A DISSERTATION ON

"CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES"

Dissertation submitted to

THE TAMILNADU Dr.M.G.R MEDICAL UNIVERSITY

CHENNAI

With partial fulfillment of the regulations

for the award of the degree

M.S. (General Surgery)

BRANCH I

INSTITUTE OF GENERAL SURGERY,

MADRAS MEDICAL COLLEGE,

CHENNAI

APRIL – 2017

CERTIFICATE

This is certify that the dissertation entitled **"CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES"** is a bonafide original work of **Dr. S. KARTHIKMUTHURAM.,** in partial fulfillment of the requirement for M.S. Branch - I (General surgery) Examination of the Tamil Nadu Dr.M.G.R. Medical University to be held in APRIL, 2017 under my guidance and supervision in 2016.

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DECLARATION

I hereby solemnly declare that the dissertation **"CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES"** is done by me at Madras medical college & Rajiv Gandhi Govt. General Hospital, Chennai during 2016 under guidance and supervision of **Prof. Dr. P. RAGUMANI, M.S.** the dissertation is submitted to The Tamil Nadu Dr.M.G.R Medical University, Chennai towards the partial fulfillment of requirements for the award of M.S. Degree (Branch – I) in General surgery.

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Date :

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ACKNOWLEDGEMENT

As I walk down the memory lane, I realize with a deep sense of humility that what I have done now would not have been possible, but for certain luminaries, who have enlightened my path to wisdom.

“Surgery is learnt by apprenticeship and not from textbooks, not even from one profusely illustrated ” - Ian Aird.

While I put these words together it is my special privilege and great pleasure to record my deep sense of gratitude to my revered Professor and guide Prof.Dr.P.Ragumani. M.S., but for whose constant guidance, help and encouragement this research work would not have been made possible. The unflinching academic, moral and psychological support will remain ever fresh in my memory for years to come . Words cannot simply express my gratitude to them for imparting me the surgical skills I have acquired.

It is my pleasure to record my profound gratitude and indebtedness to Prof.Dr.P.Ragumani. M.S., for their support, keen interest and the constant encouragement they have given during the course of this thesis work.

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All along the way, I have been supported and encouraged by all my Associate Professors and Assistant Professors who helped me to reach where I am.

I also thank my fellow postgraduates, friends and colleagues who have extended their co - operation in my work.

I thank the Dean, MMC & RGGGH for permitting me to conduct this study.

I would be failing in my duty if I do not show my deep sense of gratitude to all the patients who have helped me to become a surgeon and especially those who consented to be part of this study.

With deep reverence, I thank my Wife **Dr.Jeeva Priya M.R.,** parents and the almighty for blessing me with a wonderful family to whom I have dedicated this thesis and leave unsaid what they mean to me.

INSTITUTIONAL ETHICS COMMITTEE
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CERTIFICATE OF APPROVAL

To
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Dear Dr.S.Karthikmuthuram,

The Institutional Ethics Committee has considered your request and approved your study titled **"CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES"- NO. (II) 22032016.**

The following members of Ethics Committee were present in the meeting hold on **22.03.2016** conducted at Madras Medical College, Chennai 3

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2.Dr.R.Vimala,MD.,Dean,MMC,Ch-3	:Deputy Chairperson
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9.Thiru S.Govindasamy, BA.,BL,High Court,Chennai	: Lawyer
10.Tmt.Arnold Saulina, MA.,MSW.,	:Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

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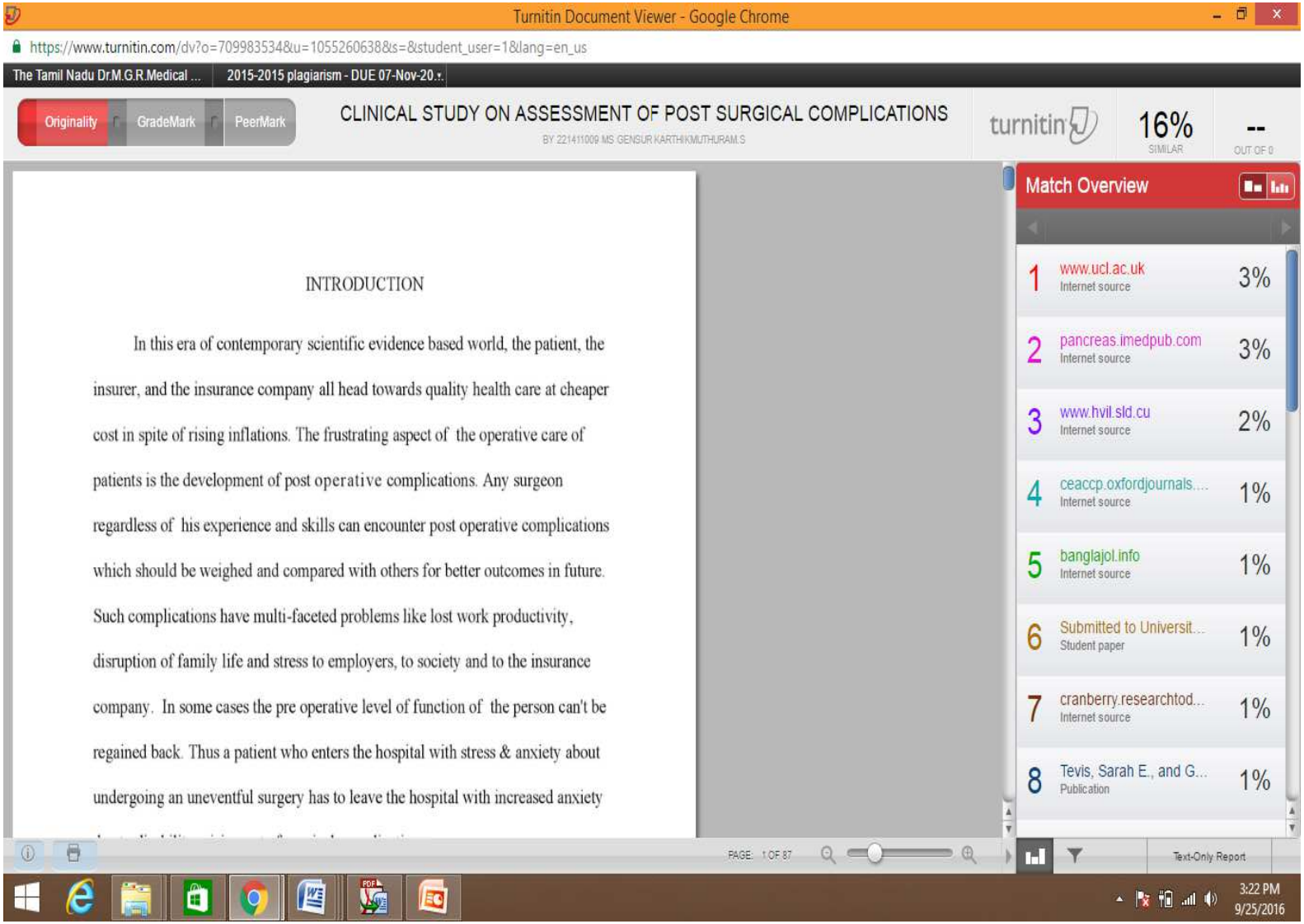
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INTRODUCTION
In this era of contemporary scientific evidence based world, the patient, the insurer, and the insurance company all head towards quality health care at cheaper cost in spite of rising inflations. The frustrating aspect of the operative care of patients is the development of post operative complications. Any surgeon regardless of his experience and skills can encounter post operative complications which should be weighed and compared with others for better outcomes in future. Such complications have multi-faceted problems like lost work productivity, disruption of family life and stress to employers, to society and to the insurance company. In some cases the pre operative level of function of the person can't be regained back. Thus a patient who enters the hospital with stress & anxiety about undergoing an uneventful surgery has to leave the hospital with increased anxiety
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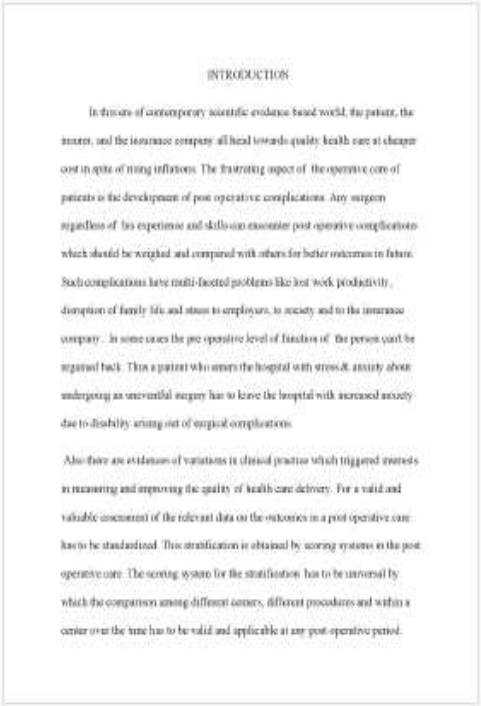

INTRODUCTION

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Also there are evidences of variations in clinical practise which triggered interests in measuring and improving the quality of health care delivery. For a valid and valuable assessment of the relevant data on the outcomes in a post operative care has to be standardised. This stratification is obtained by scoring systems in the post operative care. The scoring system for the stratification has to be universal by which the comparison among different centers, different procedures and within a center over the time has to be valid and applicable at any post operative period.

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LIST OF ABBREVIATIONS

AF	Atrial Fibrillation
GI	Gastro Intestinal
TIA	Transient Ischemic Attack
LA/GA	Local/General Anesthesia
UTI	Urinary Tract Infections
ICU	Intensive Care Unit
PONV	Post Operative Nausea Vomiting
POVOC	Post Operative Vomiting in Children
CT	Computated Tomography
MRI	Magnetic Resonance Imaging
ERCP	Endoscopic Retrograde Cholangio Pancreatico graphy
MRCP	Magnetic Resonance Cholangio Pancreaticography
USG	Ultra Sono Gram
SSI	Surgical Site Infections
CRBSI	Catheter Related Blood Stream Infections
DVT	Deep Vein Thrombosis
NSAID'S	Non Steroidal Anti Inflammatory Drugs
SI	Small Intestine
HIDA Scan	Hepatobiliary Imino Diacetic acid Scan
RHD	Right Hepatic Duct
PTC	Percutaneous Trans Hepatic Cholangiography
I V	Intra Venous
ALP	Alkaline Phosphatase

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comparison among different centers, different procedures and within a center over the time has to be valid and applicable at any post operative period. This helps the patients, health care providers and the insurers to trust the quality of health care. To improve the quality of care and to minimize the complications, a system of standard classification is needed to properly assess the complications. Clavien Dindo classification is one such classification of post operative complications. This study employs this classification on the post operative patient and was analyzed between open and laparoscopic abdominal surgeries.

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

The primary aim of this study was to assess the Clavien-Dindo classification among the patients who underwent major elective abdominal surgeries including open and laparoscopic abdominal procedures. the other aim of this study is to categorize complications in each and individual procedures of open and laparoscopic elective abdominal surgeries there by most common grades of complications in open and laparoscopic elective abdominal surgeries in this hospital is obtained. Indirectly this study helps to assess and compare the grade of complications for the abdominal surgeries which can be done both by open and laparoscopic technique.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Assessment of post operative complications was followed by Celsius a decade centuries ago, who gave the name as Hammurabi's code which was popularized and followed for post operative complications in an indirect way. He stated the post operative complications as a professional mishap. The code stated that if a surgeon took a bronze lancet to a patient of high status leading to death, the surgeon would be punished by amputation of the hands.

In 1992, Pierre-Alain Clavien, MD et all gave a new system of classification which revolutionized the post operative system of assessment. It defined and classified negative outcomes of surgical procedures by differentiating complications, sequelae and failures. Also the complications which were unexpected events not intrinsic to the procedure, sequelae which were events intrinsic to the procedures were also included in the classification. The modified version of the above system (Clavien- Dindo) published in 2004 was based on therapeutic consequences to grade complications. It had seven grades (grade 1 to 5) with two subgroups for grade 3 & 4.

The grading system was again reassessed in 2009 using complex clinical situations from the University of Zurich's morbidity mortality conferences. 90% of the Surgeons from seven centers around the world

evaluated them and graded the complications and agreed with classification. Another group tried to develop a classification system which used the ability of Post operative Morbidity Index(PMI) to quantify post operative complication severity. each and every complication was graded with the Accordion system and the complications were weighed to yield the total severity burden of each complication.

MATERIALS AND METHODS

MATERIALS AND METHODS

After getting approval from the institutional ethical committee, a cohort of patients with abdominal pathology as per the inclusion and exclusion criteria was selected for the study. The study was undertaken in the Institute of General Surgery, Madras Medical College. The patients of age more than age 12 and who had abdominal pathology subjected for elective surgery were selected. patient who underwent previous surgeries, pregnant females, emergency surgeries, patients who developed complications after discharge from the hospital were excluded. the selected patients for study was evaluated by detailed clinical history, co-morbid conditions were given importance and thorough clinical examination was done. Routine investigations was done and specific investigations like x-ray, USG and CT scan was done depending upon the provisional diagnosis and requirement. Parameters like operative procedure, length of post-operative period, post-operative complications and management was recorded and postsurgical complications was classified based on Clavien-Dindo classification and assessment was be done.

CLASSIFICATION :

Clavien-Dindo Classification

Grade I	Any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic, and radiological interventions. Allowed therapeutic regimens are as follows: drugs as antiemetics, antipyretics, analgetics, diuretics, electrolytes, and physiotherapy. This grade also includes wound infections opened at the bedside.
Grade II	Requiring pharmacological treatment with drugs other than such allowed for grade I complications. Blood transfusions and total parenteral nutrition are also included.
Grade III	Requiring surgical, endoscopic, or radiological intervention
Grade IIIa	Intervention not under general anesthesia
Grade IIIb	Intervention under general anesthesia
Grade IV	Life-threatening complication requiring IC/ICU management
Grade IVa	Single organ dysfunction (including dialysis)
Grade IVb	Multiorgan dysfunction
Grade V	Death of a patient

Clinical Examples of Complication Grades

Grade	Organ System	Examples
I	Cardiac Respiratory Neurological GI Renal Other	▪ AF converting after correction of K level ▪ atelectasis requiring physiotherapy ▪ transient confusion not requiring therapy ▪ non-infectious diarrhoea ▪ transient elevation of serum creatinine ▪ wound infection treated at bedside
II	Cardiac Respiratory Neurological GI Renal Other	▪ tachyarrhythmia –beta antagonists ▪ pneumonia treated with antibiotics ▪ TIA – anticoagulants ▪ infectious diarrhoea requiring antibiotics ▪ UTI requiring antibiotics ▪ treatment of wound infection with antibiotics
III a	Cardiac Other	▪ bradyarrhythmia: pacemaker ▪ closure of wound dehiscence under LA
III b	Cardiac Respiratory GI Other	▪ cardiac tamponade ▪ broncho-pleural fistula ▪ anastomotic leakage ▪ wound infection – GA
IV a	Cardiac Respiratory Neurological Renal	▪ heart failure – low output syndrome ▪ lung failure – intubation / ICU ▪ ischaemic stroke / brain haemorrhage ▪ insufficiency – dialysis
IV b	Cardiac Respiratory Neurological Renal	▪ heart and renal failure ▪ lung and renal failure ▪ ischaemic stroke and respiratory failure ▪ dialysis with haemodynamic instability

POSTOPERATIVE COMPLICATIONS

Postoperative complication may be transient or permanent. it can range from mild to severe complication influenced by the type of surgery, patient's preexisting co morbid conditions and peri-operative management.

Postoperative complications can be either

1. General
2. specific to specific operations

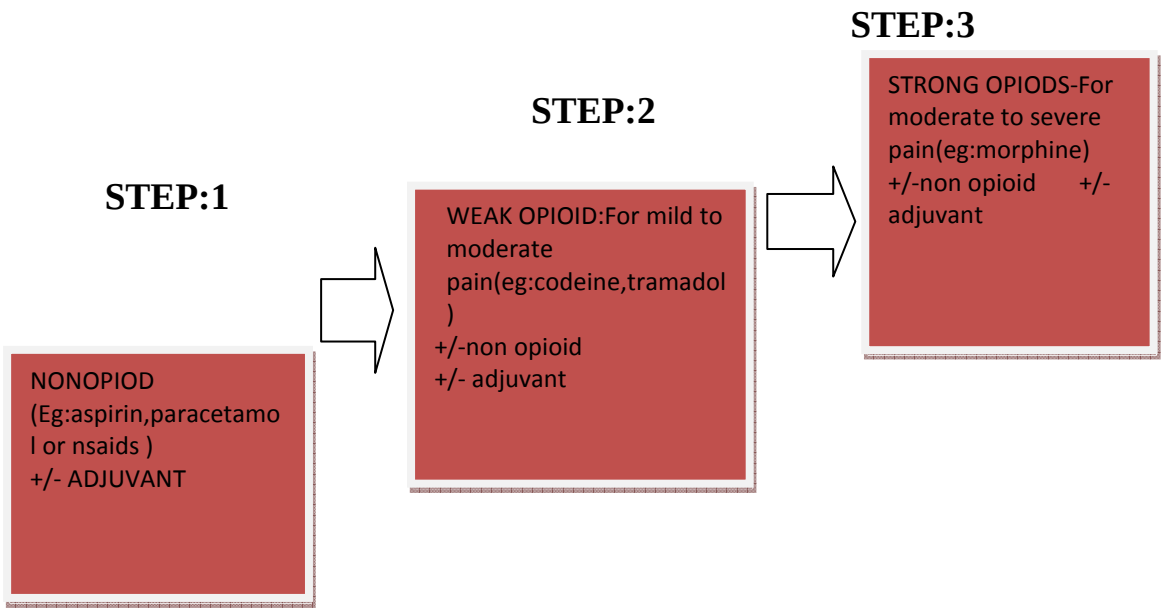
GENERAL POST OPERATIVE COMPLICATIONS

THEY ARE:
1. Pain
2. Nausea and vomiting
3. Postoperative pyrexia
4. Infections
5. Deep vein thrombosis and Pulmonary embolism
6. Cardio vascular disease
7. Reduced bowel function
8. Delirium
9. Pressure sores
10. Hemorrhage
11. Anesthetic complications
12. Damage to adjacent structures

PAIN

WHO pain ladder is used to assess post operative pain and aids in planning the management. The nature of surgery, contraindication to certain analgesics and suitability for regional anesthetic block should be taken into account while planning an analgesic regimen. Pain maybe due to pre existing chronic pain problems or as a new surgical complications. In addition this, acute post operative pain later on develop into chronic pain syndrome.

WHO PAIN LADDER



POST OPERATIVE NAUSEA AND VOMITING (PONV)

Post Operative Nausea and Vomiting (PONV) commonly encountered problem during post operative period. Those patients with previous history of post operative nausea and vomiting are higher the rate of recurrence of PONV. Other risk factors include patients with history of motion sickness, Female gender, Analgesics like opioids (e.g. Tramadol) used during post operative pain relief, and type of surgeries like Gynecological, Middle ear surgeries, Eye surgeries, All Emergency procedures having higher the incidence of post operative nausea and vomiting.

RISK SCORE FOR PREDICTING NAUSEA AND VOMITING:

❖ Apfel Simplified Risk Score for Adults:

Risk score obtained mainly predicting number of risk factors present. these risk factors are

- Female gender
- History of PONV or Motion Sickness
- Non smoking status
- Post operative use of opioids

Total number of Risk Factors	Incidence of PONV
0	10%
1	20%
2	40%
3	60%
4	80%

TABLE :1

POVOC Score For Children's:

For predicting POV in children's independent risk factors are

- Duration of surgery more than thirty minutes
- More than three years of age
- Strabismus surgery
- History of POV in a child or his her relatives

Total number of Risk Factors	Incidence of PONV
0	9%
1	10%
2	30%
3	55%
4	70%

TABLE : 2

MANAGEMENT OF PONV IN ADULTS:

- **DECREASE THE BASELINE RISK:**

The patients baseline risk is calculated by using the Apfel simplified risk score in case of adults or POVOC score in case of children. The usage of loco-Regional anesthesia in place of general anesthesia is found to decrease the base line risk. In case where general anesthesia is required total intravenous anesthesia with propofol and nitrogen makes a better choice as it reduces the incidence of PONV by 30 %.Administration of opioids in the per operative period should be limited to decrease the risk of PONV as well as Hyperalgesia

- **PREVENTION OF PONV:**

If the risk is mild to moderate, 1 to 2 Fist line anti emetic drugs can be used; if there is high risk 3 to 4 drugs can be given because each drug acts upon different receptor o and give an additive effect. Fist line Anti Emetics include three classes of drugs which are serotonin antagonist (e.g. Ondansetron) ,Corticosteroids (e.g. Dexamethasone) and dopamine antagonist (e.g. Droperidol)

Serotonin antagonists in general are associate with QT prolongation and Torsades de point and should be avoided in patient with QT prolongation. However, Palanosetron has no effect on QT interval and has a longer duration of action (72 hours). Hence Palanosetron can be a effective prophylaxis of PONV for ambulatory surgery.D2

Antagonist Droperidol has shorter plasma Half life so it can be administered towards the end of the procedure.

Corticosteroids (e.g. dexamethasone) when given at low doses is effective against PONV and alleviate postoperative pain and fatigue .

Neurokinin 1 receptor antagonist (e.g.: Aprepitant) has a promising anti emetic effect by decreasing the incidence of vomiting by 70 to 80%. However the cost factor is high permitting its use in selective high risk patients

- **TREATMENT OF PONV:**

Anti emetics used as rescue treatment for PONV should be of different class than the one used as prophylaxis. For example, Ondansetron which is commonly used for rescue treatment has no role if a 5HT3 receptor antagonist is used intra operatively. rescue treatment can also be given orally or applied as trans dermal patches(e.g. transdermal Scopolamine).

POSTOPERATIVE PYREXIA

Inflammatory medications released during surgery may cause low grade pyrexia with in twenty four hours of surgery. However, any pre existing pyrexia can leave some residual fever postoperatively.

