RESULTS

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Included patients were classified according to operation performed into four groups:

- **Group A** : Laparoscopic cholecystectomy (50 patients).
- **Group B** : Laparoscopic appendectomy (20 patients).
- **Group C** : Laparosocpic varicocelectomy (20 patients).
- **Group D** : Laparoscopic hernia repair (10 patients).

The results gained from our work have been gathered, analyzed and collectively tabulated in serial tables as follows:

The clinical data gained from the included patients were collectively summarized as follows:

- Ages of the included patients of all groups were collected in table (1).
- The presenting symptoms of the included patients were summarized in table (2).
- Preoperative analysis was performed for all groups to assess and evaluate the cases that had surgical problems. Routine investigations were tabulated in table (3).
- Abdominal ultrasonography was performed for all patients and the resulting findings were collectively summarized in table (4).
- Associated medical disorders that are controlled preoperatively were tabulated in table (5).
- Operative data gained from group (A) were collectively summarized in table (6).

- The postoperative data of group (A) were tabulated in table (7).
- The incidence of improvement and the postoperative morbidity that recorded among studied patients of group (A) one year postoperatively were tabulated in table (8)
- Operative data gained from group (B) were collectively summarized in table (9).
- The postoperative data of group (B) were tabulated in table (10).
- The incidence of improvement and the postoperative morbidity that recorded among studied patients of group (B) one year postoperatively were tabulated in table (11).
- Operative data gained from group (C) were collectively summarized in table (12).
- The postoperative data of group (C) were tabulated in table (13).
- The incidence of improvement and the postoperative morbidity that recorded among studied patients of group (C) were tabulated in table (14).
- Operative data gained from group (D) was collectively summarized in table (15).
- The postoperative data of group (D) were tabulated in table (16).
- The incidence of improvement and the postoperative morbidity that recorded among studied patients of group (D) one year postoperatively were tabulated in table (17).

Table (1): The age groups of the studied patients

Age Groups	Group A		Group B		Group C		Group D	
	No.	%	No.	%	No.	%	No.	%
15-20 years	0	0	8	40	0	0	0	0
20-25 years	0	0	6	30	2	10	1	10
25-30 years	2	4	3	15	6	30	2	20
30-35 years	3	6	1	5	8	40	4	40
35-40 years	9	18	0	0	3	15	1	10
40-45 years	27	54	1	5	1	5	1	10
45-50 years	6	12	1	5	0	0	1	10
50-55 years	3	6	0	0	0	0	0	0
Total	**50**	**100%**	**20**	**100%**	**20**	**100%**	**10**	**100%**

Table (1)

Symptomatology of the included patients

Group A (50 pt.)			Group B (20 pt.)			Group C (20 pt.)			Group D (10 pt.)		
Symptoms	No.	%	Symptoms	No.	%	Symptoms	No.	%	Symptoms	No.	%
Fatty dyspepsia	38	76	Rt. iliac fossa pain	10	50	Dragging pain	15	75	Inguinal swelling	6	60
Rt. Hypochondrial pain	40	80	Vomiting	3	15	Scrotal swelling	18	90	Inguinoscrotal swelling	4	40
Recurrent biliary colic	14	28	Nausea	9	45	Subfertility	10	50			
Epigasric pain	9	18	Diarrhea	3	15						
Pseudo anginal pain	2	4	Lion pain	7	35						
			Rt. hypochondrial pain	5	25						

Table (2)

