

## Early Detection of Aberrant Right Hepatic Duct-Cystic Duct Anatomy to Avoid Bile Duct Injury

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### 1. Abstract

Cholecystocholangiography may aid in the early detection of right hepatic duct variants. When this technique is combined with cystic duct marking the surgeon should be safely oriented regarding bile duct anatomy.

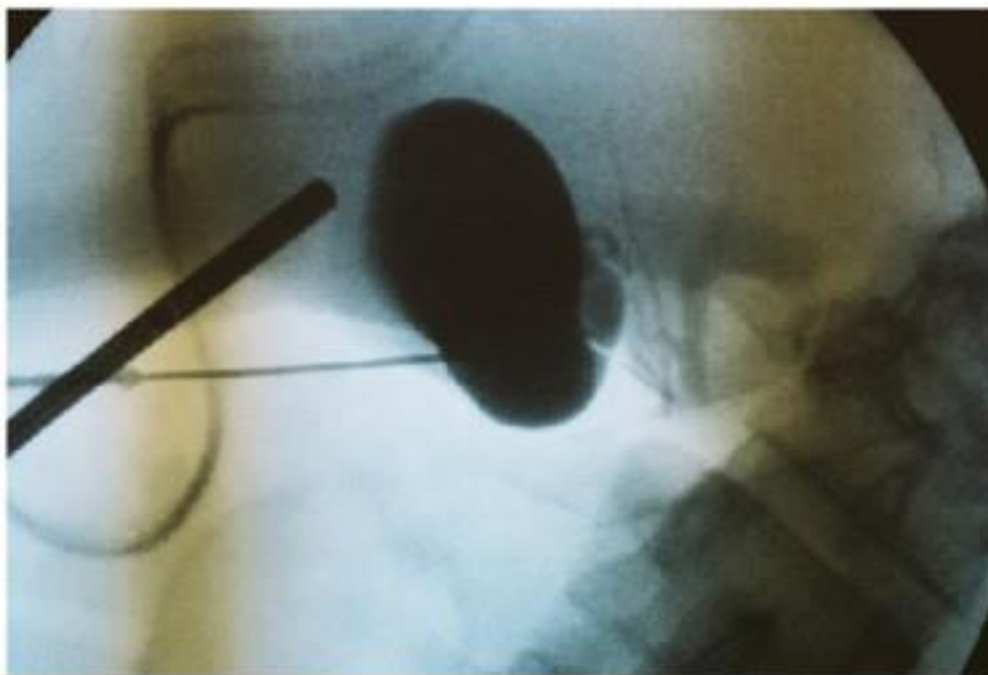
### 2. Short Communication

The insertion of an accessory right hepatic duct into the cystic duct

occurs in 1-4% of cases studied [1]. A cholangiogram performed through the gallbladder (cholecystocholangiogram) demonstrates this variant early in the case and safely guides the surgeon's dissection (Figures 1 and 2). This technique of cholangiography uses a percutaneous 18-gauge spinal needle to access the gallbladder [1]. This variant is responsible for many instances of bile duct injury referred to tertiary care centers [2].



**Figure 1:** Aberrant R hepatic duct inserting into cystic duct. Note the two marking clips. [1] Permission granted by Elsevier Publishing.

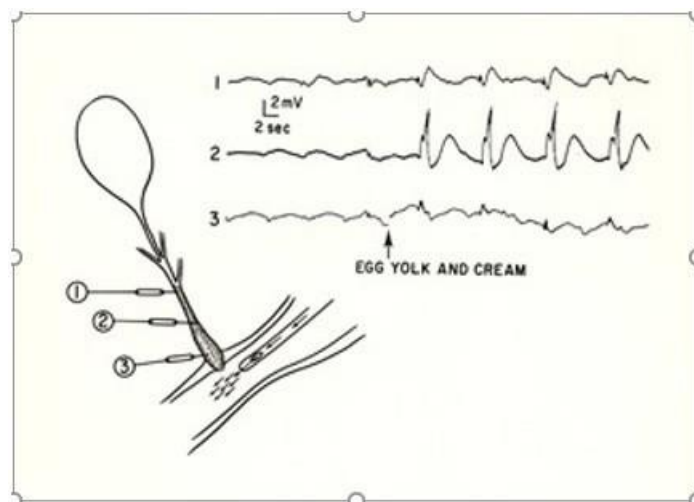


**Figure 2:** Aberrant R hepatic duct inserts into cystic duct. Note the three marking clips applied adjacent to the cystic duct to clarify the anatomy. Permission granted by Elsevier Publishing [1].

### 3. The Origin of the Cystic Duct Marking Technique

The electrophysiology of the opossum's biliary smooth muscle demonstrated the duct system to be very active and has peristalsis. The extracellular electrodes were placed along the bile duct to demonstrate the wave of depolarization. The electrode array was similar to the marking clips placed along the cystic duct in the cystic duct marking technique [1] see (Figure 3).

Sofi AA, Alaradi OH, Abouljoud M, Nawras AT. Aberrant Right Hepatic Duct Draining into the Cystic Duct: Clinical Outcomes and Management. *Gastroenterology Research and Practice*. 2011; 1-6.



**Figure 3:** Extracellular smooth muscle recordings of electrical activity of opossum's bile duct to egg yolk and cream instilled into the duodenum. (University of Utah Departments of Surgery and Physiology, 1974, unpublished study.)

### References

1. Duff WM. Avoiding Misidentification Injuries in Laparoscopic Cholecystectomy: Use of Cystic Duct Marking Technique in Intraoperative Cholangiography. *J Am Coll Surg*. 2006; 203:257-61.