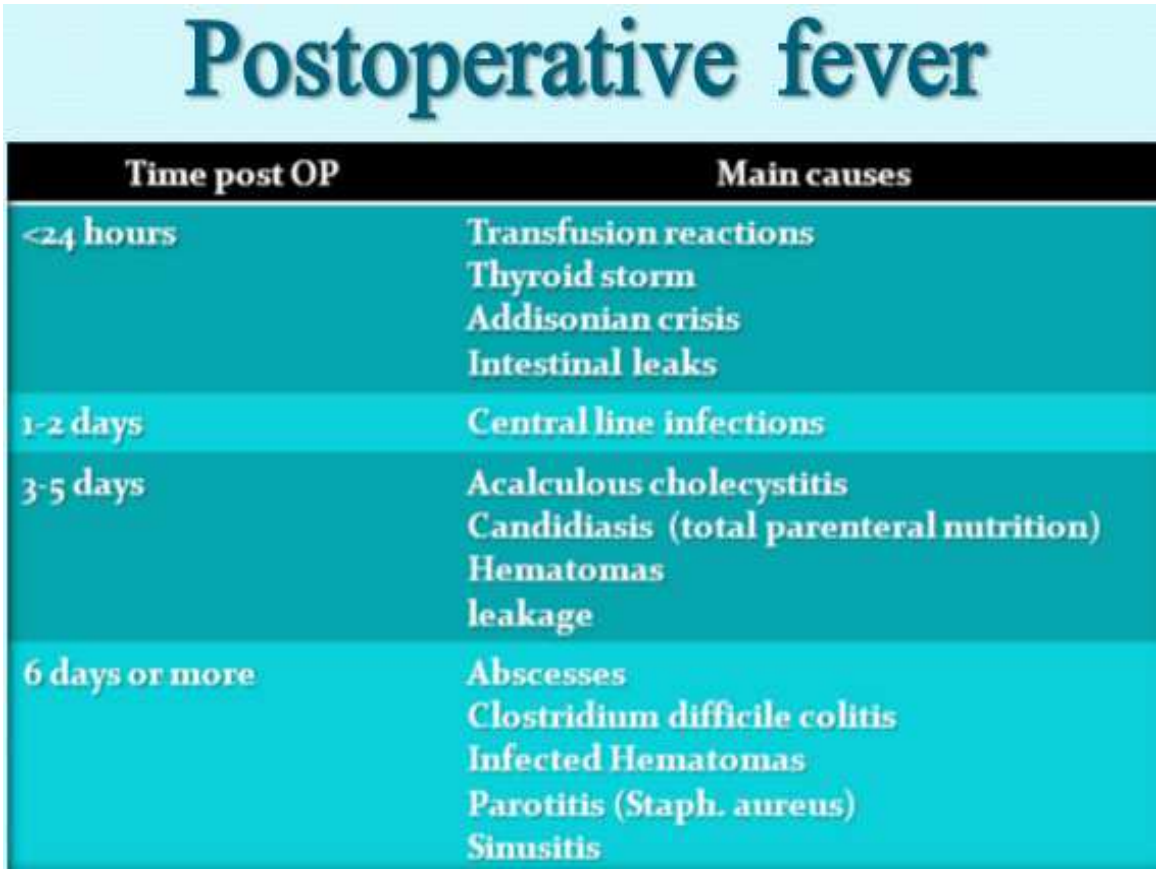
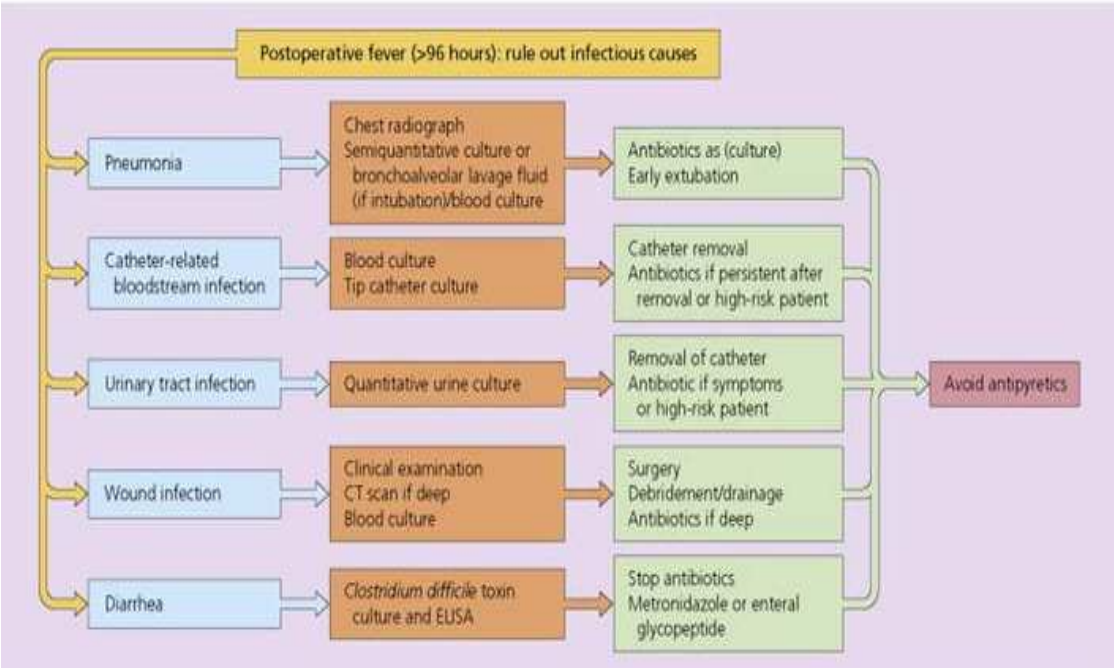


FIGURE :4



OTHER COMMON CAUSES:

1. Cut- wound infection
2. Collection- pelvic or sub phrenic abscess
3. Chest- infection or pulmonary embolism
4. Cannula- infection
5. Central venous catheter- infection
6. Catheter- urinary tract infection
7. Calf- deep vein thrombosis

INFECTIONS

Post operative infections are generally classified according to the site and cause.

SURGICAL SITE INFECTIONS

SSI's can be defined as an infection that is present up to 30 days after a surgical procedure if no implants are placed and up to one year if an implantable device was placed in the patient

Study has shown that Staphylococcus aureus remains the most common pathogen in SSIs coagulase-negative staphylococci are seen in clean-contaminated and contaminated procedures. other pathogens are Enterococci and Escherichia coli.

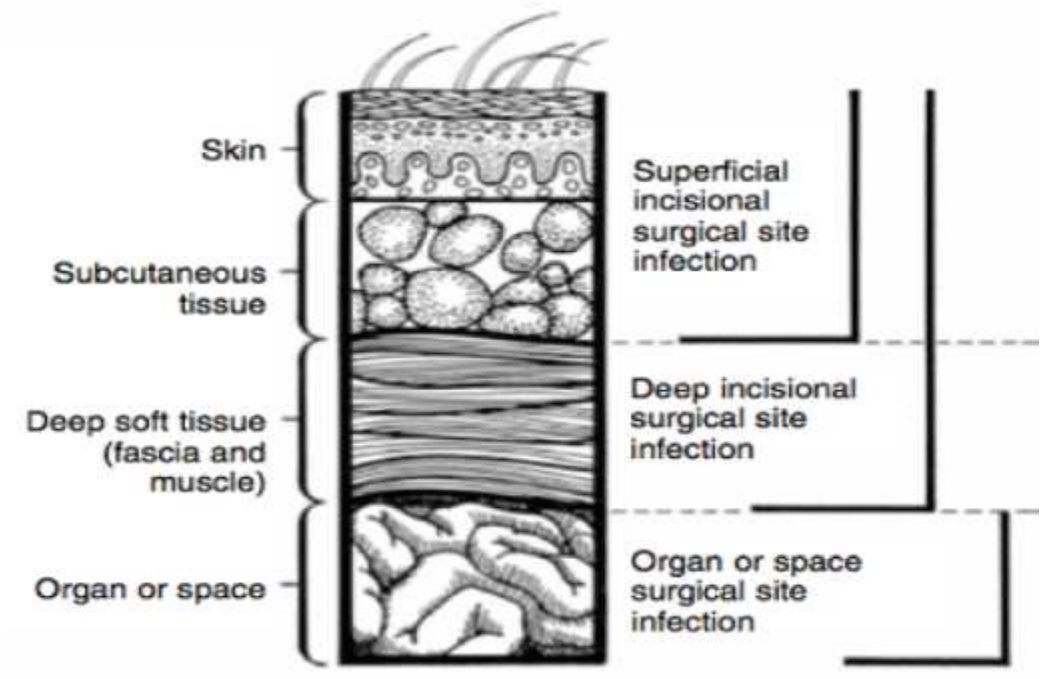


FIGURE : 5

Risk factors for SSI are

MICROORGANISM	LOCAL WOUND	PATIENT
Remote site infection	Surgical technique:	Age
Long-term care facility	Hematoma/seroma	Immunosuppression
Recent hospitalization	Necrosis	Steroids
Duration of the procedure	Sutures	Malignancy
Wound class	Drains	Obesity
Intensive care unit patient	Foreign bodies	Diabetes
Previous antibiotic therapy		Malnutrition
Preoperative shaving		Multiple comorbid conditions
Bacterial number, virulence, and antimicrobial resistance		Transfusions
		Cigarette smoking
		Oxygen
		Temperature
		Glucose control

FIGURE : 6

PREVENTION OF SSI:

PREOPERATIVE:

MICRO-ORGANISM	LOCAL	PATIENT
Shorten preoperative stay	Appropriate preoperative hair removal or no hair removal	Optimize nutrition
Antiseptic shower preoperatively		Preoperative warming
Appropriate preoperative hair removal or no hair removal		Tight glucose control (insulin drip)
Avoid or treat remote site infections		Stop smoking
Antimicrobial prophylaxis		

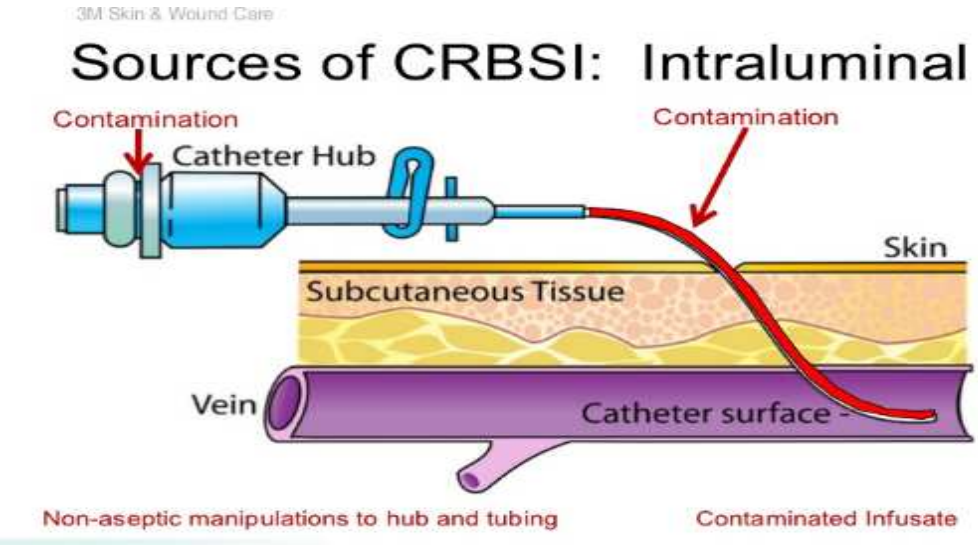
PEROPERATIVE:

MICRO-ORGANISM	LOCAL	PATIENT
Avoid spillage in gastrointestinal cases	Surgical technique:	Hematoma/seroma
Asepsis and antisepsis	Hematoma/seroma	Good perfusion
	Good perfusion	Complete debridement
	Complete debridement	Dead spaces
	Dead spaces	Monofilament sutures
	Monofilament sutures	Justified drain use (closed)
	Justified drain use (closed)	Limit use of sutures/foreign bodies
	Limit use of sutures/foreign bodies	Delayed primary closure when indicated
	Delayed primary closure when indicated	

POSTOPERATIVE:

MICRO-ORGANISM	LOCAL	PATIENT
Protect incision for 48-72 hours	Postoperative dressing for 48-72 hours	Early enteral nutrition
Remove drains as soon as possible		Supplemental oxygen
Avoid postoperative bacteremia		Tight glucose control (insulin drip)
		Surveillance programs

CENTRAL VENOUS CATHETER INFECTIONS:



Infection of catheters may lead to catheter related blood stream infections (CRBSI).Supportive evidence of CRBSI-> CVC+ Signs of bacteremia + positive blood culture and growth of same organism from the CVC.

So central venous catheters should be removed when not in need.

- MANAGEMENT: Management of central venous catheter infections primarily
- Involves removal of the line and antibiotic coverage.

➢ **URINARY TRACT INFECTIONS:**

Urinary catheters inserted to maintain fluid balance may predispose the patients to urinary tract infections.

♦ MANAGEMENT: Management of urinary tract infections includes the use of suitable antibiotics in addition to maintenance of fluid and electrolyte balance.

➢ **ABDOMINAL COLLECTIONS**:

Abdominal collections occur whenever there is leakage of bowel contents in the postoperative period.

▪ **CLINICAL FEATURES:**

Clinical features following postoperative abdominal collections include nausea, pain, malaise, swinging fever, localized peritonitis or tenderness with altered bowel function.

▪ **OCCURENCE:**

- Pelvic abscess occurs 4 to 10 days after surgery
- Peri nephric abscess occurs 7 to 21 days after surgery

- **INVESTIGATIONS:**

  Investigations to diagnose abdominal collections are primary imaging techniques such as ultrasound abdomen, CT/MRI abdomen.

- **MANAGEMENT:**

  Management of this complication is primarily aimed at drainage of the collections under radiological guidance. This should be done with suitable antibiotic coverage based on culture and sensitivity.

- **CANNULA:**

  Any evidence of redness or pain around the insertion site mandates the removal of peripheral cannula.

PNEUMONIA

Infection of lung which is characterized by inflammation and consolidation lung tissue followed by resolution.

- **RISK FACTORS:**

Risk factors for the development of pneumonia in the postoperative period are pre existing co morbidity, obesity, prolonged surgery, immobility or prior treatment with antibiotics.

- **CLINICAL FEATURES:**

The clinical features of pneumonia are varied. It may present with shortness of breath, malaise, cough, pleuritic chest pain, tachycardia, tachypnoea, hypotension, pyrexia.

- **MANAGEMENT:**

Management is aimed at maintaining adequate oxygenation by oxygen supplementation, chest physiotherapy and use of antibiotics.

DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM

FIGURE :8

Change to virchows triad

⬇

Venous stasis

⬇

Thrombus formation

⬇

Deep vein thrombosis

⬇

Pulmonary embolism

⬇

Pulmonary infarction

⬇

Right sided heart strain

⬇

DEATH

Whenever there occurs a change in Virchow's triad (triad of endothelial injury, stasis of blood and hyper coagulability) formation of thrombus occurs in the deep veins of the leg. when it is left untreated the thrombus may get dislodged and may result in pulmonary embolism. If the pulmonary embolism is left untreated, pulmonary infarction may develop leading to right heart strain and death.

CLINICAL FEATURES:

- **DEEP VEIN THROMBOSIS**

Deep vein thrombosis manifests with severe pain in the calves, calf tenderness may be elicited clinically by Homan's sign.

- **PULMONARY EMBOLISM**

Pulmonary embolism presents with chest pain, shortness of breath, haemoptysis, hypoxia and pyrexia.

- **INVESTIGATIONS**

- **DVT:** Deep venous thrombosis can be identified by Doppler ultrasound scan of lower limb veins

- **PULMONARY EMBOLISM:**

The diagnosis of pulmonary embolism is by CT pulmonary angiography

- **TREATMENT:**

Treatment is aimed at maintaining adequate anticoagulation with heparin.

CARDIOVASCULAR DISEASE

Postoperative cardiovascular complications include

- Acute dysrhythmias
- Ischemic injury
- Infarction
- Left ventricular failure

REDUCED BOWEL FUNCTIONS

Constipation may occur if opioids or anti cholinergic are used pre operatively can be managed by adequate hydration, appropriate nutrition and laxatives

- **POSTOPERATIVE ILEUS:**

Occurs due to intra operative bowel manipulation, pain, immobility, hypokalemia, opioids.

CLINICAL FEATURES:

- Reduced bowel function
- Abdominal distension and discomfort
- Nausea and vomiting
- Reduced absorption of oral drugs

MANAGEMENT:

- Insertion of nasogastric tube
- Analgesia
- Reduced oral intake
- Correct electrolyte abnormality if any
- Avoid opioids if possible

DELIRIUM

It is a acute confusional state occurring in a postoperative period in any patient

RISK FACTORS:

- Age
- Dementia
- Co morbid disease (e.g. renal failure)
- Depression
- Type of surgery
- Infection/inflammation
- Medication
- Metabolic disturbances
- Sleep disruption
- Pain
- Cognitive impairment

MANAGEMENT:

- Reassurance
- Sedation (haloperidol/lorazepam if needed)

PRESSURE SORES

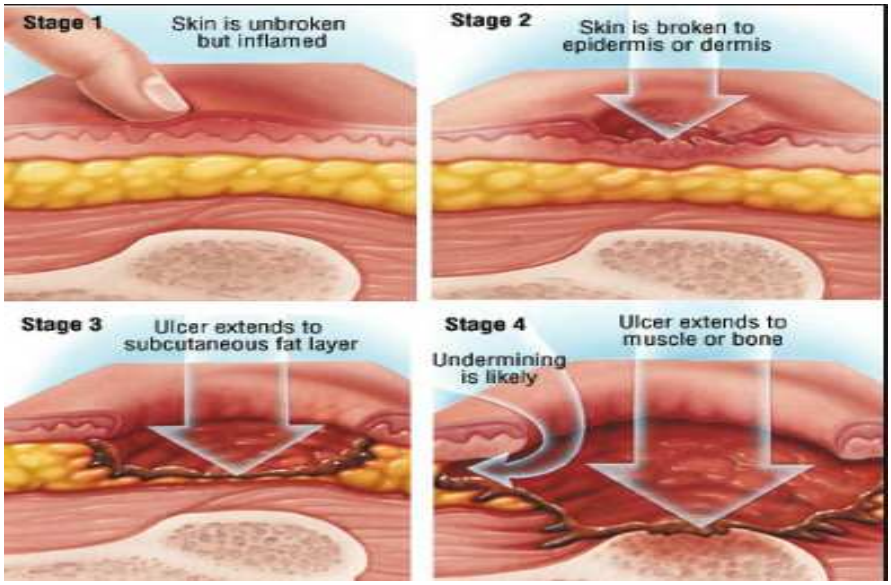


FIGURE :9

- Caused by direct pressure, shear forces and friction
- Can be prevented by
- Risk assessment
- Frequent changing of positions
- Physiotherapy
- Adequate pain relief
- Use of suitable mattress and cushions

HAEMORRHAGE

- **PRIMARY:**
    - Bleeding which occurs intra operative period
- **REACTIVE:**
    - Occurs within 24 hrs of surgery
    - mostly due to ligature slips or a missed vessel
- **SECONDARY:**
    - Occurs 7to 10 days postoperatively
    - due to erosion of vessel from a spreading infection
- **RISK FACTORS:**
    - DRUGS : heparin, warfarin, NSAIDS, Anti platelets
    - CONGENITAL BLEEDING DISORDERS: Hemophilia, von willebrand disease
    - ACQUIRED BLEEDING DISORDER: Sepsis, DIC, Liver disease
- **MANAGEMENT:**
    - Correct the cause
    - Fluid and blood products resuscitation
    - Reversal of anticoagulation effect
    - Surgical intervention if needed

DAMAGE TO ADJACENT STRUCTURES

- Damage to adjacent structure may occur on table during surgery
- Leaks(e.g. Bile),hemorrhage, abscess formation, sepsis may occur if unrecognized
- Varied clinical presentation according to the structure affected and the extent of damage.

COMPLICATION RELATED TO SPECIFIC PROCEDURES

❖ HERNIA- INGUINAL

- Surgery for inguinal hernia is the one of the most commonly performed surgery around the world
- In open method Lichtenstein tension free mesh repair is the gold standard procedure
- Laparoscopic repair needs expertise. learning curve is so long minimum of 200 to 250 cases. advantage of un complicated unilateral hernia repair by laparoscopic method is still questionable
- In case of recurrence after conventional open hernioplasty, bilateral inguinal hernia repair, those undergoing laparoscopy for some other clean abdominal procedure there is a definitive advantage in laparoscopic method than open technique

➢ COMPLICATIONS AFTER HERNIOPLASTY

- NERVE INJURIES AND CHRONIC PAIN SYNDROME:

- Nerve injuries are an infrequent complication of inguinal hernia repair. Injury may be due to traction, electrocautery, traction and entrapment.

Affected nerves;

- ♦ Open technique: Ilio inguinal nerve, Genital branch of genito femoral nerve, ilio hypo gastric nerve
- ♦ laparoscopic: Lateral femoral cutaneous nerves and genito femoral nerve

Transient neuralgias:

Usually self limited and resolves within few weeks after surgery

Persistent neuralgias:

- ♦ Pain and hyperesthesia in the area of distribution.
- ♦ Symptoms reproduced by palpation over the entrapment area or hyper extension of hip and may be relieved by flexion of thigh
- Chronic groin pain is a common primary complication after open hernia repair (29% to 76%).the incidence is less common with lap surgeries

MANAGEMENT:

- Early symptoms: Anti inflammatory agents, analgesics, Local anesthetic nerve block
- Nerve entrapment syndromes: Repeat exploration with neurectomy with mesh removal
- Lap nerve injuries are minimized by not planning any tacks or staples below the lateral portion of the Ilio pubic tract

ISCHEMIC ORCHITIS AND TESTICULAR ATROPHY:

- Ischemic orchitis occurs due to thrombosis of small veins of pampiniform plexus within the spermatic cord

Thrombosis of small veins of pampiniform plexus

↓

Venous congestion of testis

↓

swollen and tender testis 2 to 5 days after surgery

↓ 6 to 12 wks

Testicular atrophy

- The incidence increase with dissection of distal portion of large hernia sac and in patients who have anterior operations for recurrence or spermatic cord pathology. In these situations posterior approach is preferred .

MANAGEMENT:

- Anti inflammatory agents
- Analgesics
- Orchidectomy rarely indicated.