Routine invistigations for all patients

Investigations	Findings	Group A (50 pt.)		Group B (20 pt.)		Group C (20 pt.)		Goup D (10 pt.)	
1-Laboratory		No.	%	No.	%	No.	%	No.	%
*Urine & stool	Bilharziasis	6	12	0	0	1	5	1	10
	Parasitic infestation	9	18	1	5	1	5	1	10
*C. B. C.	Anaemia	3	6	3	15	2	10	1	10
	Leucocytosis	2	4	14	70	0	0	0	0
*Liver function tests SGOT & SGPT	Raised	5	10	1	5	1	5	0	0
Bilirubin	Raised	0	0	0	0	0	0	0	0
Prothrombine time & concentration	Increased	0	0	0	0	0	0	0	0
Albumin	Decreased	0	0	0	0	0	0	0	0
Alkaline phosphatase	Raised	0	0	0	0	0	0	0	0
*Kidney function tests Urea	Raised	0	0		0	0	0	0	0
Creatinine	Raised	0	0		0	0	0	0	0
*Blood sugar Fasting & postprandial	Hyperglycaemia	14	28	1	5	2	10	1	10
2- Chest X - ray	Chronic bronchitis	5	10	0	0	1	5	0	0
3- E.C.G.	Ischemic changes	6	12	0	0	0	0	1	10

Table (3)

Ultrasound findings in all patients

Ultrasound findings	Group (A)		Group (B)		Group (C)		Group (D)	
	No.	%	No.	%	No.	%	No.	%
Fatty liver	15	30	2	10	1	5	1	10
Gall stone	50	100	1	5	0	0	0	0
Cirrhotic liver	3	6	0	0	1	5	0	0
Renal calculi	1	2	0	0	0	0	0	0
Renal cysts	2	4	0	0	0	0	1	10
Spleenomegaly	3	6	1	5	1	5	0	0
Ascites	0	0	0	0	0	0	0	0
Pancreatic abnormalities	0	0	0	0	0	0	0	0
Paraaortic lymphnode	0	0	0	0	0	0	0	0
Pelvis abnormalities	0	0	0	0	0	0	0	0

Table (4)

Associated medical problems of all patients

Associated medical problems	Group(A) 50 pt.		Group (B) 20 pt.		Group (C) 20 pt.		Group (D) 10 pt.	
	No.	%	No.	%	No.	%	No.	%
1- Cardiovascular								
Hypertension	7	14	1	5	0	0	2	20
Ischaemic heart disease	4	8	1	5	0	0	2	20
Arrhythmia	1	2	0	0	0	0	1	10
2- Chest problems								
Wheasy chest	6	12	2	10	1	5	0	0
3- Diabetes milletus	14	28	2	10	1	5	1	10
4- Obesity	6	12	3	15	4	20	2	20

Table (5)

Detailes of operative data for group (A)

OPERATIVE DATA	GROUP (A) 50 pt.
1- Mean operative time	**±48 min.** (26-94) minutes.
2- Intraoperative complications:-	
***Insufflation**	
-Cardiac arrhythmias:-	
-Extrasystoles	**6 (12%)**
-Difficult insufflation	**3 (6%)**
-Surgical emphysema	**2 (4%)**
-Serosal tear	**0**
-Mesentric haematoma	**0**
***Bleeding**	
-From trocar site	**4 (8%)**
-Cystic artery	**6 (12%)**
-Liver bed.	**3 (6%)**
-Omentum	**0**
***Injuries**	
-Gall bladder with spillage of stones	**5 (10%)**
-Commen bile duct injury	**0**
-Doudenum.	**0**
-Colon.	**0**
-Stomach.	**0**
3- Clep slipping	**1 (2%)**
4- Convertion to open surgery due to difficult technique.	**2 (4%)**

Table (6)

Post operative data of group (A)

Post operative complications	Group (A)
Mean hospital stay	± 2 days (1- 5 days)
pain	6 (12%)
Fever up to 38.5 C	9 (18%)
Ileus	3 (15%)
Wound infection	3 (6%)
Reactionary haemorrhage	0
Chest infection	6 (12%)
Uncontrolled D.M.	2 (4%)
Pancreatitis	0
Myocardial ischemic pain	1 (2%)
Mortality	0

Table (7)

Incidence of improvement and postoperative morbidity for group (A) patients one year postoperatively

