A FIVE-YEAR REVIEW OF CHOLECYSTECTOMY IN A HEPATO-PANCREATO-BILIARY SURGERY UNIT OF THE UNIVERSITY OF CALABAR TEACHING HOSPITAL, NIGERIA

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ABSTRACT
The aim of this study was to evaluate the pattern of presentation of patients who had cholecystectomy in a dedicated Hepato-Pancreato-Biliary (HPB) Surgery unit of this facility and the benefit of laparoscopic cholecystectomy over conventional open cholecystectomy. This is a five-year retrospective study (June 2009-May 2014) of all patients who had cholecystectomy in the HPB surgery unit of the University of Calabar Teaching Hospital, Calabar, Nigeria. The records of all patients who had cholecystectomy during the study period were retrieved. Relevant information were obtained and analysed using appropriate mathematical tools. A total of 505 surgeries were done in the unit during the period under review out of which 190 (37.6%) were major cases and 44 (8.7%) were core HPB cases. A total of fifteen (15) patients (3% of all surgeries in the unit) had cholecystectomy during the study period. All had features of acute cholecystitis. There were 12 females and 3 males, giving a female to male ratio of 4:1. The mean age was 43.1 years with a range of 27-62 years. Thirteen (86.7%) of these patients had open cholecystectomy while only two (12.3%) had laparoscopic cholecystectomy. Only one patient (6.7%) had cholesterol stones while the rest had pigmented gallstones. Fever was not a major mode of presentation (87%). Diagnosis was made using a combination of clinical assessment and imaging. The average duration of hospital stay after open cholecystectomy was 7 days as against 2 days for those who had laparoscopic cholecystectomy. The prevalence of symptomatic gallstone disease is still low in our environment compared to the Western World and is commoner in females than males. Laparoscopic surgery has very good prospects in our environment.

Keywords: Cholecystectomy, Dedicated HPB surgery unit, Early experience with laparoscopic surgery

INTRODUCTION
Cholecystectomy remains the mainstay of treatment for gallbladder disease and the commonest indication for this procedure the world over is cholelithiasis. Cholecystectomy can be open or laparoscopic with the laparoscopic technique giving a better overall outcome than the open method. The prevalence of cholelithiasis remains low in tropical and sub-Saharan Africa compared to the developed world. Literature on cholecystectomy and cholelithiasis from this centre is scanty and no recent data exist. In their 10 year retrospective review by Asuquo et al. from this centre (published in 2008), only 18 cases of cholecystectomies were recorded i.e < 2 cases per year. With increasing westernization of our diet, it is expected that this may have an impact on the prevalence of symptomatic gallstones and by inference, the number of cholecystectomies done. This
study aimed at evaluating the relative frequency of cholecystectomy to other surgical operations done in this dedicated HPB surgery unit, the pattern of presentation and indications for cholecystectomy in these patients. We also reviewed the benefit of laparoscopic cholecystectomy (which has just been introduced in our centre) over the conventional open cholecystectomy.

MATERIALS AND METHODS

This is a five year (June 2009-May 2014) retrospective study of all patients who had cholecystectomy in the HPB surgery unit of this tertiary hospital. The total number of patients operated on by this unit during the study period was obtained from the operation register. The total number of major cases done in the unit, HPB (Hepato-pancreato-biliary) surgeries as well as cholecystectomies done during the study period were retrieved from the unit operation register after appropriate consent was obtained from the hospital ethical committee. Relevant information obtained such as clinical presentation, investigations and indications for cholecystectomy was entered into a spreadsheet. The duration of hospital stay for each patient post operatively and complications following surgery were documented.

RESULTS

A total of 505 surgeries (Average of 100 cases per year) were done in the unit during the period under review out of which 190 (37.6%) were major cases (Average of 38 cases per year) and 44 (8.7%) were core HPB cases (Average of 9 cases per year) such as triple and double by-pass for obstructive jaundice 2° to carcinoma of the head of pancreas, open common bile duct exploration amongst others. A total of fifteen patients (3% of all surgeries in the unit) had cholecystectomy (Average of 3 cases per year) and it constituted 34.1% of HPB surgeries done during the study period. There were 12 females and 3 males, giving a female to male ratio of 4:1. The mean age was 43.1 years with a range of 27-62 years. Thirteen (86.7%) of these patients had open cholecystectomy while only two (12.3%) had laparoscopic cholecystectomy. Only one patient (6.7%) had cholesterol stones while the rest had pigmented gall stones. Recurrent attacks of colicky right upper abdominal pain was the indication for cholecystectomy in all cases. Only two (13.3%) patients had surgery as emergencies (Empyema of the gall bladder and perforated/gangrenous gall bladder) while the majority, 13 (86.7%) had their procedures done electively. Only the two patients presented with fever and these who were those who presented as emergencies.