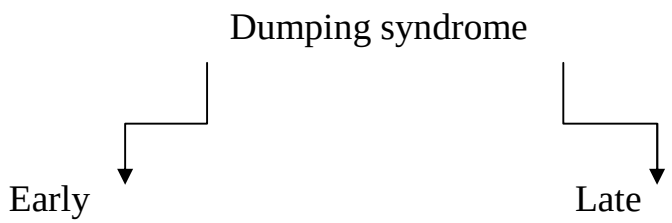
INJURY TO VAS DEFERENCE AND VISCERA:

- Most of these injuries occurs in patients with sliding inguinal hernias when the presence of intra abdominal viscera in the hernia sac goes un noticed
- With large hernias, the vas may be displaced in an enlarged inguinal ring before entry into the spermatic cord. in this situation, the vasdeferens is identified and protected.

❖ **POST GASTERCTOMY SYNDROMES:**

- The physiological changes occurring after gastric surgeries results in gastro intestinal and cardio vascular symptoms resulting in what is known as post gastrectomy syndromes

➢ **DUMPING SYNDROMES:**



(2 to 30 min after eating) (2 to 3 hours after meal)

- **PATHOGENESIS:**

- Early dumping

Rapid passage of high osmolarity food

from stomach to small intestine

↓

Extra cellular fluid rapidly shifts into

small intestine to maintain isotonicity

↓

Luminal distension

GI SYMPTOMS	CVS SYMPTOMS
-Nausea & Vomiting	-Palpitation
-Epigastric fullness	-tachycardia
-Abdominal cramps	-Diaphoresis
-Extensive diarrhoea	-Fainting, Flushing, Dizziness

- More common in Billroth 2 Gastrectomy Compared to Billroth

- **LATE DUMPING**

Rapid gastric emptying

↓

Carbohydrate rapidly entering into proximal SI

↓

Quick absorption resulting in Hyperglycemia

↓

Insulin released in larger amount

↓

Over compensation results in hypoglycemia

↓

Adrenal gland releases catecholamines

↓

Results in

-Diaphoresis -Tremulousness

-Tachycardia -Confusion -Light Headache

Treatment:

- Dietary measures: avoidance of food containing high amount of sugar
- Small meals rich in protein & fat taken at frequent intervals
- separate intake of liquids and solids
- Medical: Long acting octreotide agonists

METABOLIC DISTURBANCES:

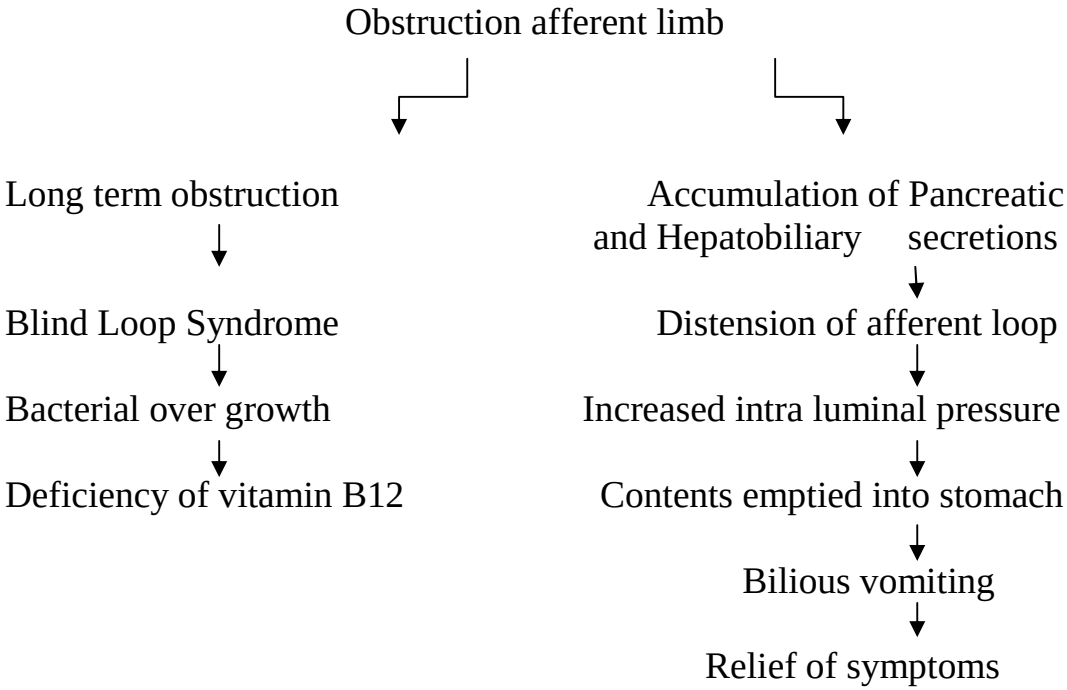
- **IRON DEFICIENCY ANAEMIA:**
  - More common
  - May be due to combination of decreased iron intake, impaired iron absorption, chronic blood loss.
  - Treatment: Iron supplements to be added

- **MEGALOBLASTIC ANAEMIA:**
  - Occurs due to poor absorption of vitamin B 12 levels
  - Treatment: Chronic B 12 therapy after determining serum vitamin B 12 levels

- **DEFICIENCY OF CALCIUM:**
  - Leads to osteoporosis and osteomalacia
  - Treatment: Calcium supplements (1 to 2 gm/day) with vitamin D (500 to 5000 units daily)

➢ AFFERENT LOOP SYNDROME

- Occurs due to partial obstruction in afferent limb



- **DIAGNOSIS:**
  - Upper endoscopy: Failure to visualize the afferent limb
  - Radio nucleotide studies imaging the hepatobiliary tree

- **TREATMENT:**
  - Conversion of Billroth 2 to Billroth 1 anastamosis with Enteroenterostomy with roux en y reconstruction.

- **EFFERENT LOOP OBSTRUCTION:**
  - Rare complication may occur within 1st month after surgery
  - **Clinical features:**
    - ♦ Colicky abdominal pain left upper quadrant
    - ♦ Bilious vomiting
    - ♦ Abdominal distension
  - **Diagnosis:**
    - ♦ Gastro intestinal contrast study of stomach- Barium does not enter the efferent limb
    - ♦ Treatment: Surgical intervention- reducing the retro anastomotic hernia and closing the retro anastomotic space.
- **ALKALINE REFLUX GASTRITIS:**
  - Common complication after Billroth 2 anastomosis.
  - Sometimes associate with severe epigastric abdominal pain with bilious vomiting followed by weight loss
  - **Diagnosis:**
    - ♦ Careful history
    - ♦ HIDA scans- Biliary secretion into stomach and esophagus seen

- ♦ Upper GI endoscopy: Friable beefy red mucosa

- **Treatment:**
  - ♦ No consistent treatment with medical management
  - ♦ Surgical procedure: conversion of Billroth 2 anastomosis into Roux en Y gastro jejunostomy

➢ GASTRIC ATONY/ GASTROPARESISIS:

- Occurs in truncal and selective vagotomies
- In the above procedures the antral pump function is lost resulting in delayed emptying of solids
- In contrast to this, liquid emptying is accelerated due to loss of receptive relaxation in the proximal stomach.
- As a result, some patient have persistent gastric stasis leading to retention of food with in the stomach resulting in fullness and abdominal pain

- **Diagnosis:**
  - ♦ Scintigraphic assessment of gastric emptying
  - ♦ Endoscopic examination of stomach to rule out anastomotic obstruction

- **Treatment:**
  - ♦ Prokinetics: Metoclopromide, Erythromycin
  - ♦ Persistent gastric atony: gastrectomy maybe needed

❖ POST CHOLECYSTECTOMY SYNDROME:

➢ BILE DUCT INJURY:

- During cholecystectomy (open / lap) bile duct injury is the devastating complication

▪ RISK FACTORS:

- Inflammation of porta hepatis
- Variable biliary anatomy
- Inappropriate exposure
- Aggressive attempts at homeostasis
- Inexperience of surgeons

▪ BILIARY INJURY CAN BE MINIMISED BY:

- Through knowledge of surgeon on biliary anatomy
- Use of angled laparoscope
- Appropriate and directed traction and counter traction on gallbladder
- Sufficient suspicion of findings

STRASBERG CLASSIFICATION

- **STRASBERG CLASSIFICATION - POSTCHOLECYSTECTOMY BILE DUCT STICTURES**
  - TYPE A: Cystic duct stump or minor biliary radicle in GB fossa leak
  - TYPE B: Injury to the sectoral duct (aberrant RHD) with obstruction
  - TYPE C: Injury to the sectoral duct with consequent bile leak
  - TYPE D: Lateral injury to hepatic duct
  - TYPE E1: Transection >2cm from the confluence
  - TYPE E2: Transection <2 cm from the confluence
  - TYPE E3: Transection at the confluence
  - TYPE E4: Separation of major ducts in the confluence
  - TYPE E5: Complete occlusion all bile ducts

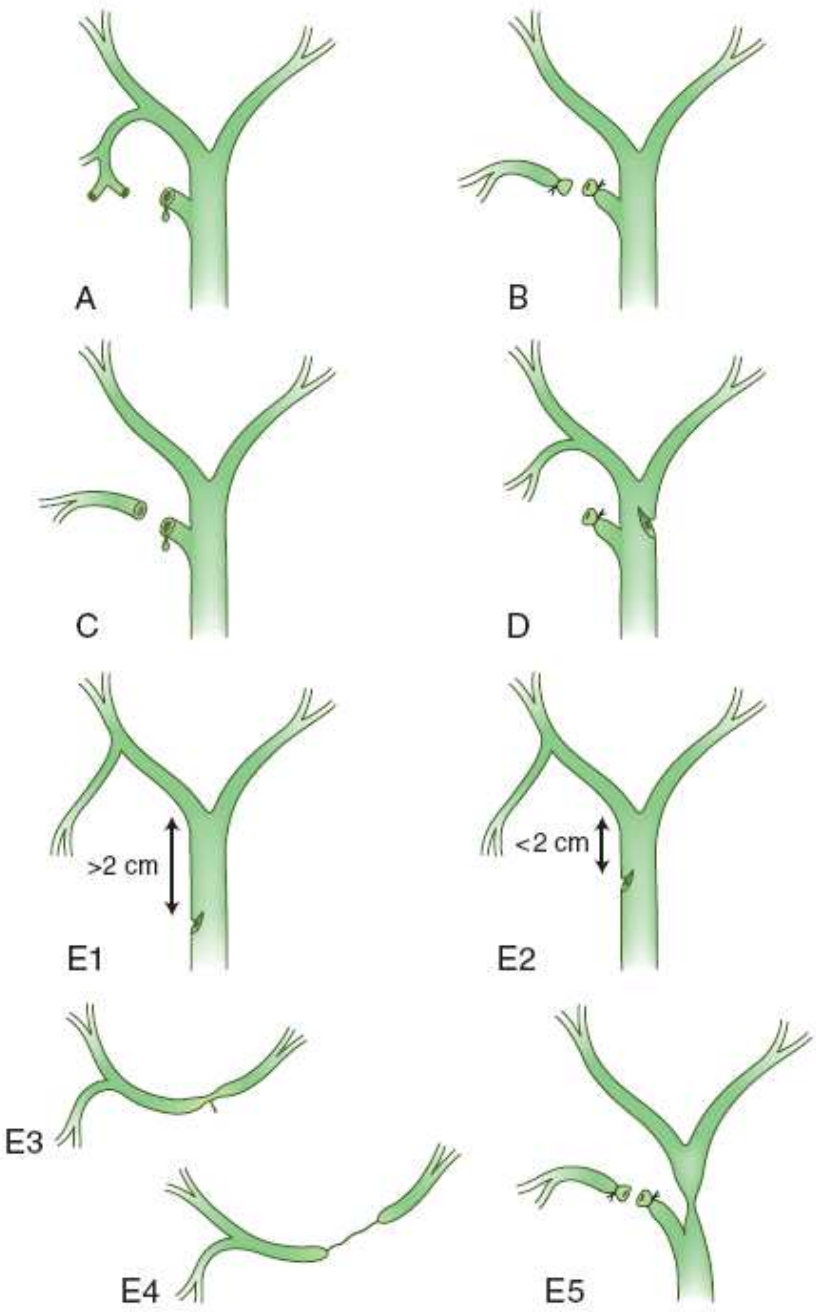


FIGURE : 10 STRASBERG CLASSIFICATION

➢ OTHER CLASSIFICATION IN BILE DUCT INJURIES:

- Stewart - Way classification

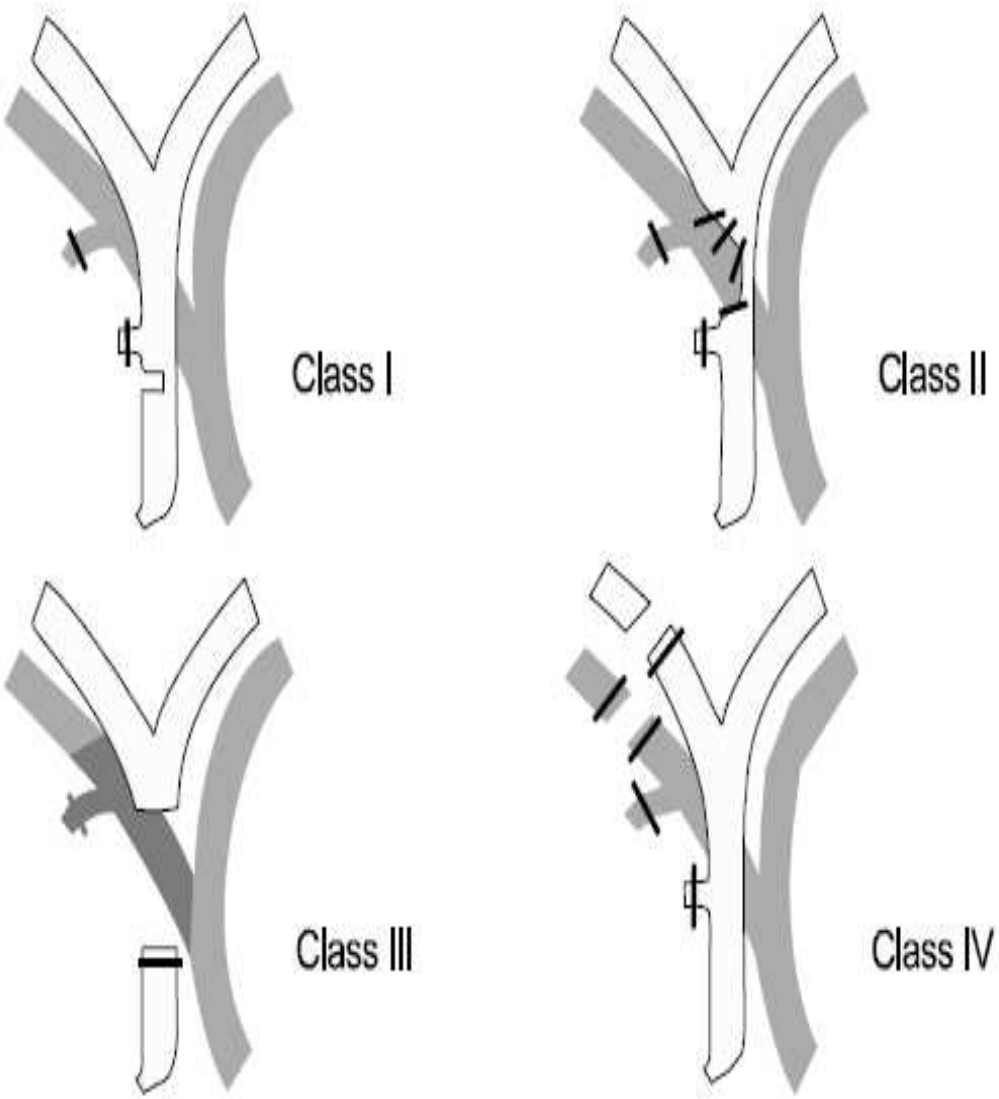
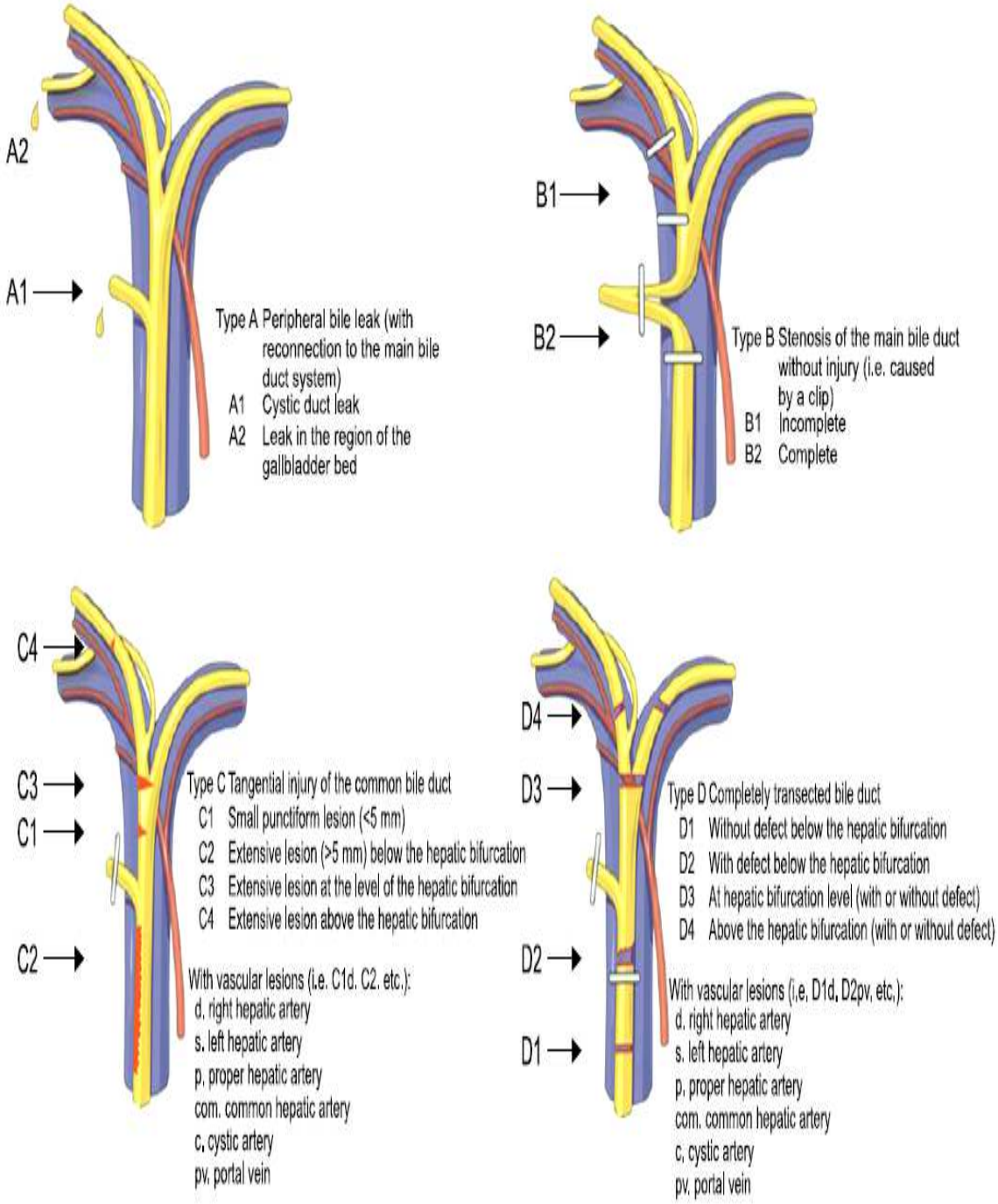
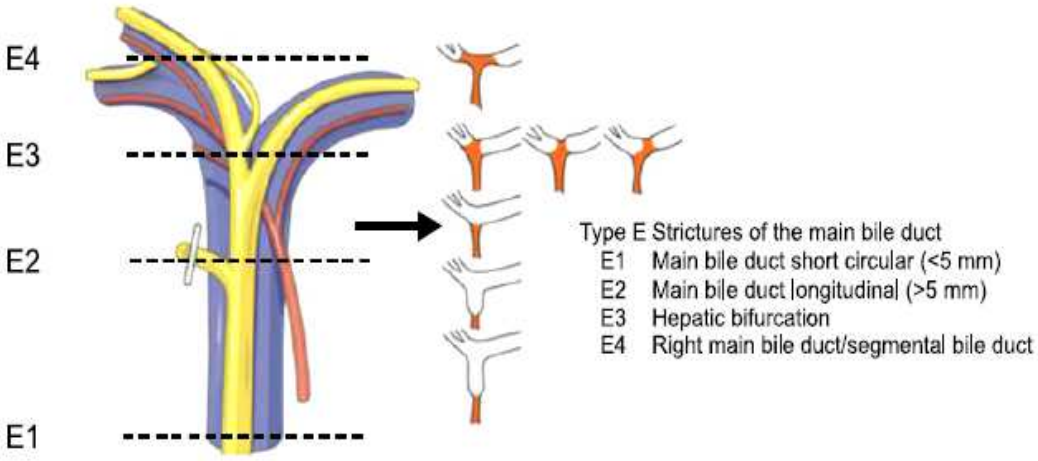


FIGURE : 11

- Hannover classification:





- **PRESENTATION OF BILE DUCT INJURIES:**
  - Usually presents in the post operative period through it may be identified intra operatively
  - Leakage of bile into peritoneal cavity present with fever, abdominal pain, jaundice or bile leakage from incision
  - Injury to the bile duct without leakage present with jaundice with or without pain

- **TREATMENT:**
  - Control of infection & inflammation
    - ♦ parenteral antibiotic
    - ♦ percutaneous drainage of peri portal fluid collection
  - Clear and Through delineation of entire biliary anatomy
    - ♦ MRCP/PTC, ERCP.
  - Re establishment of Biliary Enteric continuity

- ♦ Tension free mucosa to mucosa anastamosis
- ♦ Roux-en-y Hepatico jejunostomy
- ♦ Long term trans anastomotic stents if injury involving bifurcation or higher

➢ **LOST STONES:**

- Inadvertent opening of gall bladder results in spillage of stones in 20% to 40% Cholecystectomies

▪ **RISK FACTORS:**

- Cholecystitis
- Presence of pigmented stones
- Number of stones more than 15 in number

▪ **CONSEQUENCES:**

- Wound infection
- Fistula
- Chronic abscess in Morrison's pouch or retro hepatic space
- Bowel obstruction

- **TREATMENT:**
  - Extensive irrigation
  - Attempt to retrieve lost stones
  - Course of antibiotics

- **RETAINED BILIARY STONES:**
  - Also known as secondary common duct stones
  - Originates in the gall bladder and passes into the common duct
  - These are commonly cholesterol stones
  - Symptoms: Sharp right upper quadrant pain, fever, vomiting
  - Diagnosis: Increased alkaline phosphate level, Hyperbilirubinemia, USG- intra hepatic biliary dilatation.

