Open Access Journal

Indian Journal of Medical Research and Pharmaceutical Sciences

June 2020;7(6) ISSN: ISSN: 2349-5340

DOI: 10.5281/zenodo.3930256 Impact Factor: 4.054

CONVERSION RATE OF LAPAROSCOPIC CHOLECYSTECTOMY AT SEBOKENG HOSPITAL

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Keywords:

Abstract

Introduction. Laparoscopic cholecystectomy (LC) is the most common laparoscopic procedure performed electively by general Surgeons worldwide. Some series report success in almost 100% of cases with conversion to an open procedure approaching 0%. But if poorly performed, LC can result in serious complications and death. Therefore it is very important that trainee Surgeons acquire the skill to perform LC safely.

Aim. To evaluate LC at a level II registrar training centre with attention to complications, the rate of conversions and final outcomes

Methods. Retrospective review of patients' record collected from November 2011 to October 2012 at Sebokeng Hospital. Data analysed included patient demographics, level of surgeon's expertise, rate and reason for conversion, post-operative complications, the indications for ERCP (endoscopic retrograde cholangiopancreatography), histopathology and final outcome.

Results. A total of 64 LC were performed. There were 56 females and 8 males with a mean age of 45 years (range, 21-75). The histopathological examination revealed 3 cases of acute severe cholecystitis, 6 cases of active chronic and 38 cases of chronic cholecystitis. In three patients the gallbladder was described as normal and no results were available for 9 patients while three cases were rejected (unsuitable for examination). 8 patients had ERCP (7 pre-operative and one post-operative). Three level of expertise were involved. The trainers (specialist surgeons, principal medical officers) and the trainees (registrars). The trainees performed 56.2% (36/64) of LC, 8 of them unsupervised (trainers not scrubbed but present in theatre on and off). The laparoscopy success rate was 95.3% and overall survival 98.4%. There was one bile leak and three conversion (4.6%) with one associated mortality (1.5%).

Conclusion. With 50% of the procedure performed by the trainees at a level II hospital, the conversion rate of 4.6% and 1.5% of complications with overall survival of 98.4% are commendable.

Introduction

Any new procedure often goes through a stage of rejection followed later by its acceptance. LC is not an exception. Prof Erich Muhe of Boblingen (Germany), the first surgeon to perform LC in September 12, 1985 (a century after the open cholecystectomy) was rejected by the German surgical society for doing something new unheard of. 6 years later in 1992, he was rewarded by the same society that excluded him[1,2]. Today three decade later, LC has became the most common elective general surgical procedure performed by general surgeons worldwide[3-22] and its success and conversion rate are approaching 100% and 0% respectively, although there is a wide range of conversion rate in the literature from 0.9% to 26%[3,6-20]. With expertise, the complications are minimal. If poorly performed, it can result in dire consequences or even death[4]. The specific complications (related to biliary tree) are around 0.5-2.5%[5]. Timing of the operation, expertise, dense adhesions obscuring the "critical view of safety", post ERCP (endoscopic retrograde cholangiopancreatography) cholecystectomy, aberrant anatomy, advanced age and inadequate equipment are among the reasons for these complications[6-8] . As this is the standard of care nowadays and since the specialist surgeons are scarce in the developing world, we need to equip the trainees quite early to perform LC.

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Methods

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Ethic approval was obtained from the Human Research Ethics Committee of the University of Witwatersrand. (Clearance certificate M121113).

Results

A total of 64 laparoscopic cholecystectomies were performed. The demographics are depicted in table 1. The histopathology reported mainly mild to moderate chronic cholecystitis (Fig.1). 8 patients had ERCP (table 3). Three level of expertise were involved (table 4). The Trainees performed 56.2% of the procedure of which 23.4% were done without supervision (trainer not scrubbed). The difficult cases are shown in table 5.

Table 1. Patient demographics (N= 64)

Males, n (%)	8 (12.5)
Females, n (%)	56 (87.5)
Female : male ratio	7:1
Age (years), mean (range)	44.7 (21-75)
Blacks African, n (%)	51 (79.6)

