



## A Study Of Series Of Patients Of Stump Cholelithiasis In A Tertiary Care Centre In Asia

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### Abstract

#### Aim:

To present the profile of a series of adult patients admitted in our hospital in whom the diagnosis made was stump cholelithiasis.

#### Material And Methods:

A retrospective study of 27 patients who were diagnosed as stump cholelithiasis between September 2012 to September 2022.

#### Results:

Out of all 27 cases of stump cholelithiasis--81 percent presented with chronic pain. 33 percent developed features of acute cholecystitis.11 percent developed obstructive jaundice.

Only 33 percent were diagnosed by USG. 33 percent were diagnosed by CT scan. Another 33 percent needed MRCP to come to the final diagnosis.56 percent were managed by lap chole.

#### Conclusion:

Stump cholelithiasis is a serious problem in terms of patient discomfort. USG , CECT and MRCP should be used judiciously in diagnosising this condition. Surgery forms the main pathway for management of such patients.

**Keywords:** Stump cholelithiasis, laparoscopic cholecystectomy, completion cholecystectomy

### Introduction

Open or Laparoscopic cholecystectomy is an established operation for symptomatic gall stone disease. However retention of stones in the cystic duct stump is a problem for future.Sometimes new stones can get formed in a stump where no stones were left at the time of surgery. we need to analyse its various aspects to avoid the related problems of this condition in future.

### Material and methods .

It was a retrospective study.the files of all the patients admitted in our hospital from sept 2012 to sept 2022 , in whom the diagnosis made was stump cholelithiasis. Their previous history, investigations , operations , complications were recorded. No age bar was put. Finally the data was set

### Results

The patients had varied presentation, as is depicted in table 1. The most significant symptom is chronic pain.

As shown in table 2 - Out of 27 patients 18 patients had previously undergone open chole for cholelith, 8 had done lap chole for cholith.. One pt had undergone open cholecystectomy for gall bladder trauma.

The radiological method which helped to diagnose this condition was USG , CT and MRCP in one third number of patients each as is shown in table 3.

Table 4 shows that in the category of stump cholelithiasis majority of the patients ( 56 percent) were managed by lap chole whereas 22 percent were done by open cholecystectomy ,11 percent cases were started as lap chole but were converted to open cholecystectomy.. Few patients continued to be managed on conservatively.

The majority of the patients(18) had a single stone. Less percentage of patients(9) had miultiple stones as is shown in table 5.

Apart from stump cholycystis there were some associated conditions with some of the patients. One patient(3 .7percent) had associated choledocholithiasis,one(3.7 percent) had pancreatitis and one (3.7 percent) had Mirizi syndrome.this is shown in table 6.

Majority of the patients(66 percent) with stump cholelithiasis had been males where as the lesser percent were females(33 percent).

**Table 1 showing varied presentation of patients of stump cholelithiasis.**

| Symptom  | Number | Percent |
|--|--------|---------|
| Chronic Pain in Right hypochondrium                    | 22     | 81      |
| Features of acute cholecystitis                        | 9      | 33      |
| Jaundice   | 3      | 11      |
| Symptoms what patients call as gastric-related acidity | 6      | 22      |
| Repeated Nausea and vomitting                          | 6      | 22      |
| Fatty dyspepsia  | 9      | 33      |

**Table 2 showing the figures related to the method and indication of previous cholecystectomy done.**

| The Previous procedure                | Number of patients | Percentage |
|---------------------------------------|--------------------|------------|
| Open chole for cholelithiasis         | 18                 | 66         |
| Lap chole for cholelithiasis          | 8                  | 30         |
| Open chole for trauma to gall bladder | 1                  | 04         |

**Table 3 showing the radiological method which helped us to diagnose the stump cholelithiasis.**

| Radiological method which | Number of patients | Percent |
|---------------------------|--------------------|---------|
|---------------------------|--------------------|---------|

|                         |   |    |
|-------------------------|---|----|
| diagnosed the condition |   |    |
| USG                     | 9 | 33 |
| CT                      | 9 | 33 |
| MRCP                    | 9 | 33 |

**Table 4 showing the final treatment modality by which the management was done.**

| Treatment given                           | Number of patients | Percent |
|---|--------------------|---------|
| Completion cholecystectomy by laparoscopy | 15                 | 56      |
| Completion cholecystectomy by open method | 09                 | 33      |
| Conservative management so far            | 03                 | 11      |

