

Infectio[®] Surgery

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A Quarterly Magazine

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Current News

Bariatric surgery associated with reduced risk for dying over the long-term, especially for older patients

A study of more than 26,000 patients found that bariatric surgery is associated with a lower risk for dying over the long-term, especially for heavier patients and those who have weight loss surgery at older ages.

Researchers studied more than 13,000 adults with moderate to severe obesity who had weight loss surgery and a matched cohort of more than 13,000 patients who were eligible for surgery but did not have it from 2010 to 2016 to compare the risk for dying over the long term between the two groups. They also examined whether the age, gender, and BMI at the time of surgery had any impact on survival.

After a median follow-up of almost 5 years, the researchers found that the overall mortality rate was 1.4 percent in the surgery group and 2.5 percent in the non-surgery group, with a lower adjusted hazard ratio of all-cause mortality. The difference in mortality risk was substantial among older adults and those who were more obese when they had bariatric surgery. After measurable differences between patients who had surgery and those who didn't were accounted for, patients aged 55 years or older had a 48 percent lower risk for dying than matched patients who didn't have surgery. Meanwhile, men and women derived essentially equal benefits.

Source: <https://medicalxpress.com/news/2020-08-bariatric-surgery-dying-long-term-older.html>

Welcome Aboard

We feel honored to welcome new board member **Prof. Faisal Ghani Siddiqui** as **Chief Editor** to our valued *Infectio*® Surgery Team

Prof. Faisal Ghani Siddiqui is currently working as Professor of Surgery at DUHS/DIMC, Karachi. He holds FCPS, FICLS & MCPS and have post-fellowship in hands-on training in minimal invasive surgery from Singapore. He was previously working as In-charge Professor, Minimal Invasive Surgical center, Liaquat University of Medical and Health Sciences, Jamshoro (LUMHS).

We truly appreciate him in our *Infectio* Surgery Team. We believe in their skills, talent and knowledge that can be utilized for the improvement of our magazine. Through their understanding and experience, we will be able to fulfill our vision of delivering the structured information for aspiring surgeons and healthcare professionals of Pakistan

Port-Site Hernia: A serious complication of laparoscopy

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Abstract

Objective

To evaluate the frequency, risk factors and prevention, i.e, port closure technique of port site incisional hernia following laparoscopic surgery.

Patients and Methods

This is a prospective descriptive study, conducted at Ghulam Muhammad Mahar Medical College Hospital and Hira Medical Center Sukkur, during a period of last four and half years from Jan 2006 to June 2010. It included 1492 patients who underwent laparoscopic surgery for different indications. The umbilical port was closed by the classical method using vicryl "O" on a J shaped needle. The frequency of the port-site hernia was calculated and risk factors identified. All patients were followed-up by out patient clinic visits.

Results

During the study period, 1492 laparoscopic operations were performed, and out of these, 32(2.14%) developed port site hernia during a mean follow up period of two years. The risk factors observed were wound infection (65.6%), obesity (18.75%), chronic cough (9.37%) and ascites (6.25%). The classical port closure technique showed acceptable results. No major complications or mortality was seen.

Conclusion

The classical port closure technique was associated with an acceptable incidence of port site hernia. The new modified technique is required to prevent or reduce the incidence of port site hernia. (Rawal Med J 2011;36:14-17).

Keywords

Port-site hernia, port-closure, risk factors.

Introduction

The port site hernia is a type of incisional hernia that occurs at port or trocar sites after laparoscopic surgeries. It is a rare but potentially dangerous complication after laparoscopy. It usually occurs through the larger ports (size greater than 10mm), especially the umbilicus.¹ It causes considerable morbidity requiring surgical intervention.² It was first

reported after laparoscopy in gynecological surgery.³ Maio and Ruchman⁴ then reported on the trocar site hernia with small bowel obstruction occurring immediately after cholecystectomy; this being the first report on trocar site hernia in digestive surgery.⁴

Incidence of port site hernia has varied from 1% to 6%.^{5,6} Various factors have been implicated in the development of port site hernia: large trocar size, mid-line trocars, wound infection, wound extension or stretching for organ retrieval, pre-existing umbilical defects, increased intra-abdominal pressure, obesity, post operative chest infections with persistent cough, pre existing diseases like diabetes mellitus, connective tissue disorders; but the single most important factor is the improper closure of the fascial defects at the port-sites.⁵ The non-bladed, radially dilating and conical blunt trocars are also hazardous to cause hernias.⁷

Meticulous closure of the fascia, avoidance of unnecessary wound extension, the use of non-absorbable sutures for larger port wounds and repair of any pre-existing paraumbilical/umbilical hernia at the time of port site closure, are recommended to minimize the incidence of port site hernia.⁸ This study was carried out to evaluate the frequency, causative factors and prevention of port site hernia.

