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## How To Make The Animal Model For Research Of Microbiome For Biliary Tract Disease: A Surgeon's Role

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**Background** : The microbiome has recently been studied as a new treatment method for various diseases. Extrahepatic bile duct cancer is one of the incurable diseases, and there is no other treatment method other than surgery, so a new treatment method is necessary. Animal experiments are essential for research on new treatments, but creating an animal model that mimics the human body is complex. In particular, creating a model using surgery without antibiotics is more complicated. In particular, the use of antibiotics in microbiome research is inappropriate because it affects the biota. In this study, we would like to report a successful anastomosis method of the gallbladder and duodenum without using antibiotics.

**Methods** : 1. Perform suture tie on common bile duct using 9-0 prolene to make complete obstruction. 2. Resection of the tip of the fundus of the gallbladder to make a round opening of the gallbladder 3. A 2mm straight incision was made in the first bulb of the duodenum. 4. We anastomosis the 12 o'clock, 5 o'clock, and 9 o'clock directions with the duodenum in an interrupted manner using a 9-0 prolene

**Results** : 90% of animals died when anastomosis was performed in a continuous suture manner. As a result of laparotomy, bile leakage occurred due to tearing of the gallbladder, and it was judged that the death was due to intra-abdominal infection. However, when interrupted in manner, the survival rate was more than 90% without infection signs. No significant difference in cytokine (IL-6, TNF- $\alpha$ ) was confirmed after surgery when compared with normal control group.

**Conclusions** : It was confirmed that it is an important animal model that can be used for future microbiome research because the inflammatory response in the body does not increase, even without antibiotics, before and after surgery.

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