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Laparoscopic surgery in gall bladder and abdominal disease along with risk factors

Abstract

Objectives: To find out the novelty and usefulness of laparoscopy in the surgical treatment of various diseases like gall bladder containing stones, tumors and appendicitis etc.

Patients and methods: From November 2016 to January 2016, 26 patients underwent the laparoscopic surgery. There were 18(69%) female and 8(30%) male from age 12 to 65years. We examined the outcome during surgery, pre-operative and post-operative conditions.

Results: Among all patients the illnesses presented by different patients were vomiting (53.8%), pain in RHC (57.6%), (pain in RIF (Right iliac fossa) (11.5%) and pain in abdomen (15%). Pre-operational diagnosis included gall stone (38%), inflamed gall bladder (15%), appendicitis (23%), multiple ovarian cysts (3%), du- perforation (3%) and thyroid tumor and narrowing trachea (3%). In laparoscopic surgery, treatments gall bladder was removed from all the patients having gall bladder diseases. Appendicitis and tumor were also removed, ovarian cysts de-rooted and omentoplasty done for du-perforation patients.

Conclusion: Laparoscopy is a safe and promising technique regardless of gender and age of the patient due to less operation time, small incisions and minimum hospital stay. There is no operative morbidity and mortality risk due patients past medical and surgical how post-operative infections may occur in diabetic patients may occur.

Keywords: laparoscopy, cholecystectomy, right hypochondria (RHC), pre-operative diagnosis, post- operative conditions

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Introduction

Laparoscopy is a very popular minimally invasive surgical and therapeutic technique which is mostly used for diseases like gall bladder containing gall stones, appendix, breaking of adhesions, omentoplasty and various other.[1,2] This technique is beneficial for the patients due to less hospital stay, small openings rather than five to seven inch incisions. Cholecystectomy is very popular among other laparoscopic techniques and used for the removal of gall bladder either inflamed or containing gall stones.[3,4] Gall bladder is a small organ located near the liver and becomes contaminated due to several reasons like obesity, Diabetes mellitus, certain medicines, frequent fasting, improper diet and family history etc. Stone in gallbladder is related to metabolic syndrome like cardiovascular diseases and laparoscopy has become a procedure of choice and a standard technique in Western and Asian countries as well. Surgical procedure like laparoscopy is used to remove gall bladder in most of the cases as it is not a vital organ and our digestive system can work properly even after its removal.

Material and methods

From the month of November 1, 2016 to January 5, 2016 laparoscopic surgery was performed over 26patients with symptomatic gall bladder diseases, thyroid tumor and appendicitis. These surgeries were performed in the Bahawal Victoria Hospital. We have used Olympus OTV-Si video processor, Dolphine Moercellator, endoscopic camera and other equipment of Dolphine Company. Before surgery consent was taken from all the patients. Illness which presented by most of the patients were pain in right hypochondria (RHC), vomiting, abdominal pain and nausea. Patients were sent for biopsy by various tests like x-ray, ultra sound, R/h blood tests and few others. The complete medical, surgical, physical and family history was considered to prevent the risk factors during surgery and post surgery infections. After pre-operational findings and diagnosing disease laparoscopic surgery was performed under general anesthesia. The patient's consent was signed approved by Ethics Committee before surgery according to the standard laws of ethics of Bahawal Victoria Hospital. Among these 26 patients 18 were female and 8 were male and their average age was 36.7years ranged between ages 12 to 65years, belonged to middle and lower middle class. Their past history was nonalcoholic and nonsmoker. Surgery posture of patient and gall bladder position are described below (Figure 1).

Figure 1 Separation method of gall bladder full of stones from other organs.

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Laparoscopic procedure was carried out under general anesthesia and a small incision is made around the belly button to insert camera. Two more incisions were made nearby to insert other instruments. To separate cavity carbon dioxide gas was used. Arties were clipped with titanium to block the arteries taking blood towards organ that we want to remove like gall bladder and it is taken out through umbilical port (Figure 2). This all procedure took 45minutes in average and patients were sent to recovery room for 15 minutes, later shifted to ward and discharged after one day.

Figure 2 Gall bladder full of stones after taking it out from body.

In our study 38% patients had gall stones in gall bladder, 15% were with inflamed gall bladder and 23% had appendicitis. Adhesion of outer wall was also found in 2% patients and the cases of multiple ovarian cysts, du-perforation and thyroid tumor were only 1%. The percentage of male was 8(30%) and females were 18(69%). Table 1 describes the illness presented by patients and their percentage. Out of 26, 14(53%) patients had vomiting, 15(57%) had pain in RHC, 3 (11.5%) presented pain in RIF and 4(15%) had pain in abdomen. Table 1 reveals that most of the patients with gall bladder diseases had illness like vomiting and pain in RHC. The percentage of women was double as compared to men and other symptoms like pain in RIF and abdomen were quite less in percentage.

