

BIO-SENSOR SYSTEM DISCRIMINATING BETWEEN THE BILIARY AND PANCREATIC DUCTAL SYSTEMS

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ABSTRACT

Sphincter of Oddi manometry is the “gold standard” to evaluate the ductal anatomy of patients with suspected sphincter of Oddi dysfunction. During such procedure it can be unclear which duct is being investigated without radiographs. Bilirubin and other pigments in bile strongly absorb blue light whereas pancreatic fluid is clear and does not absorb blue light. The bio-sensor system incorporates fibre-optic technology to measure blue light absorbance in the ducts. Bench tests and animal tests were conducted utilising possums. In bench and animal experiments the bio-sensor correctly discriminated between bile and pancreatic juice, based on the absorbance of blue light. The mean absorbance of the bile was 3.57 ± 1.74 and that of the pancreatic duct fluid was 0.53 ± 0.34 ($P < 0.01$) in the animal models. The optical sensing system could be incorporated into a manometry catheter to aid sphincter of Oddi manometry shortening procedure time and reduce radiography exposure.

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