EARLY EXPERIENCE OF LAPAROSCOPIC CHOLYCYSTECTOMY AT SAIDU TEACHING HOSPITAL SAIDU SHARIF SWAT

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ABSTRACT

BACK GROUND: Gallstone disease is a common problem in Swat and adjacent districts of Khyber Pakhtunkhawa province of Northern Pakistan. About 10 to 15% of the population is having asymptomatic gall stones out of which 1 to 2% become symptomatic each year. Laparoscopic cholecystectomy has rapidly become the procedure of choice for routine gall bladder removal and is currently the most commonly performed major abdominal procedure in western countries[1].

OBJECTIVE: To study the outcome of early cases of laparoscopic chlecystectomy by general surgeons at Saidu Teaching Hospital.

MATERIAL AND METHODS: All the consultant surgeons of our unit from senior registrar to professor attended workshops on basic laparoscopic skills and laparoscopic cholecystectomy and started performing laparoscopic cholecystectomies. The data of first 100 cases which were randomly selected for laparoscopic cholecystectomy between January 2015 and June 2016 was recorded. This included operation time, complication and difficulties during surgery including conversion to open cholecystectoy, post operative pain and complication including port site infection, hernia and intra abdominal collection.

RESULTS: The first 100 patients on whom laparoscopic cholecystectomy was performed had a mean age of 44.35 $\pm$ 15 years.14(14%) were male while 86 (86%) were females. 33% had acute cholecystitis while 67% were suffering from chronic cholecystitis. 9% had hypertension and 11% had diabetes as a comorbid condition. The mean operating time was 80 $\pm$30 minutes. Critical view of safety was displayed in 93% of patients. Clips were applied to the cystic artery and duct in 90 % while Roeder's knot was used in 6% of the patients and 4% were converted to open cholecystectomy. Irrigation was used in 21(21.87%) of the patients and drain was placed in 3 (3.12%) of the patients. Gall bladder was removed through epigastric port in 16.67% and via the umbilical port in 83.33% of the patients.20 % of the patients had dense adhesions. Empyema was present in 4% of the patients. Cystic artery could not be identified separately in 3% of the patients. Bleeding from cystic artery occurred in 2(2%) of the patient and one of them was converted into open cholycystectomy. Partial cholecystectomy was done in 1 patient. None of the patients had injury to the common bile duct or bowel. 15.6% of patients remained pain free. While pain was mild in 48%, moderate in 30% and severe in 3.12% of the patients managed with an additional dose of narcotic analgesic. 3.12% of the patient developed intra abdominal abscess which was aspirated under ultrasound guidance and drain was placed in one patient. 2.08 % patients had epigastric port infection. Umbilical port infection was present in 3.13% and lateral port infection was present in 1.04 % of the patients. There was no mortatility in patients in whom laparoscopic cholecystectomy was completed.

CONCLUSION: Laparoscopic cholecystectomy is a safe and effective procedure for both acute and chronic cases of cholecystitis and even for empyema or mucocele of gall balder if performed by experienced surgeons. Experienced general surgeons can safely start performing laparoscopic cholecystectomy after attending workshops on basic laparoscopic skills and laparoscopic cholecystectomy and watching lectures and videos on internet.

Keywords: *Laparoscopic cholecystectomy, outcome, laparoscopy, critical view of safety, Calot's triangle.*

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INTRODUCTION

Gall stone disease is a common problem in Swat and adjacent districts. Saidu Teaching Hospital is delivering health services to a large population from Swat, Shangla and Buner districts. Over the last one and half year we have performed more than 100 laparoscopic cholecystectomies here.

Nowadays laparoscopic cholecystectomy is the gold standard for cholelithiasis[2-3]. Laparoscopic cholecystectomy decreases post operative pain , decreases the need for post operative analgesia, shortens the hospital stay from one week to less than 24 hours and returns the patient to full activity with in one week (compared with one month after open cholecystectomy[4,5]. Laparoscopic cholecystectomy also provides improved cosmesis and improved patient satisfaction as compared to open cholecystectomy. Although direct operating room and recovery room costs are high for laparoscopic cholecystectomy, the shortened length of hospital stay leads to net savings. More rapid return to normal activity may lead to in direct cost savings[6].

The general indication for laparoscopic cholecystectomy are the same as those for the corresponding open procedure. Biliary colic with

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sonographically identifiable stones is the most common indication for elective laparoscopic cholecystectomy[7,8].