Post operative follow up	Group (A) 50 pt.
Clinical improvment	
Symptoms relieve	**47(94%)**
Persistance of mild symptoms	**2(4%)**
Aggrivation of symptoms	**1(2%)**
Type of morbidity	
Jaundice	**2(4%)**
Bile leakage	**1(2%)**
Collection	**1(2%)**
Incisional hernia	**4(8%)**
Missed stone C.B.D.	**1(2%)**
Stricture of C.B.D.	**0**

Table (8)

Detailes of operative data for group (B)

Operative data	Group (B) 20 pt.
Mean operative time	±30 min. (21-46)min.
Intraoperative complications:- ***Insufflation** Cardiac arrhythmia Extrasystol	4 (25%)
Difficult insufflation	2 (10%)
Surgical emphysema	1 (5%)
Serosal tear	0
Mesentric haematoma	0
***Bleeding** From trocar site	3 (15%)
From major vessel	0
From mesoappendix	1 (5%)
From omentum	0
***Injuries** Cecum	0
Urinary bladder	0
Loops of intestine	0
***Visualization of the appendix** Adequate	15 (75%)
Not seen	4 (20%)
***Other pathology detected** Disturbed ovarian cyst	1 (5%)
***Covertion to open technique**	1 (5%)

Table (9)

Post operative data of group (B)

Post operative complications	Group B (20 pt.)
Mean hospital stay	±1 day (1- 3 days)
Pain	5 (25%)
Ileus	3 (15%)
Fever	4 (20%)
Reactionary haemorrhage	0
Wound infection	2 (10%)
Chest infection	2 (10%)
Deep vein thrombosis	0
Uncontrolled D.M.	1 (5%)
Myocardial ischemic pain	0
Mortality	0

Table (10)

Incedience of improvement and postoperative morbidity for group (B) patients one year postoperativly

Postoperative follow up	Group (B) 20 pt.
*Clinical improvement	
Symptoms relieve	18 (90%)
Persistance of mild symptoms	2 (10%)
Aggrivation of symptoms	0
*Type of morbidity	
Wound infection	1 (5%)
Incisional hernia	1 (5%)
Abdominal abscess	0
Faecal fistula	0
Portal pyemia	0

Table (11)

Detailes of operative data for group (C)

Operative data	Group (C) 20 pt.
Mean operative time	**±18 min.** **(11-27) min.**
Intra operative complications ***Insufflation** Cardiac arrhythmia	
Extra systole	**2 (10%)**
Difficult insufflation	**1 (5%)**
Surgical emphysema	**2**
Serosal tear	**0**
Msentric haematoma	**0**
***Bleeding:** From trocar site	**1 (5%)**
From large vessels	**0**
***Injuries:** Urinary bladder	**0**
Loops of intestine	**0**
***Convertion to open technique**	**0**

Table (12)

Post operative data of group (C)

Post operative complications	Group (C)
Mean hospital stay	± 1 day (0- 3 days)
Pain	3 (15%)
Fever up to 38.5 C	4 (20%)
Ileus	2 (10%)
Wound infection	2 (10%)
Reactionary haemorrhage	0
Chest infection	2 (10%)
Deep vein thrombosis	0
Uncontrolled D.M.	0
Myocardial ischemic pain	0
Mortality	0

Table (13)

Incidence of improvement and postoperative morbidity for group (C) patient one year postoperatively.

Post operative follow up	Group (C) 20 pt.
****Clinical improvement**	
*Persistant dragging pain	1 (5%)
****Secondery hydrocele**	2 (10%)
****Size of the swelling**	
*Dissappeared	18 (90%)
*Increased	0
*Improved	2 (10%)
****Sperm count**	
*Mild improvement	10 (50%)
*Good improvement	7 (35%)
*The same	3 (15%)

Table (14)

Detailes of operative data for group (D)