- **TREATMENT:**
  - Endoscopic removal of stones by sphincterotomy

➢ **BILE LEAK**

- Bile leak may be from cystic duct or duct of Luschka following cholecystectomy

- Clinical manifestations usually manifests within one week of cholecystectomy

- **CLINICAL FEATURES:**
  - Fever, Chills, Jaundice, Right upper quadrant pain, Leakage of bile from incision drain

- **DIAGNOSIS:**
  - CT- Shows ascites / right upper quadrant fluid collection.
  - ERCP- Stenting
  - Persistent Leak >6 weeks- Complete cholangiography by MRCP and repeat ERCP

- **TREATMENT:**
  - Cystic duct stump leakage: Sphincterotomy with stenting of common bile duct
  - USG guided percutaneous drainage
  - Percutaneous drainage not possible, laparoscopic washout of the abdomen and placement of sub hepatic drain can be done.

- **GALL STONE ILEUS:**
  - Large stone in the gallbladder may cause inflammation and fistulize into duodenum which may cause obstruction of small intestine

- **CLINICAL FEATURES:**
  - Episodic discomfort - intermittent obstruction of intestine
  - Constant pain - If complete obstruction is present
  - Other features mechanical bowel obstruction

- **DIAGNOSIS:**
  - X- RAY ABDOMEN: Air fluid level, consistent with small bowel obstruction
  - CT ABDOMEN: Pneumobilia

- **TREATMENT:**
  - Exploration and enterotomy and removal of stone.
  - Examination of remainder of bowel to look for any missed stones

➢ ACUTE CHOLANGITIS:

- Common following any obstruction including malignancy
- Requirements for development of cholangitis
  - ♦ Bacteria in the biliary tree
  - ♦ Obstruction of flow resulted in increased intra luminal pressure
- Common pathogens encountered: Klebsiella, E.Coli, Enterobacteria, Citrobacter species
- Classical presentation: Charcot's triad

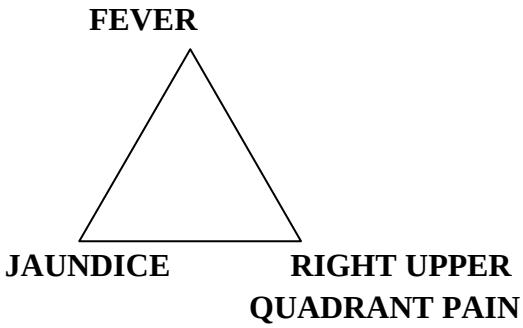


FIGURE :13 CHARCOTS TRIAD

- Reynolds pentad; includes Mental changes and Hypotension

▪ DIAGNOSIS:

- Tachycardia and manifestation of shock
- Leukocytosis with abnormal liver panel
- Elevated transaminase and alkaline phosphates levels

- USG - Initial investigation of choice shows Dilatation of biliary tree
- CT SCAN: Identify the level of obstruction
- Cholangiography via ERCP or PTC : may identify the cause and level of obstruction which is therapeutic also.

- **TREATMENT:**
  - **MEDICAL:**
    - ♦ Adequate Hydration
    - ♦ I.V Antibiotics
  - **SURGICAL:**
    - ♦ Emergent decompression of the biliary tree
    - ♦ Endoscopic removal of stone
    - ♦ Common duct exploration with placement of T tube

➢ RECURRENT PYOGENIC CHOLANGITIS:

- Pathogens: Clonorchis sinensis, Ascaris Lumbricoides

Enzymes from pathogens

⇩

Hydrolyze water soluble bilirubin and glucuronides

⇩

Free bilirubin is formed

⇩

Precipitated to form brown pigment stones

⇩

Obstruct the biliary tree

Recurrent episodes of cholangitis eventually abscess / cirrhosis

- Patients are the risk of development of cholangio carcinoma

▪ CLINICAL FEATURES:

- Fever, Jaundice, Right upper quadrant pain

▪ DIAGNOSIS:

- Leukocytosis, Elevated bilirubin level, High ALP level
- Pombination of CT with MRCP or ERCP diagnostics

▪ TREATMENT:

- **MEDICAL:**
  - ♦ Parenteral antibiotics, I.V Fluids, Analgesics

- **SURGICAL:**
  - ♦ Biliary drainage via ERCP or Percutaneous methods
  - ♦ Intra hepatic stricture - Resection and Stricturoplasty ,Hepatico cutaneous jejunostomy.
  - ♦ In view of future risk of development of cholangio carcinoma predominantly affected lobe can be removed in a patient with adequate liver reserve.

ANALYSIS AND RESULTS

DATA ANALYSIS AND RESULTS

In this study, the cohort of patients with abdominal pathology were identified (n=595).Of this, 376 patients underwent emergency abdominal surgery, 7 patients had history of previous surgery were excluded from this study.214 patients satisfying inclusion criteria were selected for the study. All the patients gave consent for participating in the study.

Of this 214 patients, 108 patients were male, 106 patients were female as demonstrated in Figure 14.

Of this 214 patients 97 patients were subjected to elective abdominal open surgical procedures and 117 patients underwent elective laparoscopic abdominal surgical procedures which is shown in Figure 15.

Number of male patients subjected for open versus laparoscopic elective abdominal procedures were found to be equal (n=55 vs. n=53) but in the female patients laparoscopic elective abdominal procedures are done in higher number compared to open procedures (open vs. lap; n=44 vs. n=62) as seen in Figure 16.

In this study population , there were only 2 patients who belonged to the age group <20 years. Majority of the patients were in the age group of 31 to 60 years. There were 42 patients in the age group of 31 to 40 years,48 patients in the age group of 41 to 50 years, 62 patients in the age

group of 51 to 60 years. There were 41 patients in the age group more than 60 years(Table:6 ; Figure :17).

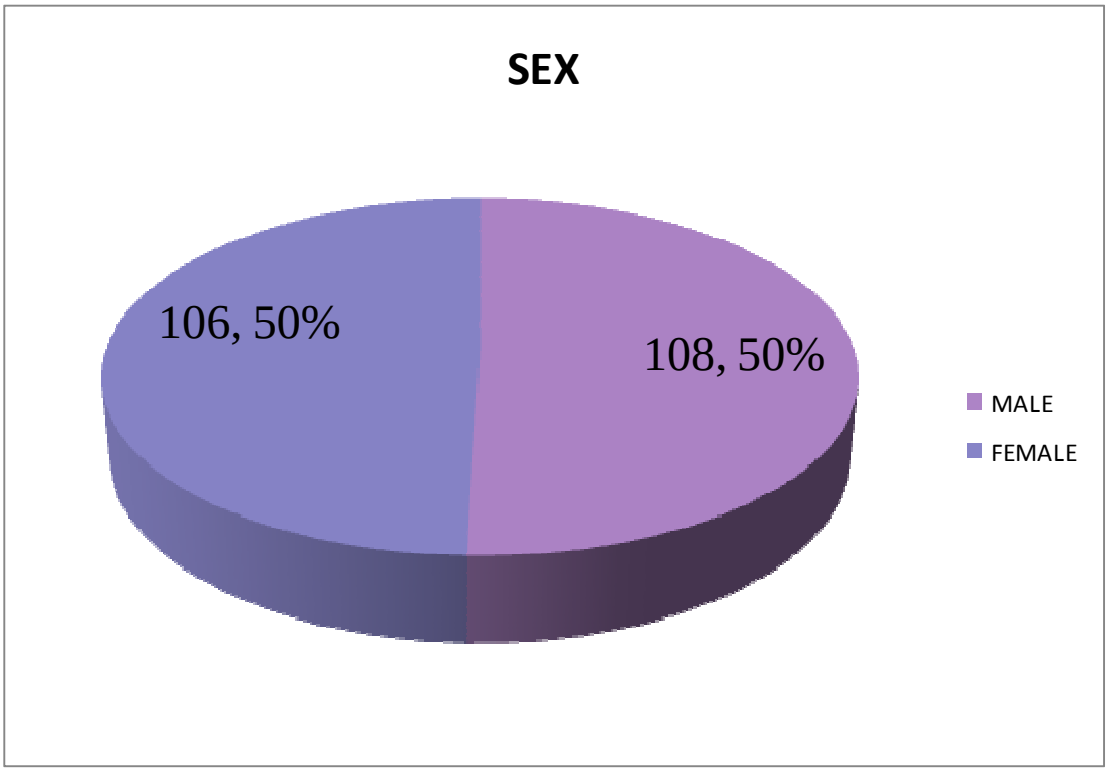


FIGURE :14 SEX DISTRIBUTION

Majority of the female patients belongs to 31 to 50 yrs age group. Majority of male patient belongs to 51 to 60 yrs age group. It is evident that in our studies both male and female patients were almost of equal proportions. each sex occupies 50% with slight male preponderance.

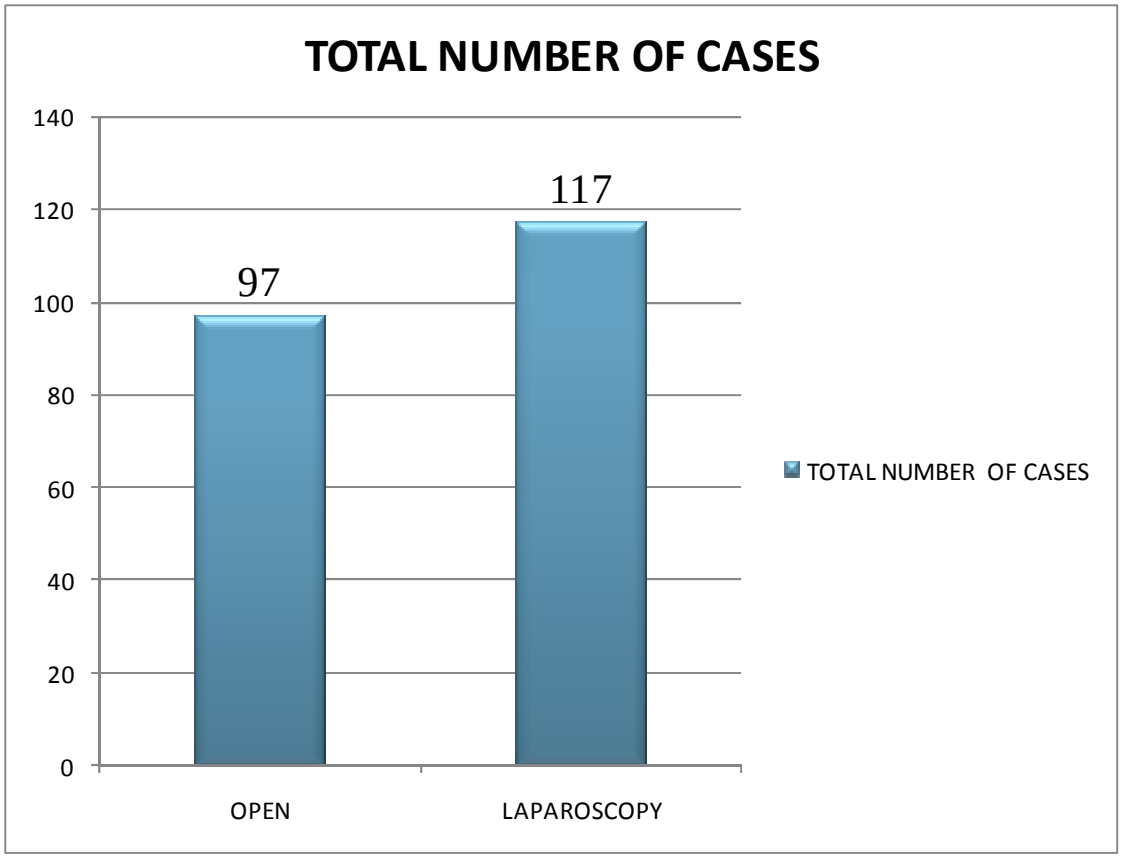


FIGURE: 15 CASE DISTRIBUTION IN OPEN VS LAPAROSCOPIC SURGICAL PROCEDURES

It can be analyzed from our bar chart that among the total 214 patients, 117 patients underwent laparoscopy procedure contributing to 54% where only 46% of our patients that is 97 patients underwent open surgeries.

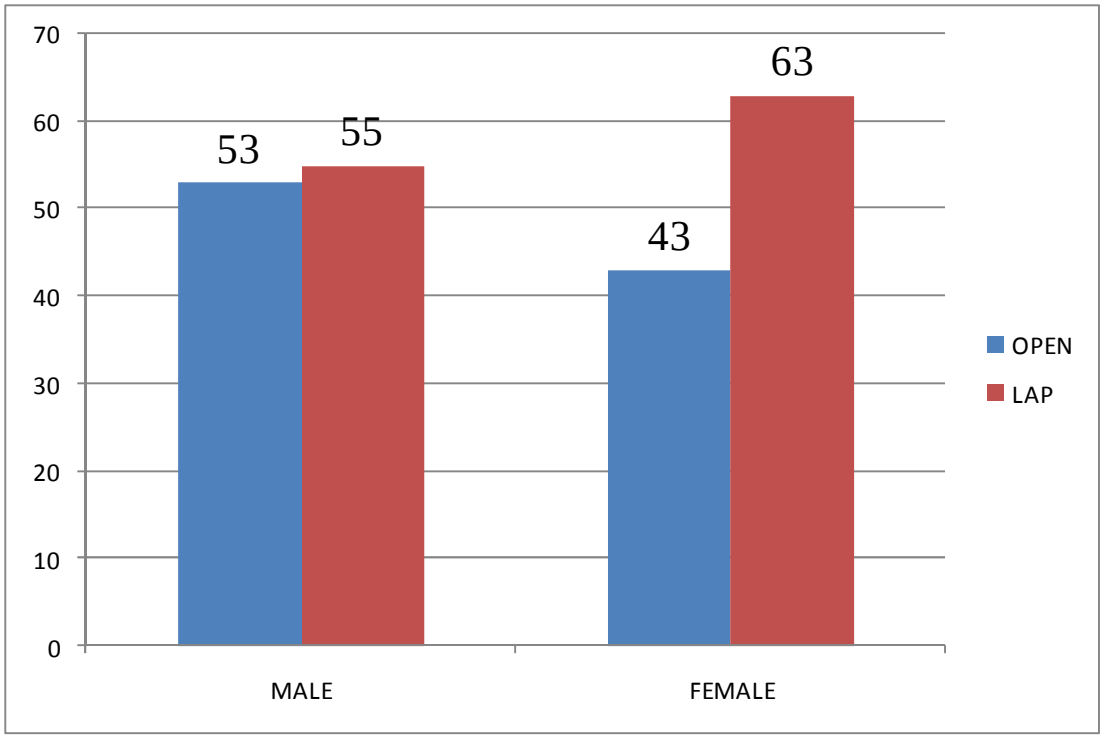


FIGURE :16 COMPARISON OF SEX DISTRIBUTION IN OPEN VS. LAPAROSCOPIC PROCEDURES

Following findings are observed from the bar chart. among the total 108 male patients, 55 underwent laparoscopic surgeries and 53 underwent open surgeries. this shows almost an equal ratio. but a significant difference can be seen in female set of patients. of the total 106 patients, 43 underwent open surgeries and 63 underwent laparoscopic surgeries. almost 60% of the female patients underwent laparoscopy surgery and only 40% had open surgeries.

AGE GROUP (YEARS)	TOTAL NUMBER OF PATIENTS
<20	2
21 - 30	19
31 - 40	42
41 - 50	48
51 - 60	62
>60	41
TOTAL	214

TABLE : 6 AGE DISTRIBUTION OF STUDY POPULATION

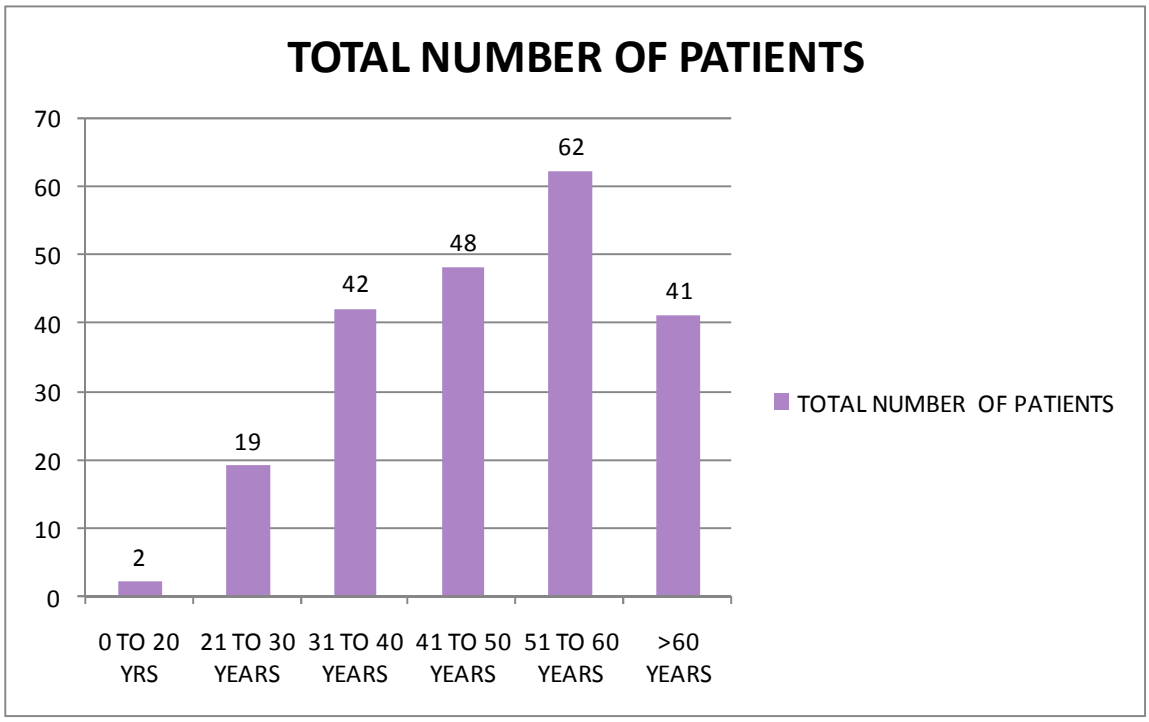


FIGURE : 17 AGE DISTRIBUTION OF PATIENTS

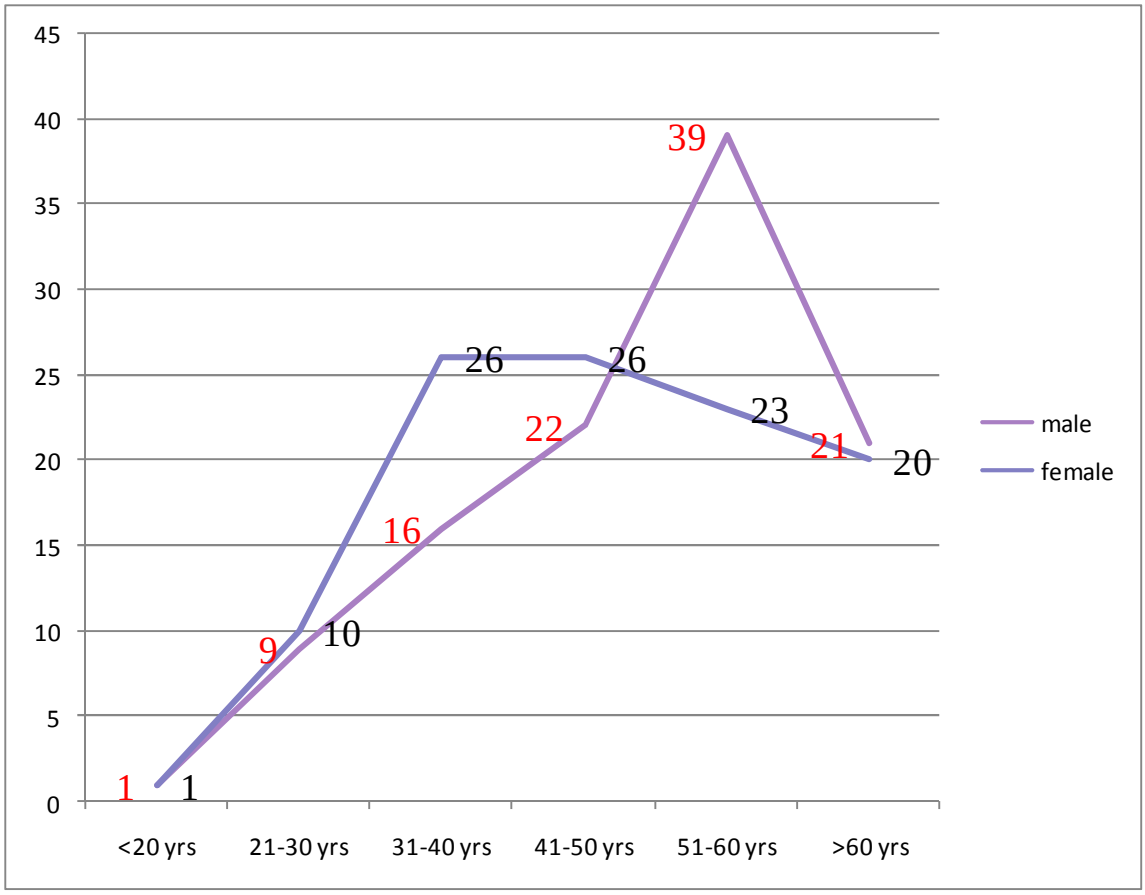


FIGURE : 18 MALE VS FEMALE AGE DISTRIBUTION

Of the 214 patients, maximum number of patients were in the age group of 51-60 years. 62 patients were in this age group. only 2 patients were less than 20 years of age. more than 60 years had 41 patients. 31 to 40 years and 41 to 50 years almost had equal number of patients being 42 and 48 respectively.

Among the commonly done major laparoscopic surgeries, laparoscopic cholecystectomy was the most commonly performed surgeries. among the 80 patients who underwent cholecystectomy, 69 patients i.e. 85% of patients underwent laparoscopic cholecystectomy and only 11 patients i.e. 15% had undergone open cholecystectomy.

