

LETTER TO THE EDITORS

Need for Caudate duct classification: God is in the detail and so is the Devil!

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Dear Editors,

We welcome the Letter to the Editor by Rajalingam *et al.* [1] in response to our article [2]. We would like to provide our views on the same.

Firstly, we would like to address the issues related to Intra-operative cholangiogram (IOC). IOCs are routinely done at our centre as a part of donor hepatectomy to reconfirm the biliary anatomy. We do not like to rely on preoperative MRCP alone as it has the potential to miss biliary anomalies [3,4]. Intraoperative cholangiogram is essential to interpreting hilar bile duct anatomy which may be quite complex in some cases. We do not do any/additional cholangiograms to intentionally delineate only caudate duct anatomy. Intention of meticulous IOC is just to delineate hilar anatomy of second order biliary radicals. Use of atraumatic bulldog clamp on lower end of CBD just above the duodenum in all possible cases (except very low insertion of cystic duct) not only ensures complete filling of the biliary system including the caudate ducts but also helps avoid theoretical risk of pancreatitis. It also reduces the amount of Omnipaque dye required from 10–20 to 3–5 ml [3]. No donor in our study suffered from pancreatitis postoperatively.

Secondly, the authors state that detailed knowledge of caudate biliary system is of no importance to the liver transplant surgeon. Although meticulous suturing prevents bile leak in both recipients we find distinct advantages of understanding intraoperative caudate biliary anatomy. Caudate ductal anatomy is a part of complex hilar biliary anatomy that every liver

transplant surgeon routinely encounters. Precise division of bile duct in LDLT is very important to get adequate and if possible single graft duct and to not damage the bile ducts on donor side. Insertion of caudate duct at various points in ductal system many a times creates confusion. Proper understanding of hilar ductal anatomy and its correlation with caudate duct anatomy helps in precise division of duct in various types of grafts (especially right and right posterior). Also, despite meticulous suturing of hilar plate, zero bile leak in donor is a distant possibility. Reviewing biliary anatomy and IOC guides us regarding further management of bile leaks when they occur, especially in donors. It also guides us to avoid any unnecessary ERCs (in cases with isolated caudate duct leaks) which have significant complications of its own like cholangitis and pancreatitis. Thirdly, it also has implications in left lobe graft with caudate lobe (living donor as well as split liver grafts). In case of marginal graft volume, caudate lobe ducts can be separately anastomosed to yield a higher functional volume of liver graft [5]. Knowing the type of caudate anatomy can help in knowing which caudate duct needs to be anastomosed and which can be closed.

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Conflict of interest

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