Operative data	Group (D) 10 patients
Mean operative time	**45 min.** (35-90) minutes
Intraoperative complications	
*Insufflation	
Cardiac arrhythmias	
Extrasystole	**2 (20%)**
Difficult insufflation	**1(10%)**
Surgical emphysema	**0**
*Bleeding	
From trocar site	**1(10%)**
From major vessels	**0**
*Injuries	
Intestine	**0**
Urinary bladder	**0**
Convertion to open technique	**0**

Table (15)

Postoperative complications of group (D)

Postoperative complications	Group (D) 10 patients
Mean hospital stay	**±1 day** (1-3 days)
Pain	**2 (20%)**
Fever up to 38.5	**1(10%)**
Wound infection	**0**
Chest infection	**1(10%)**
Deep vein thrombosis	**0**
Myocardial ischemic attack	**0**
Uncontrolled D. M.	**0**
Mortality	**0**

Table (16)

Incidence of improvement and postoperative morbidity of group (D) patients one year postoperatively

Postoperative follow up	Group (D) 10 patients
Clinical improvement	
Symptoms relieve	8(80%)
Persistence of mild symptoms	2(20%)
Aggrivation of symptoms	0
Type of morbidity	
Secondery hydrocele	1(10%)
Recurrance of hernia	1(10%)

Table (17)

DISCUSSION

Laparoscopic surgical procedures have begun to replace many conventional operations because of the avoidance of major surgery and the rapid recovery of the patients **(Cuschieri, 1992b).**

Laparoscopy is an innocuous rapid and elegant procedure in the hands of a well trained specialist. It can also be a source of errors and accidents if put in the hands of physicians without proper training and proper spirit of continuous attention to all technical details, indispensable for total safety **(Schirmer, 1994).**

The widespread acceptance of this technique has been largely propelled by public awareness that laparoscopic surgery is associated with less pain, shorter hospital stay, quicker return to normal activities, and better cosmetic results **(Mori et al, 1995).**

The present study was performed on 100 patients admitted in the department of surgery, Benha University Hospital. All of them were operated upon by a variety of laparoscopic procedures. They were categorized into 4 categories according to the procedure:

Group A which contains 50 patients operated upon for laparoscopic cholecystectomy.

Group B which contains 20 patients operated upon for laparoscopic appendectomy.

Group C which contains 20 patients operated upon for laparoscopic varicocoelectomy.

Group D which contains 10 patients operated upon for laparoscopic hernia repair

Evaluation of the different complications encountered in this study in relation to those in other studies. Will discussed as follows:

1- General complications of the laparoscopy in all patients

2- Complications of each procedure.

1-General complications of laparoscopy

A. Complications of Peneumoperitoneum;

Intra-abdominal insufflation of CO2 will lead to certain physiological changes in haemodynamics and pulmonary function in all patients. Cardiac arrhythmias are common and have been reported in 27% of all laparoscopic procedures. The most common changes are, sinus tachycardia and ventricular arrhythmia. These arrhythmias may be due to elevated CO2 level in the blood but are more likely to be related to excessive vasovagal reflexes produced by peritoneal stimulation **(Myles,1989).**

In this study, extrasystoles occurred in 14% of the cases where as in other studies extrasystoles occurred with an incidence of 27% **(Myles, 1989).**

Subcutaneous emphysema has been reported especially with higher abdominal pressures or insufflator malfunction; when the gas escapes at the needle and trocar sites and dissects subcutaneously **(Bard and Chen, 1990).** In this study, difficult insufflation occured in 7 patients (7%).

B. Penetrating injuries

The most serious complications of insertion of the pneumoperitoneum needle and trocars are bleeding and perforation of viscera **(Nord, 1992).**

Bleeding from the abdominal wall can results from injury to the epigastric vessels or more commonly tear of dilated veins in cases of portal hypertension **(Johns, 1993).** In this study, bleeding from trocar site occurred in 9 patients (9%) which stopped with compression without abdominal wall haematoma.

Perforations of the aorta, vena cava, common iliac vessels and superior mesentric vessels have been reported **(Levy, 1993).** Here in the present study no bleeding from perforation of the large vascular structures.