**Table 5 showing the outcome of the surgical management in 24 patients who were operated**

| Outcome after surgery   | Number of patients | Percent |
|-------------------------|--------------------|---------|
| Treated fully           | 20                 | 83      |
| Continued mild symptoms | 4                  | 17      |

**Table 6 showing number of stone found in the stump**

| Number of stones in the gall bladder stump | Number of patients | Percent |
|--|--------------------|---------|
| Single stone                               | 18                 | 66      |
| Multiple stones                            | 9                  | 33      |

**Table 7 showing the associated problems found in such patients**

| Associated problems found in such patients in our series. | Number of patients | Percent |
|---|--------------------|---------|
| Choledocholithiasis                                       | 1                  | 3.7     |
| Pancreatitis  | 1                  | 3.7     |
| Mirizzi syndrome  | 1                  | 3.7     |

**Table 8 Showing the gender distribution in the patients of stump cholelithiasis**

| Gender | Number of patients | Percent |
|--------|--------------------|---------|
|--------|--------------------|---------|

|        |    |    |
|--------|----|----|
| Male   | 18 | 66 |
| Female | 9  | 34 |

**Discussion**

A normal cystic duct stump left during a cholecystectomy is about 1 cm. When a cholecystectomy is done by lap or open method there is a potential possibility of a missed or a retained stone in the cystic duct stump. This too can be symptomatic and troubling at times. Before the advent of modern radiological gadgets, this condition must have been difficult for both the patient and the surgeon. But now the modern gadgets have made it easy to diagnose such condition .

Going to the entity called as stump cholelithiasis, practically we can probably include a set of patients in this category in whom the subtotal or partial cholecystectomy was done

However, this carries the risk of developing stump cholecystitis when the gallbladder remnant becomes inflamed due to the stone disease(1)

The reported incidence of stump cholecystitis varies but has been reported to occur in as many as 5% [1] of patients after emergency cholecystectomy, and it is rare but not absent after elective operations. In our series only one patient had been operated in emergency for emergency cholecystectomy( for trauma to Gall Bladder). May be the surgeon was in hurry because he was willing to hasten the procedure, so he left a long stump. In our study we can not comment on the total number of lap chole done to assess the percentage, because we have a referal hospital, that means that many cases of stump cholelithiasis diagnosed in the peripheral hospitals also come to our hospital.

It has been said that It tends to occur in middle-aged women who are usually quite confident that their symptoms are similar to those that prompted their original cholecystectomy (2). But in our series we have found that percentage of patients with stump cholelithiasis is double in males as compared to females. We do not know the reason. One possibility is that in males you tend to find a difficult lap chole usually so probably first time a partail cholecystectomy might have been done.

A long cystic duct stump is a cause for stump cholelithiasis. Sometimes a long cystic duct may remain there even after cholangiography, because there are certain pitfalls in cholangiography which can force a surgeon to kep along cystic duct or create injury. Pitfalls encountered in cystic duct imaging include pseudocalculous defects from overlap of the cystic duct and common bile duct, underfilling of the cystic duct during direct cholangiography.

Once the diagnosis is confirmed, the definitive treatment is a reoperation to excise the gallbladder remnant at a completion cholecystectomy (1,2 ). We have seen that majority got operated (89 ercent) while as only few continued to be on conservative management or were waiting for surgery. It was seen in our series that lap chole (completion cholecystectomy )was possible in majority(56percent) though we had some patients done by open completion(33 percent) cholecystectomy also.

Gurel et al. [3] reported the first laparoscopic completion cholecystectomy in 1995. In a study in 2008 it was concluded that cystic duct stump calculi diagnosed on ultrasound as a cause of these symptoms may actually be in the remnant gall bladder. Further, patients with recurrent symptoms and proven stones should be re-operated and laparoscopic surgery is no more a contra-indication for these revision surgeries(4). We also found that majority of patients in our series got operated by lap chole.

In our series there were associated conditions. One patient had associated choledocholithiasis, one had pancreatitis, one had Mirizi syndrome. We do not know whether there was any relation between stump cholelithiasis and these conditions or there was no connection.

