

Original Paper

## **A Decade of Cholecystectomy at Kenyatta National Hospital: Demographics, Patterns and Transition to Laparoscopy**

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### **Abstract**

**Background:** In the early 90's all cholecystectomies at the Kenyatta National Hospital were open cholecystectomies. Currently only third undergo the open operation. We conducted a study to analyze the age and sex, mode of presentation, investigations done and operation performed, in view of the changing mode of treatment from open to laparoscopic cholecystectomy (LC).

**Methods:** A Retrospective descriptive study over 10 years from 2001 to 2010. **Results:** 207 patient files could be traced of whom 80% were females and 40% were under 40years. Almost all patients presented with RUQ pain with about half having a positive Murphy's sign. Abdominal Ultrasound (USs) was available to most patients and with good reporting. However pertinent laboratory investigations especially liver function tests were not done in over half the patients. LC was offered to about 67% of the patients with a conversion rate of 5%. **Conclusion:** Kenyatta National Hospital must strive to increase laparoscopic procedures. There is also need to improve the pre-operative laboratory investigations in patients with gallstones.

**Key Words:** Cholecystectomy, Transition, Laparoscopy, Developing country

## **Introduction**

Laparoscopic cholecystectomy (LC) was introduced at the KNH in the 90's and is now the most common operation for gall stone disease. LC provides a safe and effective treatment for most patients with symptomatic gallstones, earlier return of bowel function, less postoperative pain, improved cosmesis, shorter length of hospital stay, earlier return to full activity, and decreased overall cost (1–6). Currently it is estimated that 90% of cholecystectomies in established centers are performed by the laparoscopic approach. In the USA more than 600,000 cholecystectomies are performed annually. The conversion to open cholecystectomy (OC) remains 2-5% in most series, and occurs more commonly in the elderly and the setting of acute cholecystitis. Further, in institutions where LC is established, the clinical thresholds for operative therapy of gallstones are so much that 20% of cholecystectomies may be performed for biliary dyskinesia (7-9). This study reviews a decade of experience with cholecystectomy. It documents the pattern of cholecystectomy in terms of burden, indications, disease presentation and how much of the transition from open cholecystectomy to laparoscopic cholecystectomy has taken place.

## **Patients and Methods**

**Design:** A retrospective chart study of cholecystectomies performed from January 2001 to December 2010

**Setting:** Kenyatta National Hospital (KNH) doubles up as a national government referral hospital and a university teaching hospital. Laparoscopic cholecystectomy has been performed at the hospital from the 1990s.

**Data Collection:** Records of all patients who underwent cholecystectomy were manually retrieved from the records department of KNH. Information abstracted included age, gender, indication and clinical characteristics, investigations, conversions, intra-operative and post-operative complications and hospital stay. Data were recorded in an excel sheet, and analyzed for presentation in the form of tables and charts.

## **Results**

A total of 207 patient files could be retrieved from the records department; some files were missing and their numbers could not be ascertained. Data from the patient files was manually tabulated from which analysis of the following items was performed.

**Gender and age:** One hundred and sixty patients (160) were female with a ratio of 4:1. The peak age frequency was 31 to 40 years (Fig. 1), 40% were younger than 40 years. Cumulatively, 80% of patients ranged between 21 and 60 years of age (Figure 1).

Insert Figure 1 here

**Clinical features:** Most patients who underwent cholecystectomy were symptomatic of right upper quadrant pain (99%). Other common symptoms included nausea (70%) and vomiting (50%). Murphy's sign was demonstrable in 45% of cases.

**Ultrasound features:** Gall stones were visualized in 202 patients while features of cholecystitis were documented for 45% of patients. There was a note of bile duct dilation in 11% of ultrasound report.

**Laboratory features:** Haemogram was performed for all but two patients. Leucocytosis was reported for 24 of the patients (table 1). On the other hand, liver functions tests (LFTs) were not recorded for 115 patients. For those in whom LFTs were ordered (56%), bilirubin and alkaline phosphatase were elevated for 30 patients (Table 1).

