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RESEARCH ARTICLE

AN INTERVENTIONAL STUDY OF DISTAL CBD STRICTURE AND PAPILLARY STENOSIS IN PATIENTS WITH OPIUM ADDICT: AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Context: Bile duct stricture (biliary stricture) is an uncommon but challenging clinical condition that requires a co-ordinated multidisciplinary approach involving gastroenterologists, radiologists, and surgical specialists. Most benign distal bile duct strictures results from operative causes, chronic pancreatitis, trauma.

Aims: To describe the risk factors and demographic data in patients with symptomatic distal CBD stricture and papillary stenosis associated with significant opium intake.

Setting and design: Hospital based prospective study

Materials and Methods: The patients were selected from the gastroenterology unit Christian Medical College & Hospital, Ludhiana a tertiary care hospital in Northwest India to whom all subjected to ERCP.

Results: From a total of 373 ERCP of which 15 male patients were included who consumed significant amount of opium over a long period and developed clinically CBD stricture with papillary stenosis. Post procedure ALP levels were significantly decreased as compared to pre procedure. The length of the stricture in our study showed a strong correlation with the levels of the ALP.

Conclusion: Opium can cause distal CBD stricture and associated papillary stenosis which are multiple pathophysiologic mechanism, however symptomatic CBD stricture need to treat in time to prevent feared complications. In patients presenting with distal CBD stricture a history of opium consumption is vital along with supportive services and counseling to deal with the addiction.

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INTRODUCTION

Biliary stricture is an uncommon but challenging clinical condition that requires a co-ordinated multidisciplinary approach. Unfortunately, most benign distal bile duct strictures are iatrogenic, resulting from chronic pancreatitis, post-operative and trauma. Bile duct strictures may be asymptomatic but, if ignored, can cause life-threatening complications, such as ascending cholangitis, liver abscess, and secondary biliary cirrhosis. Etiology of symptomatic distal CBD stricture (Papillary region) is not known especially male patients. It has been documented in patients with symptomatic distal CBD stricture associated papillary stenosis but without pancreatic disease. This study was conducted to add to the existing knowledge regarding the risk factors and demographic characteristics in male opium addicts with symptomatic distal CBD stricture and papillary stenosis.

Ultimately these symptomatic patients needed both diagnostic and therapeutic challenge for the relief of obstructive features.

MATERIALS AND METHODS

This study was conducted from January 2011 to November 2014 in the department of Gastroenterology and Hepatology, Christian Medical college and Hospital, Ludhiana, Punjab. Totally 373 ERCP's were performed during this period, of which all those meeting the inclusion criteria were enrolled. Detailed history was collected, complete physical examination was done. Details regarding the amount, form and duration of consumption of Opium were also collected. All patients were admitted into the hospital for complete evaluation which included blood investigations including a blood culture, liver function tests, serum amylase, serum lipase levels and a Ultrasonogram (USG). Patients with other organic cause of biliary obstruction, cholelithiasis etc were excluded from study. (Table 1)

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ERCP: Papilla was visualized and examined following which biliary cannulation was achieved. No bile was seen in the D2, papilla was stenosed (Fig. 2). Diameter of Proximal, Mid and Distal CBD were measured and noted by the radiologist (Fig.3). The length of distal CBD stricture was measured and was co-related with MRI finding .A biliary sphincterotomy for small stricture or biliary plastic stent for large stricture was done for bile drainage. Seven days after the procedure , an LFT was done, a USG Abdomen for CBD size was repeated and clinical symptoms were noted. All Patient except one followed up in the OPD after 3months of procedure where a LFT was repeated and clinical symptom were if any recorded. A total of 15 patients finally were enrolled for the study (Fig.1).

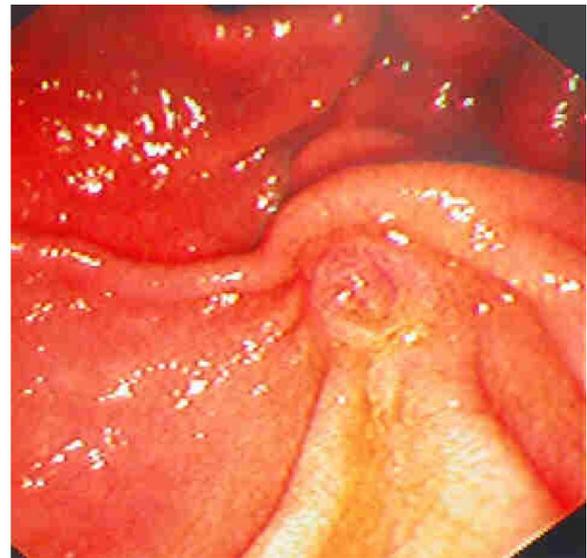


Figure.2. Papillary stenosis of the study patient

Exclusion criteria: Those patient having following features were excluded from study.

