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Original Article

Is it Worth to Repeat Endoscopic Retrograde Cholangiopancreaticography after Failed Precut? Short Report from a Tertiary Care Hospital in North India

Kumar Shwetanshu Narayan, Gaurav Kumar Gupta, Sandeep Nijhawan, Sudhakar Pandey, Bhanwar Singh Dhandhu, Shekhar Puri, Awanish Kumar, Deepak Sharma

Department of Gastroenterology, Sawai Man Singh Medical College and Hospital, Jaipur, Rajasthan, India

Abstract

Aim: The aim of this study is to determine the success rate of biliary cannulation in cases where endoscopic retrograde cholangiopancreatography (ERCP) is repeated after failed precut sphincterotomy. **Materials and Methods:** In this retrospective study, consecutive ERCPs performed between August 2013 and June 2017 were included. Data was analyzed for indication of ERCP, success rate at initial cannulation attempt, use of precut sphincterotomy, biliary access rate after precut, repeat ERCP rate, and associated complications. **Results:** A total of 1872 ERCPs were included in the study. Of these, 55% were done for common bile duct stones, 37% for malignant biliary obstruction, and 8% for biliary leak. During the initial ERCP, 84.9% cases had successful biliary cannulation. Nearly 86.8% cases undergoing precut sphincterotomy achieved biliary access. Repeat ERCP was done in 28 cases after a median interval of 3 days and biliary cannulation was achieved in 78.5% cases. **Conclusion:** Repeat ERCP after 3 days in cases of failed initial precut sphincterotomy should be practiced and recommended as this allows definitive biliary therapy in majority of such patients and prevents morbidity and mortality from other invasive alternative therapies.

Keywords: *Cannulation, common bile duct, sphincterotomy*

Introduction

Selective common bile duct (CBD) cannulation is one of the most crucial steps of a successful endoscopic retrograde cholangiopancreatography (ERCP) procedure. Although developments in various endoscopic accessories have improved the CBD cannulation rate, still failure rate in CBD cannulation remains at 5%–15%.[1] Failure in cannulating CBD results from altered anatomy, ampullary tumors, inflammatory changes of the intestine due to pancreatitis, and juxtapapillary diverticula. Alternative techniques for cannulating CBD include precut spincterotomy, needle-knife papillotomy, fistulotomy, percutaneous endoscopic or endoscopic ultrasound-guided rendezvous procedure, percutaneous transhepatic biliary therapy, or surgical intervention.[2]

Although precut sphincterotomy ensures over 90% success of biliary cannulation,[3] sometimes it becomes difficult to cannulate due to papillary edema and vision loss due to bleeding. Therefore, it appears worthwhile to repeat the ERCP after a short interval following the initial precut sphincterotomy when the papillary edema has resolved.

The aim of the present study was to determine the success rate of biliary cannulation in cases where ERCP is repeated after failed precut sphincterotomy.

Materials and Methods

We retrospectively studied 1872 ERCPs done at our center during 4 years period from August 2013 to June

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Address for correspondence: Dr. Sandeep Nijhawan, Department of Gastroenterology, Sawai Man Singh Medical College and Hospital, Jaipur, Rajasthan, India. E-mail: dr_nijhawan@yahoo.com

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2017. These ERCPs were analyzed for indication, use of precut sphincterotomy, biliary access rate, repeat ERCP rate, and complications.

Selective biliary cannulation of the naïve papilla was done using Ultratome™ (5.5Fr) from Boston Scientific and a straight 0.035-inch guidewire.

For precut sphincterotomy, MicroKnife™ triple-lumen needle knife from Boston Scientific was used, and the incision was made from below upward starting from the edge of the papilla and moving upward in the 11 O'clock direction. Length of the cut was determined by the intraduodenal part of the CBD.

Precut was performed if the standard attempt failed to achieve biliary cannulation within 10 min or after 5 unsuccessful CBD cannulation attempts or after 3 repeated cannulation of the pancreatic duct.

In cases of failed precut, repeat ERCP was performed after a median of 3 days (range: 3–4 days). There were two reasons for this criterion. First, previous studies done in this regard have used a range of 3–6 days for repeating ERCP, and second, endoscopic intervention days in our department are repeated after a gap of 3 days.