Penetration of the stomach, intestinal perforation and bowel injuries are an uncommon events **(Tripoulas and Grifo, 1993; Bayer, 1993; Wahlstrom, 1993).** Here in the present study no perforation of any viscera.

2- Comlications of each laparoscopic procedure

A.Complication of Laparoscopic Cholecystectomy

Laparoscopic cholecystectomy, has been rapidly adopted as the gold standard therapy for gall stones **(Soper, 1993).**

Because of the placement of surgical pack or direct manual compression of bleeding sites cannot be accomplished under laparoscopic guidance control of significant operative hemorrhage is more difficult under laparoscopic guidance **(Bailey et al, 1991).**

Sometimes, arterial bleeding during laparoscopic cholecystectomy is difficult to be controlled and causes the conversion to open surgery, otherwise, with the gained experience, this can be controlled by applying clips. However,

clipping should be avoided while there is active bleeding, and stressing upon clear identification of the bleeding site **(Hunter, 1993).**

In the present study, bleeding from cystic artery was encountered in 6 patients (12%) . Arterial bleeding from the posterior division of the cystic artery, which may be present in some patients, was encountered in one patient. Hemostasis was achieved by clipping the bleeding artery after suctioning of blood from the field to provide optimum visibility. Bleeding from the gallbladder fossa was faced in three patients (6%) and in all hemostasis was accomplished by diathermy coagulation.

Common duct injury causes the most serious morbidity associated with laparoscopic cholecystectomy and has an incidence of 1-2 percent **(McMahon et al, 1995).**

In the present study, the incidence of common bile duct injury among the patients of the laparoscopic cholecystectomy was 0% in agreement with **(Wolfe et al, 1991).** This may be attributed to the insistence on maintaining firm cephalic traction on the fundus, lateral traction on the infundibulum to place the cystic duct as near perpendicular to the common duct as possible. In addition we stressed on starting the dissection close to the neck and away from rather toward the gallbladder.

Because it is common to find adhesion between the surrounding viscera, especially the duodenum and the gall bladder as a result from recurrent attacks of cholecystitis, injury to this viscera can easily occur **(Wolfe et al, 1991).** Here in the present study, there is no injury to the surrounding viscera (duodenum, stomach and colon) due to meticulous dissection and good visualization of the field.

Perforation of the gall bladder may occur in 15-20% of cases, this may result from grasping forceps, electrocautery, or accidental trauma, usually, this is of little consequence and does not increase the morbidity, so long as the perforation can be closed with clips, plus aspiration of the extravasated bile **(McMahon et al, 1995).** Gallbladder injury, although not usually significant during performance of open cholecystectomy, may preclude the successful completion of the laparoscopic approach. **(Deziel et al, 1993).**

In this study, perforation of the gallbladder with bile leakage and stone spillage occurred in five patients (10%). In one patient, grasping a good part of the gallbladder wall including the perforation was sufficient but in the remaining four cases, endoloop was applied on the perforation. In all, suction of the escaped bile with removal of the stones ,as much as possible, and irrigation of the peritoneal cavity was done. All these patients with gallbladder perforation received antibiotic postoperatively.

Laparoscopic cholecystectomy was successful in 96% of the patients in whom it was attempted, for an overall conversion of 4% comparing favourably with that of **(Fitzgibbons et al ,1991)** 3.4%, **(Cuschieri et al, 1991)** 3.6% and **(Crose et al, 1994)** 3.1%. The conversion is due to the presence of a short dilated cystic duct with impacted stone inside. No conversions were needed for bleeding or common duct injuries. However, conversion to open cholecystectomy should not be considered as a complication but rather an option that may be made by the surgeon to perform cholecystectomy without undue risk.

