

GALLSTONE ILEUS: A SILENT EPIDEMIC?

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Abstract : Internet search of the term Gallstone Ileus, Enterolithotomy, Riglers Triad, Cholecystoduodenal fistula, Enterobiliary fistula, Bouverets syndrome and geriatric acute abdomen was made and extensive literature was reviewed. Increasing life expectancy and comorbidity, which contraindicate elective surgery for cholelithiasis, may be contributing towards epidemicity of gallstone ileus. Gallstone ileus requires urgent and appropriate surgical and intensive care if unacceptable mortality is to be prevented. Enterolithotomy remains the treatment of choice in emergency cases. Interval cholecystectomy is recommended in patients with a long life expectancy because recurrence of calculi and symptoms increase with time.

INTRODUCTION

Calculous disease of gallbladder can uncommonly manifest as gallstone ileus. Bartholin first described gallstone ileus in 1654¹. Gallstone Ileus is a misnomer as it is a true mechanical intestinal luminal obstruction by a gallstone and not an intestinal ileus in strict sense. By definition gallstone ileus is a mechanical obstruction caused by impaction of one or more gallstones within the lumen of the bowel.

PATHOPHYSIOLOGY

Gallstone is the tombstone erected to the memory of the organism within it² but unlike a tombstone, gallstone is notorious enough to be mobile. Nearly half of the cases of gallstone ileus have preceding history of biliary tract disease. The sequence of inflammation, adhesion, stone erosion and fistula formation succeeds the attack of acute cholecystitis and ultimately gallstone migrates into gastrointestinal lumen. In 80-85% of cases stone reaches bowel through biliodigestive fistulas – cholecystoduodenal, cholecystocolonic and cholecystoduodenocolonic in descending order. In 15-20% of the cases, the stone travels through dilated biliary ducts and patulous/incised sphincter of Oddi. Gallstone ileus is hence a recognised delayed complication after multiple ERCPs (+/- sphincterotomy) for CBD stone management³ Once within the gastrointestinal lumen; gallstone can migrate orally or aborally. During migration, there is always a danger of impaction and obstruction at (a) anatomical/physiological areas of luminal narrowing viz. pyloroduodenal junction, ligament of Treitz, terminal ileum and ileocecal valve or (b) pathological areas of narrowing viz. stricture or neoplasm of colon. The site of obstruction is usually in the terminal ileum (60%) as it is the narrowest part of the small bowel and the peristalsis is weaker here compared to other areas of the intestine.^{1,4,5,6}

Sometimes the stone will make a smooth progress (not recognised clinically) and such individuals can simply get away by vomiting or excreting the stones or spontaneous fracturing and excretion of stones. Stones of < 2cm in length are usually passed spontaneously and the size of the obstructing stone ranges from 2.5 to 5.0cm^{6,7}. The obstruction by gallstone can be continuous mechanical obstruction or can be intermittent. The gallstone displays a classical “tumbling phenomenon” – impaction and disimpaction of the stone leading to intermittent episodes of complete and partial intestinal

obstruction. This obturating type of obstruction due to tumbling phenomenon may cause a delay in patient presentation and also a misdiagnosis (as gastroenteritis) by clinician. It is not uncommon for the patient to be admitted under the care of medical gastroenterologist who later on calls upon a general surgeon and than general surgeon seeking an intensivist. Delay in multidisciplinary team care is not uncommon. When the obstruction is continuous, sometimes stone may get impacted and erode the lumen itself. The paradox of gallstone ileus is – larger the stone, continuous and early the obstruction is, earlier is the patient presentation and diagnosis, lesser is the metabolic insult, better is the expected outcome. Gallstone as large as 17.7cm has been removed from transverse colon;⁸ 20-40% of cases have two or more stones in the lumen. Depending on the level, site, and duration of intestinal obstruction, patient will develop dyselectrolytemia and extra renal azotemia. Sometimes the eroded stone may perforate and cause peritonitis. The altered fluid electrolyte homeostasis and impending organ dysfunction demands vigorous intensive management of aged and multi-morbid patient.

DIAGNOSIS

Diagnosis of gallstone ileus poses a challenge to the surgeon and is often blurred by various pitfalls ranging from clinical to radiological dilemmas. The disease occurs more frequently in women than in men in a ratio ranging from 4-16:1.^{9,10,11,12,13,14,15,16} The incidence of small bowel obstruction due to gallstone is reported to be between 1-3%^{1,17} increasing to 25% in patients aged over 65 years¹⁸. The mode of presentation may be gastroenteritis, high or low small intestinal obstruction, large bowel obstruction, acute cholecystitis, jaundice, hematemesis or peritonitis. Rarely, acute Wernicke’s encephalopathy secondary to thiamine deficiency due to untreated gallstone ileus has been reported¹⁹. History of previous gallbladder disease or jaundice being less frequent, condition is diagnosed frequently late and in nearly half of the cases only at laparotomy. The above fact compounded its by low incidence make things worse for the co morbid geriatric patients. Hilderbrandt J et al in an analysis of 104 cases of gallstone ileus (in 102 patients) classified the presentation in 3 categories: typical intestinal obturation (50%), remittent form (30%) peritonitiform form (20%)²⁰.

The appearance of clinical setting of intestinal obstruction and extra renal azotemia in patients (especially females) with past history of gallstone disease and without previous abdominal surgery or incarcerated external hernia should raise high index of suspicion²¹. The duration of symptoms before admission ranges from 4-8 days^{22,23}. Pyloroduodenal and proximal duodenal obstruction

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