Commentary

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Clinical Presentation and Management of Type IV Perforations among ERCP Patients

Martiniano Croagh*

Department of Gastroenterology and Medicine, Global College of Medicine, Riyadh, Saudi Arabia

***Corresponding author:** Martiniano Croagh, Department of Gastroenterology and Medicine, Global College of Medicine, Riyadh, Saudi Arabia, E-mail: Croaghm@eft.sa

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About the Study

Hepatic Endoscopic Retrograde Cholangiopancreatography (ERCP) is a common, well established procedure that is being used with increasing frequency for the evaluation and treatment of biliary tract and pancreatic duct disease. In the recent years the therapeutic use of ERCP has increased 30 fold. The short term complication rate of ERCP is around 10% and includes acute pancreatitis, bleeding, cholangitis and perforation. In the hands of an expert, Endoscopic Retrograde Cholangiopancreatography (ERCP) and Endoscopic Sphincterotomy (ES) are associated with high rates of success and few complications, most of which can be treated conservatively. The most common complication of ERCP is post ERCP pancreatitis, which is reported to occur in 2% to 10% of patients. PEP manifests with pain abdomen and elevation of serum amylase and serum lipase levels. But serum amylase levels may be elevated in up to 75% of patients, regardless of the symptoms. The severity of post ERCP pancreatitis is classified as per cottons classification.

ERCP is also associated with a mortality rate between 0.1% and 6%. Post ERCP cholangitis is one of the complications of ERCP. However the risk factors of post ERCP cholangitis are not well established. Cholangitis is one of the common complications of ERCP and has an incidence rate of 1%-5%. High biliary obstruction is one of the risk factors for post ERCP cholangitis. Bleeding is one of the most frequent complications following endoscopic sphincterotomy ES. The incidence of ERCP related bleeding varies from 1% to 48%. ERCP related perforations are rare but serious complications. Perforations are one of the most dreaded complications of ERCP, with a reported incidence of 0.3%-6%. Perforation is defined as the presence of oral contrast or air in the retroperitoneal space with or without frank visualization of peritoneum during the procedure.

Although ERCP related perforations have been classified by various researchers based on the location of perforation and mechanism of injury. ERCP related perforations have been classified into three types as per Howard classification: type 1, guide wire perforation; type 2, periampullary perforation; type 3, duodenal perforation remote from the papilla. ERCP related perforations have been classified into four types as per Stapfer classification, Type 1, lateral or medial wall duodenal perforation; type 2, paravaterian injuries; type 3, distal bile duct injuries related to guide wire-basket instrumentation and type IV, retroperitoneal air alone. Presence of free air after an ERCP has been found to be present in 13% to 29% of asymptomatic patients.

Many patients with ERCP related perforations may be managed conservatively or may need an emergency surgical intervention. ERCP related perforation although rare can have a mortality rate of as high as 37.5%. The causes of perforation include patient related factors such as Billroth II gastrectomy and technical factors such as inexperienced endoscopist, difficult cannulation, precut, and sphincterotomy. Early diagnosis and prompt treatment are important for better outcome. The diagnosis of perforation can often be suspected or made during the endoscopic procedure, but is usually confirmed radiologically by demonstrating open air cavity or leakage of contrast.

Often the physical examination can help assess the patient, but not all abdominal perforations present with an acute abdomen. Post ERCP perforations can be managed conservatively or may need an emergency surgical exploration. Proper management of post ERCP perforation depends on type of injury and time of diagnosis of perforation after ERCP. Majority of cases are retroperitoneal perforations due to papillotomy, whereas intra peritoneal perforations are less common and caused by endoscope itself. Type 1 perforations are large, usually discovered during the ERCP procedure. They require immediate surgery or urgent endoscopic treatment, both type 2 and 3 perforations may be managed non surgically but require close surveillance, Type IV perforations which are not true perforations require no surgical intervention and are usually managed successfully by conservative management. With the availability of non-invasive diagnostic modalities such as Magnetic Resonance Cholangiopancreatography (MRCP) and Endoscopic Ultrasonography (EUS), ERCP has largely become a therapeutic modality.

ERCP related Type 4 perforations occur in a significant number of patients undergoing ERCP. Patients in whom an ERCP related perforation is suspected should undergo an urgent CECT abdomen with oral contrast to rule out extravasation of contrast. Patients with contrast extravasation should be managed by emergency surgery. Patients with type IV perforation should be managed conservatively.