Table 1 Pre-diagnosing data

Illness	n	Percentage
Vomiting	14	53.8%
Pain in RHC	15	57.6%
Pain in RIF	3	11.5%
Pain in abdomen	4	15%

We divided the total number of patients into five age groups to observe the percentage of laparoscopic surgeries with different age ranges given in Table 2. Table 2 describes the age groups of patients and percentage those had underwent the laparoscopic surgeries due to different diseases. Maximum laparoscopic surgery patients had ages between 30 to 39years and minimum number of patients had age between 60 to 69years. But we found this technique feasible for both young and elderly people as well.

Table 3 shows diagnosis after biopsy of patients, their number and percentage. Table also describes that what treatment is done in laparoscopic surgery to cure the disease. Gall stone and inflamed gall bladder were in 10(38%) and 4(15%) patients respectively and in both cases gall bladder was removed, 6 (23%) were with appendicitis. Multiple ovarian cysts, Du-perforation and thyroid tumor and narrowing trachea were in 1(3%) and adhesion of outer wall of gall bladder was in 2(7%). The data is also shown in the form of bar graph and height of bar shows that gall stone disease was predominant as compared to all others (Figure 3). Bar graph represents pre-operational diagnosis such as gall stone, inflamed gall bladder, appendicitis, ovarian cysts, adhesion of gall bladder, du-perforation and thyroid tumor along x-axis and percentages and number of patients along y-axis.

Table 2 The 6age groups, 10-19(7%), 20-29(19%), 30-39(30%), 40-49(23%), 50-59(15%) and 60-69(3%) years

Age groups(years)	Number of patients	Percentage (%)
10-19	2	7
20-29	5	19
30-39	8	30
40-49	6	23
50-59	4	15
60-69	1	3

Table 3 pre operational diagnosis, percentage of each disease and surgical treatment

No.	Pre-operational diagnosis	n (%)	Laparoscopic surgery
1	Gall stone	10(38)	Gall bladder removed
2	Inflamed gall bladder	4(15)	Gall bladder removed
3	Appendicitis	6(23)	Appendix removed
4	Multiple ovarian cysts	1(3)	Cysts derooted
5	Adhesion of outer wall of gall bladder	2(7)	Breaking of adhesion of fimbrial
6	Du-perforation	1(3)	Omentoplasty done
7	Thyroid tumor and narrowing trachea	1(3)	Tumor removed

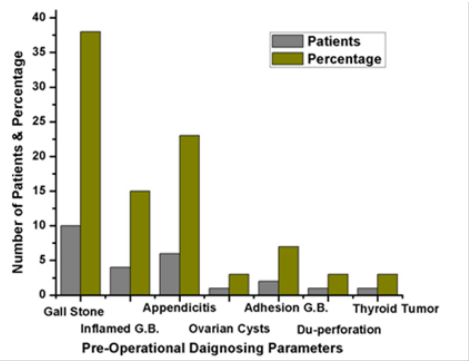

Figure 3 pre-operational diagnosis and number patients and their percentages.

In the case of gall bladder full of stones or inflamed gall bladder the laparoscopic action was removal of gall bladder which is very promising and don't have post surgery side effects. Surgeons encountered the bile leakage problems during laparoscopic surgery but post operative leakages were rare only in 2% patients. All surgeries

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were completed successfully with no post operative difficulties. Patients were monitored before operation, during surgery, in recovery room and till after shifting to ward. All the 26patients found relief from pain one patient had high blood pressure before surgery so surgery was postponed.

Furthermore we compared the past personal history of all the patients who underwent laparoscopic surgery in Table 4. Table 4 shows the history of patients for previous 10years. All the patients were non alcoholic and with normal sleep, just 8% patients had smoking history. Only 19% (5patients) were found with a decrease in sleep and bowel and bladder habits of all the patients were normal. Moving on towards surgical and medical history the facts and figures are satisfactory and described in Table 5. There were 38% patients with past surgical history, 2% with family history of gall bladder diseases, 2% patients were suffering from diabetes, 3% with hypertension and 8% with asthma. Diseases like jaundice and T.B were not detected in medical history of any of the patients.

