ROLE OF EARLY PRE-CUT NEEDLE KNIFE PAILLOTOMY IN ACHIEVING SUCCESSFUL SELECTIVE COMMON BILIARY DUCT CANNULATION

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ABSTRACT

Objectives: To assess the risks/benefits of performing early pre-cut papillotomy rather than perusing the difficult papilla repeatedly with non-invasive cannulation techniques.

Study Design: Descriptive study

Place and Duration of Study: The study was carried out at Combined Military Hospital (CMH) Rawalpindi From January 2007 to February 2008.

Patients and Methods: Eighty three patients who presented for Endoscopic retrograde cholanagio-pancreatography (ERCP) at Combined Military Hospital Rawalpindi during the period starting from January 2007 till February 2008 were studied. Whenever papilla proved difficult for cannulation, no more than 5 attempts in standard non invasive way were made. Similarly no more than 2 inadervertent injections of contrast into pancreatic duct were exceeded to. In such situations, early precut needle knife papillotomy was resorted to as a matter of protocol.

Results: Out of total of 83 patients studied, 19.27% underwent early pre-cut needle knife papillotomy. The procedure was successful in 81.25% against the complication rate of 12.5% only. Hence, pre-cut needle knife papillotomy increased the success rate of common bile duct cannulation from 80.73% to 96.38%.

Conclusion: ERCP is very effective procedure for palliation particularly in elderly and frail patients. Failed selective duct cannulation in case of difficult papilla can be overcome by performing pre-cut papillotomy at an early stage rather than struggling with standard non invasive techniques which are paradoxically more likely to cause complications as a result of oedema around pancreatic duct orifice

Keywords*:* Common bile duct, papillotomy

INTRODUCTION

Endoscopic retrograde cholanagio-pancreatography is an established procedure to evaluate the diagnosis of conditions afflicting the common bile duct as well as pancreatic duct. Above all, it has enormous therapeutic application. Although majority of patients requiring ERCP are elderly but luckily even in this age group, it is quite safe a procedure [1-4]. Cost is still an issue particularly in our part of the world but ideally speaking Magnetic Resonance Cholangio-Pancreatography (MRCP) has replaced this technically demanding procedure of endoscopic retrograde cholangio-pancreatography (ERCP) in conditions requiring only the diagnosis of common bile duct or pancreatic duct pathologies. However, the therapeutic aspect of endoscopic retrograde cholangio-pancreatography cannot be denied. In ERCP, selective cannulation of the common bile duct is generally achieved without any difficulty in up to 95% of cases in best centers with standard non-invasive way and is mainly dependent on expertise of the endoscopist. In remaining cases ,cannulation of the common bile duct can be achieved by performing pre-cut procedure with a needle knife rather than resorting to per-cutaneous approach for access of the biliary tract which is more cumbersome and has been shown to be associated with higher morbidity and mortality [5-7]. Similarly therapeutic ERCP is reported to be well tolerated and is safer as compared to surgery[5]. As the pre-cut is preferred rather than resorting to surgery so it was planned to study the safety as well as the risks of this procedure. When it comes to failed ERCP with standard non-invasive cannulation techniques then an early rather than late precut needle knife papillotomy should be performed.

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The rationale of our study was to assess the risks/ benefits ratio of performing early pre-cut needle knife papillotomy rather than perusing the difficult papilla with repeated standard noninvasive techniques.

PATIENTS AND METHOD

All patients who presented for ERCP at C.M.H Rawalpindi during period starting from January 2007 to February 2008 and underwent pre-cut as a means of selective cannulation for bile duct were followed up to see any possible complication. The ERCP was performed by Olympus videoscope exera 160. Out of 83 ERCPs done, 16 patients required pre-cut to get selective cannulation of the bile duct. Early rather than late pre-cut was attempted so as to avoid any oedema or repeated unwanted inadvertent injections into the pancreatic duct. As a matter of protocol, in any difficult bile duct cannulation, not more than 5 attempts in standard non invasive way were exceeded to. Similarly not more than 2 inadvertent injections of the contrast into pancreatic ducts were allowed. Hence , after crossing threshold of 5 failed attempts in selective cannulation of the bile duct in standard way or after two inadvertent injections of the contrast into pancreatic duct, pre-cut papillotomy was resorted to. The needle knife tip was bent slightly upward which created tension on the tissue for efficient cut. Sham movement of the needle knife was practiced to plan the actual direction of the pre-cut papillotomy. In all except one patient, the direction of the pre-cut was from below upward at 12 o' clock position. In one case only, the cut was directed from above in downward direction because this patient had hugely dilated common bile duct due to a stone obstructing it at the distal end. All were out-door patients but a close contact was ensured by providing reliable cell number and either they or in certain appropriate cases their relatives were briefed to contact in case of any pain in abdomen, vomiting or for that matter any deterioration in general condition

RESULTS

In total 83 endoscopic retrograde cholangiograhies were done. Out of this 50 (60%) were males and 33 (40%) were female patients. Majority of the patients (75%), were above 50 years of age. Except 3 patients, all the rest required therapeutic endoscopy. Table-1 shows the sub-division of the total cases according to diagnosis

The number of pre-cut performed was in 16 19.28%) cases. The underlying diagnosis where pre-cut was performed is depicted in table-2. The success rate with pre-cut was 81.25%

The complications were classified according to 1991 consensus on complication of ERCP [8], and found out complication rate of pre-cut needle knife papillotomy in this study to be 12.5% (2) in spite of the fact that no protective pancreatic stent was ever used in a view to reduce the added cost. Out of recorded complications, only 1 (6.25%) patient had as major complication.

