

## Case Report

# One Hundred Forty-Six Gallstones at Cholecystectomy: A Case Report

Nebiyou Simegnew Bayileyegn<sup>1\*</sup> and Amare Abera Tareke<sup>2</sup>

<sup>1</sup>Department of Surgery, Jimma University Medical Center, Ethiopia

<sup>2</sup>Department of Biomedical Sciences, College of Medicine and Health Sciences, Wollo University, Ethiopia

## Abstract

**Introduction:** Gallstone disease remains the cause of morbidity and mortality since ancient times. About 10% of population in western countries harbor gallstone and it is epidemic in some areas while its rate is low in Asia and Sub-Saharan countries. Cholesterol super saturation lies at the heart of gallstone formation.

**Case presentation:** A 26 years old para-I lady presented with high grade intermittent fever, right upper quadrant abdominal pain radiating to the back, nausea and vomiting of two days duration. She was acutely sick looking with a blood pressure of 100/70 mmHg, pulse-rate of 124, respiratory rate of 28 breaths per minute and temperature measuring 40.1°C. We did cholecystectomy and find out thickened fibrous gall bladder wall with 146 stones of size ranging from 0.5 cm to 2.8 cm inside it.

**Discussion and conclusion:** Gallstone disease is one of the most prevalent gastrointestinal disorders since ancient times and management of its complications incurs significant economic burden. Age and female sex considered strong risk factors compared to other risk factors. Solitary stone and younger age were the most prominent predictors of severe inflammation. Surgery is the mainstay of management for symptomatic gallstone diseases and in selected conditions of asymptomatic cases.

**Keywords:** Multiple gallstones; Acute cholecystitis; Chronic cholecystitis; Cholecystectomy; Gallbladder carcinoma

## Introduction

Gallstone disease remains the cause of morbidity and mortality since ancient times. About 700,000 cholecystectomies are done in USA every year and the complication of gallstone diseases cost USA \$6.5 billion annually. About 10% of population in western countries harbor gallstone and it is epidemic in some areas while its rate is low in Asia and Sub-Saharan countries. Other studies find out about one-quarter of the women are affected with it. The occurrence parallels with the risk of metabolic syndrome and obesity [1,2]. Based on morphology and biochemical constituent gallstones have two broad classes of cholesterol and pigment stone grouping. Cholesterol super saturation lies at the heart of gallstone formation. Pigment stones formed due to infections or hemolytic hematologic conditions [3]. Increased fertility, female sex, obesity, ageing are some of the risk factors [4] which shows the complex interaction of genetic, environmental and metabolic risk factors [5].

About one-third of patients diagnosed with gallstone diseases will develop complications or recurrent symptoms ending up with cholecystectomy [6]. Gallstones could be asymptomatic in most cases or patients could present with acute cholecystitis, chronic/recurrent

cholecystitis, jaundice, cholangitis, and pancreatitis or in rare cases with gallstone ileus [7]. Long standing gallstones will permanently irritate gall bladder mucosa and are strong risk factors for gall bladder carcinoma [8].

It is uncommon to have a finding of hundreds of gallstones and there was no report of such finding in literatures. We present the case of thickened and fibrosed gallbladder with hundreds of gallstones inside.

## Case Presentation

A 26 years old para-I lady presented to our emergency department with high grade intermittent fever, right upper quadrant abdominal pain radiating to the back, nausea and vomiting of two days duration. She dates back her complaint of nausea, fatty food intolerance, loss of appetite and early satiety for one year. She has no weight loss, abdominal swelling or bowel habit change by the time of her presentation she was lactating to her one-year-old daughter. Otherwise, she has no history of other chronic illness.

Upon physical examination she was acutely sick looking with a blood pressure of 100/70 mmHg, pulse-rate of 124, respiratory rate of 28 breaths per minute and temperature measuring 40.1 degree Celsius. She has pink conjunctiva and nonicteric sclera. No positive chest or cardiovascular finding. She has significant right upper quadrant tenderness (positive Murphy sign) but no sign of abdominal fluid collection. Blood work showed leukocytosis with left shift (WBC=24,320, Granulocyte=89.3%), moderately elevated liver function tests (AST=90.2, ALT=82, Alkaline phosphatase=69), normal level of bilirubin and lipid profiles. Abdominal ultrasound showed multiple gall stones with thickened gall bladder and pericholecystic fluid collection (Figure 1). Sonographic Murphy sign was also positive.