In our study one patient had to undergo ERCP because of choledocholithiasis. We have not found any correlation in literature. One patient had an attack of pancreatitis which could not be attributed to stump

cholelithiasis. One patient of Mirizis syndrome was managed by open cholecystectomy.

As discussed earlier one of the reasons for stump cholelithiasis is subtotal cholecystectomy. Subtotal cholecystectomy has been recommended at times to avoid damage to the common bile duct in difficult lap chole. As mentioned earlier laparoscopic subtotal Cholecystectomy is a safe option in treating gallstone disease when inflammation or fibrosis precludes conventional dissection of Calot's triangle. Laparoscopic subtotal Cholecystectomy can clearly help reduce morbidity associated with open laparotomy(5)

In a study in 2015 it was concluded that in acute cholecystitis, as severe inflammation of the hilar structures does not allow safe dissection, partial cholecystectomy can be applied. However, in these patients, there is a risk of recurrence of cholecystitis symptoms and the development of biliary pancreatitis and choledocolithiasis because of the remaining tissue. Therefore, it should not be forgotten that endoscopic and/or surgical intervention may be necessary at least in some patients (6).

In Mexico in a study it was concluded that despite complications of subtotal cholecystectomy, morbidity associated with bile duct injury is much higher due to high long-term reoperation rate, in addition to secondary biliary cirrhosis. Subtotal cholecystectomy is a safe alternative that can prevent bile duct injury if properly and timely performed in the context of difficult cholecystectomy(7)

In 2017 in Netherlands it was concluded that subtotal cholecystectomy is a safe and feasible technique for difficult cases for which conversion only will not solve the difficulty of an inflamed hepatocystic triangle. The choice for reconstituting or fenestrating subtotal cholecystectomy depends on intraoperative conditions and both techniques are associated with specific complications(8)

In a study on 54 patients in Iran in 2007, it was concluded that it seems that partial cholecystectomy is a safe procedure for treating complicated acute cholecystitis and in the face of severe inflammation at the area of Calot's triangle (9).

Nowadays Laparoscopic cholecystectomy is an established operation for symptomatic gall stone disease. It provides total relief of pre-surgical

symptoms in up to 85% of patients(10). However stones retained in the cystic stump is a potential problem

Walsh *et al* (11) reviewed seven cases with calculi retained in gall bladder and cystic duct remnants that presented with recurrent biliary symptoms. They concluded that retained gall bladder and cystic duct calculi can be a source of recurrent biliary pain and said that this entity can be prevented by accurate identification of gall bladder cystic duct junction at cholecystectomy.

We feel that in the past many patients after cholecystectomy would have got to continue with post chole syndrome. Now with modern instruments and advances in laparoscopic surgery and increasing experience of surgeons, even these can be operated laparoscopically. It has now been suggested that it is safe and feasible to remove the gall bladder or gall bladder remnants in such patients laparoscopically(12). Clemente *et al* also described the feasibility of laparoscopic removal Gall Bladder remnant and cystic duct stump(13). Similar results were found in 2018 in one series by Abhimanyu(14) They said that ultrasonography usually detects this condition, but magnetic resonance cholangiopancreatography is the test of choice for diagnosis as well as for surgical planning. Laparoscopic re-excision of the stump in most cases is feasible and safe. It is increasingly becoming the treatment of choice.

In our series we found that 66 percent of patients of stump cholelithiasis had a single stone each, whereas rest had multiple stones. Though we have not found any relation with the character of disease but it seems that in most of the cases it was a small stone missed in the first instance which grew to a big size. However some patients had multiple small stones for which we can not attribute a cause.

Also in our series we found that 4 patients (17 percent) out of operated patients continued to have same symptoms for which he was operated, i.e. stump cholelithiasis. It means some other cause can contribute to the symptoms like acid peptic disease etc. So it is recommended that a thorough evaluation is needed before one takes up such patients for surgery.

**Conclusion:** partial or subtotal cholecystectomy is a reasonable option in difficult cholecystectomy. Stump cholelithiasis is a serious problem in terms of patient discomfort. USG, CECT and MRCP should be used judiciously in diagnosis of this condition. Surgery forms the main pathway for management of such patients. A thorough evaluation of such patients is needed as some patients will continue to have symptoms even after surgery.

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