Patients and Methods

This is a prospective study of 1492 patients who underwent laparoscopic surgery for different indications during a period of last four and half years, from January 2006 to June 2010. We routinely use open Hassan's port technique for creation of pneumoperitoneum, which is then closed under vision. We used 5mm and 10mm ports and 3-edged reusable trocars for making ports, at the end of procedure closure of the fascial defect (port site) was performed using vicryl "O" on J shaped needle, for umbilical ports (about 10mm or 12mm), while the epigastric port (10mm) and lateral (5mm) port defects were not closed. The skin of 10mm ports was closed with vicryl rapid 3/0 subcutically, while for 5mm ports, skin closure was done by applying Steris trips. Patients who had their



ports closed using techniques other than the classical were excluded from the study. The data were collected for patients who developed port site incisional hernia.

Results

Different laparoscopic procedures were performed in 1492 patients. These included 1224 laparoscopic cholecystectomies, 83 appendicectomies, 28 hydatid cyst of liver, 13 ruptured liver abscesses, 02 splenic abscesses, 26 pelvic abscesses, 27 blunt abdominal trauma, 16 ruptured ectopic pregnancies, 08 ruptured ovarian cysts, 04 perforated peptic ulcers, 04 intestinal obstruction due to adhesions and 57 diagnostic laparoscopies. The mean age of patients was 45 years. Out of 1492 patients, who underwent laparoscopic surgery, only 32 (2.14%) patients developed Port-Site incisional hernias. 25 were females and 07 were males. In 31 patients Port-Site hernia occurred through umbilical port and only one through epigastric port-site. Majority of these hernias developed after laparoscopic cholecystectomy (Table 1), possibly because of the fact that we retrieve gallbladder through umbilical port and always use Hassan's open technique for first port entry (i.e., supraumbilical or infra-umbilical).

Table 1. The frequency of Port-Site hernia for different procedures.

Type of procedure	Number (n=32)	Percentage
Laparoscopic cholecystectomy	30	93.75%
Laparoscopic appendicectomy	01	3.12%
Lap: drainage of pelvic collection	01	3.12%

Wound infection was found to be the main causative factor in 21 patients, while chronic cough with smoking in 03 patients, obesity in 06 patients and increased intra-abdominal pressure due to CLD and ascites in 02 patients (Table 2).

Table 2. The causative factors for Port-Site hernia

Causative factor	Number (n=32)	Percentage
Wound infection	21	65.6%
Obesity	06	18.75%
Chronic cough	03	9.37%
Ascites	02	6.25%

The patients presented with reducible hernia and at operation the sac was containing the viable omentum. No patient presented with obstructed or strangulated hernia. All the umbilical port-site hernias were operated as elective cases and sub lay mesh repair was done, while the epigastric port hernia repaired with prolene no.1.

The patients after their primary laparoscopic surgery attended the first visit of follow-up in the clinic, which was 4 weeks to 6 weeks after the operation. Patients who had simple operations such as laparoscopic cholecystectomy or laparoscopic appendicectomy were discharged to their general practitioner's care after the first two visits and advised to call our unit in case of problems including port-site complications. Other patients with major procedures were followed up regularly by our team. The mean follow up was 24 months.