- 1.Chronic pancreatitis
- 2.Biliary stricture due to cholecystectomy
- 3.Past Major abdominal surgery
- 4.CholangioCA.
- 5.Choledochal cyst
- 6.Gall stone disease.
- 7.Portal biliopathy
- 8.Ischemia of bile ducts
- 9.Post sphincterotomy
- 10.Radiation therapy
- 11.TB
- 12.Abdominal trauma
- 13.Injection therapy for DU bleed.

Data analysis

The results were entered in Microsoft excel and data was analyzed using SPSS V 16.0 for descriptive analysis.

RESULTS

The total number of participants were 15 out of 373 ERCP procedures (Fig. 1) with a mean age of 46.80±4.23 SD (Range 40-56), mean weight was 71.49 ±18.82.

Table. 1. Shows the paired t test showing the liver enzymes pre and post procedure

		Mean	N	Std. Deviation	t	Sig. (2-tailed)
Pair 1	Alkaline phosphatase in U/L at admission	226.47	15	42.509	10.80	<0.001
	Alkaline phosphatase in U/L after 7 days	116.73	15	16.166		
Pair 2	Alkaline phosphatase in U/L at admission	226.47	15	42.509	13.58	<0.001
	Alkaline phosphatase at 3m in U/L	89.73	15	10.647		
Pair 3	Alkaline phosphatase in U/L after 7 days	116.73	15	16.166	6.63	<0.001
	Alkaline phosphatase at 3m in U/L	89.73	15	10.647		

There were 5 cases (33%) with ERCP length less than or equal to 7 mm but there were no significant difference in the ALP

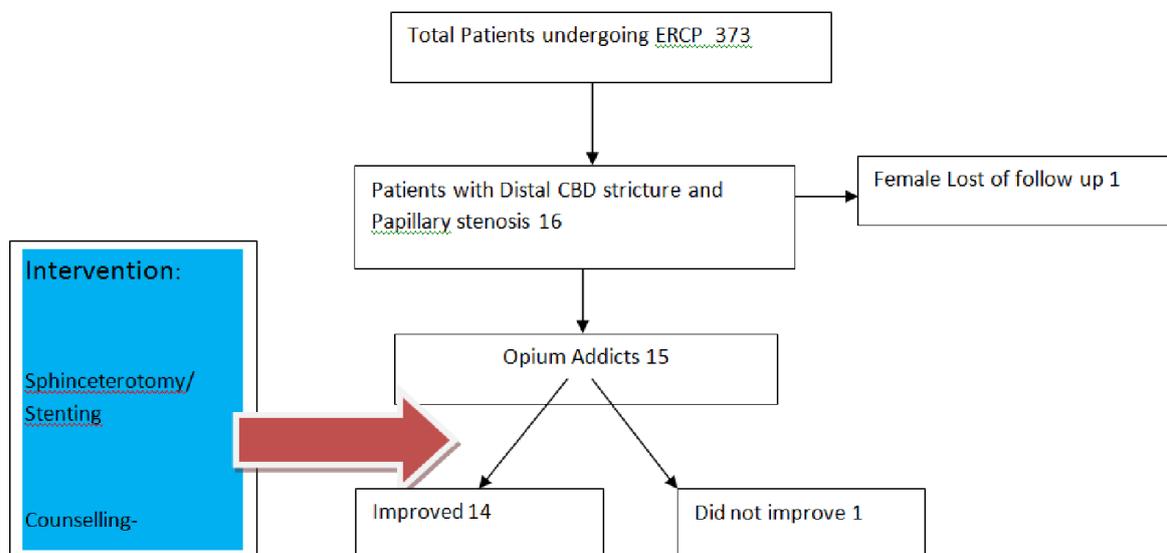


Figure 1.

The mean amount of opium consumed was 45.00+ 10.52g per day (range 30g-75g) and the mean duration of opium consumption 20.47±3.80 years (Range 15-30 years). The hepatic parameters especially ALP value are discussed in table 1 which showed significant improvement after seven days as compared to admission value and remained stable after 3 month of follow up which are statistically significant. The mean distal CBD stricture length at presentation as measured by MRI this study and by ERCP was not statistically significant (Table 2). However, the distal CBD diameter after one week has reduced to its normal value as compared to Pre-procedural value as measured by radiologists on USG (Table 3). There was good correlation between total bilirubin and prothrombin time in this study, i. e. higher the bilirubin longer the prothrombin time.