Obesity can safely be removed from the list of relative contra-indications to laparoscopic cholecystectomy **(Schirmer et al ,1992)**

The present study included 6 obese patients. Laparoscopic

cholecystectomy was performed in the usual way with some modifications in order to gain access to the peritoneal cavity in those obese patients. Veress needle placement was done through the umbilicus for the ease and safety needle insertion. The insufflation pressure has been increased to aid in holding up the heavy abdominal wall. Laparoscopic cholecystectomy offers a clear-cut technical advantage over open cholecystectomy. It is the procedure of choice in the obese patients who would otherwise require a sizeable incision for adequate exposure.

One negative effect of laparoscopy is the post-laparoscopy pain syndrome **(Pier and Gotz, 1992).** In the present study, of the 48 successful laparoscopic cholecytectomies, 26 patients (52%) did not require any analgesia after being discharged from the recovery room. An additional 6 patients (12%) took narcotic analgesics, where as 16 patients (32%) took only non narcotic analgesic. This is in agreement with **Berggren et al (1994).**

Because the bowel is minimally manipulated if at all, laparoscopic cholecytectomy results in a smaller incidence of postoperative ileus. This along with reduction in pain allows a shortened hospital stay and early return to normal activity **(Grace et al, 1991).**

Normal intestinal sounds returned within six hours after surgery in 35 patients (70%) and within 24 hours in the remaining patients except 3 patients (6%) in whom intestinal sounds were delayed until the second postoperative day. Both of them had undergone extensive adhseolysis.

In the present study, only three patients (6%) of the laparoscopic cholecystectomy had a single wound site that developed infection. Those patients were found to have a superficial stitch abscess that was treated by

removing the absarbable suture. This is in agreemant with **Ponisky (1991),** who pointed out that, infection is rare after laparoscopic cholecystectomy and when it does occur it is most often a local phenomenon surrounding one or more of the trocar sites.

The most frequent postoperative complication of laparoscopic cholecystectomy is bile leak. Bile leaks originate from the cystic duct stump in most cases and may be due to improper clip placement or late perforation from thermal injury or devascularization. Other sources of postoperative bile leak are the gallbladder fossa and other bile duct injuries. Bile leak should be suspected in any patients with postoperative abdominal pain, nausea, or vomiting accompanied by leukocytosis, low-grade fever. Intraperitoneal bile collections can be demonstrated by ultrasonography or computed tomographic scanning. Therapy depends on the site of the leak, the presence or absence of retained bile duct stones or major bile duct injury and whether the leak is continued or not. Most bile leaks have been treated by laparotomy regardless of their origin. Laparoscopic drainage ligation of the cystic duct stump have also been used **(Deziel et al, 1993).**

In this study, bile leak occurred in one patient and has been treated by C.T. guided aspiration and drainage followed by full course of antibiotics. And then followed up by Ultrasonography which showed the improvement of this patient. We think that bile leak occurs from the gall bladder bed.

In this study, 9 patients were suffered from post-operative fever, two patients had a single wound site that developed infection, 6 patients had chest infection that was treated by systemic antibiotic, expectorant and bronchodilators and one patient had collection in the liver bed which was diagnosed by fever, right hypochondial pain and tenderness and

ultrasongraphy.That was treated by I.V. fluids, nothing per mouth for 48 hours and systemic antibiotic and followed up by ultrasonography which show decrease the size of collection till disappeared.

Excessive use of cautery or laser in the region of the common duct may result in biliary stricture **(McAnena and Wilison, 1993).** In this study, biliary stricture was not found. Here we emphasize not to use cautery near to common bile duct except after clear visualization.

In postoperative follow up two patients were presented with jaundice and by invistigations this jaundice was due to missed stone in C.B.D. in one patient (2%) which treated by E.R.C.P and sphinctrotomy. This is in agreement with **(Baily et al, 1991).** And in the other patient, the jaundice was due to activation of dormant viral hepatitis.