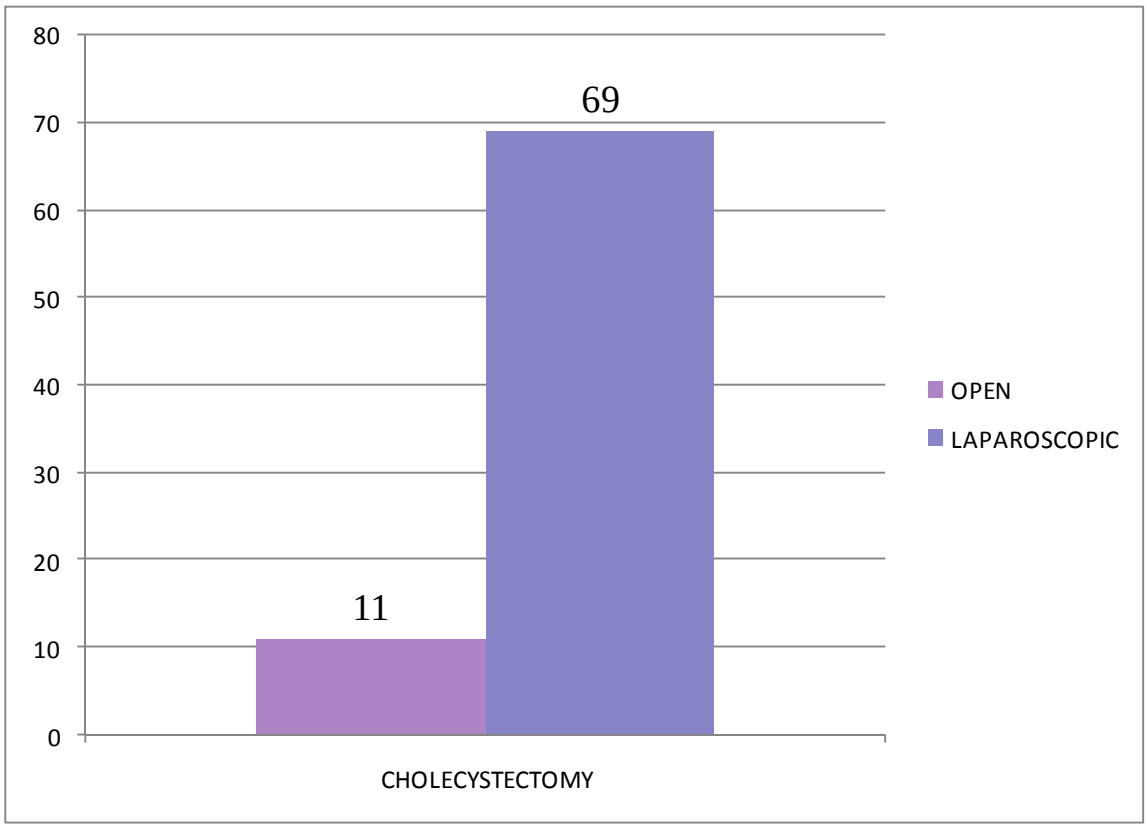


FIGURE :19 NUMBER OF CHOLECYSTECTOMY PROCEDURES - OPEN VS LAPAROSCOPIC METHOD

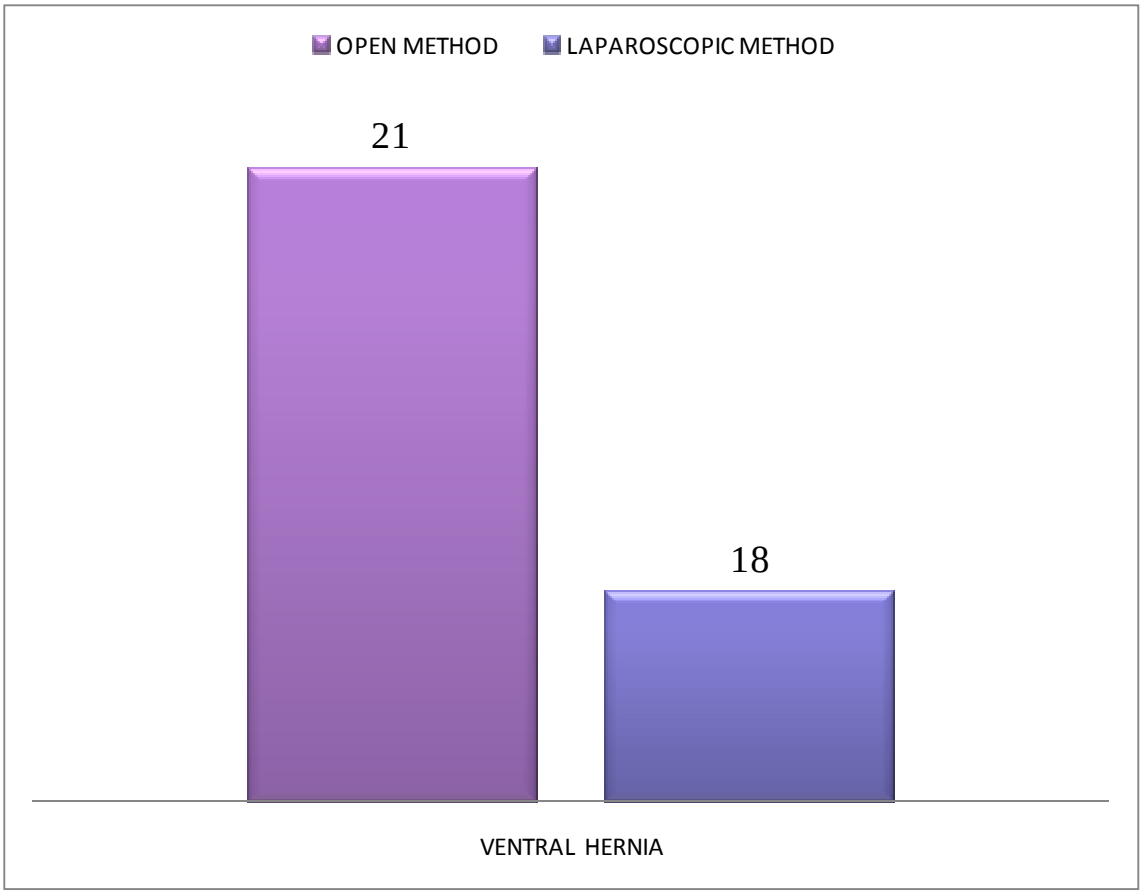


FIGURE :20 NUMBER VENTRAL HERNIA REPAIR - OPEN VS LAPAROSCOPIC METHOD

in contrast to cholecystetomies, majority of the ventral hernia repair performed was by open method. among the 39 patients who underwent surgery for ventral hernia, 21 patients were operated by laparoscopic repair and only 18 patients were operated by the technique of open mesh repair.

Few surgeries which were exclusively done by open method. they are

1. Partial Gastrectomy
2. Cholecystectomy with Choledocoduodenostomy
3. Abomino-perineal resection
4. Hemicolectomy
5. Truncal vagotomy with Gastro-jejunal anastomosis
6. Whipple's procedure
7. High Anterior resection

Among the 52 patients who underwent exclusively open surgeries, 19 surgeries had undergone partial gastrectomy, 10 patients underwent cholecystectomy with choledochodeuodenostomy, 7 patients had abdomino-perineal resections, 6 had hemicolectomies, 6 truncal vagotomies, 3 underwent whipple's procedure and only 1 had undergone high anterior resection.

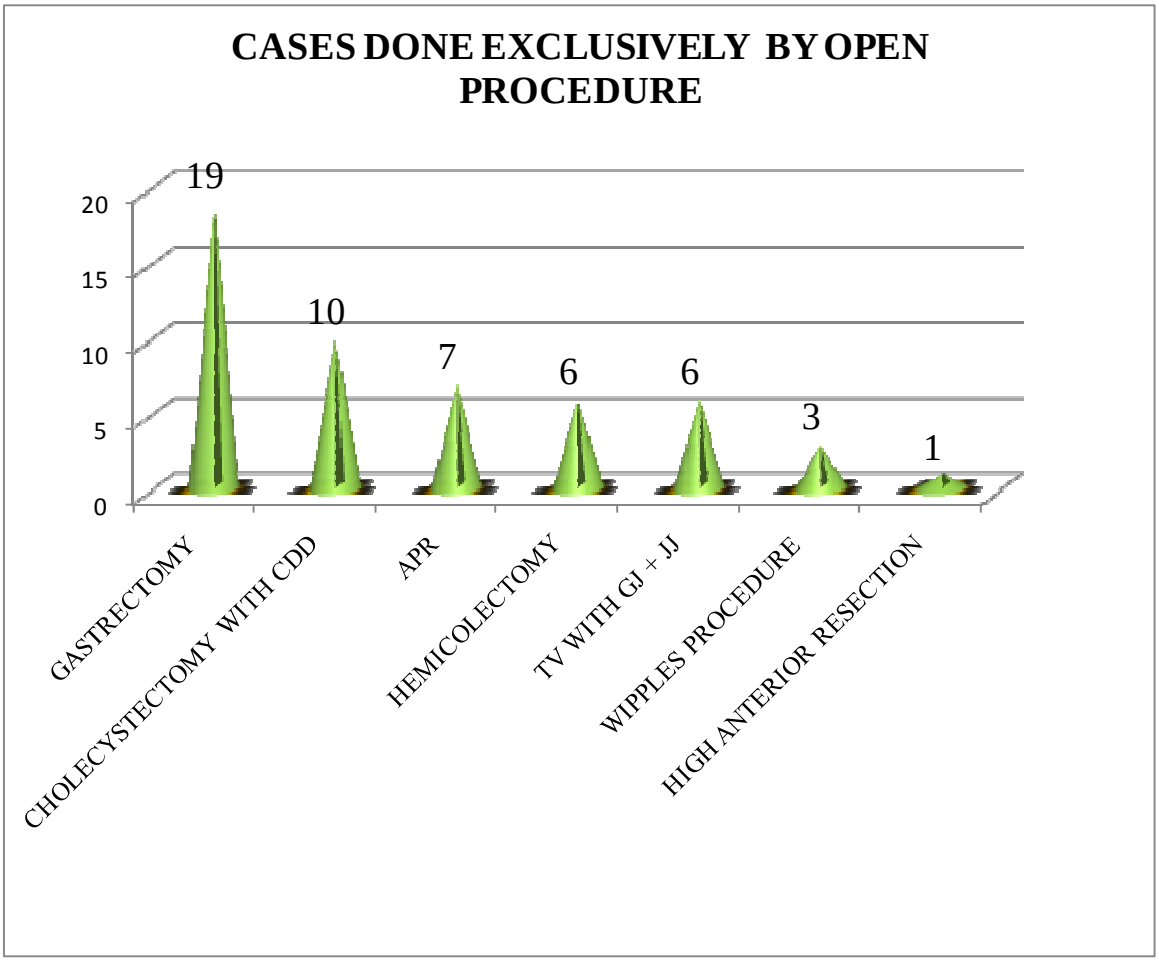


FIGURE: 21 CASES DONE EXCLUSIVELY BY OPEN PROCEDURE

There were no surgeries which were exclusively done by laparoscopic method. Most of the oncological procedures were done by open technique in view of lymph nodal clearance .The major oncological procedures done were 1. Gastrectomies 2. Colectomies 3.Pancreatic procedures.

Few surgeries which were done by both open technique and laparoscopic technique were:

1. Cholecystectomy
2. Ventral Hernia
3. Inguinal Hernia.

Totally 80 Cholecystectomies were done, 69 cases were done by Laparoscopic technique and 11 cases by open technique. of the 39 ventral hernia repair, 18 cases had Laparoscopic surgery and 21 cases open surgery. 43 inguinal hernia repair was done. Of which 30 cases underwent laparoscopic method and 13 cases underwent Open method. In Open Inguinal hernia , only Scrotal Abdomen cases were done .

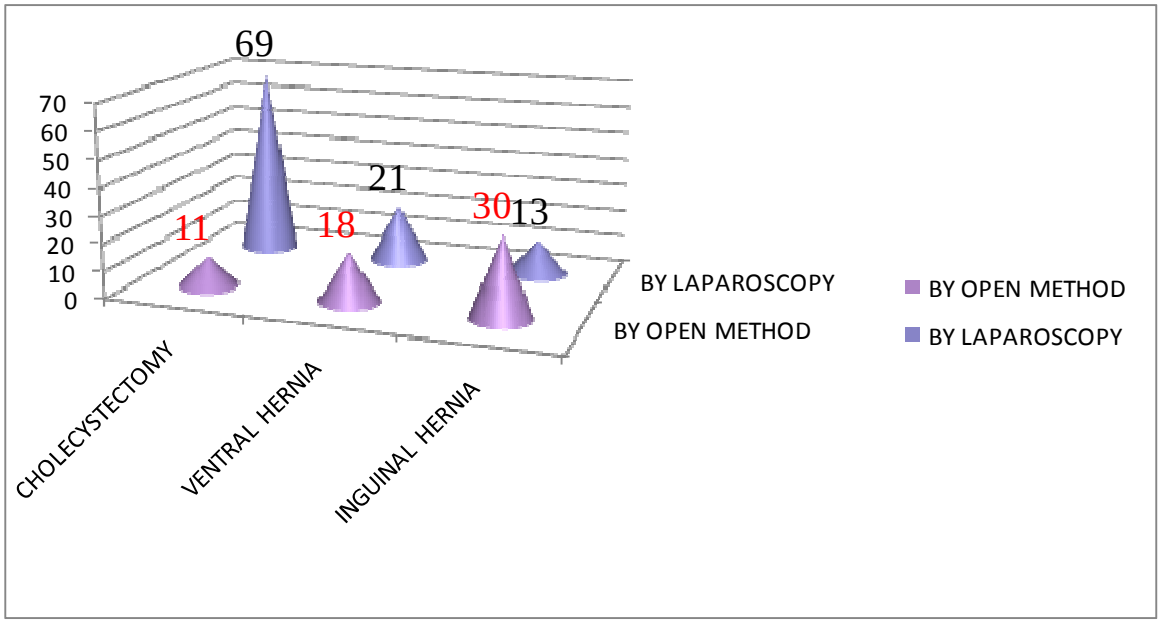


FIGURE: 22 OPEN VS LAPAROSCOPIC SURGERY TECHNIQUE

In this study population (n=214) , 153 patients had no co morbidity, 79 patients had co morbidity conditions like Diabetes Mellitus, Systemic Hypertension, Coronary Artery Disease, Chronic Kidney Disease.

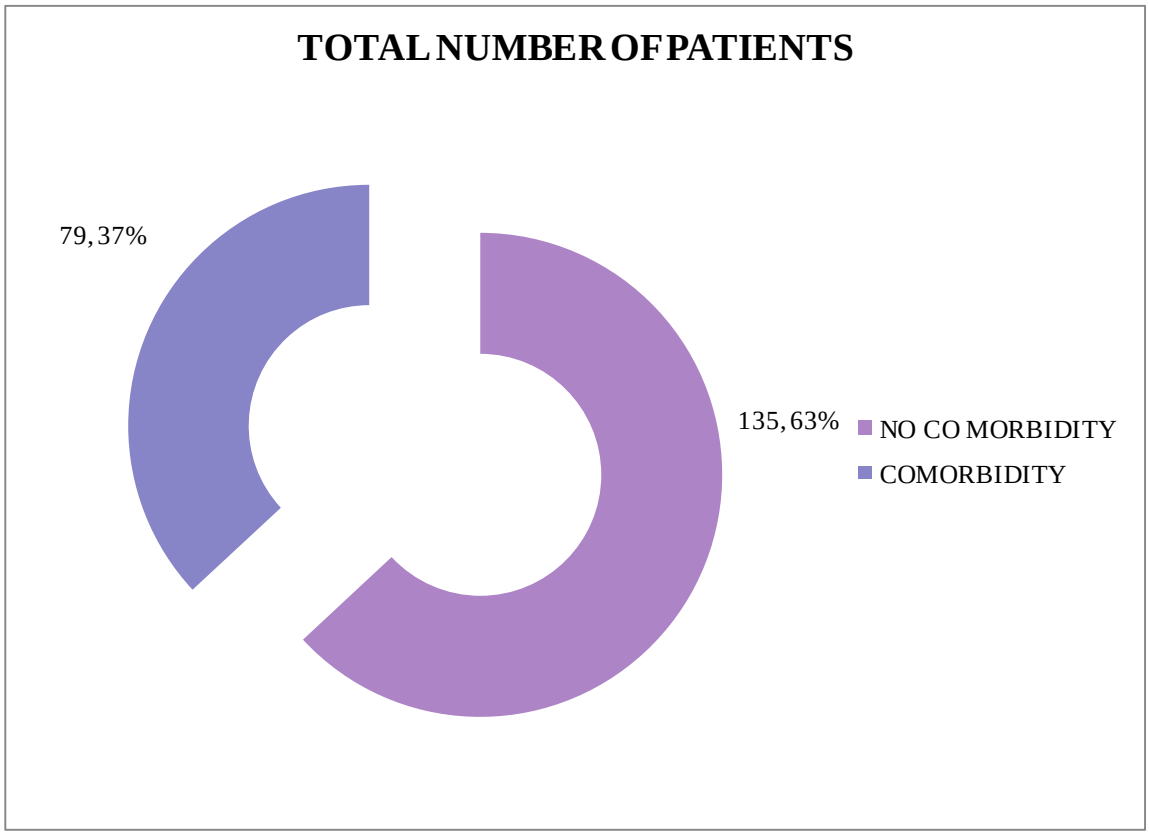


FIGURE: 23 DISTRIBUTION OF CO MORBIDITY PATTERN

Of which 57 patients had single co morbidity, 22 patients had two or more than two co morbidity.

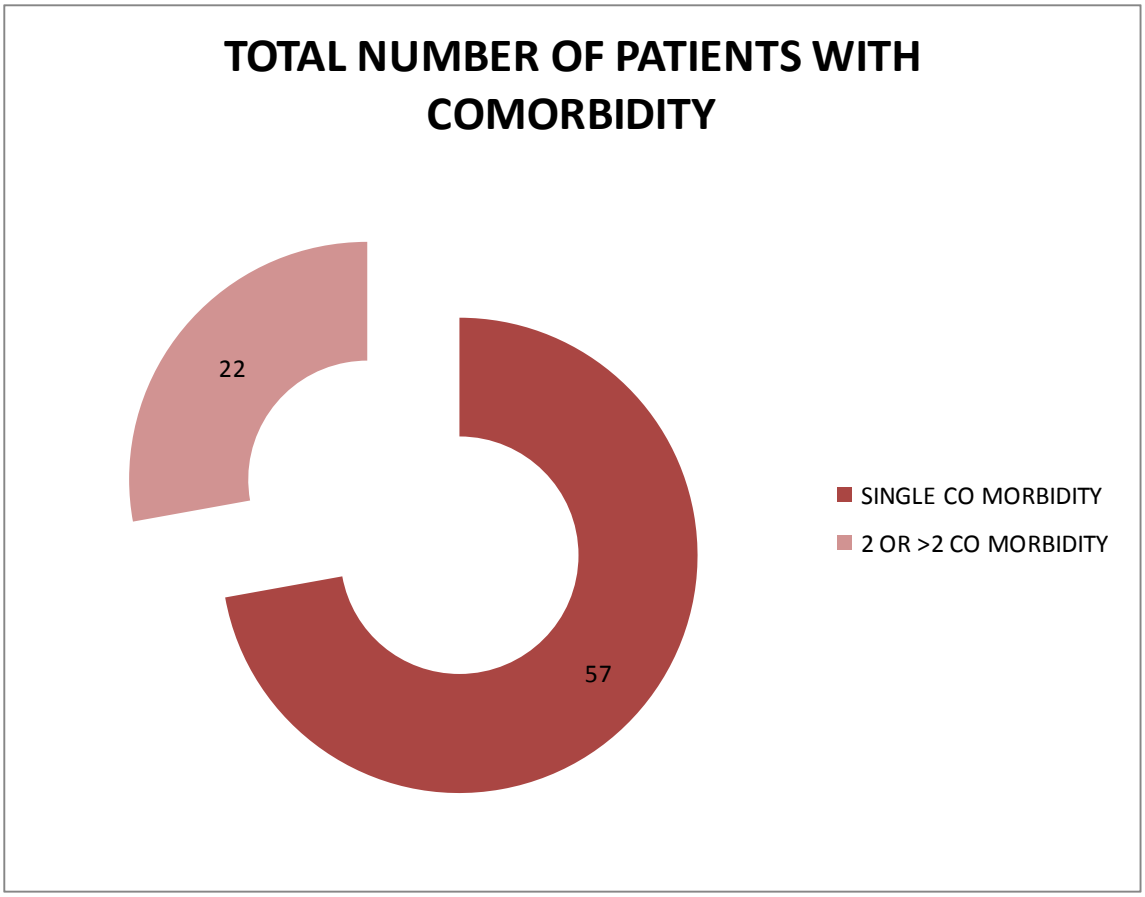


FIGURE : 24 SINGLE VS MULTIPLE COMORBIDITIES

Means 52 patients had either one of the following co morbidity like diabetes, hypertension, coronary heart disease, chronic kidney disease. 22 patients had combination of above said co morbidities.