Absolute contra indications for laparoscopic cholecystectomy include an inability to tolerate general anesthesia, uncontrolled coagulopathy and carcinoma gall bladder. Patients with severe obstructive pulmonary disease or congestive cardiac failure (e.g; cardiac ejection fraction less then 20%) may not tolerate carbon dioxide pneumoperitonium and may be better served with open cholecystectomy if cholecystectomy is absolutely necessary.

In early days when laparoscopic cholecystectomy was started, rate of complications was high. Because of insufficient knowledge and expertise, and older version of quipments, injuries to cystic artery, common bile duct and right hepatic duct were not uncommon[9].

Things have changed. Morbidity and mortality has reduced because of sufficient expertise and understanding of variation in laparoscopic anatomy of cystic artery and right hepatic artery[10,11].

Despite advances, significant variability in approaches to care and outcome in gall bladder diseases management is reported[12]. Injury to biliary tree has also decreased since Strausberg described Critical View of Safety.

The experience of first 100 cases of laparoscopic cholecystectomies at Saidu Teaching Hospital is presented.

MATERIAL AND METHODS:

This prospective case series study was conducted at Saidu Teaching Hospital from January 2015 to June 2016. The patients were randomly selected from those patients who were on regular OT list for cholecystectomy.

Equipment used included light source with video monitor and camera, laparoscope 0-degree, standard gas insufflation equipment, trocars(10mm and 5mm,2 each), blunt grasper (locking and non locking,1 each), Maryland dissector, L- hook cautery, electric cautery unit, laparoscopic suction irrigation equipment, clip applicator, gloves(used as endobag for retrieval),gauze swabs , vicryl -0 on J needle, prolene 3/0, ligaclips and Proforma for recording data.

Patients with clinical, biochemical and radiological evidence of CBD stone, cirrhosis liver and high risk cases for general anesthesia were excluded from the study.
At least two experienced general surgeons were part of the operating team for each case initially and then in the later cases residents worked as assistants.

Laparoscopic cholecystectomy was conducted using standard four port technique. Pneumoperitonium was created with Veres needle. In the first twenty five cases we inserted veres needle through the umbilicus and in subsequent cases we made a vertical 1 to 1.5 cm incision above the umbilicus. Pneumoperitoneum was established with the maximum pressure of 14 mm Hg and trocar was placed.

Gall bladder was delivered through epigastric port without bag in the first few cases and in most cases it was delivered in bag made from gloves via supra umbilical port (needing extension of cut in the linea alba in few cases). Conversion to open cholecystectomy was regarded as sound clinical judgment and not as a complication or failure. Any difficulty or complication occurring during surgery including dense adhesions, bleeding from cystic artery, veres needle or trocar injury, mechanical failure of equipment and conversion to open cholecystectomy and post operative out comes including pain , port site infection , hernia and intraabdominal collection were documented on Proforma.

Patients were followed in Out Patient Department on 10 days and one month interval and few patients who didn't turn up for follow up were interviewed on phone for complication.

RESULTS

The first 100 patients on whom laparoscopic cholecystectomy was performed had mean age of 44.35 years. Age and gender wise distribution is shown in the Table No.1.

TABLE NO 01: Age and gender distribution of patients

Age group	No of males	No of females	Total patients	Percentage
< 35 years	---	15	15	15
36 - 45 years	6	32	38	38
46 - 55 years	8	27	35	35
56 - 65 years	---	8	8	8
> 65 years	---	4	4	4
Total	14	86	100	100

33% of the patients had acute cholecystitis while 67% were suffering from chronic cholecystitis. 9% of the patient had hypertension while 11% had diabetes as a comorbid conditions.

The mean operating time was 80 ± 30 minutes. The critical view of safety (three components displayed, in which only two structures, cystic artery and duct entering directly into the gall bladder were seen) was displayed in 93% of the patients. Clips were applied to cystic duct and artery in 90% of the patients while Roeder's knot was used in 6% and 4% of the patients were converted to open cholecystectomy, the causes of which are given in the Table No 2.

Table No. 2: Reasons of conversion of laparoscopic cholecystectomy to open cholecystectomy.

Causes of conversion	No of patients	Percentage
Difficult dissection due to dense adhesion	1	1
Bleeding from cystic artery	1	1
Inability to place and maintain ports because of obesity	1	1
Mechanical problem with camera /monitor	1	1

Irrigation was used in 21(21.81%) and drain was placed in 3(3.13%) of the patients who underwent complete laparoscopic cholecystectomy. Gall bladder was removed through the epigastric port in 16 (16.67%) and via the umbilical port in 80 (80.33%).

Various complications and difficulties occurring during surgery are shown in Table No 3.