Then with the diagnosis of acute calculous cholecystitis, we started

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**\*Corresponding author:** Nebiyou Simegnew Bayileyegn, Department of Surgery, Jimma University Medical Center, PO Box No 349, Jimma, Ethiopia, Tel: +251-932457001; E-mail: nsemegnew@gmail.com



**Figure 1:** Ultrasonographic image of gall stones.

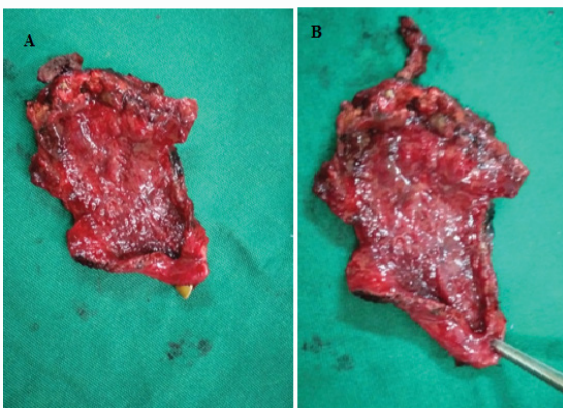
her on broad-spectrum antibiotics and intravenous fluid resuscitation. Subsequently her condition improved with fever subsides, tolerated diet intake, liver function normalizes and patient discharged home with the advice for interval cholecystectomy after 6 weeks.

After six weeks we reinvestigated her with complete blood count, liver function test and bilirubin level which all turns to be normal. Abdominal ultrasound showed contracted gall bladder with full of stones inside but intrahepatic and extrahepatic biliary tree were normal in size.

She was admitted for elective cholecystectomy and essential preoperative preparation was done. Intraoperatively, gallbladder forms dense adhesion with transverse colon, common bile duct and stomach. Upon releasing the adhesion, the gall bladder appears as a mass like consistency with full of stones inside and one gallstone impacted in the cystic duct. Cystic duct and cystic artery dissected, ligated and divided. We did cholecystectomy and sectioning showed thick fibrous gall bladder wall with 146 stones of size ranging from 0.5 cm to 2.8 cm inside it (Figure 2A and B and Figure 3A and B). The stones were cholesterol stones and bile culture has growth of *Escherichia coli* and *Klebsiella* species. The patient has fast recovery from surgery and we discharge home on 2<sup>nd</sup> post operative day. She was doing fine on subsequent visits. Institutional approval wasn't required for the publication of this case report.

## Discussion and Conclusion

Gallstone disease is one of the most prevalent gastrointestinal disorders since ancient times and management of its complications incurs significant economic burden [1]. Age and female sex considered



**Figure 2:** Impacted stone at cystic duct, sectioned and thickened gallbladder.



**Figure 3:** Gallstones after cholecystectomy showing different sizes of gallstones.

strong risk factors compared to other risk factors [2,4]. Our patient is female and fertile which gives at least two of the risk factors.

The number and size of stone differ among patients. Size is considered as single most independent risk factor for carcinoma rather than number of gallstones in previous studies but the ongoing question whether number is also a factor is still unanswered [8]. Roa et al. [7] studied and showed 76% of patients with gallbladder carcinoma harbor multiple stones while those with benign diseases have few or solitary stone. Despite their finding that multiple and larger stones appear in higher proportion of patients with gallbladder carcinoma, studies consider it is the duration of stone harboring rather than size or number as factor [9,10].

Bile culture for bacteria is positive for 30% of patients undergoing cholecystectomy for gallstone diseases. In turn bacteria found to be more associated with multiple stones and single large stone in one study [11]. Bile culture in our patient showed growth of *E. coli* and *Klebsiella* species.

Domeyer and Sergentanis in their study found out older patients having multiple and small stones. Solitary stone and younger age were the most prominent predictors of severe inflammation. Multiple stones are associated negatively with the degree of inflammation [12]. In our case there was high degree of inflammation and history of recurrent symptoms but there was a mix of multiple stones counted about 146 stones, size ranging from 0.5 cm to 2.8 cm. The patient is young and has multiple and large stones at the same time.

Diagnosis is not straight forward as gallstone diseases can mimic a variety of other illnesses. Clinical examination of the patient and laboratory workup supplanted with imaging diagnoses the patient accurately. Abdominal ultrasound is considered as gold-standard diagnostic tool [13,14].

Life style modification to reduce modifiable risk factors and preventive measures reduce the onset and severity of complications. Surgery is the mainstay of management for symptomatic gallstone diseases and in selected conditions of asymptomatic cases. If the gallstone is complicated by infection treatment with antibiotics followed by surgery is mandatory [15-17]. We initiated broad-spectrum antibiotics and delayed the surgery for a while to treat the acute condition and in consideration of her previous recurrent symptoms.

Studies find multiple stones in the elderly and patients with gall bladder carcinoma. Multiple stones in the young are more associated with the finding of positive biliary culture. The finding of multiple gallstones in patients with gall bladder carcinoma may be a

coincidence or there could be some degree of association which needs further study.

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