Discussion

Port-Site hernia can occur at any Port-Site, but most frequently at the mid-line through umbilical port, as seen in our study. The incidence is variable from centre to centre, depending on factors including surgical technique and, of course, surgical experience. The incidence and spectrum of laparoscopic complications is greater than previously perceived⁹ and continuing improvement of access techniques, instruments and laparoscopic training are important to reduce these avoidable complications, especially the hernia.¹⁰ In our study, incidence of port-site hernia was 2.14 %, while it has ranged from 0.02 to 3.6%,¹¹ 0.5%¹² and as low as 0.08%.¹³

The post-operative wound infection (65.6%) of the umbilical port-site was the major causative factor in our study. Other factors were obesity (18.75%), chronic cough (9.37%) and increased intra-abdominal pressure due to ascites (6.25%). The risk factors for the development of port-site hernia are the trocar diameter, the trocar design, pre-existing facial defects as well as some operation and patient related factors,¹⁴ in addition to the direction of the port insertion, use of a drain and the site of a port. The risk of port-site hernia is greater in obese and bariatric patients because of the larger preperitoneal space and raised intra-abdominal pressure; thus, facial closure alone is not adequate,¹⁵ while the size of the port is another major risk factor. In our study, the port-site hernias occurred through umbilical port except one smoker male patient who developed hernia through



epigastric port. A study involving 840 trocar site hernias revealed that 86.3% of hernias occurred in sites where the trocar diameter was 10mm or more.¹⁶ In a survey of the American Association of Gynecologic Laparoscopists, umbilical hernias were found in 75.70% as compared to lateral hernia in 23.70% cases of port site hernia.¹⁷

Port-site hernia is a preventable complication of laparoscopy. Prevention of trocar site hernias includes closing of all port-sites more than 10mm at the facial level. Tonouchi et al¹⁸ reviewed 63 studies of trocar site hernias and concluded that a facial defect >10mm should be closed including the peritoneum.¹⁸ We routinely closed 10mm umbilical port at the facial level with vicryl "O" on J shaped needle. In spite of this, 32 (2.14%) of our patients developed port site umbilical incisional hernia. These 32(2.14%) port site hernias, which came to our attention during a mean follow-up of 24 months, represent an acceptable incidence compared with reports in the literature.¹⁹ Therefore, we recommend closing the facial defect, including the peritoneum especially if the trocar site is more than 10mm and in the presence of any of the risk factors described above. However, it is sometimes difficult to close the defect completely, especially in obese patients.

Old methods using classical instruments including suture carrier and Deschamps needle are also useful as well as special wound devices designed for port-site closure.²⁰ Insertion of a Surgicel plug into the muscular layer of trocar wounds has also been proposed by Chiu et al.²¹ Moreover, recent publications have recommended that radially expanding type trocars could be useful to avoid the necessity of closing the facial defects.²² Some authors have also reported a lower incidence of hernias with the use of a Para median incision and non-bladed trocars which have a conical tip.²³ The easy closure and cost-effectiveness associated with the classical method are promising compared with other techniques, such as Deschamps needle and non-bladed trocars.²⁴ Moreover, special attention should be paid in patients with risk factors for port-site hernia such as obesity, aggressive manipulation through the port-sites and prolonged surgery.

Conclusion

Port-site hernia is a potentially serious complication after laparoscopic surgery. Careful port-operative management is recommended especially for patients with risk factors such as obesity and extensive manipulation of the trocar during prolonged surgery. The meticulous closure of the port wounds is important to prevent the port-site incisional hernia. Although the classical closure method with a curved or J-shaped needle has been associated with an acceptable incidence of port-site hernia, development of a new technique of closure is suggested to further prevent or reduce this.

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Take 3 steps to make your surgical patient safe by preventing wound infections!



1



Pre-operative

Patient bathing

Make sure the patient takes a shower or bath and washes with soap on the day of the operation, or the evening before. This helps remove bacteria from the skin and reduces the risk of wound infection.

Avoid hair removal

Avoid hair removal or use clippers and change or disinfect blades after each patient. Razors damage the skin, which can lead to infection.



2



Peri-operative

Good surgical hand preparation

Follow all the steps of a good hand preparation technique before operating. Scrub with soap and water for 3-5 min or rub with an alcohol-based solution for 2-3 min.

Appropriate antibiotic prophylaxis needs to be:

- Right antibiotic for the operation
- Right dose
- Right time = a single dose within 60 min
- Appropriate discontinuation = stop after surgery.



3



Intra-operative

Appropriate skin preparation

Clean incision site with soap and water and then use antiseptic preparation (chlorhexidine/alcohol or iodophor/alcohol). Allow to dry before incision.

