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OUR EXPERIENCES WITH BOUVERET'S SYNDROME: A COMPARISON OF TWO SURGICAL STRATEGIES FOR TREATMENT OF GALLSTONE ILEUS

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ABSTRACT Bouveret's syndrome is defined as gastric outlet obstruction caused by duodenal impaction of a large gallstone which passes into the duodenal bulb through a cholecystogastric or cholecystoduodenal fistula

Debate exists with regard to the treatment of choice. This relates to the need for definitive biliary tract surgery. There are advocates for both enterolithotomy alone to relieve obstruction with biliary tract surgery at a later date (two-stage procedure) as well as at the same sitting (one-stage procedure). The principal goal in management of gallstone ileus is quick effective relief of mechanical bowel obstruction, and enterolithotomy alone fulfils this in the shortest possible time. This approach avoids the need for exploration of the fistula and reduces the length and complexity of the procedure. Most fistulas can close spontaneously if left alone

Relief of obstruction remains the mainstay of treatment and the better surgical option in our series is enterolithotomy alone. It is safe in both low and high risk patients and requires a shorter operating time as it is technically less demanding. In the longer term, the remnant fistula also does not appear to lead to further complications.

KEYWORDS : Bouveret, Gall stone ileus.

INTRODUCTION:

Bouveret's syndrome is defined as gastric outlet obstruction caused by duodenal impaction of a large gallstone which passes into the duodenal bulb through a cholecystogastric or cholecystoduodenal fistula. The first published report of Bouveret's syndrome (1896) is attributed to Leon Bouveret who reported on two patients with this disease [1]. Since then, there have been several case reports of unique manifestations of Bouveret's syndrome.

Biliary fistulas occur in 3–5% of patients with gallstones, with the duodenum being the most common site of fistulation followed by the stomach. The risk with fistulation is subsequent obstruction of the gastrointestinal tract which is reported to occur most commonly in the terminal ileum and ileocecal valve. Bouveret's syndrome", is a very rare complication (1/10 000 cholelithisiasis).

Because it often presents in patients with advanced age and multiple comorbidities, it is associated with a high rate of mortality .In recent years, however, with many advances, including increased knowledge of intravenous fluid therapy and refinement of anesthesia technic, the mortality has fallen below 15%(4).This improved survival has both allowed and necessitated further consideration of the pathologic biliary tract in these patients.

Our experience at Era`s Lucknow Medical College and Hospital is presented here in order to evaluate the long-term adequacy of the various possibilities in the surgical treatment of gallstone ileus.

MATERIALS AND METHODS:

A search of our hospital database revealed 4 patients who were treated for gallstone ileus between January 2014 and January 2016 in the surgical department. There were 3 women and 1 man, with a mean age of 63.1 years. All patients underwent surgery as definitive treatment for their condition. The patients were analysed according to the type of surgical procedure. This involved either an enterolithotomy alone or an enterolithotomy with cholecystectomy and repair of fistula.Data from hospital records were obtained for:

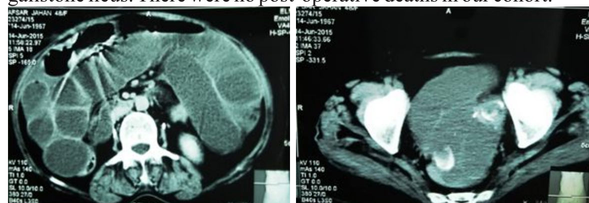
a) The presence of co-morbidities (including ischaemic heart disease, chronic respiratory conditions, chronic renal failure, diabetes mellitus, malignancy and previous cerebrovascular disease).
b) Operative risk assessment as determined by the American Society of Anesthesiologists (ASA) physical classification grade.
c) Previous history of biliary tract disease (as determined by history of biliary pain or jaundice; or documented gallstones by ultrasonography).
d) Presenting symptoms and clinical findings.
e) Factors that could affect outcome (such as presence of shock, time of symptom onset to surgery).
f) Radiological findings (including pneumobilia, small bowel obstruction and presence of ectopic gallstone on radiographs or computed tomography).
g) Post-operative morbidity (including wound infection, cardiac, pulmonary and renal complications, and intra-abdominal abscess). Categorical data was analysed by Fisher's exact test where appropriate, and continuous data was expressed as median and analysed with the Mann-Whitney U test. Significance level is taken at $p<0.05$.

RESULTS:

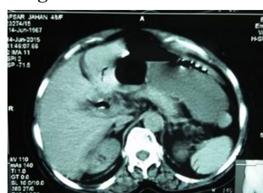
Two patients underwent enterolithotomy alone and 2 patients underwent enterolithotomy with cholecystectomy with fistula repair. Differences in ASA status were significant between the groups.

Only patients classified as ASA I and II underwent a enterolithotomy with cholecystectomy and fistula repair. Conversely, the majority of patients with ASA III and IV underwent enterolithotomy for relief of mechanical obstruction. A history of biliary tract disease was present in 2 patients. Of these, 3 patients had previous evidence of cholelithiasis on ultrasonography performed prior to presentation for gallstone ileus and 1 had previous ultrasonographical diagnosis of cholecystitis.

