Preoperative Hilar Drainage: New Conception in Japan

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Hilar cholangiocarcinomas grow slowly and metastases occur late in the natural history. Surgical cures and long-term survival have been demonstrated, when resection margins are clear. Preoperative biliary drainage has been proposed as a way to improve liver function before surgery and reduce post-surgical complications.

Japanese surgeons had previously advocated preoperative percutaneous transhepatic biliary drainage (PTBD) with multiple tubes in order to drain the region as thoroughly as possible. This approach provides for precise anatomic delineation of the tumor and the entire bile duct by contrast injection. They considered detailed cholangiography indispensable for planning the resection strategy. However, multiple PTBD can be complicated by catheter dislodgement, hemobilia, portal vein thrombosis and malignant seeding of the catheter tract.

Currently, the introduction of percutaneous portal vein embolization (PTPE) has changed the operation style from various resection methods to standard wider hepatectomies. Standard curative resections consist of right or left lobe hepatectomy with resection of the caudate lobe, which can be achieved with an acceptably low rate of post-surgical complication. With this operative approach, the most relevant anatomy is the extent of tumor extension at the surgical limits that separate the hepatic ducts from the vasculature and ductal division. While it is not necessary to precisely delineate tumor extension along the bile ducts that will be resected, precise diagnosis of longitudinal tumor extension and biliary drainage are currently recommended only for liver lobes that will remain after resection.

With the recent advancement of endoscopic procedure, endoscopic biliary drainage (EBD) has been performed frequently. EBD can be achieved by either endoscopic naso-biliary drainage (ENBD) or endoscopic biliary stenting (EBS). The advantages of ENBD are possible to obtain precise cholangiography after drainage and to reduce the risk of secondary cholangitis. The disadvantages comprise discomfort of the nasal tube and artificial external drainage. In contrast, enteral drainage in EBS improves nutritional status and immune function by restoring enterohepatic recirculation to the digestive tract, and does not require a nasal tube. EBS is limited by cholangitis due to retrograde flow of duodenal fluid via the stent into the bile ducts. Persistent cholangitis after EBS can prevent precise determination of longitudinal tumor extension along the bile ducts. Therefore, ENBD is a reasonable initial preoperative drainage method for operable patients with hilar cholangiocarcinoma. The tube should be inserted into only the hepatic duct of the lobe to be preserved. And then the longitudinal tumor extension is evaluated by cholangiogram. On the contrary, initial choice of EBS should be avoided.