



## A Study of Comparison Between Vicryl 3-0 and Prolene 3-0 in Cases of Choledochoduodenostomy

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### ABSTRACT

**BACKGROUND:** There are various indications of choledochoduodenostomy(CDD) like stones, stricture of lower end of common bile duct or as a drainage procedure in periampullary tumors. In this choledocholithiasis is one of the most common and serious disease in biliary tract. In Choledochoduodenostomy, side to side anastomosis done between common bile duct and first part of duodenum by interrupted stitches. Various types of suture material are used like dexon, silk, vicryl, prolene.

### OBJECTIVE:

Compare between vicryl 3-0 and prolene 3-0 in cases of choledochoduodenostomy and look out for which one is better and less complicative.

### METHODS:

A Prospective randomized study was conducted in civil hospital on 50 patients who presented with common bile duct stones and managed by choledochoduodenostomy. We had a study of 50 cases for choledochoduodenostomy in which 25 cases with vicryl 3-0 and 25 cases with prolene 3-0.

### RESULTS:

In immediate complications 2 out of 50 patients were developed hemorrhage. In this CDD done with vicryl 3-0 had mortality on 1st post operative day other CDD with prolene 3-0 managed conservatively. Bile leak occur in 10 % patients on 2 to 3rd post operative days. Out of them 2 patients have CDD with vicryl 3-0 and other 3 patients with prolene 3-0. All were managed conservatively. Wound infection occurred in 28 % of patients. In late complications, 3 out of 50 patients developed cholangitis at on first month follow up. All of them had a history of bile leak. 2 patients had CDD with vicryl 3-0 developed cholangitis. 3 out of 50 patients developed recurrent stones at 1 year follow up. 2 out of 50 patients have CDD with prolene 3-0.

### CONCLUSION:

In our small comparative study of 50 cases between vicryl 3-0 and prolene 3-0, we could not conclude which one is better or less complicative. But in this study bile leak occur more in prolene than vicryl but it is not significant. However recurrent stones common with prolene 3-0 may be due to their non-absorbable nature which was lead to act as a foreign body. Till this time most of the surgeons preferred vicryl 3-0 due to their absorbable nature and least chance of recurrent stones. But in our study use of prolene 3-0 also gave the same results. So prolene 3-0 is as better as vicryl 3-0. Cost effectiveness not considered in this study.

**KEYWORDS :** Vicryl 3-0, Prolene 3-0, Choledochoduodenostomy.

### INTRODUCTION

There are various indications of choledochoduodenostomy like stones, stricture of lower end of common bile duct or as a drainage procedure in periampullary tumors. In this choledocholithiasis is one of the most common and serious disease in biliary tract.<sup>[1,2,3]</sup> Stones in gall bladder are most likely to enter the common bile duct and cause obstruction to bile flow leading to obstructive jaundice.<sup>[4,5]</sup>

### There are various alternatives for treatment of choledocholithiasis;

- ❖ Choledocholithotomy with t tube drainage
- ❖ Choledocholithotomy with drainage procedures
- Choledochoduodenostomy
- Sphincterotomy
- Sphincteroplasty
- ❖ Endoscopic sphincterotomy and stone extraction
- ❖ Extra corporeal shock wave lithotripsy for CBD stone
- ❖ Laparoscopic Management of Common Bile Duct Stones
- ❖ Choledochojunostomy<sup>[2,5,6,7,8]</sup>

Nowdays, Endoscopic sphinterotomy and stone extraction become more common and economical in our country, but still surgical approach to common bile duct stones is required in some cases.<sup>[9]</sup>

In surgical approaches the choledocholithotomy with choledochoduodenostomy has several advantages over the insertion of t tube drainage, sphincterotomy and sphincteroplasty. T tube drainage increases the risk of complication like infection, leak. It has a advantag-

es that it provide a vent for removing residual stones but methods for removing such stones are not freely available and requires a expert endoscopist and radiologist. Disolution of residual stones by infusion of cholic acid are still on experimental basis and only for cholesterol stones.<sup>[10,11]</sup> Once a T tube is removed bile is lithogenic, recurrent stones can form in common bile duct. So Choledochoduodenostomy is more physiological than a t tube drain. Sphincterotomy, Sphincteroplasty has some different indication and complication like pancreatitis which is less common in Choledochoduodenostomy.<sup>[12]</sup>

The goal of biliary operation undertaken for calculus disorder is to render the patient free from infection, obstruction and pain. This is best achieved when conduit free from stones and allows for a unimpeded flow of bile from liver to the duodenum. Choledochoduodenostomy provides such a conduit and has been advocated to obviate the need for secondary surgery on biliary tract.<sup>[13]</sup>

In Choledochoduodenostomy, side to side anastomosis done between common bile duct and first part of duodenum by interrupted stitches. Various types of suture material used in past like dexon, silk, vicryl. Now most surgenons used vicryl 3-0 in anastomosis but in our study we used prolene 3-0 in some cases.<sup>[1,4,7,14]</sup>

Vicryl 3-0 is absorbable, braided, easy handling and tying quality with maintain tensile strength for 3 to 4 weeks but it lead to inflammation, granuloma, extrusion, fistula, abscess. Prolene 3-0 is non absorbable, nonbraided ties smoothly, no tissue reaction, no tissue damage and resist to harbor infective microorganism due to monofilament but

sometimes lead to knot slippage.<sup>[2,8,15]</sup>

**Objectives of the Study:**

The objective of our study is to compare between vicryl 3-0 and prolene 3-0 in cases of choledochoduodenostomy and look out for which one is better and less complicative.