Discipline in the OR*

1. Make sure that all the equipment needed is in the OR before starting.
2. Only essential staff should be in the OR.
3. Keep doors and windows closed during the operation.

*Operating Room



World Health Organization



Laparoscopic Cholecystectomy in Situs Inversus Totalis

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Abstract

Situs inversus is a rare condition. It is characterised by reverse handed positioning of the internal viscera. Laparoscopic cholecystectomy is the standard procedure for cholelithiasis, but it may lead to technical difficulties in case of situs inversus, especially to right-handed surgeons. A 40-year female presented to the department with epigastric pain and bloating usually after fatty meals. Diagnosis of symptomatic gall bladder stone was made. She was a known case of situs inversus. Laparoscopic cholecystectomy was performed by right-handed surgeon with uneventful recovery.

Key Words: Laparoscopic cholecystectomy, Situs inversus, Right-handed surgeon.

Introduction

Situs inversus is a rare condition. It involves transposition of major organs.¹ The major organs usually lie in a position on the opposite side to the normal anatomical position. In humans, it was first reported by Fabricius in 1600.² Its incidence is reported to be 1 in 10,000 to 20,000 live births. It can be divided into two types. If either thoracic or abdominal organs are involved, it is called situs inversus partialis; but involvement of both is known as situs inversus totalis.

Situs inversus presents a technical challenge during laparoscopic cholecystectomy, especially for right handed surgeons. This is because there is a need for reorientation of the intended surgical site to the left upper quadrant. The presence of other anomalies of the hepatobiliary tree which may lead to operative difficulty and increased risk of injury are associated with the leftsided gall bladder. However, with proper identification of the anatomy, minimally invasive approaches are still considered safe.³

Case Report

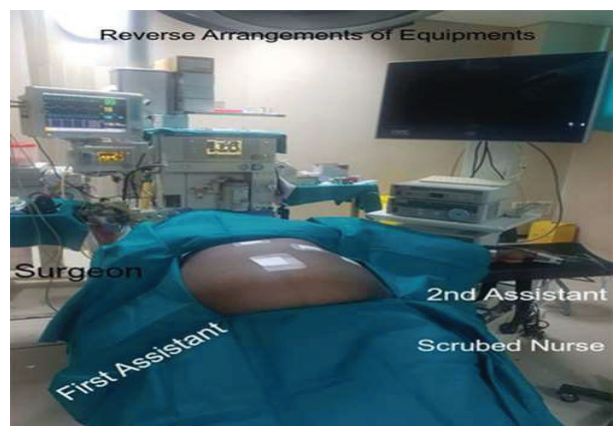
A 40-year female patient was admitted via outpatient department (OPD) to Department of Surgery, Lahore General Hospital, with history of episodic epigastric pain and bloating after meals for the past one month. She was a diagnosed

case of dextro-cardia. On physical examination, abdomen was found to be soft with mild tenderness on palpation in left subcostal area (positive left-sided Murphy's sign). She did not have any history of jaundice, fever, chills and diarrhea. She had no significant medical history apart from controlled hypertension.

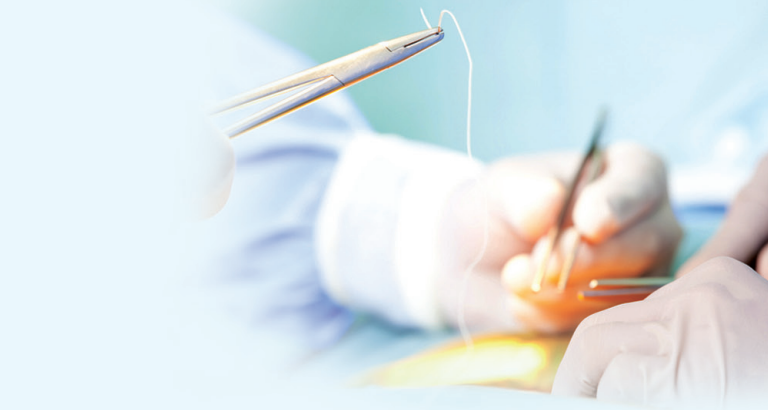
An electrocardiography, echocardiography and X-ray chest were performed. These showed normal ventricular function and pericardium with anomalous transposition of the organs as situs inversus totalis. Ultrasonography found gallbladder on left side of the abdomen being full of small stones. The cystic duct was long and dilated but common bile duct (CBD) was normal. Routine preoperative workup was done which revealed no abnormalities.

