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Ultrasound guided Percutaneous Catheter drainage of Biloma Complicating Laparoscopic Cholecystectomy.

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ABSTRACT

Laparoscopic cholecystectomy is the 'gold-standard' of care in the management of gallbladder stones. It has combined advantages of cosmetic surgery, shorter hospital stay, and over-all favourable cost analysis. Complications though infrequent have been recorded. Managing complications following Laparoscopic procedures could pose a challenge in new centres commencing this approach to surgery. This is a report of a 40year old woman with 2 years history of periodic right upper abdominal pain who had laparoscopic cholecystectomy at the Lagos State University Teaching Hospital, Ikeja, Lagos in July 2015 and was discharged home after a brief episode of post-op fever. She was readmitted 3 weeks later with worsening complaints of abdominal distension, fever and Jaundice. At this stage Ultrasound and CT scan confirmed a large, encapsulated cystic mass emanating from the region of the right lobe of the Liver. A diagnosis of Post Cholecystectomy Biloma was made and she underwent Ultrasound guided per cutaneous drainage which yielded 9 litres of bilious fluid over 3 days. Following this intervention she had prompt recovery and was discharged to outpatient clinic. This report underscores the importance of adequate preparations including use of interventional methods to solve problems complicating laparoscopic surgery.

Key Words: Biloma, Ultrasound, Percutaneous, Laparoscopic Cholecystectomy

CASE SUMMARY

A 40 year old hospital worker presented to the surgical outpatient department with a 2 year history of recurrent colicky right upper abdominal pain worsened by fatty meals. She had occasional nausea, but no fever, jaundice vomiting or abdominal distension. She was referred to LASUTH from a secondary center after failure of efforts to control her condition with pain relieving medications. Examination confirmed a middle aged woman who was not pale, afebrile and not in obvious distress. There was tenderness over the right hypochondrion but no palpable intra abdominal masses. Digital rectal examination showed no abnormality. A diagnosis of symptomatic cholelithiasis was confirmed on abdominal ultrasound which also revealed multiple reflective echogenic foci within the gallbladder lumen with prominent posterior acoustic shadowing, and a positive rolling stone sign. After further pre-operative investigations including packed cell volume, serum electrolytes and urea, clotting profile were adjudged satisfactory, she had a laparoscopic cholecystectomy done under general anaesthesia. Operative findings were thick adhesions around the gallbladder, shrunken gall bladder with numerous stones, the largest being of 1 x 2 cm in size. She made satisfactory post operative progress and was discharged on the 2nd day for out patient follow up.

At follow-up clinic 1week post-op, patient complained of generalised body weakness,

lassitude and persistent epigastric pain. There was mild tenderness over the epigastrium, and an infected trocar site was noted. An assessment of Post Laparoscopic cholecystectomy wound/organ space infection was made. Complete blood count, wound swab microscopy, culture and sensitivity, and abdominal ultrasound scan were requested. She was placed on oral ciprofloxacin 500mg bid, metronidazole 400mg tid and tramadol 100mg tid. She was however readmitted into the Surgical Emergency Department 3 weeks post op on account of worsening body weakness and jaundice. At this stage she was acutely ill-looking, febrile, pale, icteric, but not dehydrated. Vital Signs were: Pulse rate-124bpm; Blood Pressure – 120/90mmHg, and Respiratory rate- 36 cpm. There was a moderate right hypochondrial tenderness, but no palpable masses. Intravenous ceftriaxone, metronidazole and aentamicin and gentamicin were administered and she was transfused with 2 units of whole blood.

By the 4th week post-op, her condition had improved enough (with resolution of jaundice) to afford discharge on oral antibiotics. She however re-presented a week later (5th Week post-op) with re-appearance of jaundice, low grade, continuous fever and gross abdominal distention. Pulse rate was 120 bpm, blood pressure 120/80mmHg, and respiratory rate 36 cycles per minute. The liver was enlarged by 30 centimetres and tender without pedal oedema and no demonstrable ascites. Intravenous antibiotics and fluids were re-instituted, and

repeat ultrasound scan and abdominopelvic CT scan were requested as well as complete blood count. Electrolyte, urea and creatinine, liver function test and clotting profile which were essentially within normal limits.

Both imaging test confirmed the presence of a large multiloculated fluid filled cyst in the area of the right and left lobes of the liver. A diagnosis of post cholecystectomy biloma was made.

Anaesthetic concerns over her critical condition precluded open exploration. She had ultrasound guided percutaneous drainage under local anaesthesia on the 13th day post admission with immediate drainage of 1.5 liters of bile stained fluid, 7.5 liters on day 2 and reduced drainage subsequently until the drainage catheter was removed on the 5th day.