Simple statistics were used to analyze the available data.

Results

Indications for ERCP in these 1872 patients included CBD stones (55%), malignant obstructive jaundice (37%) and biliary leak (8%).

Out of 1872 cases, selective biliary cannulation of the naïve papilla was achieved in 1590, i.e., 84.9%; with the remaining 15.1% of cases required precut sphincterotomy to facilitate biliary access. In 282 cases requiring precut, 175 (62.05%) patients were females with a mean age of 46 years while 107 (37.94%) patients were male with a mean age of 58 years. The reason for precut sphincterotomy were juxtapapillary diverticula (28.36%), impacted stone (21.98%), pancreatitis (8.51%), ampullary tumor (15.95%), and idiopathic (25.17%). Selective biliary cannulation was successful in 245 out of 282, i.e., 86.87%.

Out of the 37 unsuccessful cases, 20 patients had juxtapapillary diverticula, 3 patients had pancreatitis, and 14 patients had ampullary tumor.

In this failed precut group, 5 patients developed mild acute pancreatitis, 2 patients developed iatrogenic bleed, and 2 patients died due to septicemia. Apart from the 2 patients who died, the rest were managed conservatively and later subjected to surgery for biliary drainage. In the remaining 28 cases, ERCP was repeated after a median interval of 3 days (range: 3–4 days), and biliary cannulation was achieved in 22 cases, i.e., 78.5%. Out of 6 cases in which repeat cannulation attempt failed, 4 patients had ampullary tumor while 2 patients had juxtapillary diverticula. They were later subjected to percutaneous transhepatic biliary drainage (4 patients) and surgery (2 patients).

Discussion

Although there have been considerable advances in biliary cannulation techniques, the success rate of standard biliary cannulation during ERCP is successful in around 90% cases. Remaining 10%–15% cases require precut sphincterotomy.[4] Difficulty in cannulation is because of anatomic abnormalities, papillary spasms, or impacted stones.[5]

However, precut sphincterotomy is not successful in 100% of cases. In such cases, alternative techniques are used such as percutaneous-endoscopic or endoscopic ultrasound-guided rendezvous procedure, percutaneous transhepatic biliary drainage, and finally, surgical intervention.

Apart from precut sphincterotomy, other techniques are more invasive and have considerable morbidity and mortality. Even though techniques involving endoscopic ultrasound are safe, but the technical skill and resources required for such procedures are not available widely.

Therefore, we planned a study to determine the success of biliary cannulation if ERCP is repeated after few days of failed precut sphincterotomy.

A review of literature shows that study done in the United kingdom by Pavlides *et al*.[6] had a success rate of 78% in 89 patients undergoing repeat ERCP after failed initial precut sphincterotomy. Similarly, Kevans *et al*.[7] reported a success rate of 68% in 19 Irish patients undergoing repeat ERCP following failed initial needle-knife fistulotomy. Another recent study by Kim *et al*.[8] from South Korea showed a success rate of 76.8% in 69 patients undergoing repeat ERCP after failed initial precut sphincterotomy.

In our study, 282 patients (15.1%) underwent precut sphincterotomy and selective biliary cannulation was successful in 245 out of 282, i.e., 86.87%.

37 cases could not be cannulated even after precut sphincterotomy. Majority of these patients had juxtapapillary diverticula (20 patients) and ampullary tumor (14 patients).

A total of 28 cases underwent repeat ERCP after failed precut sphincterotomy. Out of this, 22 patients,

i.e., 78.5% cases had successful biliary cannulation and drainage. This is similar to the above-discussed studies.

A possible reason for this finding can be that edema caused by initial cannulation attempts and cautery usually resolves in 3 to 4 days after the initial precut, and thus, the anatomy of the papilla becomes better delineated.

As far as failed cannulation after precut sphincterotomy is concerned, it was mostly seen in malignant biliary obstruction patients and could be due to infiltration of the biliary tract by tumor cells.

Conclusion

The present study concludes that repeating ERCP after 3 days in cases of failed initial precut sphincterotomy should be practiced and recommended as this allows definitive biliary therapy in majority of such patients and prevents morbidity and mortality from other invasive alternative therapies.

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Conflicts of interest

There are no conflicts of interest.

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