In order to carry out the laparoscopic cholecystectomy, theater setup was changed to a mirror-image of normal settings. Surgeon and first assistant were positioned to the right of the patient; whereas, second assistant and scrub nurse on the left side (Figure 1). Induction of anesthesia was done in routine manner. Patient was placed in supine position. There was slight elevation of the left side.

Figure 1: The operation room setup.

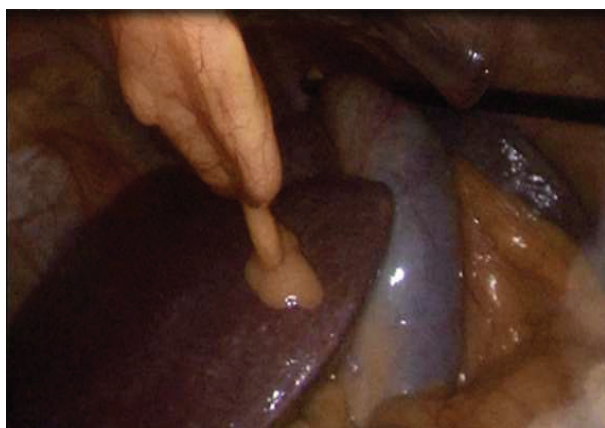


Pneumo-peritoneum was created keeping abdominal pressure at 14 mm Hg using CO₂ gas. Four ports were inserted, primary port (10 mm) in



the infra-umbilical position, 2nd (10 mm) port was inserted at sub-xiphoid position, 3rd (5 mm) was inserted in mid-clavicular line below costal margins, and 4th (5 mm) was inserted in subcostal close to anterior axillary line under direct vision. The 3rd and 4th ports were inserted on the left side (Figure 2). After safe entry, a general survey was made to confirm anomalous mirror imaged transpositions. With gentle dissection, the Calot's triangle was dissected.

Figure 2: Intraoperative left-sided gall bladder.



The umbilical port was used for laparoscope. We made use of the 4th port at the level of anterior axillary line to provide retraction at the fundus. The epigastric port was used primarily to carry out the dissection of Calot's triangle, while the mid clavicular port was used both to provide retraction and help with dissection. Cystic artery and duct were skeletonized. Strasburg view of safety was confirmed before clipping the structures. Gallbladder was dissected out. Hemostasis was secured and gallbladder retrieved from the umbilical port. Drain was placed in the sub-hepatic space. Patient made an uneventful recovery, the drain was removed and she was discharged after 24 hours.

Discussion

Situs inversus totalis is a rare disorder. It has autosomal, and X-linked inheritance. There is transposition of the thoracic and abdominal viscera through the sagittal plane. It results in a mirror

image transposition of normal anatomical structures.

Diagnosis of gall stones in such patients is difficult, especially where previous history is unknown. Pain usually occurs in the left upper quadrant due to the presence of the gallbladder on the left side. However, in 30% patients it has been reported in the epigastrium; whereas, 10% patients may present with pain in right upper abdomen.⁴ Laparoscopic cholecystectomy is technically difficult procedure in patients with situs inversus, especially for the right handed surgeons. Campos and Sipes reported the first laparoscopic cholecystectomy in patients with situs inversus in 1991.⁵

The biggest hurdle faced while performing laparoscopic cholecystectomy in patients with situs inversus is the reversing of the normal anatomy. There is difficulty in orientation and dissection during the procedure. To overcome this issue, several modifications have been proposed.⁶ Right-handed surgeons, Lochman and Arya, made use of an assistant during the surgery to enable grasping and retraction of the infundibulum.^{4,7} Righthand of surgeon was utilised through the epigastric port to perform the dissection.

In this case, the surgeon was right-handed. Operation Room setup, surgeon's position and port placement were mirrored as compared to routine laparoscopic cholecystectomy. The surgeon stood on the right side while primarily making use of the epigastric port for dissection with his left hand and providing retraction at infundibulum via mid-clavicular port by use of right hand. The retraction at fundus was provided by the assistant surgeon through the anterior axillary port.