She has since been discharged home satisfactorily following her significant improvement and her follow up in the outpatient has been uneventful.

Technique of Ultrasound guided Percutaneous drainage of Biloma

The aspiration procedures were performed under sonographic guidance using a free hand technique. The machine used was GE LOGIQ 5 Expert or Mindray (model DP-6600) ultrasound machines with dual probes (3.5 and 7.5 MHz). Local anesthesia was induced with 10 mL of lidocaine hydrochloride 2%. Then continuous real-time sonographic imaging was used to localize the fluid and to guide insertion of the needle. Chiba needle (18G, 20 cm) was used for

needle aspiration in this case. After successful puncture, a sample of fluid was sent for bacterial culture and sensitivity. Catheter insertion into the fluid cavity was done using Seldinger's technique. (A percutaneous nephrostomy puncture set by Urotech, Germany was used). Most of the fluid was drained off on the first and second days, while the catheter was left in-situ for intermittent draining into the attached bag. The PCD was considered successful when the cavity collapses or was reduced to below 20 mL with no secretion of fluid. This happened by the 4th day. Follow-up of patient on catheter was done daily until catheter was removed on day 5.

DISCUSSION

Laparoscopic approach has become the gold standard in the surgical management gallbladder calculous diseases¹. Notwithstanding the advantages of this method, incidences of intra operative biliary injuries are not uncommon. Bile duct injury during laparoscopic cholecystectomy ranges from mild to severe with serious and disastrous consequences². A biloma is defined as an encapsulated collection of bile outside the biliary tree³. It may be intra- or extra-hepatic with sizes ranging from a few centimetres across to very large bile collections. Biloma may result from spontaneous rupture of the bile duct, trauma and postinstrumentation complications⁴. Transcatheter arterial chemoembolisation (TACE) and microwave ablation are among its other rare causes. Of these, iatrogenic operative bile duct injury

during cholecystectomy are commonest.^{5, 6} Gould and Patel used the term biloma for the first time in 1979 to describe a loculated collection outside the biliary tree but were then extended to include intra and extra hepatic collections of bile³. In most series they are localized to the right upper quadrant, with only 30% of cases occurring in the left side. The case presented had showed the potential for complications due to the dense adhesions in the Gallbladder bed. Presentation of symptoms may range from 2 – 6 weeks, and this include right upper quadrant or epigastric pain, abdominal distention, fever, leukocytosis and transient obstructive jaundice occurring towards the 6th post operative week⁶. This pattern was observed also in our reported case. Extrinsic compression to bile duct or duodenum has been adduced as the cause of jaundice or gastric outlet obstruction, respectively.⁷ As with many reported cases, abdominal distention, fever and leucocytosis eventually supervened.

Early and accurate diagnosis is mandatory to determine exactly the appropriate management. Combinations of standard soft tissue imaging like magnetic resonance imaging (MRI), magnetic resonanace cholangiogram (MRC), computerized tomography (CT), ultrasonography (USS) and other interventional modalities including endoscopic retrograde cholangio-pancreaticography (ERCP) and percutaneous transhepatic cholangiogram (PTC) can make the correct definition of the lesion as well as enable decision on choice of management especially with regards to

minimally invasive treatment⁸. In our patient, abdominal ultrasound (USS) and CT scan were used to establish diagnosis. Once accurate diagnosis has been made, modalities of management include laparotomy and open exploration for major biliary injuries, as delayed management and prolonged biliary obstruction is associated with significant hepatic damage.

However, in carefully assessed patients, imaging-guided percutaneous catheter drainage, even for very large collections can be as effective⁹. This was the case in this report, where USS guided percutaneous drainage was successfully employed in the treatment. She did not require further endoscopic or percutaneous biliary stenting as spontaneous sealing in a few days is generally the rule. Additional justification for percutaneous drainage were poor anaesthetic risk, imaging evidence of safe (direct) access to the collection, and very large collections with significant risk of intraoperative rupture. On the other hand, open exploration also has the benefit of direct vision with identification of the relation of other structures. It is noted that the literature supports both modalities of intervention, depending on clinical indications^{9,10}. ERCP and endoscopic sphincterotomy when available are useful in the management of persistent leaks even after percutaneous drainage¹⁰.

CONCLUSION

Post Cholecystectomy Biloma is an uncommon, but potentially serious complication of surgery.

It must however be actively prevented by improvements in surgical technique and materials as well as standard equipments. A high index of suspicion is required for early diagnosis and treatment.

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