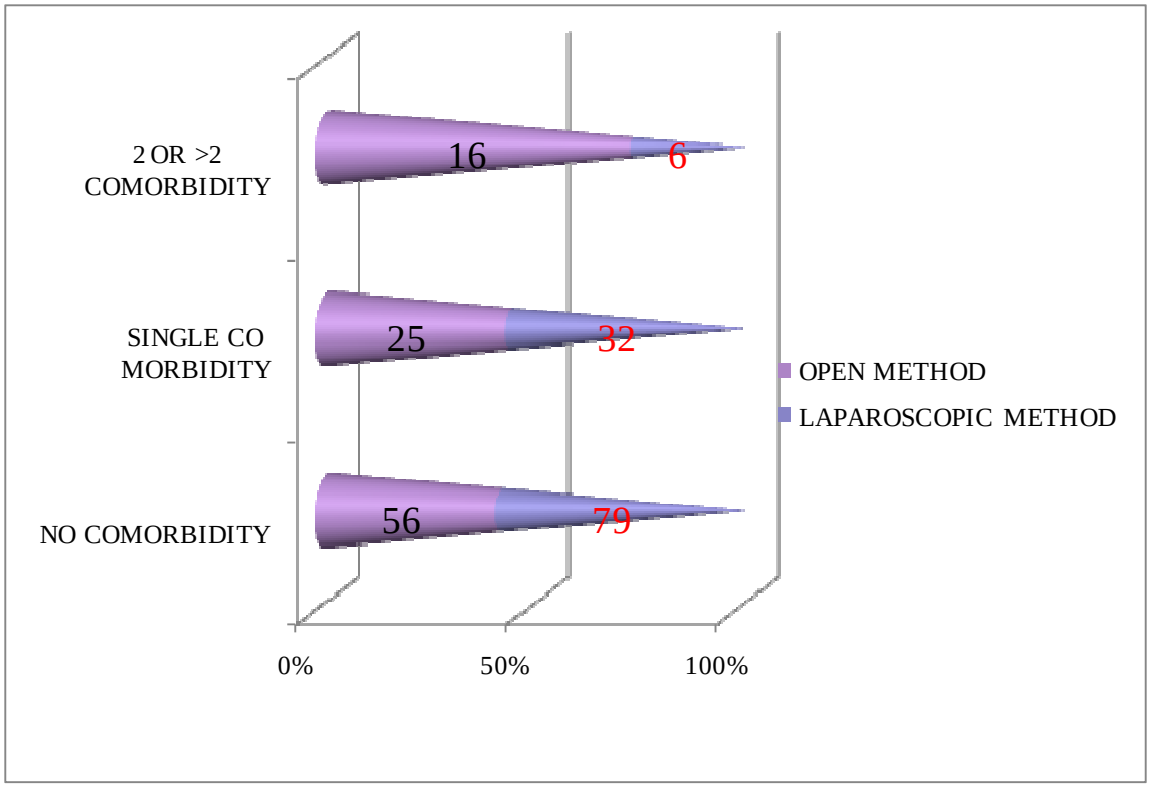


FIGURE: 25 - CO MORBIDITY PATTERN IN PATIENTS UNDERWENT OPEN & LAPAROSCOPIC METHOD

Total of 135 patients had no co morbidity of which 56 patients were subjected for Elective abdominal open surgical procedures, 79 patients were subjected for Elective abdominal laparoscopic surgical procedures. Out of 57 patients with single co morbidity 25 patients underwent open procedures 32 patients underwent laparoscopic procedures. Total of 22 patients with 2 or more than 2 co morbidity 16 patients subjected for open, 6 patients subjected for laparoscopic procedures.

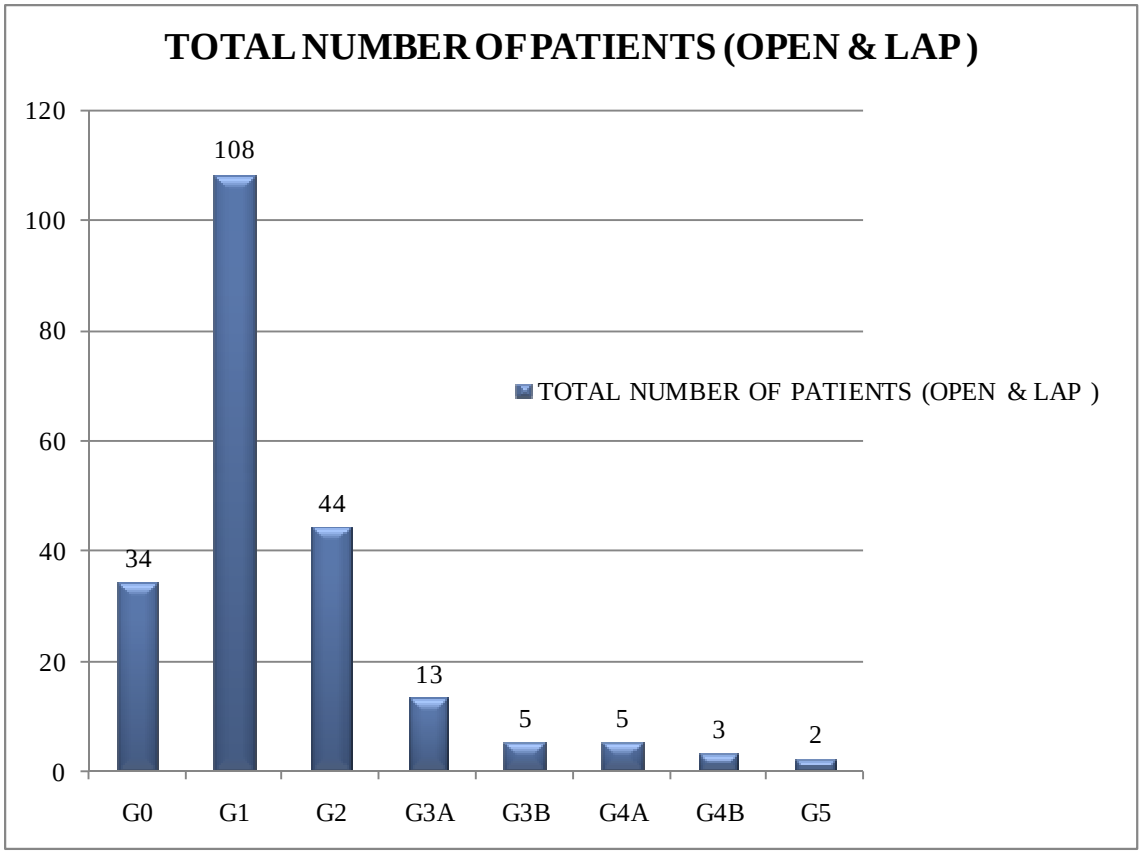


FIGURE:26 TOTAL NUMBER PATIENTS IN VARIOUS GRADES OF COMPLICATIONS

In this study population (n=214), 34 patients (15.8%) had no complication, 180 patients were developed complications during their post operative period among which 108 patients (50.46%) developed Grade 1 complications, 44 patients (20.5%) developed Grade 2 complications, 13 patients (6.07%) developed Grade 3A complications, 5 patients (2.3%) developed Grade 3B complications, 5 patients (2.3%) developed Grade 4A complications, 3 patients developed (1.4%) Grade 4B complications, 2 patients (0.9%) developed Grade 5 complications.

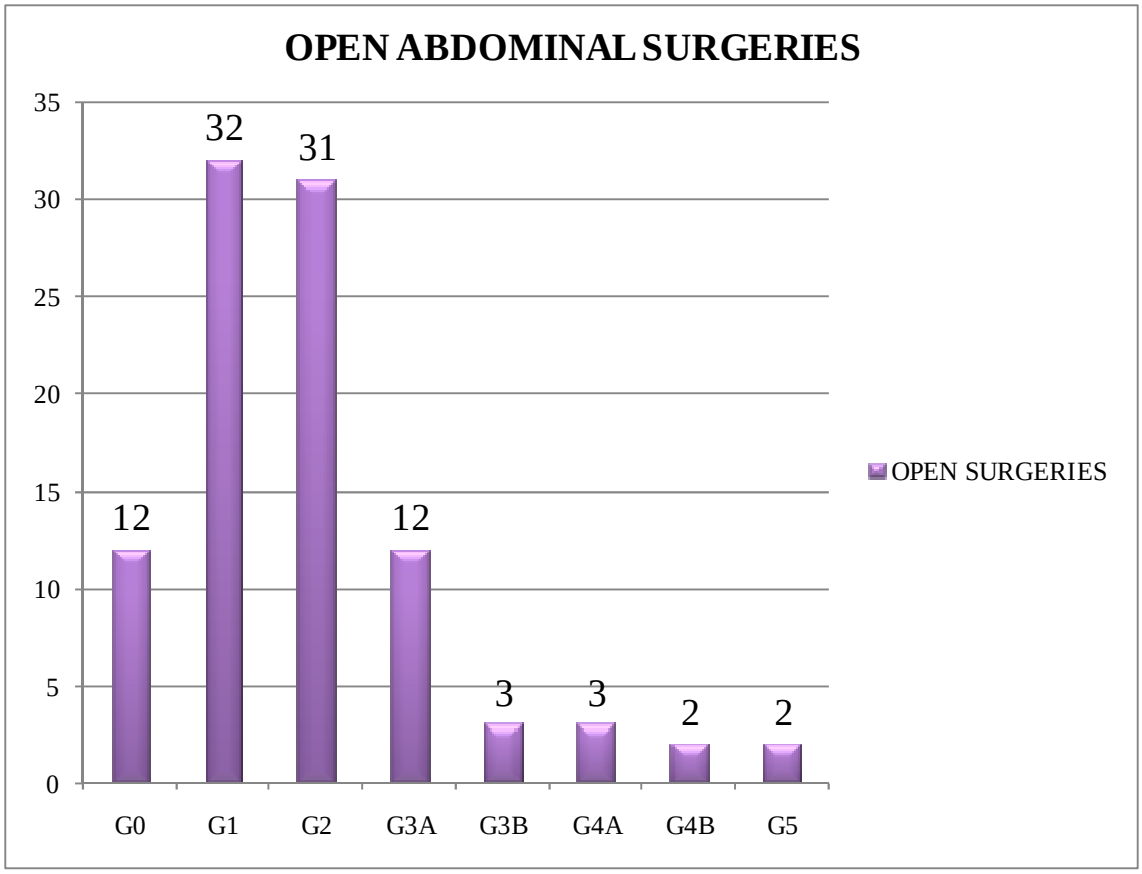


FIGURE : 27 OPEN SURGERY COMPLICATIONS - NUMBER OF PATIENTS IN VARIOUS GRADES

In this study (n=214) about 97 patients underwent varies types of major elective open abdominal surgeries, Of which 12 patients post operative period was uneventful means they does not had any complications, 32 patients were developed Grade 1complications, 31 patients were developed Grade 2 complications, 12 patients developed Grade 3A complications, 3 patients developed Grade 3B complications, 3 patients developed Grade 4A complications, 2 patients developed Grade 4B complications, again 2 patients developed Grade 5 complications.

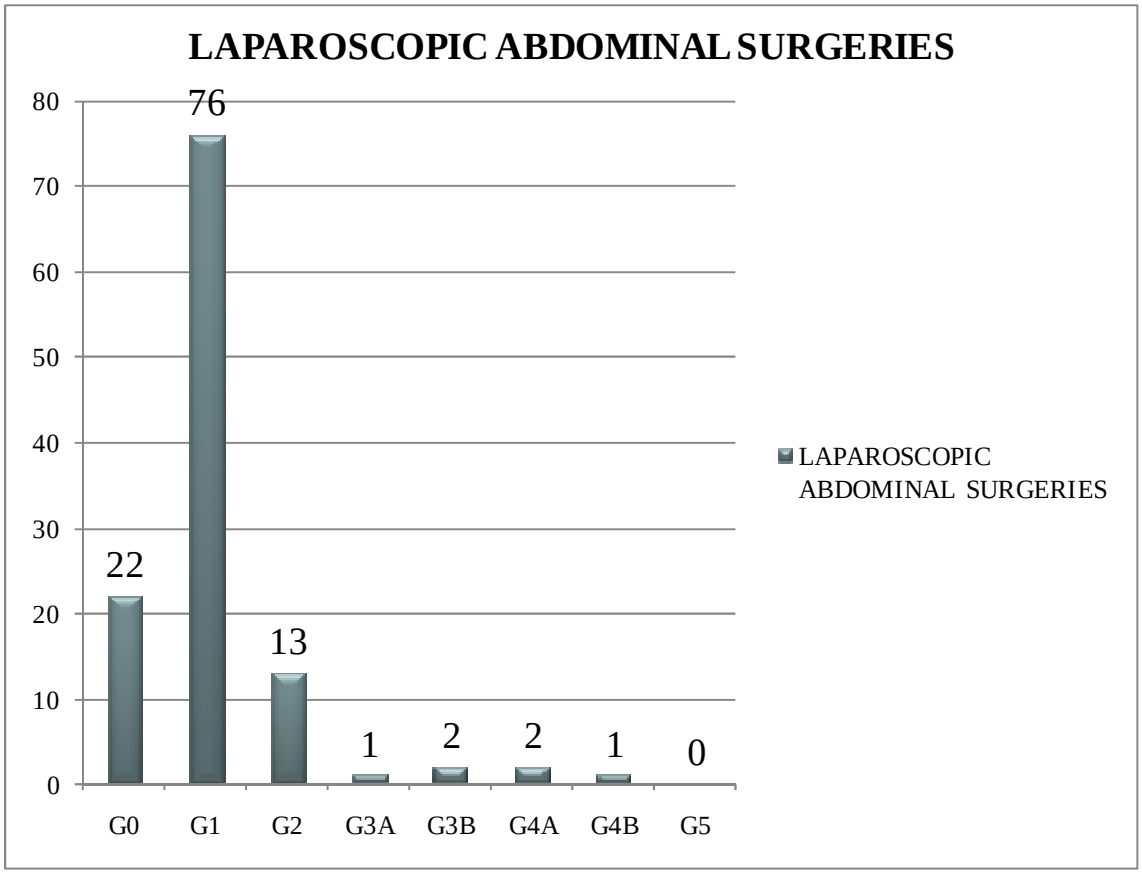


FIGURE : 28 LAPAROSCOPIC SURGERY COMPLICATIONS - NUMBER OF PATIENTS IN VARIOUS GRADES

In this study population (n=214), 117 patients underwent elective laparoscopic abdominal surgeries. 22 patients did not develop any complications. According to Clavien Dindo Classification system of complications, 76 patients came under Grade 1,13 patients under Grade 2, only1 patient under Grade 3A,2 patients under Grade 3B, 2 patients under Grade 4A and 1 patient under Grade 4B. No mortality was recorded in laparoscopic group(Grade 5 = 0).

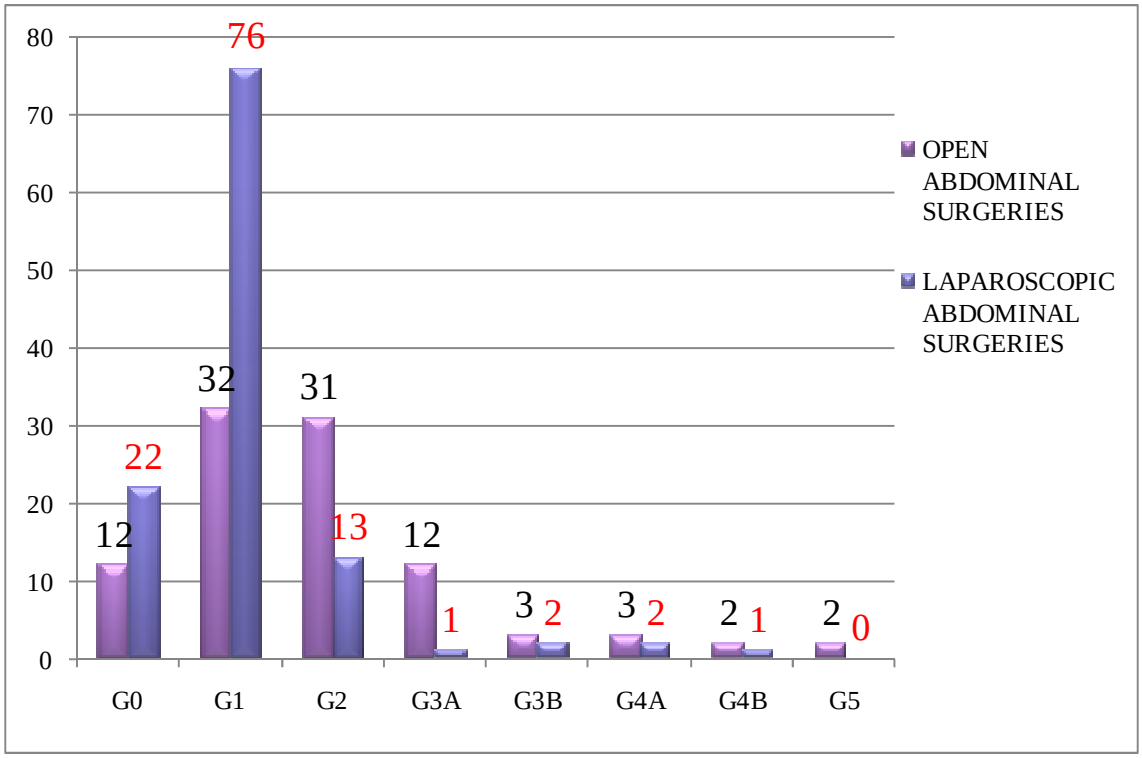


FIGURE : 29 OPEN VS LAPAROSCOPIC SURGERY COMPLICATIONS - NUMBER OF PATIENTS IN VARIOUS GRADES

In this study, while comparing complication grades in both open and laparoscopic elective major abdominal surgeries, laparoscopic group (n=18.80%) did not develop any complications when compared with the open group (n=12.37%). according to Clavien-dindo classification, low grade complications includes G0, G1,G2, and G3A. In this study, majority of patients operated by laparoscopy and open method developed only low grade complications while only very few patients developed high grade complications which is comparatively more in open surgery group (open, n=77%; lap, n=76.92%). No mortality was recorded in Laparoscopic group. 2 patients (1.94%) expired in open group.

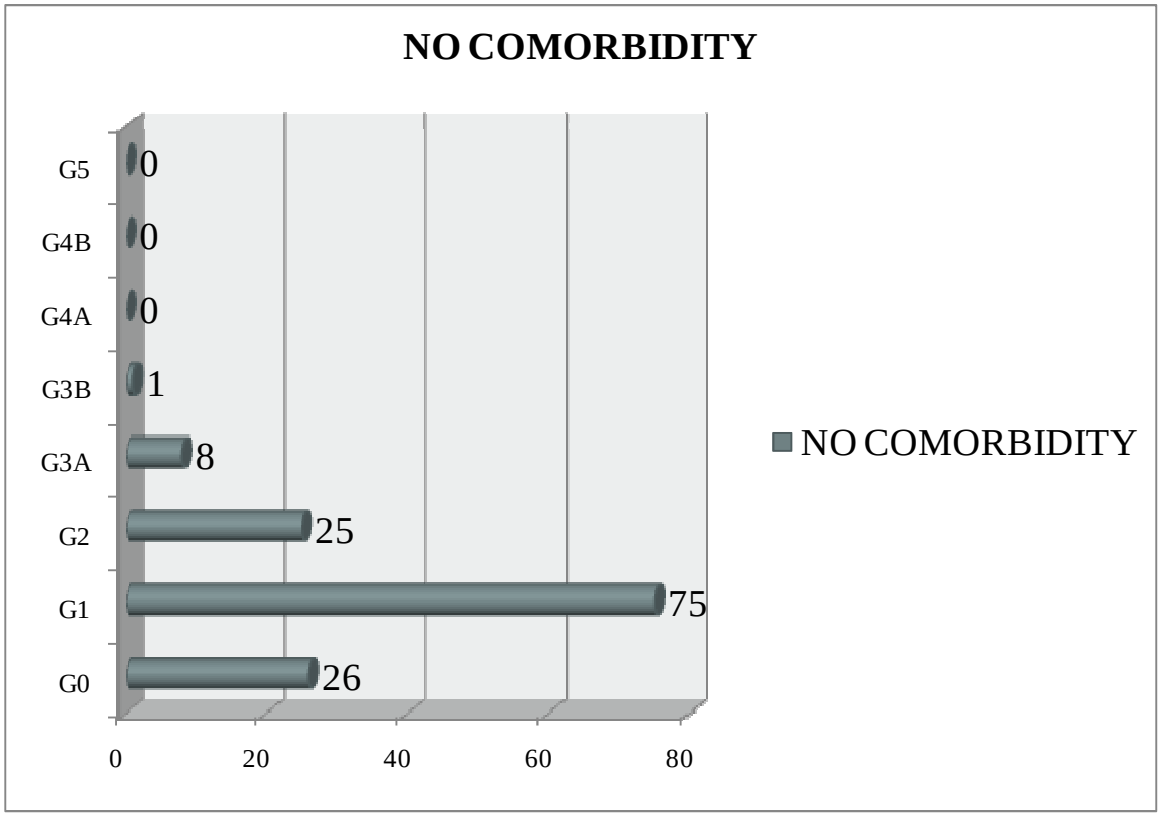


FIGURE :30 GRADING OF COMPLICATIONS IN NO CO MORBID GROUP

When observing the co morbidity with complications(n=214), 135 patients had no co morbidity. out of this 135 patients about 26 patient did not develop any complication, 75 patients developed G1 complications,25 patients developed Grade 2 complications, 8 patients developed Grade 3A complications, 1 patient developed Grade 3B complication and nobody developed Grade 4 & 5 complication.