Only a few other cases have been reported in the literature to date.⁸ To the best of the authors' knowledge, this is one of the few cases of laparoscopic cholecystectomy in situs inversus reported from Pakistan.⁹⁻¹²

This case highlights the need for careful planning of laparoscopic cholecystectomy in a known case of situs inversus totalis to avoid unforeseen complications resulting from anomalous position of abdominal viscera.



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HANDLE ANTIBIOTICS WITH CARE IN SURGERY

Misuse of antibiotics puts all surgical patients at risk

Up to **33%** of surgical patients get a postoperative infection, of which **51%** can be antibiotic resistant

Up to **15%** of women around the world get an infection after a caesarean section

43% of patients have surgical antibiotic prophylaxis (SAP) inappropriately continued after the operation

REDUCE

the risk of surgical site infection (SSI) by improving SAP and infection prevention and control practices

IMPROVE

quality of care and patient safety and reduce antimicrobial resistance (AMR) through SSI reduction

WHAT SHOULD HEALTH WORKERS DO TO PREVENT AMR IN SURGERY?

Give intravenous SAP
- when recommended, depending on the type of operation
- within 120 minutes preceding surgical incision

For effective SAP, adequate antibiotic tissue concentrations should be present at the time of surgical incision and throughout the procedure. Thus, antibiotics with a short half-life should be administered closer to incision time.

WHO SHOULD BE INVOLVED IN ENSURING APPROPRIATE ANTIBIOTIC USE IN SURGERY

SURGEONS

ANAESTHETISTS

OPERATING ROOM NURSES

INFECTIOUS DISEASES DOCTORS

INFECTION PREVENTION & CONTROL TEAM

SURGICAL WARD STAFF

PHARMACISTS

SENIOR MANAGERS AND PROCUREMENT STAFF

PATIENTS AND THEIR FAMILIES (CIVIL SOCIETY)

WHAT SHOULD YOU NOT DO?

Avoid prolonging SAP postoperatively

Avoid antibiotic wound irrigation

Avoid continuing antibiotic prophylaxis because there is a drain (evaluate each case)

Avoid giving antibiotic treatment unless there is a proven or suspected SSI or other infection

These recommendations are based on evidence from studies in adult patients, but they are considered valid also for paediatric patients

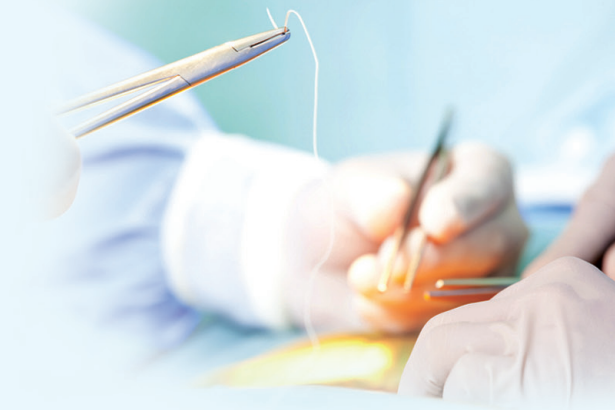
www.who.int/infection-prevention/publications/ssi-guidelines/en

Subungual melanoma. The extension of pigmentation beyond the nails plate to the surrounding structures, including the eponychium, is known as Hutchinson's nail sign, and is seen in subungual melanoma. This distinguishes it from subungual haematoma, which remains confined to the nail bed. The patient underwent an incisional biopsy to confirm the diagnosis, followed by digital amputation.

