-*

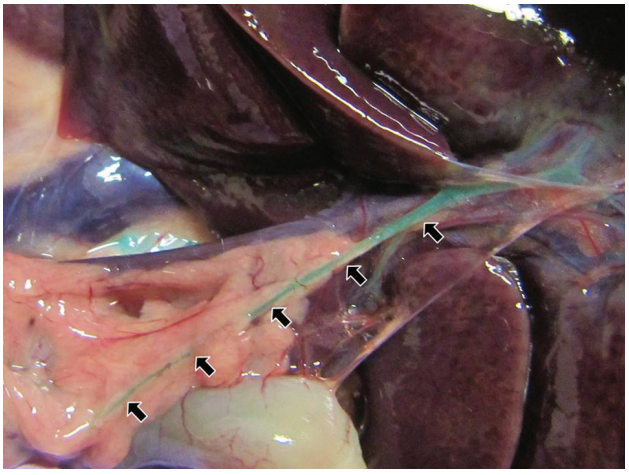

Figure 1. Enhanced visualization of the common bile duct by indocyanine green (arrows).

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re and Use of Laboratory Animals (4). With the subjects under pentobarbital anesthesia (50 mg/kg body wt), the abdomen and chest cavities were opened, and the lower lobes of the liver were moved aside to expose the pancreas.

We observed in real time the condition of the common biliary tract under the guidance of green color imaging, at 15 minutes after the administration (Figure 1).

The plasma disappearance of ICG was examined with a number of rapidly administered doses in the rat, rabbit, and dog (5). Over a 32-min period, the rate of disappearance was exponential in all three species, and the half-life increased with increasing doses of ICG. With infusions of ICG, it was found that the flow of bile decreased as the dose of ICG was increased. It was reported that in none of the three species, it was possible to reach maximally sustained rates of biliary excretion of ICG and that the rapid administration of ICG had little or no effect on the flow of bile in the three species (5). In summary, we have described a convenient technique to identify the rodent biliary tract, which contributes to the interest surrounding islet replacement therapies. After the several times successes in identifying the common bile duct by the administration of ICG, we could detect the site of common bile ducts much more easily without the administration in rats.

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