

Research Article

Gall bladder stones: surgical treatment

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ABSTRACT

Background: There is higher incidence of gall stones in Karnataka and more commonly seen in women aged between 25 to 55 years. In this study men are also encountered with gall stone. As all the gall stones cannot be removed by laparoscopic procedure, the complicated and adherent gall bladder with stones and where laparoscopic procedure is not available are removed by conventional open method of cholecystectomy and in this study open cholecystectomy procedure is dealt in detail.

Methods: Open cholecystectomy through Right Kocher's incision.

Results: In this study of 10 cases with complications of gall stones dealt surgically by doing open cholecystectomy gave satisfactory postoperative results without much postoperative complications.

Conclusions: Among 10 cases of open cholecystectomy 6 cases were done through duct first method and 4 cases were done through fundus 1st method, which gave good results and less postoperative complications.

Keywords: Gall stones, Open cholecystectomy, Acalculous cholecystitis

INTRODUCTION

Gallstones begin with bile, a substance that helps with the digestion of fats and the absorption of certain vitamins.

Gallstones are one of the most common digestive problems treated in women. More than 25 million people in the United States have gallstones, and 65 percent to 75 percent of them are women. Fortunately, for most people, gallstones are "silent" - they don't cause major symptoms.⁸

Gallstones without symptoms do not require any treatment as thought earlier but in view of future complications like cholecystitis, CBD obstruction, perforation and pancreatitis. Cholecystectomy is advised as it is diagnosed by ultrasonography or CT scan abdomen.

Gallstones may be asymptomatic, even for years. These gallstones are called "silent stones" and do not require treatment. Symptoms commonly begin to appear once the stones reach a certain size (>8 mm).¹

In our hospital we had 10 patients (over a time span of 1 year) with symptomatic gallstones diagnosed by Ultrasonography.

Gallstones can be of many types like Pure (10%) (Cholesterol, bile pigment, calcium carbonate) and mixed (80%), combined (10%).^{2,3}

Cholesterol gallstones can sometimes be dissolved by oral ursodeoxycholic acid, but it may be necessary for the patient to take this medication for up to two years. Gallstones may recur, once the drug is stopped. However, this form of treatment is suitable only when there is a small number of gallstones with minimal size (less than 2-3 mm).⁴

Cholecystectomy (gallbladder removal) has a 99% chance of eliminating the recurrence of cholelithiasis. Surgery is only indicated in symptomatic patients. There are two surgical options-

1. Open cholecystectomy is performed via an abdominal incision (Right Kocher's or upper right paramedian incision).⁵
2. Laparoscopic cholecystectomy, introduced in the 1980s, is performed via three to four small puncture holes for a camera and instruments and recently with single port.⁶

In our institutional hospital set up we do mainly laparotomy for cholecystectomy as we are not equipped with laparoscopic set up just like any other rural hospital. In laparotomy we can prevent complications by giving good operative procedure under direct vision and post operative complications can be tackled as in cases of mucocele of gall bladder and adhesions of the gall bladder following repeated cholecystitis.

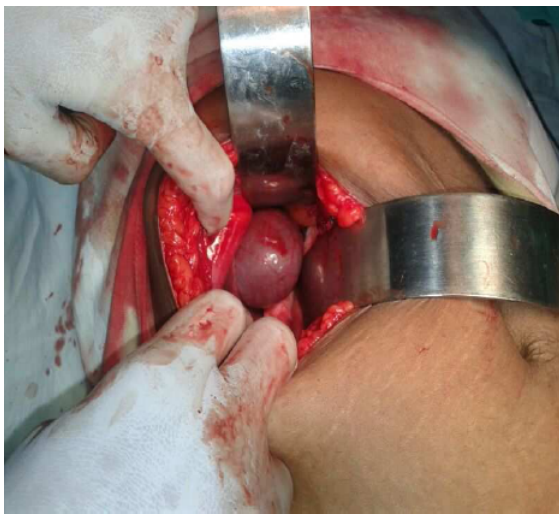


Figure 1: Showing mucocele of gall bladder.

Here in this study we have taken 10 symptomatic patients for cholecystectomy over a time span of 1 year from Oct 2012 to Oct 2013.

METHODS

To make the study simple and easy to understand we have included 10 open cholecystectomy procedures with preoperative, intraoperative and postoperative condition of the patients.

In India most of cholecystectomies are performed to address symptoms related to biliary colic from cholelithiasis, to treat complications of gallstones (e.g., acute cholecystitis, biliary pancreatitis), or as incidental cholecystectomies performed during other open abdominal procedures.