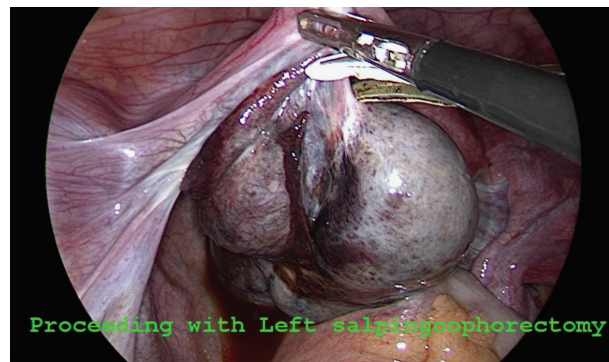
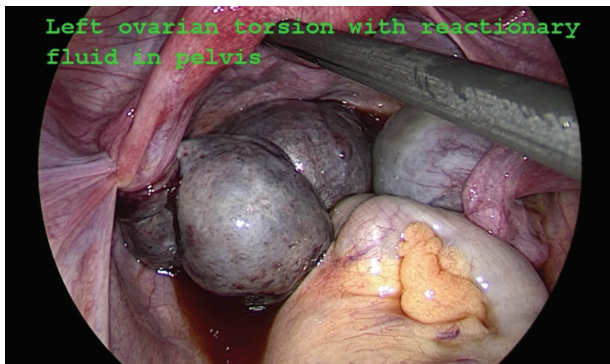
Source: *British Journal of Surgery*, Nov-2017

Case Study: Ovarian Torsion

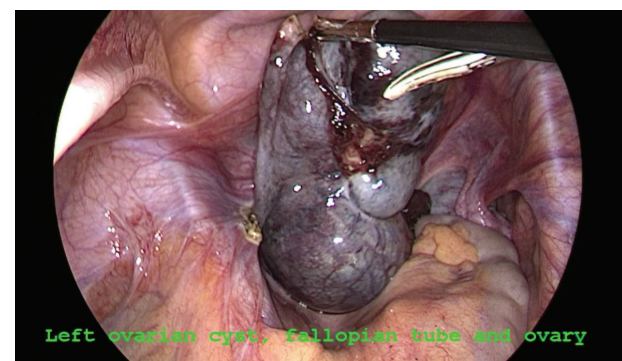
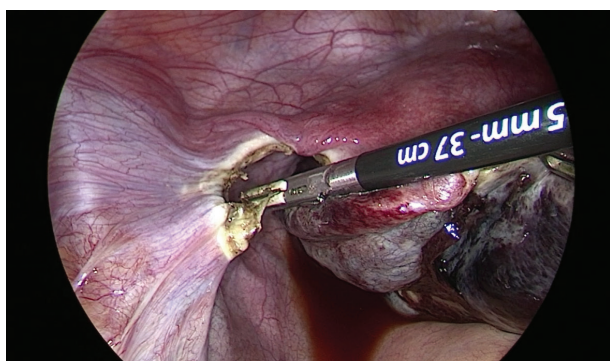
Dr. Faisal Murad & Dr. Faisal Nadeem
Department of General Surgery,
Maroof International Hospital - Islamabad



15 year female presented torsion with gangrenous ovary. After evaluation patient was planned for salpingo-oophorectomy. Following are per operative images

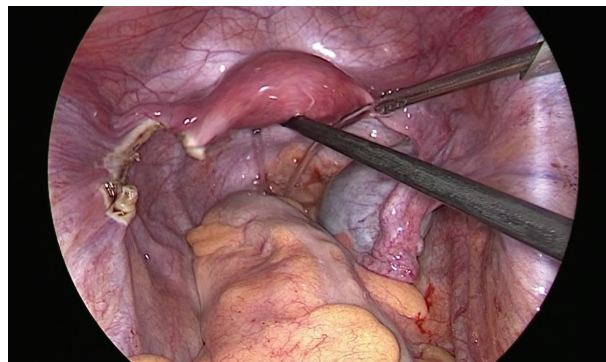
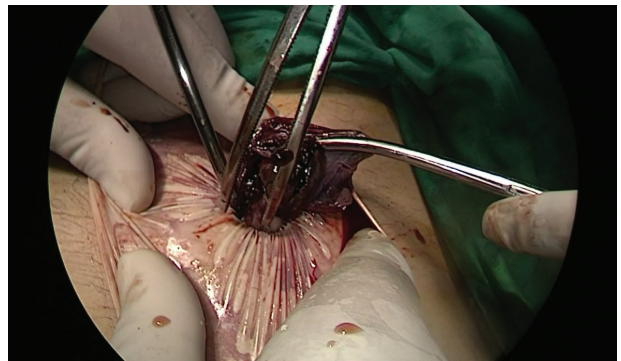
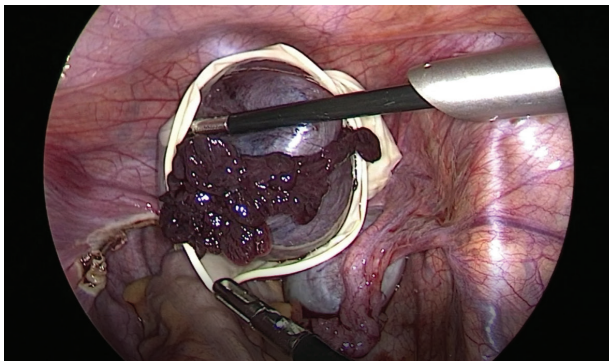