Figure 3. Distal CBD stricture with upstream dilatation as shown in ERCP image

Table 2. MRCP Length distal * ERCP Length Distal

MRCP Length distal	ERCP Length Distal						Total
	4.00	6.00	7.00	8.00	9.00	10.00	
3.00	1	0	0	0	0	0	2
4.00	0	1	0	0	0	0	2
5.00	0	2	0	1	0	0	3
6.00	0	0	0	1	1	1	2
7.00	0	0	1	1	0	0	2
8.00	0	0	0	1	1	1	2
9.00	0	0	0	0	1	1	1
10.00	0	0	0	0	1	1	1
Total	1	3	1	4	2	4	0

DISCUSSION

Biliary stricture represents a therapeutic challenge. The typical appearance of a biliary stricture on cholangiography is that of a long, smooth tapering of the distal common bile duct in the region of the head of the pancreas. A stricture is most commonly the result of fibrosis or an inflammatory mass in the head of the pancreas; however, a stricture may also be caused by extrinsic compression from a pancreatic pseudocyst (Costamagna *et al.*, 2007; Costamagna *et al.*, 2001). A standard approach to the management of benign distal bile duct strictures involves the endoscopic placement of plastic stenting and or Sphincterotomy for short stricture (Costamagna *et al.*, 2001; Farah *et al.*, 2008; Siriwardana and Siriwardana, 2005). The stenting can remain patent for months, but frequently it is necessary to replace or increase the number of side-by-side stents to maintain stricture dilation (Tripathi *et al.*, 2008; Tsukamoto *et al.*, 2004). The cause of distal CBD stricture and papillary stenosis is most probable due to chronic use and high dose of opium. Opium causes smooth muscle contraction and vasoconstriction (Butler *et al.*, 2001; Zylberberg *et al.*, 2000; Wu *et al.*, 2004). There are reports of GB contraction and biliary pain (Wu *et al.*, 2003; Sharma, 2002; Thompson, 2001). Similarly reports showed sphincter of odd contraction and associated with elevated both liver enzymes and amylase, lipase (Barlas *et al.*, 2002; Katznug, 2001), however Papillary stenoses with Opium has not been reported in literature. Other compounds mixed with Opium can cause this type of clinical picture are not known.

We studied symptomatic male patients (n=15) with distal CBD stricture associated papillary stenosis. On analyzing our data, the mean age of patients were 46.80±4.23, those who were chronic opium addict presented to tertiary care centre with features of acute cholangitis. These patients were initially managed conservatively with iv antibiotics, analgesic and iv fluids. Subsequent LFT and USG findings were studied. These patients were subjected for intervention (ERCP). During the procedure, all patient except one required precut sphincterotomy before cannulation into CBD due to tight papillary stenosis. Almost all patients are from Punjab. All are addicted to significant amount of opium for long period (range 30-75gm per day) The longer the distal CBD stricture, there were more elevated ALP value. There were significant decreased of ALP value post procedure as compared to pre procedure value (Table 1) and statistically significant (p<0.001) The value of bilirubin is good co-related with patient INR, i.e higher the bilirubin more prolonged Prothrombin levels. High count did not co relate with the length of the stricture rather, it was co related with the bilirubin value.

Table 3. Pre Procedure Distal CBD length (L) X diameter (D) in mm, seventh day Distal CBD length (L) X diameter (D) in mm Crosstabulation

Count	7Distal CBD length (L) X diameter(D) in mm			Total
	3x1	4x1	7x1	
	Pre Procedure Distal CBD length (L) X diameter(D) in mm			
0.9 x 0.6	0	1	0	1
4x0.2	2	0	0	2
5x0.3	1	2	0	3
6x0.3	3	2	0	5
7x0.3	0	1	0	1
9x0.2	0	1	0	1
9x0.3	0	0	1	1
9x0.4	0	1	0	1
Total	6	8	1	15

There was a good co-relation between two modalities (MRI and ERCP) for diagnosing distal CBD stricture and papillary abnormality (Table 2), (p=0.034).

Follow up length of CBD on USG were measured and correlated with pre procedure measurement but no statistically significant (Table 3). All patients improved clinically except one had mild pain. All except one followed up in OPD, they were closely counseled in de-addiction centre by Psychiatric for a period of one year. They did not use Opium further as per our records during that period.

Conclusion

Biliary stricture is an uncommon but challenging clinical condition. These patients were special group where usual causes of CBD stricture were not present. They were all above thirty and exposed to significant amount of opium for more than fifteen years. Author performed ERCP for this entire patient and subsequent plastic CBD stenting was deployed to release the obstruction. All patients were clinically and biochemically improved and were counseled for abstinence. There was a good co-relation between two modalities (MRI and ERCP) for diagnosing distal CBD stricture and papillary abnormality, (p=0.034), so MRI should be avoided for these patients before being planned for ERCP where we can offer both diagnostic and therapeutic to these patients. The symptomatic distal CBD stricture and papillary stenosis can cause life-threatening complications, such as ascending cholangitis, liver abscess, and secondary biliary cirrhosis. So such group of patients need proper counseling to avoid biliary complications.

Abbreviations

ERCP- Endoscopy Retrograde cholangiopancreatography,
MRI--Magnetic Resonant Imaging.
CBD –Common bile duct, USG-Ultrasonography

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

K C Das, Sumeet david, Sanatan Behera were involved in the clinical assessment and writing the case report. All authors read and approved the final manuscript.

Consent

Full written consent was received for the manuscript to be published.

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