The decreased length of hospitalization associated with laparoscopic cholecystectomy has been considered one of its main benefits **(Grace et al, 1991).** In the present work, 44 patients (88%) were discharged within 24 hours of surgery while the rest (4 patients) left the hospital within 5 days postoperatively. For these patients who were delayed in discharge, this is attributed to the medical control of their illness as D.M., hypertension and myocardial ischemia.

B - Complications of Laparoscopic Appendectomy

Standard open appendectomy is a safe, curative, standard procedure. However, the high negative appendectomy rate, of 20-40% **(Bongard et al, 1985);** coupled with a postoperative complication rate as high as 15% in such cases **(Jess, et al, 1981),** has prompted surgeons to examine the role of

laparoscopy for diagnosis and treatment of appendicitis, **(Whitworth et al, 1988).**

In this study, laparoscopy was performed in 20 patients presenting with signs and symptoms compatible with acute appendicitis. A presumptive diagnosis of possible or definite appendicitis was made at laparoscopy in 19 patients (95%). One patient had laparoscopic diagnosis other than appendicitis which was disturbed ovarian cyst and was treated by laparoscopy.

One obvious advantage of laparoscopy is the optimal view of all the abdominal cavity which a consequent increased diagnostic reliability, without missing other pathologies **(Zaninotto et al, 1995).**

Adequate visualization of the appendix was possible in 16 patients (80%). The appendix could not be visualized in 4 patients (20%) with absence of other pathological features. This rate of non visualization comparing favorably with 18.7% **(Leape and Ramenofsky, 1980),** 20% **(Whitworth et al, 1988)** and 16.7% **(Abd El-Hakim, 1994).** The causes of non visualization was due to omental adhesions obscuring the appendix in 3 cases and retrocaecal position of the appendix in only one case. Three patients underwent laparoscopic appendectomy and the fourth one was converted to open appendectomy. This agree with **(Whitworth et al., 1988),** who stated that, when the appendix could not be visualized and in absence of other pathological features, appendectomy should be performed.

Laparoscopic appendectomy was successful in 19 patients in whom it was attempted. Conversion to conventional appendectomy by extending the incision at McBurney's point occurred in one patient for an overall conversion rate of 5% that compares favourably with that of **(Frazee et al,1994)** (4.2%) and

(Mompean et al, 1994) (4%). The decision to abandon the procedure in that patient was made early owing to inability to locate the appendix behind the dilated bowel loops and adherent omentum.

As expected, laparoscopic patients experienced less pain as demonstrated by a lower consumption of analgesics. 12 patients (60%) of the laparoscopically managed patients did not require any analgesia after being discharged from the recovery room. Of the remaining seven patients, five patients (25%) required narcotic analgesic and two patients (10%) took only simple analgesia. This is confirmed by **(Nowzaraden et al, 1991; MaAnena et al, 1992 and Zaninotto et al, 1995).**

The expression of post operative pain after laparascopic appendectomy, and the need of potent postoperative analgesia is recognized in good precentage of patients, 20-25% **(Nowzarden et al, 1991; McAnema et al, 1992 and Zaninotto et al, 1995).** This can be much lessened by complete desufflation of the peritoneal cavity, with intraperitoneal instillation of local anaesthestic at the end of the procedure.

Wound infection remains a significant complication after appendectomy, averaging 10-20% **(Krukowski et al, 1988),** This complication is, by far, less in laparoscopy, even up to total absence of this morbidity **(Gotz et al, 1990, Valla et al, 1991 and Meinke and Kossuth, 1994).** This could be explained by the isolated extraction of the appendix through the lumen of the cannula without touching the wound edges. In the present study, wound infection occurred in two patients (10%) only.