Diagnosis was made using a combination of clinical assessment and abdominal ultrasound scan which was diagnostic in all cases. The average duration of hospital stay after open cholecystectomy was 7 days (with a range of 7-12 days) as against 2 days for those who had laparoscopic cholecystectomy. There was no postoperative complication in the two patients who had laparoscopic cholecystectomy while some of those who had open cholecystectomy had complications. One patient each had incisional hemia and gastric outlet obstruction following post-operative adhesions from open cholecystectomy.

DISCUSSION

Gallstone disease is a very common disease affecting up to 15% of the general population in the United States of America and Europe, with a higher prevalence in women. About 50 to 70% of patients with gallstones are asymptomatic and nearly 1 in 10 individuals with asymptomatic gallstones may be expected to develop symptoms or complications that require treatment within five years.1-5

In sub-Saharan Africa, the incidence of this condition is generally low compared to the developed countries. However, in recent times, the incidence has been reported as rising in some African countries.2,5 Ndoma-Egba et al in their study on the prevalence of gallstone disease in Calabar, reported a prevalence of 3.3% and confirmed a rising incidence of this condition in our environment.6 Cholecystectomy is the commonest procedure done for patients with symptomatic gallstone disease.1-7. Apart from genetic and ethnic factors, maturity onset diabetes mellitus and a few other conditions, traditionally, the aetiology of gallstone disease have been attributed to three factors namely: metabolic factors, infection and bile stasis.1-3. An interplay of these factors results in the formation of gallstones for which symptomatic patients may eventually have cholecystectomy.

On the basis of composition, gallstones have been classified into three: cholesterol stones, pigment...
stones and mixed stones. Cholesterol stones are commoner in the Western World while pigment stones are commoner in Africa and Asia where hemoglobinopathies are commoner\textsuperscript{1-4}. These patients often present with recurrent right hypochondrial pain, often made worse by fatty meals, dyspeptic symptoms, fever, nausea, vomiting and occasionally jaundice depending on the severity of the condition\textsuperscript{1-3}. Abdominal ultrasound scan remains a very useful investigation for the diagnosis of gallbladder disease. Abdominal ultrasound scan findings of thickened gallbladder wall (>3mm), and/or surrounding edema, and/or positive Murphy's sign, dilated biliary tree as well as stone in common bile duct are features that can be used to confirm diagnosis of symptomatic gallstone disease\textsuperscript{1-4,14,15}.

The commonest indication for cholecystectomy the world over is symptomatic cholelithiasis\textsuperscript{1-13,15}. Cholecystectomy is also indicated in the presence of gallbladder trauma, gallbladder cancer and other complications of gallstones such as empyema of the gallbladder\textsuperscript{1-4,11}. Gallbladder trauma as an indication for cholecystectomy is rare and often an incidental finding at laparotomy following abdominal trauma (Blunt or penetrating)\textsuperscript{15,16}. No case of gallbladder trauma necessitating cholecystectomy was seen in our study and none has been reported from this centre before. This further alludes to the rarity of gallbladder trauma especially isolated gallbladder injury. Gallstones are present in 12% of all pregnancies, and more than one-third of patients fail medical treatment and therefore require surgical endoscopy or laparoscopy. Laparoscopic cholecystectomy has been found to be safe in pregnancy\textsuperscript{17}. Cholelithiasis is a frequent complication of sickle cell disease. Prevalence rate ranges from 30% to 70%. Three quarter of these patients become symptomatic, requiring cholecystectomy. For sickle cell patients, some studies have shown that laparoscopic cholecystectomy is feasible and is increasingly being practiced today\textsuperscript{18}.