Pre-cut increased the success rate of common bile duct cannulation from 80.73% to 96.38%.The success rate of cannulation of common bile duct (CBD) was increased by 15.65% as a result of this procedure.

Table-1 Showing subdivision of cases under study (n=83)

Diagnosis	Number of cases (%)
Carcinoma Head of Pancreas	30 (36)
Biliary stricture	20 (24)
Cholodocho-lithiasis	28 (34)
Sclerosing cholangitis	01 (1)
Pancreatitis with biliary sludge	02 (2)
Cholodo-caele	02 (2)

DISCUSSION

Selective cannulation of common bile duct is most important first step for ERCP and it is this very step which on occasions becomes most challenging and may become an impediment to continue the procedure any further. luckily, it is possible to achieve cannulation of the bile duct in as many as 90% of the cases without any difficulty in standard non-invasive way .However in this study ,the cannulation rate of CBD without pre-cut was rather low i.e. 80.73%.This was perhaps due to incidental clustering of cases with carcinoma head of pancreas which tends to disturb the local anatomy making cannulation of CBD difficult or impossible.

When confronted with unfriendly papilla, it is dependent upon the operator whether he goes for pre-cut or he leaves it straightway for the surgeon. Some centers would scrupulously avoid doing pre-cut while others won't stop even in diagnostic ERCP when stuck up [9]. If expertise of per-cutaneous technique is not available, then the patient might have to undergo surgery which is usually not a pleasant option for this group of patients who are by and large elderly and require palliation only which can be provided very easily with ERCP. Even in advanced age, it is safer to perform pre-cut rather than palliative surgery when selective cannulation is not possible in standard non-invasive way. That Pre-cut is safe in elderly was shown by Seyfettin et al [10] in a study of 299 patients who underwent ERCP and after comparing age groups between younger (<69 years) and elderly (>69 years) this study found no added complication of pre-cut.

Table-2 Showing cases where pre-cut was performed (n=16)

Underlying diagnosis	Pre-cuts performed	Failed	Successfu l	Bleeding
Carcinoma head of pancreas	10	3	7	1 bleeding (minor)
Stone in common bile duct	3	0	3	1 major bleed requiring surgical exploration
Biliary sludge with pancreatitis	2	0	2	0
Normal diagnosis	1	0	1	0

In our study, it has been shown that pre-cut with needle knife increased the CBD selective cannulation from 80.73% without needle knife pre-cut to 96.38% with it. The success rate of pre-cut was 81.25 % which is comparable to success rate for pre-cut done in other studies. Cellatin et al [11] found success rate of pre-cut to be 75% which increased to 92% on second session. Similarly, Slot et al[12] success rate was documented to be 88% to 99% in first and subsequent session respectively while performing pre-cut in difficult cannulation. Many endoscopist are concerned about the added morbidity with pre-cut and would continue the procedure trying cannulation of the papilla of vater from various angles. This may or may not result in success and paradoxically put the patient at rather increased risk of developing pancreatitis due to oedema resulting from repeated unsuccessful attempts [13]. With pre-cut, in this study major complication rate was 6.25% which has been observed by others in almost the same proportion. Complication for standard sphincterotomy occurs in 10% and 1% die[8], but generally speaking, the complication rate reported with pre-cut is from 6% to 13% in centers where rate of performing sphinterotomies is up to 38% [13, 14].

The surprising difference found in this study from other similar studies was complete absence of the complication of perforation and pancreatitis [9]. This possibly could be explained on the fact that all the pre-cut papillotomies in this study were performed with extreme caution and in no way the external guide-line of fold of papilla was ever crossed while making an incision. However, it is worth mentioning here that external fold of the papilla is not a uniform guideline and bears no constant relationship to underlying anatomical structures. Similarly, in this study no case of pancreatitis was ever observed as compared to other studies. This was probably related to strict adherence to 100% cut with no coagulation setting of the diathermy so as to prevent local oedema which is considered to be the chief cause of this complication. Another reason could be that post-ERCP pancreatitis tends to occur in young people whereas in this study the patients were by and large elderly [15].

CONCLUSION

This study highlights the importance of pre-cut needle knife papillotomy to make even difficult ERCP a success and effectively thwarting the need for more cumbersome options of percutaneous trans -hepatic route for

decompression or still worse surgery in a frail and usually elderly patient. The study has also shown that early pre-cut should be employed and the complication rate is not high with this approach.

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