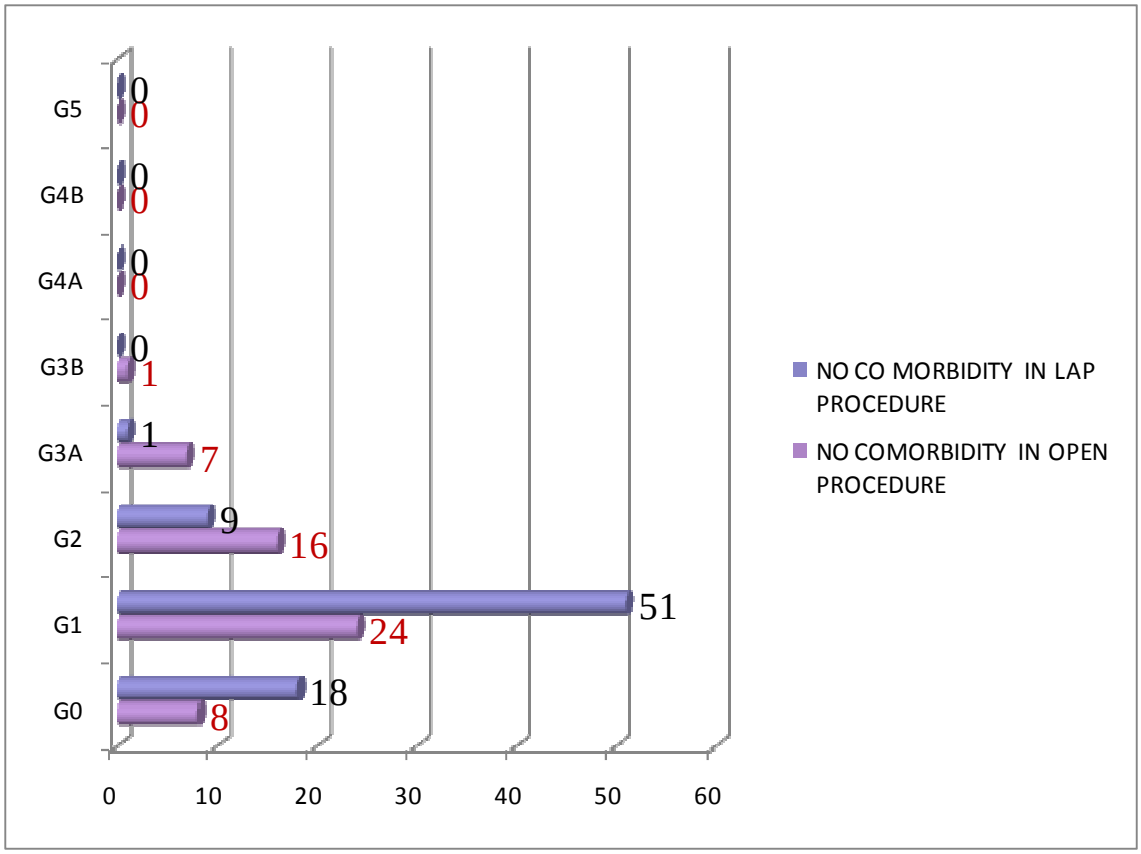


FIGURE : 31 OPEN VS LAP - GRADING OF COMPLICATIONS IN NO COMORBID GROUP

Among the patients with no co morbidity, majority of the complications developed were in G1 group. 51 patients who underwent laparoscopic surgeries and 24 patients who underwent open surgeries with no co-morbidities developed G1 complications. there were no patients in the high complication group.

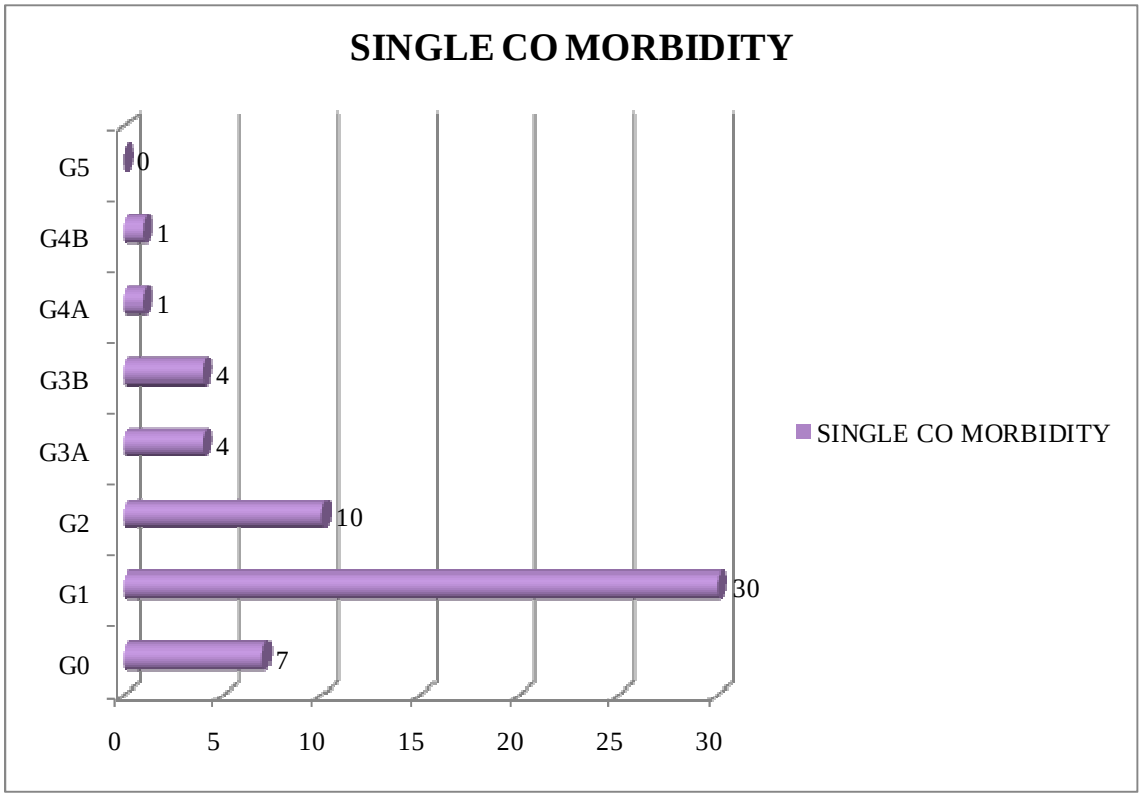


FIGURE :32 GRADING OF COMPLICATION IN SINGLE COMORBIDITY GROUP

When observing single co morbidity patients with complications, 57 patients had single co morbidity. out of this 57 patients,0 7 patients did not develop any complication, 30 patients developed G1 complications,10 patients developed Grade 2 complications, 4 patients developed Grade 3A complications, 4 1patient developed Grade 3B complication, 1 patient each developed G4A and G4b complications. there was no mortality observed in patients with single co morbidity.

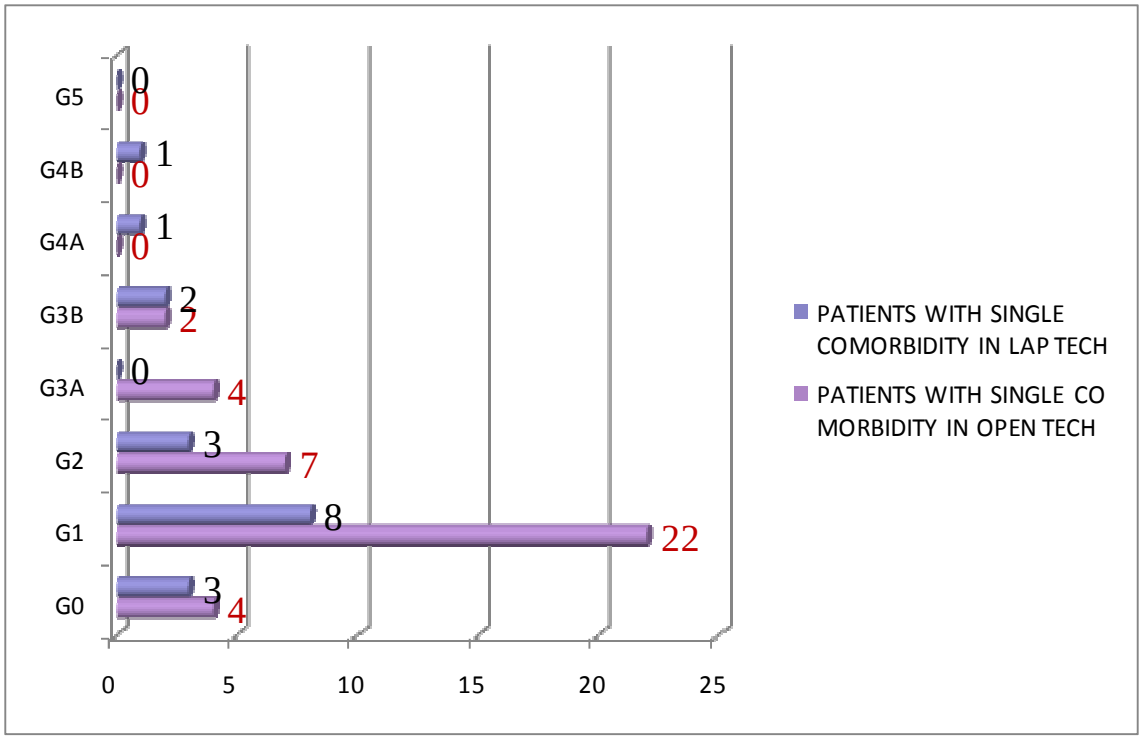


FIGURE :33 OPEN VS LAP - GRADING OF COMPLICATIONS WITH SINGLE COMORBID GROUP

Among the patients with single co morbidity, majority of the complications developed were in G1 group. 8 patients of total 32 patients who underwent laparoscopic surgeries and 22 patients who underwent open surgeries with single co-morbidities developed G1 complications. in contrast to the no co morbid group, patients with single co morbid developed high grade complications being more common in patients who underwent laparoscopic surgeries.

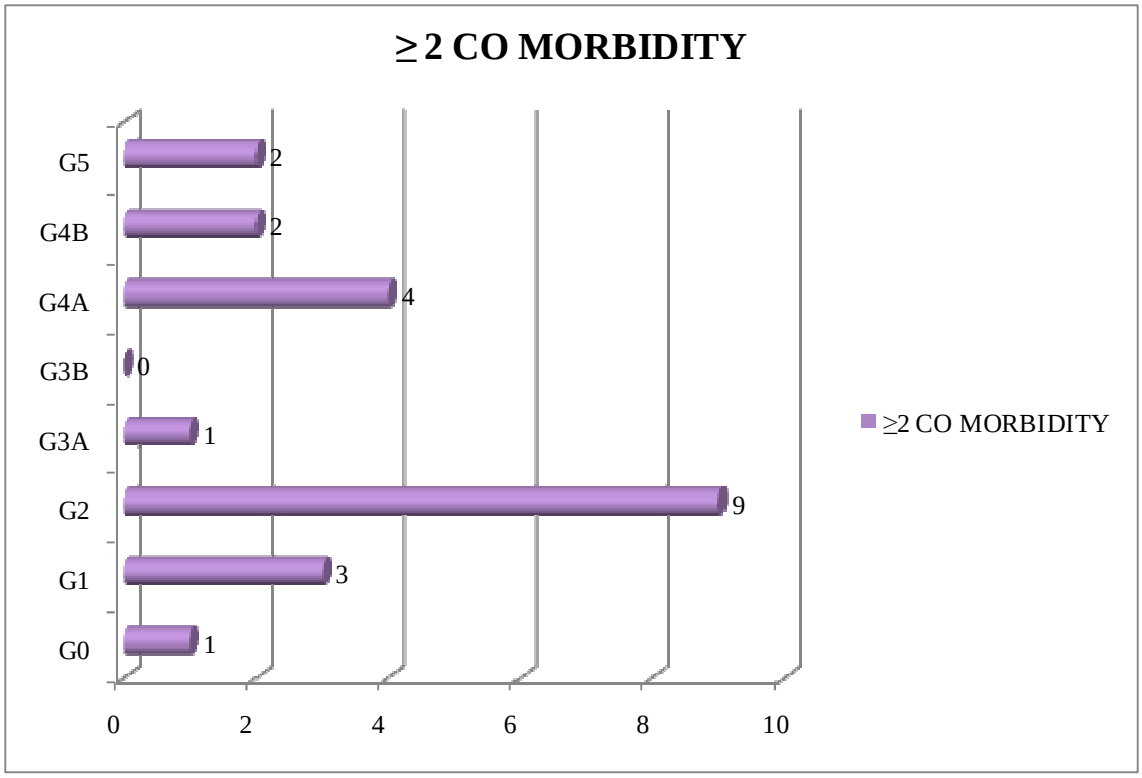


FIGURE:34 GRADING OF COMPLICATION IN ≥2 COMORBIDITY GROUP

When observing 2 or more co morbidity patients with complications, 22 patients had 2 or more co morbidities. out of this 22 patients,1 patient did not develop any complications, 3 patients developed G1 complications, 9 patients developed Grade 2 complications, 1 patients developed Grade 3A complications, no patient developed Grade 3B complications, 4 patient each developed G4A and 2 patients each developed G4b and G5 complications. 2 mortality was observed in patients with 2 or more co morbidities.

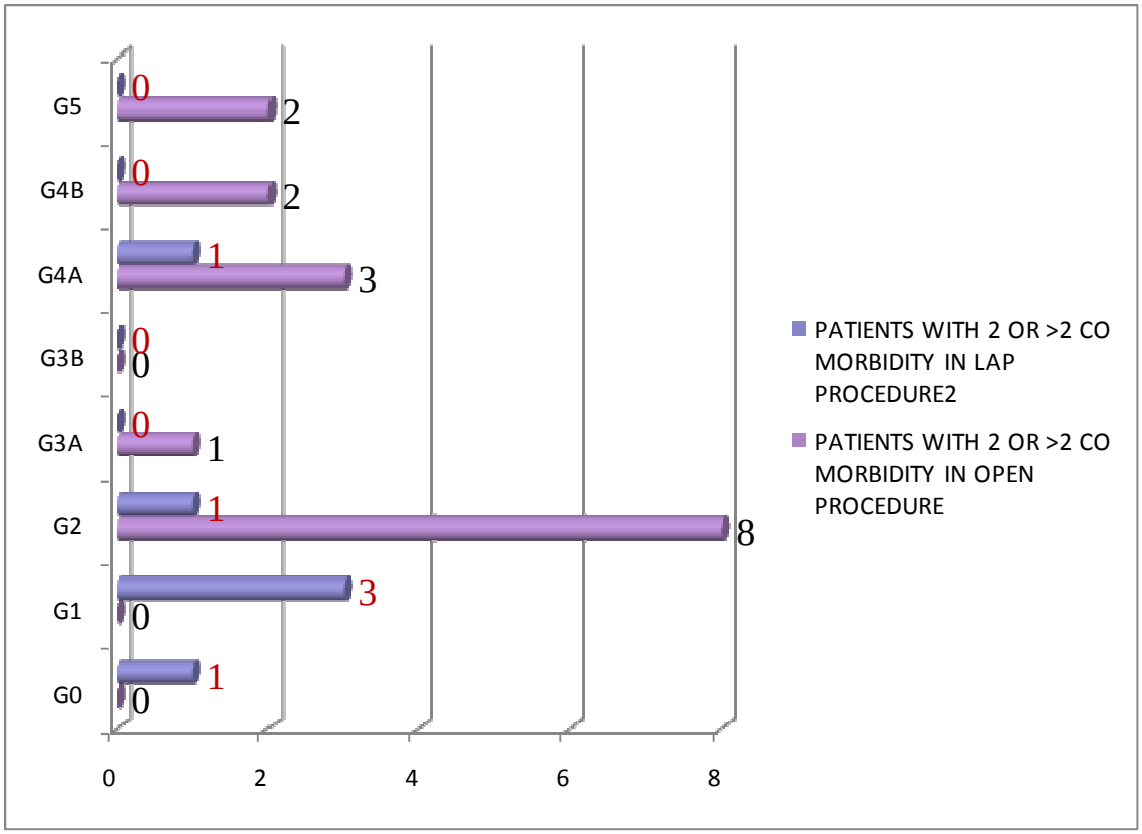


FIGURE : 35 OPEN VS LAP - GRADING OF COMPLICATIONS WITH ≥2 COMORBID GROUP

Among the patients with 2 or more co morbidities, majority of the complications developed were in G2 group. when compared with laparoscopic group, more complications were seen in patients who underwent open surgeries. mortality was also recorded only in open group whereas there was no mortality in laparoscopy group.

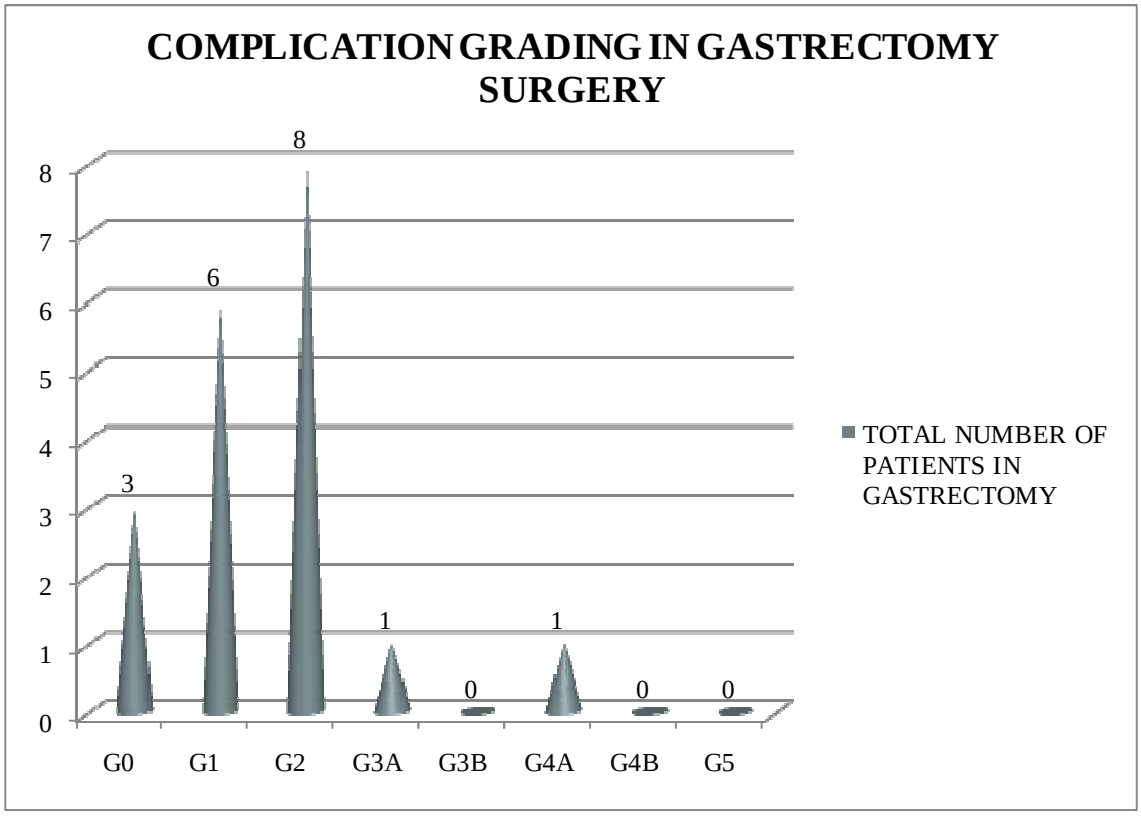


FIGURE : 36 GRADING OF COMPLICATION IN GASTRECTOMY SURGERY

The above chart shows the various number of patients developing different complications undergoing gastrectomy surgeries. majority of the patients developed only low grade complications. 3 patients developed in G0, 6 patients developed in G1 and 8patients developed G3 complications.

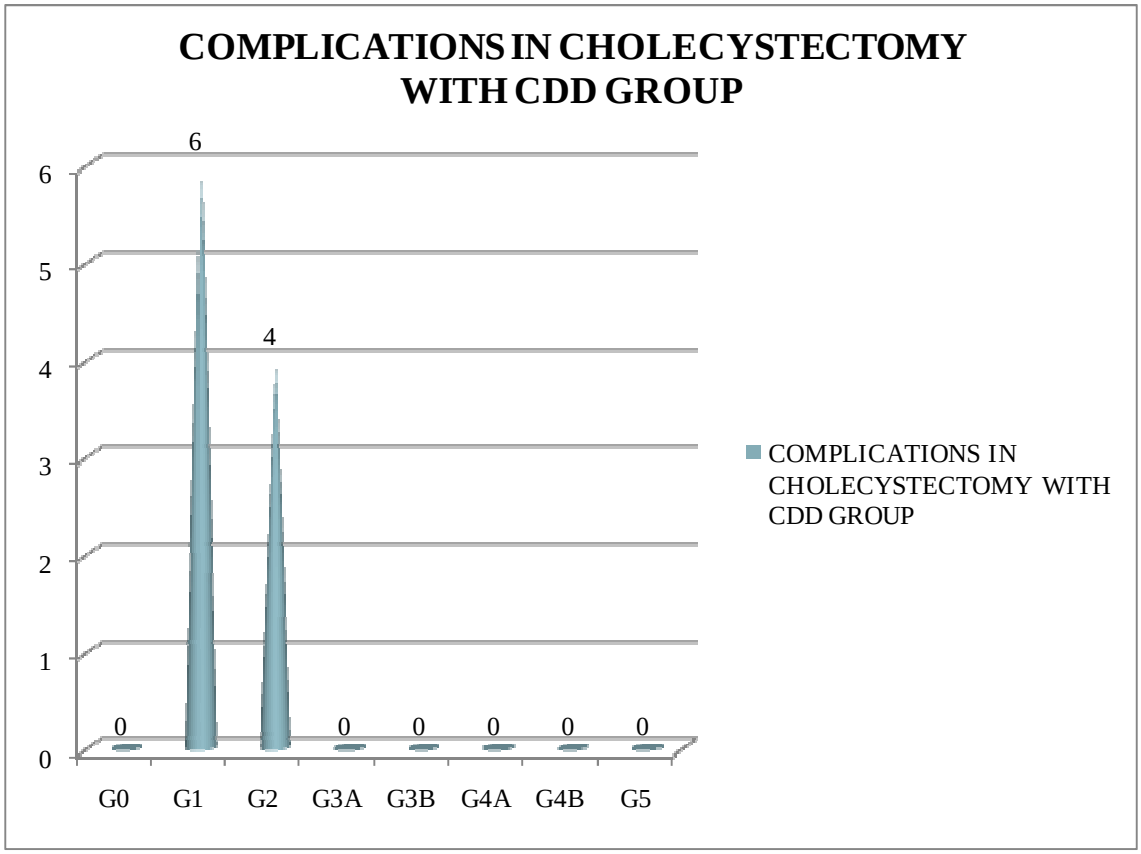


FIGURE : 37 COMPLICATION GRADING IN CHOLECYSTECTOMY WITH CHOLEDOCHODEUODENOSTOMY SURGERY

The above chart shows the various number of patients developing different complications undergoing cholecystectomy with choledocho deuodenostomy surgeries. only 10 patients developed complications. 6 patients developed G1 complications and 4 patients developed G2 complications.