Completing Left salpingo-oophorectomy





Delivering the specimen in bag



Summary

15 year old unmarried female presented to OPD with complaints of lower abdominal pain, nausea, vomiting, dizziness and lethargy for last 3 days. Pain was more in left lower abdomen. There were no associated bowel or urinary symptoms. She was initially given injectable analgesic at a local setup 3 days back where the pain initially got relieved for a while.

She has been previously visiting multiple doctors with similar complaints for last 2 years on and off. She was diagnosed with right adnexal cyst that was being followed on imaging by a gynecologist.

On examination her vitals were Pulse 83/min, BP 100/70 mmHg, SpO2 96, Afebrile and Respiratory rate of 17/min. General Physical examination only revealed dehydration. Abdomen: Soft, non-tender with audible bowel sounds. Rest of systemic examination was unremarkable. Blood CP showed raised WBCs of 14360/uL with 77% neutrophils. RFTs, S/E, CA 125 and Urine R/E were normal. Hepatitis B and C serology was negative

Ultrasound showed hyperechoic echotexture and scattered follicles with no parenchymal vascularity concerning for left ovarian torsion.

Case was discussed with gynecologist and then patient along with her family was counseled about the disease and possibility of left oophorectomy and salpingectomy. Documented informed consent was taken for left oophorectomy and salpingectomy. She was planned for urgent diagnostic laparoscopy and proceed.

Per operative findings: Left ovarian torsion with gangrenous ovary. Right bulky ovary with a long pedicle. Left salpingo-oophorectomy was done. Patient was mobilized after 3 to 4 hours and liquids were started at 6 hours. Patient was discharged within 24 hours. Patient had uneventful recovery and stitches were removed on 10th post-operative day.

Quiz & Winner of Lucky Draw

Reported by:

Dr. Shuja Ajaz



Question:

A 42 years old farmer presented with a blackish discoloration on his great toe following trivial trauma. What is the diagnosis ?



Winners of Lucky Draw

The editorial board of *Infectio® Surgery* is pleased to announce the names of winners for quiz from the 6th edition.

The lucky draw was held in a meeting at Dow University of Health Sciences Ojha Campus - Karachi, August 2020. Following are the names of Lucky Draw winners drawn at randomly by Prof. Faisal Ghani and his team.

We congratulate the winners and once again thanks all contestants for their participation in quiz.

1. Dr. Mehmood Yousuf, National Medical Centre - Karachi
2. Dr. Ghulam Murtaza, Patel Hospital - Karachi
3. Dr. Rizwan Ahmed Khan, Abbasi Shaheed Hospital - Karachi
4. Dr. Farooq Rana, Jinnah Hospital - Lahore
5. Dr. Tariq Saeed, Fauji Foundation - Lahore
6. Dr. M.A. Zahid, Ali Medical Centre - Islamabad
7. Dr. Faisal Nadeem, Maroof Hospital - Islamabad
8. Dr. Ehsan ur Rehman, Nishtar Hospital - Multan
9. Dr. Sajid Mehmood, Allama Iqbal Hospital - Gujranwala
10. Dr. Muhammad Latif, Allama Iqbal Memorial Teaching Hospital - Sialkot
11. Dr. Shuja Awais, Independent University Hospital - Faisalabad
12. Dr. Waqar Alam Jan, Lady Reading Hospital - Peshawar
13. Dr. Jamshaid Khattak, Hayatabad Medical Complex - Peshawar
14. Dr. Iqbal Khatri, Civil Hospital - Mirpurkhas
15. Dr. Aisha Solangi, PUMHS - Nawabshah