**Inclusion criteria:**

Patients presenting obstructive jaundice with CBD stones on ultrasonography findings were considering in this study. Ultrasonography was main stay of diagnosis with special reference to presence of Gall stone, CBD stone, CBD dilatation more than 10 mm, and presence of biliary sludge. All patients operated electively. Selection of sutures like vicryl 3-0, prolene 3-0 in surgery randomised on alternate bases in Patients. We used vicryl 3-0 in 25 patients on alternate basis and prolene 3-0 in other 25 patients.

**Exclusion criteria:**

- Patients with other causes of obstructive jaundice like lower common bile duct stricture, carcinoma head of pancreas.
- Patients with cardiovascular compromise.
- Patient requiring associated abdominal procedures were excluded.
- Patients with common bile duct stones those were managed by E.R.C.P.

**Results and Discussion:**

A study has been undertaken to compare the results in cases of CCD where anastomosis was done by either vicryl 3-0 or prolene 3-0. 25 cases of each were taken for this study with careful follow up of these patients.

Patients included in the study were from age 22 to 60 years with 37 were female and 13 were males.

**IMMEDIATE COMPLICATION:**

COMPLICATION	VICRYL 3-0	PROLENE 3-0
HEMORRAGE	1	1
BILE LEAK	2	3
FEVER	7	3
WOUND INFECTION	7	7

Most common immediate complication in CCD operation is wound infection. However fever was also common but related to wound infection or bile leak. Bile leak is occur in 2 cases with vicryl 3-0 and 3 cases of prolene 3-0. So it was not significant with which type suture material used.

**LATE COMPLICATION**

COMPLICATION	VICRYL 3-0	PROLENE 3-0
CHOLANGITIS	2	1
LIVER ABCESS	0	0
SUMP SYNDROME	0	0
STENOSIS OF STOMA	0	1

In late complication, cholangitis occurred in 2 patients in which anastomosis were done by vicryl 3-0 compare to 1 patient in which anastomosis was done by prolene 3-0. Stenosis of stoma was occurred in

only 1 patient in which anastomosis was done by prolene 3-0.

**RELATION OF CBD DIAMETER AND RECURRENT STONES IN VICRYL 3-0 AND PROLENE 3-0:**

CBD DIAMETER	RECURRENT STONES	
	Vicryl 3-0	Prolene 3-0
10-14 mm	1	2
15-18mm	0	0
19-22mm	0	0

Recurrent CBD stones may be related with

- Old age
- Missed intrahepatic duct stones
- Duct diverticula
- Non absorbable nature of the prolene 3-0
- CDD stoma size less than 1.5 cm due to small diameter of the common bile duct
- C.B.D. diameter more than >13 cm size

In our study, recurrent stone was found more prolene 3-0 anastomosis (2 patients) compare to vicryl 3-0 (1 patient).

**Conclusion:**

In immediate complications 2 out of 50 patients were developed hemorrhage. In this CDD done with vicryl 3-0 had mortality on 1<sup>st</sup> post operative day other CDD with prolene 3-0 managed conservatively. Bile leak occur in 10 % patients on 2 to 3<sup>rd</sup> post operative days. Out of them 2 patients have CDD with vicryl 3-0 and other 3 patients with prolene 3-0. All were managed conservatively. Wound infection occurred in 28 % of patients. In late complications, 3 out of 50 patients developed cholangitis at on first month follow up. All of them had a history of bile leak. 2 patients had CDD with vicryl 3-0 developed cholangitis. 3 out of 50 patients developed recurrent stones at 1 year follow up. 2 out of 50 patients have CDD with prolene 3-0.

In our small comparative study of 50 cases between vicryl 3-0 and prolene 3-0, we could not conclude which one is better or less complicative. But in this study bile leak occur more in prolene than vicryl but it is not significant. However recurrent stones common with prolene 3-0 may be due to their non-absorbable nature which was lead to act as a foreign body. Till this time most of the surgeons preferred vicryl 3-0 due to their absorbable nature and least chance of recurrent stones. But in our study use of prolene 3-0 also gave the same results. So prolene 3-0 is as better as vicryl 3-0. Cost effectiveness not considered in this study.

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