Insert Table 1 here

**Treatment and complications:** Fifty (24.15%) patients underwent open cholecystectomy while the remaining 157 (75.85%) were offered laparoscopic cholecystectomy. Intra-operatively, variations in anatomy were noted in five patients (2.52%), none of which had details mentioned of the variant anatomy.

Overall, there were seven complications (3.38%). Following OC one patient developed surgical site infection and wound dehiscence and one other had a CBD injury. Following LC one had bile leak, one patient had a CBD injury and one patient each was noted to have diarrhea and hypertension, iatrogenic perforation and an incisional hernia. Eight patients (5%) were converted to OC, five because of variant anatomy, one because of a bile leak and one following an iatrogenic perforation. Three patients were readmitted, all following LC. There was no death.

**Hospital stay:** The mean hospital stay was 5.8 days. The proportion of patients who stayed two, three, four to six, seven to fourteen and more than fourteen days was 10.14% (n =21), 26.57% (n = 55), 41.16% (n = 85), 16.7% (n = 35) and 5.3% (n = 11) respectively. This however is not a true representation of the length of stay since many patients stayed in hospital after being discharged as they were not able to clear their bills on time.

## **Discussion**

Laparoscopic surgery was first introduced to Kenya in the 90's and LC was the first documented laparoscopic procedures practiced in Kenya (7). Young general surgeons were trained by a few senior laparoscopy trained surgeons and this has resulted in a notable transition from OC to LC. A study done in Kenya demonstrated the gradual rise of laparoscopic cases from 7 a month in 2000 to 22 in 2001 (8).

Gallstones mainly affect women and a retrospective review of laparoscopic cholecystectomy showed a female preponderance of 74.7% (5), and our results are similar with 80% females and 40% of patients being less than 40 years. Western studies describe a much older population for

LC. This may be explained by the overall lower life expectancy in Kenya. Over 90% of all the cholecystectomies documented in the west are laparoscopic while it was only 67% in this study and that it took almost two decades to get to this number (10). A reasonable explanation being the limited number of trained laparoscopic surgeons and limited training facilities and equipment. In Kenya the use of dry and wet labs has slowly gained popularity with more dry labs now available for surgical trainees resulting in the increase in laparoscopic surgery training.

Abdominal ultrasound is proven to be the most useful examination and in this study almost all the patients who had a cholecystectomy had an abdominal ultrasound done. Gallstones were visualized in 202 (97.6%) of the study population and most of the ultrasound reports also described the pattern of the biliary tree. Common bile duct dilatation and intrahepatic duct dilatation was not documented in only 34 (5.2%) of the reports. Evidence of gallbladder inflammation was not reported in only 34 (7.6%) of the patients. This shows good ultrasound reporting and most likely due to increasing availability of this investigation.

Ultrasound together with laboratory tests, especially liver function tests are essential in assisting the surgeon to rule out the presence stones in the biliary tree. In this study liver function tests were not done in more than 50% of the patients. The general poor availability of laboratory investigative facilities at the public hospitals is highlighted with these figures and this deficiency demands urgent remedy.

With better training and increasing experience, the conversion rates from LC to OC should be minimal. The conversion rate in this study was 5% and is in keeping with international rates (5).

One patient developed surgical site infection (SSI) after wound dehiscence in the OC group with 2 bile leaks and 1 CBD injury in the LC group. SSI is now very low with LC and therefore more LC should be encouraged. However 3 (2%) biliary tract pathologies after LC are higher than the other centres and needs to be improved upon (10).

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Table 1: Clinical, radiological and laboratory features in cholecystectomy patients

	Present	Not present	No details
<b>Symptom &amp; signs</b>			
Right upper quadrant pain	205	2	
Nausea	147	55	5
Vomiting	99	105	3
Fever	29	176	2
Murphy's sign	95	102	10
<b>Ultrasound features</b>			
Gall stones	202	3	2
Cholecystitis	88	115	4
Bile duct dilatation	22	184	1
<b>Laboratory data</b>			
Leucocytosis	24	181	1
Elevated Alkaline phosphatase	30	62	115
Elevated bilirubin	30	62	115
Elevated AST	22	70	115
Elevated ALT	21	71	115

**Fig. 1 Age distribution for cholecystectomy patients**