Table No. 3: Per operative difficulties and complications

Problems	Number of patients	Percentage
Dense adhesions causing difficult dissection	20	20
Flimsy adhesions	33	33
Empyema gall bladder	4	4
Cystic artery not identified separately	3	3
Bleeding from cystic artery	2	2
Swarding due to wrong port placement	1	1
Injury by veres needle	0	0
Injury to viscera by trocar	0	0
Injury to common bile duct	0	0
Inability to place and maintain port because of obesity.	1	1
Accessory lobe over hanging Calot's triangle	3	3
Partial cholecystectomy	1	1
Conversion to open cholecystectomy	4	4
Equipment failure (cautry , camera/ monitor, Carbon dioxide leakage	4	4
Gall stone spillage	4	4

The patients were prescribed Injection Diclofenac post operatively. On first post operation day 15(15.6%) of the patients were pain free, while pain was mild in 48(50%), moderate in 30(31.25%) and severe in 3(3.13%) of the patients.

Table No. 4 shows list of the complications recorded post operatively and on follow up at 10 days and one month interval.

Table No. 4: Post operative complications in patients who underwent complete laparscopic cholecytectomy (n-96)

Post operation complication	No of patients	Percentage
Intra abdominal collection	3	3.13
Umbilical port site infection	3	3.13
Epigastric port site infection	2	2.08
Lateral port site infection	1	1.04
Port site hernia	1	1.04
Billiary fistula	0	0

The intra abdominal abscess was drained with ultrasound guidance. In one of the patients drain was placed for 5 days.

The lateral port site got infected in one patient in where drain had been brought out through. While one of the patients who had epigastrict port site infection had a stone in the port site. There was no common bile duct injury, solid organ or bowel injury and no mortality in the study group.

DISCUSSION

Gall stones is the most commondisease of digestive system[13]. Laparoscopic cholecystectomy has gained worldwide popularity and acceptance because of such advantages as minimal trauma and physiological dysfunction, shorter hospital stay , less post operation pain ,better cosmesis and early return to work[14,15].
Though in the developed countries less than 20% of the total cholecystectomies are performed by open method. In Pakistan Laparoscopic cholecystectomy is practiced only in Teaching Institutes and is developing in the peripheral cities now. This difference is because of scarcity of skills and non availability of the laparoscopic equipment.

Most of the patients in our study were women (86%) which is consistent with national and international studies[16]. Khan et al[17]. found 83.8% females and 16.2% males while Mulhim et al[18] found 85% females versus 15% males.

In our studies the conversion rate is 4%. According to published studies in recent years the conversion rate widely ranges between 2.6% and 7.7% 19. The more experienced the surgeon the lesser the conversion rate .

The mean age in our study is 44.35 years. Other studies like Ghnnam et al[21] had mean age of 41.4 years and Khan et al[17] of 45.09 years. Other studies also show similar results for gall bladder stone diseases.

Dense adhesions leading to difficult dissection were present in 20% of the cases while flimsy adhesions were present in 33%. Shah etal[22] found dense adhesions in 25 % and flimsy in 30% cases while Duca etal[23] found adhesions in 82.4% and Mulhim etal[18] found them in 61.5% cases. Empyema was found in 4% while Shah etal[22] found it in 10 % while Bhasin etal[24] found in 2 %.

Port site infection occurred in 6.24% cases which were treated with drainage and oral antibiotics according to culture and sensitivity. It was 2% in study by Haider et al[25]. In another study it is reported as 1.4% in laparoscopic series versus 14.8% in open cases[26]. 3 of our patients developed intra abdominal collection which was drained with ultrasound guidance and treated with antibiotics according to culture and sensitivity. The mean operating time in our study is 80 $\pm$ 30 minutes which is consisted with that noted in international literature. It was reported as 61 minutes by Haider et al[25].

Chau et al[27] reported that conversion rate is related to surgical experience and had an overall complication rate of 11.6% , including two bile duct injuries and two perioperative deaths. In our study we had no injury to bile duct and no mortality. Two of the cases, with bleeding from cystic artery and dense adhesions were converted to open surgery due to lack of experience in the early phase of Study.

CONCLUSION

Laparoscopic cholecystectomy is the gold standard treatment for gall bladder diseases with better cosmesis , decreased wound infection, less pain, decreased hospital stay, better patient satisfaction and early return to work. It can safely be started in new centers if experienced general surgeons are available and they undergo little training in basic laparoscopic skills and Laparoscopic cholecystectomies and initially at least two experienced surgeons should be part of operating team.

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