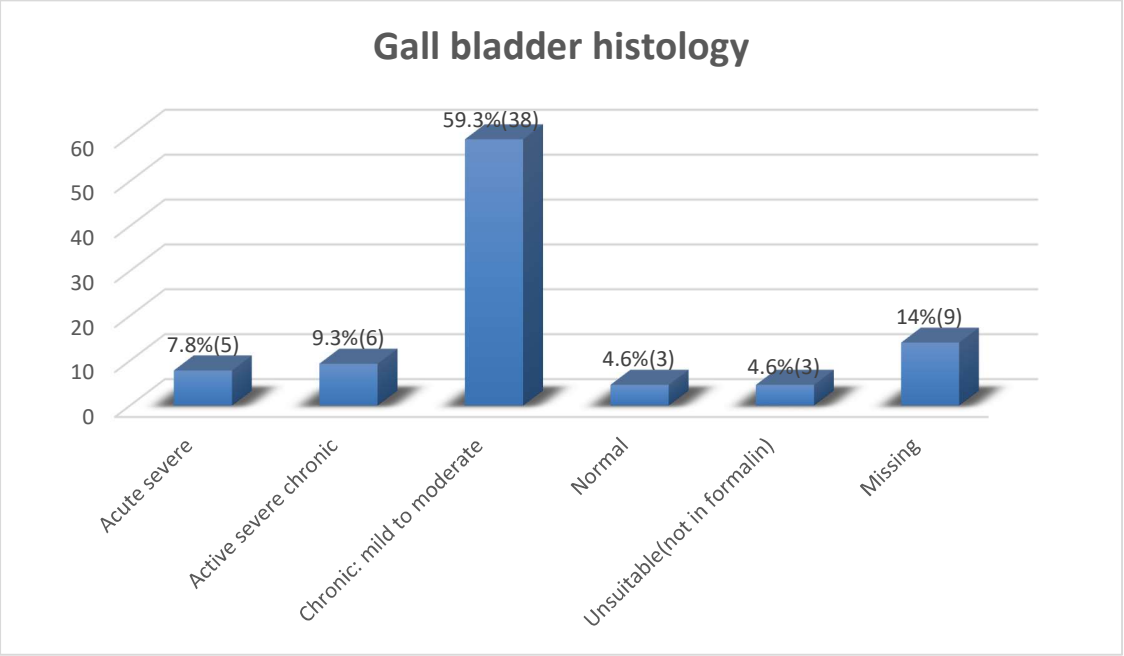

Fig.1. Histopathology

Table 2. Results

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Parameters	Number =64	Percentage
Procedure completed Laparoscopically	61/64	95.3%
Conversion	3(2 pre-op ERCP) from the group of mild to moderate chronic cholecystitis (Fig.1)	4.6%
Reason for conversion	Dense adhesions (difficult dissection)	
ERCP	8	12.5%
Specific Complication	1 bile leak(cystic duct stump) due to retained stone with a normal preoperative LFT	1.5%
Mortality	1 (among the converted)	1.5%
Survival	63/64	98.4%

Table 3. ERCP

ERCP	Number	Indication	Outcome
Preoperative ERCP	7	Obstructive jaundice	Sphincterotomy + stone extraction
Postoperative ERCP	1	Bile leak (cystic duct stump)	Sphincterotomy + stenting

The laparoscopy success rate and overall survival were 95.3% and 98.4% respectively. There was one bile leak due to retained common bile duct stone on an otherwise easy cholecystectomy without cholecystitis and three conversions (4.6%), due to dense adhesions among which one mortality (1.5%). This one mortality had significant comorbidity and pre-operative ERCP. After conversion, the transverse colon adherent to the gallbladder was injured. The primary repair that was done leaked. The patient eventually died after multiple relook laparotomy.

Table 4. Surgical team

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Surgeons	Number (%)	Number of Conversion	Number of Complication
Trainers: Performed Involved	28 (43.7%) 57 (90.5%)	2	1 (bile leak)
Trainees: Performed Involved	36 (56.2%) 49 (76.5%)	1	1 (mortality)

Trainers : Specialist Surgeons and Principal medical officers
Trainees: Registrars

Table 5. Difficult cases and percentage of conversion

Intraoperative findings	Number =64	Conversion
Gangrenous gallbladder	3	0 (0%)
Gangrenous +Perforated gall bladder	1	0 (0%)
Post ERCP: dense adhesions, dilated cystic duct	7	2 (28.5%)
Dense adhesions, fibrosis	17	1 (5.8%)
Markedly inflammed gallbladder	8	0 (0%)
Total	36/64	3 (8.3%)

Discussion

Our demography mirrors the literature in term of female prevalence[3-18]The predominantly black African is in keeping with the profile of our population. The very low percentage (4.6%) of normal gallbladder on histopathology may be a reflection of our inability to offer cholecystectomy timely due to various factors that preclude early or planned surgery such as logistic , backlog, workload. It is therefore possible that the simple biliary colic might have progressed to acute cholecystitis by the time the patients are offered surgery. Our finding contradicts the high percentage of normal gallbladder reported in the literature where laparoscopic cholecystectomy was readily available [23]

Expertise is the most likely explanation of our low conversion and complications even if a substantial number of patients had severe cholecystitis (Fig.1)

We noticed that laparoscopy offers a better view than the open procedure. Even the converted cases were still a challenging operation. The only mortality that we had was secondary to injured transverse colon which was densely adherent to the gallbladder raising the suspicion of choledigestive fistula. It was our observation that LC done after ERCP were difficult; they were associated with extensive adhesions and dilated duct. Loop (Roeder knot) was used to tie the markedly dilated cystic duct unsuitable for clips application.

One patient had a bile leak from blown up cystic duct secondary to retained CBD stone with normal liver function test on an otherwise easy cholecystectomy. 1-2% of patient with normal liver function test are reported to have retained CBD stone after cholecystectomy[24].

Our results are very encouraging since it comes from a level II hospital with significant involvement of trainees in contradiction to the tertiary setting where specialists performed most of the procedure[3,7,10]. It is imperative to empower the trainees very early because of the shortage of qualified surgeons in the developing countries.

Conclusion

With the trainees performing half of the operation mainly under supervision at a level II centre, the low conversion rate and complications with the overall good outcome are very encouraging.

Recommendation

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Laparoscopic skill can be acquired timely by the trainees with proper supervision. The sooner the exposure, the earlier the skill is learned. Difficult scenario should be recognized and conversion anticipated. The aim is to render LC a common operation for the trainees in this era where it has became the standard of care.

Acknowledgment

We give thanks to Prof. A. Mannell for her invaluable input in reviewing this manuscript.

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