C - Complications of Laparoscopic Varicocelectomy

The laparoscopic approach to varicocoele is essentially the same as high ligation, but it gives better visualization of the spermatic vein with its collaterals that may feed into it proximal to the internal ring, which are responsible for the failure of the procedure and recurrence. As well, being a microscopic procedure, accurate identification of the spermatic artery and the vas is allowed, there by, decreasing the risk of inadvertent injury to these structures, hence, preserving the testicular function **(Tan et al, 1995).**

The development of hydrocoele after varicocelectomy is not uncommon complication in case of open surgery, as well as, laparoscopy , and this may be attributed to the damage caused by ligation of the lymphatic vessels running with the testicular veins. The over all incidence of hydrocele formation following laparoscopic ligation of the internal spermatic vein is ranging from 0-2% **(Ralph et al, 1993, Donovan and Winfield 1994 and Mischinger et al, 1994).** Here, it is important to mention that the incidence of hydrocele formation after Palomo operation ranged from 5-17% **(Szabo and Kessler, 1984).**

In the present study, two patients developed hydrocele during the follow-up period. This is in agreement with **(Ralph et al, 1993; Mischinger et al, 1994 and Tan et al, 1995).**

Recurrence or persistance of varicocele postoperatively is an important consideration in the assessement of laparoscopic complications. **Brown et al (1984),** defined this as either evidence of persisting reflux in the pampiniform plexus immediately postoperatively or recurrent reflux within three months.

After the operation the generally accepted rates after open surgery is

ranged from 5-20% **(Thomas and Geisinger, 1990),** on the contrary, this percentage is by far less after laparoscope that become 0-5% **(Donovan and Winfield, 1994).**

In the present study , the varicocoele disappeared in 18 patients and in the remiaining two the swelling did not completely disappeared although there was no reflux on Valsalva's maneuver. This is in agreement with **(Donovan and Winfield 1994).**

One evidence of the relatively benign postoperative course is provided by the minimal use of postoperative analgesics. 11 patients (55%) required no postoperative analgesia after being discharged from the recovery room and 6 patients (30%) took only simple analgesia and only three patients required narcotic analgesic. This is in agreement with **(Donovan and Winfield, 1992 ;Lynch et al, 1993).**

D - Complications of laparoscopic herniorrhaphy

Two death have been reported from injuries to the iliac vessels during laparoscopic herniorrhaphy **(Corbitt, 1995).**

Inferior epigastric vessels should be visualized early in the operation, injury to this vessels could happened if they are not kept under direct vision specially when the surgeon is developing the anterior peritoneal flap **(Corbitt, 1995).**

In the present study no vascular injury because we avoid the so called triangle of doom **(Fig.13)** and the inferior epigastric vessels kept under direct vision and avoided during fixation of the patch.

The operative approach during laparoscopic hernia repair is usually anterior and lateral to the urinary bladder. However, the posibility of bladder injury exists if the dissection is carried too far medially and posteriorly. The umbilical ligament should be the medial boundary for dissection during laparoscopic herniorrhaphy **(Corbitt, 1995).** In the present study there is no visceral injury.

The most common parathesia observed following laparoscopic herniorrhaphy is that involving the lateral cutaneous femoral nerve. Injury to this nerve produces hyperethesia and / or parathesia along the lateral aspect of the thigh and hip **(Corbitt ,1995).**

In the present study no injury to lateral cutaneous femoral nerve because we avoid electrosurgical dissection and stapling of mesh just lateral to the cord and below the iliopubic tract. The placement of staples along the iliopubic tract confermed by external pressure on the abdominal wall **(Fig.14).** If the indentation of the abdominal wall with manual external pressure can be visualized through the laparoscope, the area of indentation is definitely anterior to the iliopubic tract.In this study, one patient developed post operative hydrocele but no patient developed scrotal emphysema or subcutaneous emphysema.

Excessively high recurrence rates have been responsible for modifications in most of the early approaches to laparoscopic hernia repairs. Ger`s recurrence rate was 15% after "Ring plasty".Corbitt`s recurrence rate was 25% after "plug and patch". However, recurrence after laparoscopic prepritoneal repair had been decreased to 0.6% **(Ger et al, 1990; Corbitt, 1995).** In this study one patient developed recurrent hernia within one year follow up period.