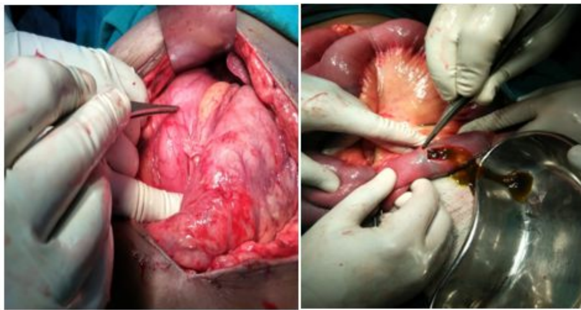
Intra-operatively, the commonest site of obstruction was in the ileum. Two patients were diagnosed with Bouveret's syndrome, as the site of obstruction was in the first part of the duodenum. 3 patients had a cholecystoduodenal fistula identified except for one patient with a cholecystogastric fistula. None of our patients experienced a recurrent gallstone ileus. There were no post-operative deaths in our cohort.

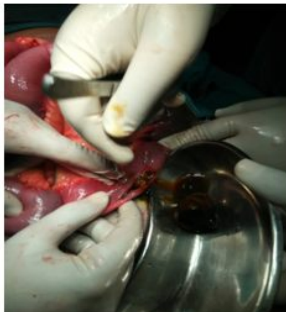


Ct Films Showing Dilated Bowel And Calculus In Bowel

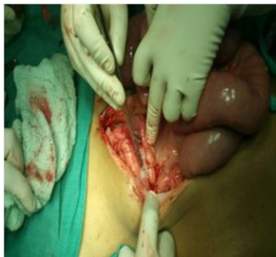


Ct Film Showing Pneumobilia

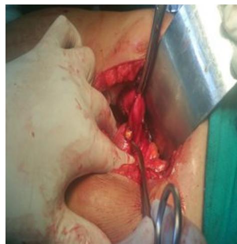




INTRA OPERATIVE PICTURES OF SIMPLE ENTROLITHOTOMY PERFORMED IN PATIENT WITHOUT CHOLECYSTECTOMY BEING DONE FOR OBSTRUCTION RELIEF.



INTRA OPERATIVE PICTURE OF SECOND MODALITY OF TREATMENT OPTION USED WHICH WAS ENTROLITHOTOMY WITH PARTIAL/ COMPLETE CHOLECYSTECTOMY AND FISTULA CLOSURE.



DISCUSSION:

The term gallstone ileus, coined by Bartolin in 1654, is really a misnomer as impaction of one or more gallstones in the lumen of the bowel leads to a true mechanical obstruction. The route of entry from the gall bladder into the gastrointestinal tract is usually through a cholecysto-enteric fistula and the site of obstruction is related to the size of the stone in relation to the size of the lumen of the bowel. This usually occurs in elderly patients with preponderance in females. This is also a feature within our patient cohort.

Debate exists with regard to the treatment of choice(1-4, 6-8). This relates to the need for definitive biliary tract surgery. There are advocates for both enterolithotomy alone to relieve obstruction with biliary tract surgery at a later date (two-stage procedure) as well as at the same sitting (one-stage procedure). The principal goal in management of gallstone ileus is quick effective relief of mechanical bowel obstruction, and enterolithotomy alone fulfils this in the shortest possible time. This approach avoids the need for exploration of the fistula and reduces the length and complexity of the procedure. Most fistulas can close spontaneously if left alone.

The patients that underwent enterolithotomy alone were of poor pre-operative status (in shock) or had multiple co-morbidities as assessed by the ASA grading. This represents a group of higher risk patients that benefit from relief of mechanical obstruction without undergoing a prolonged operation. The other 2 patients that had a one-stage procedure represent a group of lower risk patients that had less co-morbidity and were not in shock in the preoperative period. These patients had been adequately resuscitated and were able to tolerate a definitive procedure at the same sitting without increased mortality. Although age was previously demonstrated to be a major determinant in survival(12), this has not manifested in our series. The data from our study can be criticised as being a rare condition, the case series is small.

However, it suggests that it is a patient's general condition, as reflected by the ASA status and adequacy of resuscitation as reflected by the presence of hypotension, that helps to dictate which surgical procedure is best suited for each patient. From this approach, we have managed to achieve a zero mortality rate.

Whether an enterotlithotomy alone actually carries a lower mortality rate than a one-stage procedure is difficult to determine as we had good results with both procedures. Other factors that may have contributed to the good results over previous reported data include the improvements in peri-operative anaesthetic and intensive surgical care

CONCLUSION:

Overall, there are no significant differences in morbidity or outcomes between enterolithotomy alone and a one-stage procedure. As gallstone ileus is a rare condition, surgeons will only encounter a handful of cases in their clinical experience. Relief of obstruction remains the mainstay of treatment and the better surgical option in our series is enterolithotomy alone. It is safe in both low and high risk patients and requires a shorter operating time as it is technically less demanding. In the longer term, the remnant fistula also does not appear to lead to further complications.

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