Indications are usually related to symptomatic gallstones or complications related to gallstones.

Biliary colic, biliary pancreatitis, cholecystitis and choledocholithiasis are the most common indications for cholecystectomies.

The only absolute contraindications to the open approach are severe physiologic derangement or cardiopulmonary disease that prohibits general anaesthesia.

Most open cholecystectomies are performed under general anaesthesia. Less common alternatives include regional (epidural or spinal) and, rarely, local anaesthesia.

Patients are positioned supine with arms extended. Placing a folded blanket or bump underneath the patient's right back or inverting the table may be beneficial.

Advantages of open cholecystectomy are better exposure during surgery and less risk of wound infection.

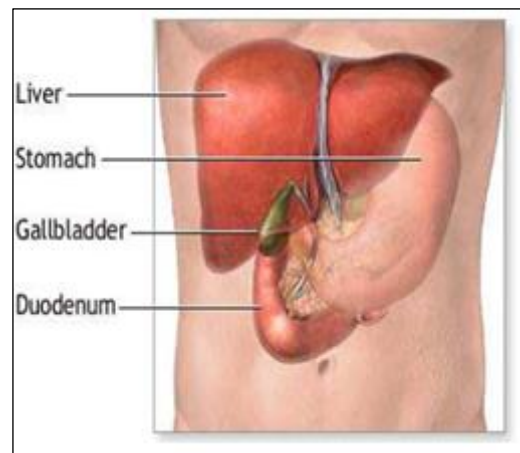


Figure 2: Showing anatomy of gall bladder.

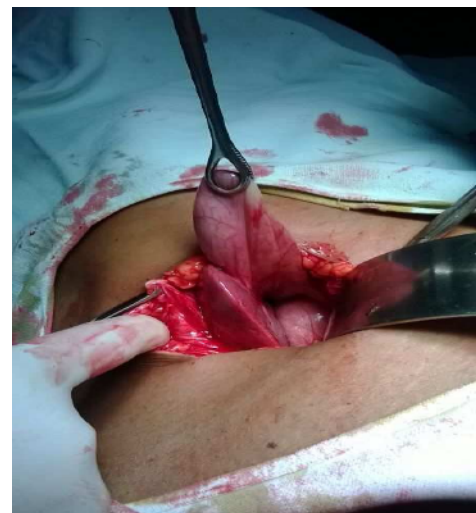


Figure 3: Showing open cholecystectomy technique.

In these 10 cholecystectomies 6 were done with duct first method and 4 with fundus first method.

Fundus first method is done in presence of adhesions or exudates in CBD, CHD, CD.

In duct first method there is less chance of injuring CBD and right hepatic artery.

In all the cases the gall bladder bed in liver after cholecystectomy was covered by gel foam to prevent any bleeding or oozing from gall bladder bed.

RESULTS

Gall bladders which were removed from all the 10 patients were sent for histopathological examination along with stones for analysis.

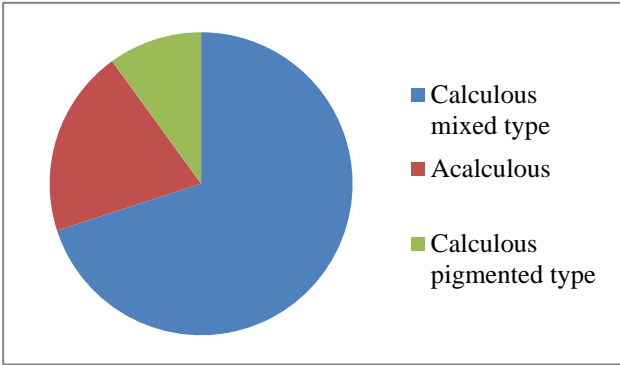


Figure 4: Type of cholecystitis.

And it turns out to be 8 of them were calculous and 2 acalculous cholecystitis.



Figure 5: Showing mixed stones.



Figure 6: Showing pigmented stones.

Sex incidence

Of the 10 patients included in case study 7 were females and 3 were males. This shows gallstones are twice more frequent in women than in men.

6 females were having calculous cholecystitis and only 1 was with acalculous cholecystitis. And in males 1 was with calculous and 2 with acalculous cholecystitis.