Symptomatic gallstone disease was the only indication for cholecystectomy in all the patients with two being complicated (empyema and perforation). Asuquo et al\textsuperscript{7} from this centre while reviewing cholecystectomies in Calabar, reported a total of 18 patients over a 10 year period, giving an average of less than two patients per year. Their finding is similar to our present study from the same centre, with 15 patients over a 5 year period (i.e. an average of 3 patients per year and also constituted only 3% of all surgeries done by this unit during this study). Studies by Adisa et al\textsuperscript{8} in Ife (South-West Nigeria), Ekwunife et al\textsuperscript{19} (South-East Nigeria) and Misauno\textsuperscript{11} in Jos (North-Central Nigeria) also noted a low prevalence of cholelithiasis in Nigeria even with increasing population and westernization of our diet.

This is in sharp contrast to the high prevalence often reported in the Western World\textsuperscript{2,7}. Whereas Asuquo et al\textsuperscript{7} carried out their study when there was no dedicated HPB surgery unit in this centre, our present study is unique in that all these patients were managed by the same team and the introduction of laparoscopic cholecystectomy in our study added a new dimension to the overall picture. Asuquo et al\textsuperscript{7} had a case of gallbladder cancer as an indication for cholecystectomy in their series, but this was not seen in our present study. However, both findings agree with documentation in the literature alluding to the rarity of gallbladder cancer\textsuperscript{1-4}. Asuquo et al noted a female: male ratio of 5:1 with a mean age of 39.2 years which agrees with findings in our present study with a female: male ratio of 4:1 and a mean age of 43.1 years. These independent findings spanning over a decade, does not show any significant change in the epidemiological pattern of this disease condition in our environment despite changes in lifestyle. This observation raises questions regarding changes in lifestyle and their impact on the aetiology of symptomatic gallstone disease in our environment. A larger sample size and multicenter study across Nigeria and the developing world may offer answers to these burning questions. Furthermore, in our study, calculous cholecystitis with pigmented gallstones were the commonest finding at cholecystectomy as was also noted by Asuquo et al\textsuperscript{7} and other workers in this field\textsuperscript{17,8}.

Whereas, the majority (86.7%) of patients in our present study had open cholecystectomy, laparoscopic cholecystectomy was done in only 3 (12.3%) patients with satisfactory results. Early results of laparoscopic cholecystectomy in our centre is encouraging as short hospital stay, early return to normal activities, reduced post operative pain/morbidity, good cosmetic outcome, reduced incidence of post operative complications such as wound infection and incisional hernias amongst other advantages makes laparoscopic cholecystectomy the preferred option for our patients. Adisa et al in Ife\textsuperscript{8}...
and Ekwunife et al\(^{10}\) in Owerri and Misauno\(^{11}\) in Jos, all in different parts of Nigeria have also reported similar satisfactory results with laparoscopic surgery even as a day case procedure in the pilot study by Ekwunife et al. Since its first introduction in the late 1980s, laparoscopic cholecystectomy has been extensively adopted as the treatment of choice in patients with gallstones and other less frequent benign gallbladder diseases due to its undeniable advantages, such as the reduction of postoperative pain, faster recovery, and improved cosmesis\(^{1-5,7,11}\).

In Nigeria, laparoscopic cholecystectomy is just evolving and many centres are still unable to offer this service partly due to lack of equipment, paucity of trained personnel as well as high cost of laparoscopic surgical procedures\(^8,10,11\). One of our patients developed an incisional hernia from open cholecystectomy which would have been averted if she had laparoscopic cholecystectomy. Another had gastric outlet obstruction following open cholecystectomy which could also have been avoided if laparoscopic cholecystectomy was done. Open cholecystectomy should be avoided where possible as postoperative morbidity following this procedure such as wound infection, incisional hernias, bowel obstruction and gastric outlet obstruction from postoperative adhesions are well documented complications in the literature\(^9,20\).

It is obvious from this study that choledolithiasis still remains the commonest indication for cholecystectomy not only in our centre but the world over and still has a female preponderance. However, the prevalence of this condition in our environment is still low compared to the western world and change in our lifestyle is yet to significantly affect this. There needs to be a shift from performing the traditional open cholecystectomy to laparoscopic cholecystectomy which, has now become the standard of care in developed countries. The advantages of laparoscopic cholecystectomy over the open technique cannot be over emphasized.

**CONCLUSION**

Symptomatic gallstone disease remains the commonest indication for cholecystectomy in Calabar with pigmented gallstones being the commonest in our environment. The prevalence of this condition is still low in our environment compared to the western world and is commoner in females than males. Laparoscopic cholecystectomy has very good prospects even in our environment.

**REFERENCES**