Table 4 Personal history of patients

Sleep	**Normal(26);100%**	**Decreased(0); 0%**	**Increased(0)**
appetite	Normal (21);81%	Decreased(5);19%	Increased(0)
Alcohol consumption	Non	Non	Non
Bowel and bladder Habit	Normal (26);100%	Nil	Nil
smoking	Non smoker(24);92%	Smoker(2);8%	Nil

Table 5 Surgical and medical history of all the patients

Surgery	10(38%)
Family History	2 (siblings)(8%)
Jaundice	Non
Diabetes	3(11%)
T.B	Non
HTN(hypertension)	1(3%)
Asthma	2(8%)

Discussion

Various studies and surgical history in laparoscopy revealed that early surgery is much beneficial as it reduces the risk of morality and longer hospital stay as compared to delayed surgery. Laparoscopic surgery may result in post operative pain, which is not felt immediately after surgery due to anesthetic wear, but it may become serious later. This pain is may be due to undissolved carbon dioxide or due to its insufflations. Njmeh Dabbagh et al.,[5] compared the signal incision laparoscopic cholecystectomy with mini laparoscopic cholecystectomy and found that both are same in all respects except that operating time of MLC is shorter as compared to SILC. Partial cholecystectomy is also found to be as safe as cholecystectomy but surgeons should consider the recurrent and residual stones in gall bladder. Few authors also make comparison of three and four incision laparoscopy and it was concluded that three port surgery is standard and safe in all respects, however according operational difficulties four port can be added. Pressure applied during laparoscopic surgery is usually 12mmHg-pressured pneumoperitoneum but Turgut Donmez et al.,[6] compared two pressure ranges lower and higher than standard values by applying on two groups of patients and concluded that higher pressure (14mmHg) have negative and low pressure (10mmHg) have less effect on the coagulation and fibrinolytic system .

Another rare case which is situs inverse, "mirror image" technique is used for successful surgery because it is difficult for a right handed surgeon to perform such kind of surgery.[7] Laparoscopy is also promising on the treatment of perforated peptic ulcer and there is no risk of mortality and morbidity.[8] It is also useful and effective in proferated Meckel's Diverticulum diagnosis and its role is therapeutic and reliable. It can be successfully managed for the patients with acute appendicitis however postoperative difficulties which may occur due to peri-appendicular abscess and diffuse peritonitis can be prevented by careful surgeons. For the patients having coronary artery diseases history after preoperative medical preparation of laparoscopy it has no impact on postoperative morbidity. Gall bladder rapture is also cured with laparoscopy and bile and abdominal diseases can be diagnosed by cholangiography before surgery. Percutaneous cholecystostomy tube (PCT) in comparison with cholecystectomy has less complications and less biliary events but cholecyctectomy is beneficial because of its long term benefits while treating acute calculus cholecystiti.[9] While treating tumor this technique is as useful for large tumors as it is for tumors smaller in size however more time and well experienced surgeons are needed. This clinical research includes every age patients young and elder both (12 to 65years) and we found it feasible for elderly patients too but careful team needed. Intravenous paracetamol can be used for post operative pain relief.[3] Few researchers also applied the laparoscopic surgery to lions and cheetahs, surgeries were successful and post operative difficulties were rare.[10] In our work the most of patients presented their illnesses were vomiting, pain in RHC, pain in RIF and pain in abdomen. Patients with any surgical and medical past history were sent for further careful biopsy to avoid pre and post-operative risk factors. After biopsy by ultra sound, different blood test and x rays, the major diseases found was inflamed gall bladder and gall bladder with stones. Other diseases were appendix, thyroid tumor and multiple ovarian cysts. In our study women were found in more percentage having age ranges from 30 to 39 in majority. While discussing the past medical and surgical history of all the patients all of them were nonsmoker nonalcoholic, 38% had past surgical history, only few had diabetic and asthma disease history. A small percentage of patients of patients had family history of gall bladder diseases. We also considered the past personal history and facts were that all the patients had normal sleep and normal bowel and bladder habits, a small percentage complained decreased appetite. While comparing the biopsy of patients with past surgical and diseased history there were no pre or post-operative difficulties.

Conclusion

Laparoscopy is a safe and promising technique for the surgical treatment of different diseases such as appendicitis, gall bladder containing stones, large and small tumors and ovarian cysts with no post-operative pains. This technique is equally valuable for elder patient too but expert surgeons and team is inevitable. Minimum hospital stay, small incisions and less operative time are such attractive features of laparoscopic surgery which make it popular and safe technique in all over the world. We compared the past medical, surgical and personal history of all the reports and no morbidity or life threatening risks were seen during or after laparoscopic surgery, however postoperative infections may occur in diabetic patients.

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None.

Conflict of interest

The author declares no conflict of interest.

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