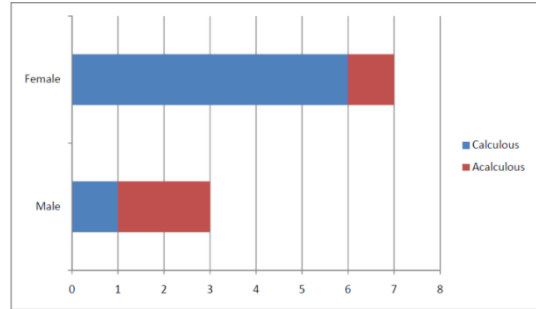


Figure 7: Sex incidence.

Age incidence

Most of our patients in this study were in age group of 25 to 45 year which is nearly 80 % of the total.

Table 1: Age incidence.

| Age group (Years) | No. of patients | Percentage |
|-------------------|-----------------|------------|
| 0-20 | 0 | 0% |
| 20-40 | 1 | 10% |
| 40-60 | 9 | 90% |

DISCUSSION

A gallstone is a crystalline concretion formed within the gallbladder by accretion of bile components. These calculi are formed in the gallbladder but may distally pass into other parts of the biliary tract such as the cystic duct, common bile duct, pancreatic duct or the ampulla of Vater. Rarely, in cases of severe inflammation, gallstones may erode through the gallbladder into adherent bowel potentially causing an obstruction termed gallstone ileus.

Gallstones can vary in size and shape from as small as a grain of sand to as large as a golf ball. The gallbladder may contain a single large stone or many smaller ones. Pseudoliths, sometimes referred to as sludge, are thick secretions that may be present within the gallbladder, either alone or in conjunction with fully formed gallstones.

The composition of gallstones is affected by age, diet and ethnicity. On the basis of their composition, gallstones can be divided into the following types:

1. Cholesterol stones vary from light yellow to dark green or brown and are oval, between 2 and 3cm long, each often having a tiny, dark, central spot. To be classified as such, they must be at least 80% cholesterol by weight.
2. Pigment stones are small and dark and comprise bilirubin and calcium salts that are found in bile. They contain less than 20% of cholesterol.
3. Mixed gallstones typically contain 20-80% cholesterol (or 30-70%, according to the Japanese-classification system). Other common constituents are calcium carbonate, palmitate phosphate, bilirubin and other bile pigments. Because of their calcium content, they are often radiographically visible.



Figure 8: Showing mixed stones which is most common type of gallstones.

Gallstone risk increases for females (especially before menopause) and for people near or above 40 years. Researchers believe that gallstones may be caused by a combination of factors, including inherited body chemistry, body weight, gallbladder motility (movement), and perhaps diet. The absence of such risk factors does not, however, preclude the formation of gallstones.

The most common symptom of gallstones is pain in the stomach area or epigastric region and in the upper right part of the belly or right hypochondrium, under the ribs. Gallstone pain can cause vomiting, which may relieve some of the abdominal pain and pressure.

Symptoms that may mean that a gallstone is blocking the common bile duct include: Yellowing of the skin and the white part of the eyes (jaundice), dark urine, light-colored stools, a fever and chills.

The best single test for diagnosing gallstones is transabdominal ultrasonography. Other tests include endoscopic ultrasonography, magnetic resonance cholangio-pancreatography (MRCP), cholescintigraphy (HIDA scan), endoscopic retrograde cholangio-pancreatography (ERCP), liver and pancreatic blood tests, duodenal drainage, oral cholecystogram (OCG), and intravenous cholangiogram (IVC).⁷

CONCLUSION

Once the diagnosis is made as cholelithiasis and cholecystitis, in this study group open cholecystectomy through right Kocher's incision done.

In mucocele of the gall bladder because of impacted stone in Hartmann's pouch, first the bile from gall bladder was sucked by suction apparatus to get access for surgery and dissection near Callot's triangle.

In cases of adherent gall bladder with omentum and embedded in liver bed adhesiolysis of omentum done and prime care taken to obtain complete haemostasis.

Non adherent gall bladder and normal sized gall bladder are removed by duct first method after identifying and confirming cystic duct and artery.

Fundus first method in 4 cases as it was difficult to dissect in Callot's triangle because of adhesions. Care was taken not to damage and clamp common bile duct.

Postoperatively patient was put with drain in the liver bed which was removed after 48 hours, Ryle's tube aspiration for 24 hours, appropriate antibiotics and analgesics, PPI injectables and fluid management was given.

Protein pump inhibitors with prokinetic drugs tried for a month postoperatively in all the cases.

None of the patient reported with icterus in postoperative period and none of the patient reported any complications till date.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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