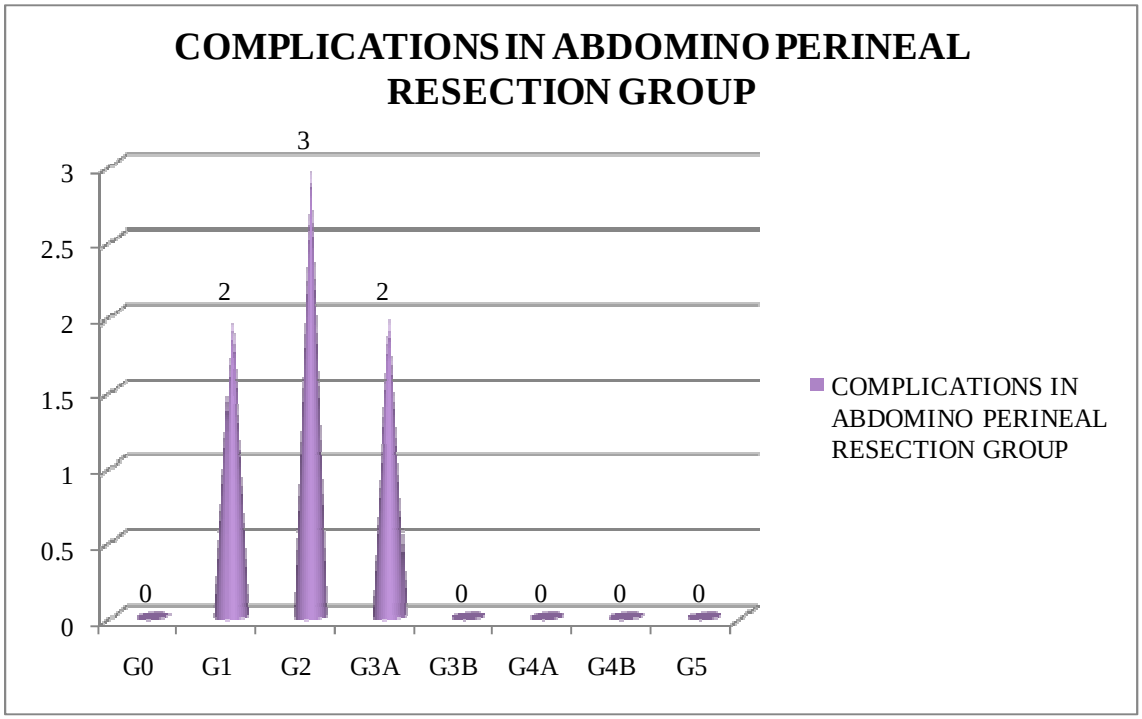


FIGURE :38 GRADING OF COMPLICATION IN ABDOMINO PERINEAL RESECTION SURGERY

The above chart shows the various number of patients developing different complications undergoing abdomino perineal surgeries. 7 patients developed complications. 2 patients developed G1 complications, 3 patients developed G2 complications and 2 patients developed G3A complications.

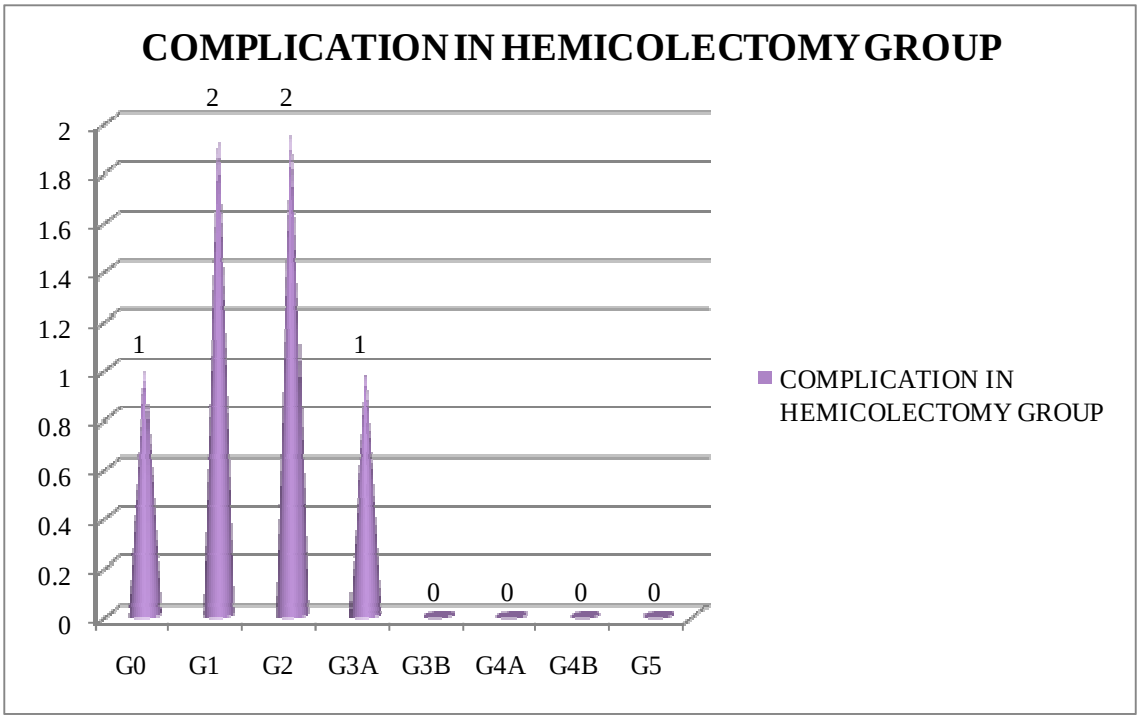


FIGURE :39 GRADING OF COMPLICATION IN ABDOMINOPERINEAL RESECTION SURGERY

The above chart shows the various number of patients developing different complications undergoing hemicolectomy surgeries. 6 patients developed complications. 1 patient developed no complications, 2 patients developed G1 complications, 2 patients developed G2 complications and 1 patient developed G3A complications. no mortality was observed.

In other surgeries, total no of patients operated were minimal in this time duration. hence complications could not be graded significantly.

DISCUSSION

DISCUSSION

This prospective study involving 214 patients admitted for abdominal pathology who underwent either open or laparoscopic major abdominal procedures included different age group of patients with different co morbid conditions. Post operative complications were studied in each of these patients and graded according to clavie n dindo classification.

In this classification, grades I and II include only a minor deviation from the normal postoperative course which can be treated with drugs, blood transfusions, physiotherapy and nutrition, while grades III and IV require surgical, endoscopic or radiologic intervention, and intermediate care or ICU management

This grading system was objective and simple because the data recorded in our database were easily converted into this new classification. First, we noted that using this system, the rate of patients with any deviation from the normal postoperative course was very high (only 84.2%); 15.8% of the patients had an uneventful postoperative course. In the literature, the lack of a stratified grading system for complications after major abdominal surgeries has not allowed proper evaluation of the surgical outcome. Probably, for this reason, the overall

postoperative morbidity rate after major abdominal surgeries were reported as lower.

In this study some procedures which are exclusively done by open procedure like gastrectomy, hemi colectomy (right and left), Cholecystectomy with CDD, TV +GJ + JJ, Abdomino perineal resection, Whipples procedure, High anterior resection were studied. the complications of above procedures were analyzed and graded by Clavein Dindo classification system. Some common abdominal surgeries which are done by open and laparoscopic method included in this study were Cholecystectomy, Ventral Hernia, Inguinal Hernia(scrotal abdomen). The complication grades of open and lap approaches of the above surgeries were analyzed in this study. Influence of co morbidity in the development of post operative complication were analyzed by Clavien Dindo classification.

In this study, the complications belonged more frequently to grades I and II, constituting about two-thirds of the patients with complications requiring only pharmacological treatment, whereas one-third of the patients required management in the ICU or interventional treatment.

The morbidity increased for grades II-III, demonstrating that the Clavien-Dindo classification is a useful tool for distinguishing among the increased grade of severity of the complications.

In this study population (n=214), 34 patients (15.8%) had no complication, 180 patients developed complications during their post operative period among which 165 patients (76%) developed Low Grade complications, 17 patients (6.9%) developed High Grade complications. among low grade, Grade 1 is most common.

while comparing complication grades in both open and laparoscopic elective major abdominal surgeries, laparoscopic group (n=18.80%) did not develop any complications when compared with the open group (n=12.37%). according to clavien-dindo classification.

In this study, majority of patients operated by laparoscopy and open method developed only low grade complications, most commonly Grade 1(open n=32; lap n=76), In open methods Grade 1 &2 were almost equal in number(grade 1=32;grade 2=31) while only very few patients developed high grade complications which is comparatively more in open surgery group (open, n=77%; lap, n=76.92%). No mortality was recorded in Laparoscopic group. 2 patients (1.94%) expired in open group.

Regarding most commonly occurring complication, In grade 1, post operative nausea, vomiting, pain are most commonly encountered problems. In grade 2, two leading complications were surgical site infection and hemorrhage requiring blood transfusion. The grades 3 to 5 complication rate was within the range described in the literature, and the rate of grades 1 and 2 complications was substantially higher. However, these grades 1 and 2 complications were not associated with a substantially longer hospital stay. patients with no complications and patients with grade I are similar because grade I did not include particular pharmacologic treatment but only wound infections which opened at bedside.

When observing the co morbid status in patients with complications (n=214), 63% (n=135) patients had no co morbidity. 19.25%(n=26) patient did not develop any complication, 80%(n=108) patients developed Low grade complications, only 0.74% developed High grade complications. Among the Low grade complications in both open and laparoscopic technique Grade 1 is most common. Post operative fever, vomiting, pain are the most common complications. Out of 37% (n=79) patients with co morbidity, Only 10% patients did not develop any complication. 72% (n=57) patients developed Low grade complications. 17.72% patients developed High grade complications. From this it was

observed that there was nearly 20% increased risk of High grade complications in patients with co morbidity group. among this patients with co morbidity especially two or more than 2 co morbidity had highest chance of High grade complications.

In gastrectomy surgeries, Out of 19 patients15% of patients (n=3) did not develop any complication, 78.94% (n=15) patients developed Low grade complications of which Grade 2 is most common. Most common in grade 2 was found to be blood transfusion. Only 0.05% patients developed High Grade complications.

In Cholecystectomy with CDD surgeries, All the patients developed Low grade complications only of which Grade 1 is most common. Most common in grade 1was found to be Post operative Nausea and Vomiting.

In Abdomino Perineal Resection surgeries, all the patients were in Low Grade complication group out of which one third of patients belongs to Grade 2 most common in grade 2 was found to be blood transfusion. one third of patients developed wound infection (grade 3a) which needs secondary suturing at bedside.

In Hemicolectomy surgeries, All the patients developed Low grade complications only of which Grade 1& 2 were equal. Most common in grade 1was found to be Post operative Nausea and Vomiting where as it was Blood transfusion in case of Grade2.

In other surgeries, total no of patients operated were minimal in this time duration. hence complications could not be graded significantly.

LIMITATIONS OF THIS STUDY

As this study has been carried out over a limited period of time with a limited number of patients and there was lack of financial and infrastructural support, it could not have been large enough to be of reasonable precision. The follow up period was not long enough to comment about long term morbidity and mortality. All patients undergoing major abdominal surgeries need to be studied and their post operative complication should be graded and all the necessary steps to be taken to prevent or decrease those complications pre operatively. All the facts and figures mentioned here may considerably vary from those of large series covering wide range of time, but still then, as the cases of this study were collected from a tertiary level hospital in our country, this study has some credentials in reflecting the facts regarding post operative complications in elective major abdominal surgeries

CONCLUSION

CONCLUSION

This study demonstrates that Clavien-Dindo classification is a effective and a useful tool for reporting complications following abdominal surgeries in a simple way. any deviation from the normal course following a surgery can be easily distinguished by this classification. it also clearly differentiates the complication severities from one another. this classification continues to be of great importance in analyzing the development of complications among various surgeries. this study also shows that open and laparoscopic surgeries performed in our hospital developed only low grade complications. only few high grade complications were recorded which were more common in open surgeries compared to laparoscopic surgeries. high grade complications when usually seen in patients with multiple co morbidities.

SUGGESTIONS

A definitive statement regarding the clinical use could not be analyzed because of smaller case number and a shorter duration of study. but promising results from this study should motivate us in performing a bigger study trials involving larger cohorts of patients so that the clinical significance of the classification could be proven and surgeons can be encouraged to use this classifications for predicting the most probable complication following a surgery so that he could take necessary preventive measures before hand to avoid the occurrence of such complications.

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BIBILIOGRAPHY

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ANNEXURES

PROFORMA

Name: Age/Sex:

Address: Occupation:

SYMPTOMS:

Fever,Vomiting,abdominal pain,abdominal distension,difficulty in breathing,chest pain,swelling of legs,discharge from wound,wound gaping.

GENERAL EXAMINATION:

VITAL SIGNS:

PR-

BP-

RR-

LOCAL EXAMINATION:

Examination of abdomen

INVESTIGATIONS:

- Complete blood picture.
- Random blood sugar, Blood urea, Serum creatinine.
- Serum electrolytes.
- Liver Function Test

- Chest x-ray.
- Ultrasonography
- CTabdomen if applicable.
- Any investigation done in post-operative period if required.
    - o Post operative chest x-ray
    - o Post operative electrolytes
    - o Serum protein and albumin

INFORMATION SHEET

TITLE: "CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES".

Name of Investigator: Dr.S.Karthikmuthuram,. **Name of Participant:**

Purpose of Research: The study is aimed at assessing the postoperative complications following major abdominal surgeries using Clavien Dindo classification

S**tudy Design :** Prospective Time-Bound Hospital Based study.

Study Procedures : Patient will be subjected to History, Clinical examination, Routine investigations, , USG and CT(if necessary).

Possible Risks : No risks to the patient

Possible benefits:

To patient : The assessment of complications enables us to plan the surgical procedures in future so as to minimize the complications.

To doctor & to other people : If this study succeeds, it can help determine the treatment protocol for patients undergoing major abdominal surgeries. This will help in providing better and complete treatment to other patients in future.

Confidentiality of the information obtained from you : The privacy of the patients in the research will be maintained throughout the study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

Can you decide to stop participating in the study : Taking part in this study is voluntary. You are free to decide whether to participate in this study or to withdraw at any time

How will your decision to not participate in the study affect you : Your decision will not result in any loss of benefits to which you are otherwise entitled.

Signature of Investigator

Date :
Place :

Signature Of Participant

Date:
Place:

PATIENT CONSENT FORM

Study Detail : "**CLINICAL STUDY ON ASSESSMENT OF POST SURGICAL COMPLICATIONS ACCORDING TO CLAVIEN DINDO CLASSIFICATION IN OPEN AND LAPAROSCOPIC ELECTIVE ABDOMINAL SURGERIES".**

Study Centre : Rajiv Gandhi Government General Hospital, Chennai.

Patient's Name :

Patient's Age :

Identification Number :

Patient may check (√) these boxes

a) I confirm that I have understood the purpose of procedure for the above study. I have the opportunity to ask question and all my questions and doubts have been answered to my complete satisfaction. ❑

b) I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving reason, without my legal rights being affected. ❑

c) I understand that sponsor of the clinical study, others working on the sponsor's behalf, the ethical committee and the regulatory authorities will not need my permission to look at my health records, both in respect of current study and any further research that may be conducted in relation to it, even if I withdraw from the study I agree to this access. However, I understand that my identity will not be revealed in any information released to third parties or published, unless as required under the law. I agree not to restrict the use of any data or results that arise from this study. ❑

d) I agree to take part in the above study and to comply with the instructions given during the study and faithfully cooperate with the study team and to immediately inform the study staff if I suffer from any deterioration in my health or well being or any unexpected or unusual symptoms. ❑

e) I hereby consent to participate in this study. ❑

f) I hereby give permission to undergo detailed clinical examination and blood investigations as required.

Signature of Investigator

Signature/thumb impression

Patient's Name and Address:

Study Investigator's Name:
Dr. S.KARTHIKMUTHURA M

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE-LAP/ OPEN	PROCEDURE	ACCORDING TO CLAVIEN DINDO CLASSIFICATION COMPLICATION GRADE	TYPE OF COMPLICATION OCCURRED
SAMSON	46	M	DM	SPLENIC FLEXURE GROWTH	OPEN	LEFT HEMICOLECTOMY	G1	WOUND INFECTION
LAKSHMI	40	F	NIL	SPLENIC FLEXURE GROWTH	OPEN	LEFT HEMICOLECTOMY	G3A	WOUND GAPPING
BALAJI	43	M	NIL	RIGHT ILIAC FOSSA MASS	OPEN	RIGHT HEMICOLECTOMY	G2	BLOOD TRANSFUSION
JAYAPAL	71	M	DM,SHT	HEPATIC FLEXURE GROWTH	OPEN	RIGHT HEMICOLECTOMY	G2	BLOOD TRANSFUSION
GOVINDASAMY	55	M	NIL	SPLENIC FLEXURE GROWTH	OPEN	LEFT HEMICOLECTOMY	G3A	WOUND GAPPING
BALAJI	38	M	NIL	ASCENDING COLON GROWTH	OPEN	RIGHT HEMICOLECTOMY	G2	DIARRHOEA-INFECTIOUS
ELUMALAI	60	M	CAD,SHT	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G4A	PULMONARY OEDEMA
ELANGO	32	M	NIL	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G1	PAIN, VOMITING
PERUMAL	61	M	DM	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G1	WOUND INFECTION
SARAVANAN	42	M	NIL	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G1	WOUND INFECTION
KAMALAMMAL	67	F	NIL	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G2	BLOOD TRANSFUSION
ARUL	40	M	NIL	GASTRIC OUTLET OBSTRUCTION	OPEN	TV+GJ+JJ	G2	BLOOD TRANSFUSION
KUPPU	41	F	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY +D1 RESECTION	G1	FEVER,VOMITING
JAMUNA	38	F	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G1	TRANCIENT ELEVATION OF SERUM CREATININE
PREMA	52	F	SHT	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G0	NIL
KARUPAN	55	M	OTHERS	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
GANDHI	47	F	SHT	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	TPN
PALANI	55	M	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G1	WOUND INFECTION
NATARAJ	55	M	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G1	DIARRHOEA

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	ACCORDING TO CLAVIEN DINDO CLASSIFICATION COMPLICATION GRADE	TYPE OF COMPLICATION OCCURRED
KANNIYAMMAL	65	F	NIL	CARCINOMA STOMACH	OPEN	TOTAL GASTRECTOMY+GJ+JJ	G0	NIL
RAJAGOPAL	63	M	DM	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
SHANKAR	44	M	NIL	CARCINOMA STOMACH	OPEN	TOTAL GASTRECTOMY+GJ+JJ	G1	WOUND INFECTION,VOMITING
MAYA KRISHNAN	43	M	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
RAMAN	53	M	SHT	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G3A	WOUND GAPPING
VIJAYALAKSMI	55	F	SHT	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G0	NIL
VENKATESH	55	M	SHT,DM	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G4A	AKI
MUNUSAMY	65	M	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
KANAGAVEL	63	M	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
GUNASEKARAN	60	M	SHT	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	BLOOD TRANSFUSION
SHANMUGAM	75	M	SHT,DM	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G2	TPN
MAHESHWARI	50	F	NIL	CARCINOMA STOMACH	OPEN	SUBTOTAL GASTRECTOMY+GJ+JJ	G1	WOUND INFECTION
DESAMMAL	48	F	NIL	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	DIARRHOEA
LALITHA	60	F	NIL	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	DIARRHOEA,VOMITTING
KRISHNAMOORTHY	74	M	SHT,COPD	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G2	BLOOD TRANSFUSION
KANNIYAMMAL	65	F	CKD	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G2	BLOOD TRANSFUSION
CHANDRA	65	F	DM	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	FEVER,VOMITING
GOVINDARAJ	44	M	NIL	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	WOUND INFECTION
MABUBAN	75	M	SHT	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	VOMITING
SELVAMANI	57	M	NIL	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G1	WOUND INFECTION

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	ACCORDING TO CLAVIEN DINDO CLASSIFICATION COMPLICATION GRADE	TYPE OF COMPLICATION OCCURRED
MARI	40	F	NIL	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G2	BLOOD TRANSFUSION
RAJESHWARI	57	F	SHT,DM	CHOLELITHIASIS WITH CHOLIDOCOLITHIASIS	OPEN	CHOLECYSTECTOMY+CDD	G2	BLOOD TRANSFUSION
RAJESH	30	M	NIL	CARCINOMA RECTOSIGMOID	OPEN	APR	G2	BLOOD TRANSFUSION
SELVARAJ	51	M	NIL	CARCINOMA RECTUM	OPEN	APR	G3A	PELVIC ABCESS
MUTHUVEL	65	M	CAD,SHT	CARCINOMA RECTUM	OPEN	APR	G2	BLOOD TRANSFUSION
RANGANATHAN	73	M	SHT	CARCINOMA RECTUM	OPEN	APR	G3A	WOUND GAPING
SHANMUGAM	57	M	NIL	CARCINOMA RECTUM	OPEN	APR	G1	FEVER,VOMITING
RAGOTHAMAN	55	M	NIL	CARCINOMA RECTUM	OPEN	APR	G2	PNEUMONIA
THANGARAJ	60	M	COPD	CARCINOMA RECTUM	OPEN	APR	G1	WOUND INFECTION
CHANDRASEKAR	60	M	DM	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G0	NIL
HEMAVATHY	65	F	SHT,DM	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G3A	WOUND GAPING
RAJESHWARI	33	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G1	PAIN
YUVARAJ	32	F	NIL	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G3A	UMBILICAL SKIN NECROSIS RESUTURING
ANURADHA	53	F	SHT	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G3B	MESH INFECTION
REKHA	35	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G3A	WOUND GAPING
SARAVANAN	31	M	NIL	VENTRAL HERNIA-EPI GASTRIC	OPEN	MESH REPAIR	G0	NIL
PADMAVATHY	67	F	DM	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G0	NIL
GIRIJA	56	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G3A	WOUND GAPING
PALANIYAMMAL	76	F	NIL	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G1	FEVER
MARIYAPPPAN	45	M	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G1	VOMITING
MAYANDI	40	M	NIL	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G1	WOUND INFECTION

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE-LAP/ OPEN	PROCEDURE	ACCORDING TO CLAVIEN DINDO CLASSIFICATION COMPLICATION GRADE	TYPE OF COMPLICATION OCCURRED
AANANDHI	57	F	NIL	VENTRAL HERNIA-EPI GASTRIC	OPEN	MESH REPAIR	G0	NIL
DILLI BABU	34	M	NIL	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G0	NIL
CHINNAPILLAI	65	F	DM	VENTRAL HERNIA-EPI GASTRIC	OPEN	MESH REPAIR	G2	BLOOD TRANSFUSION
RAM	42	F	SHT	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G1	FEVER
SIVA POOSHANAM	62	F	NIL	VENTRAL HERNIA-UMBILICAL	OPEN	MESH REPAIR	G1	FEVER,VOMITING
KAVITHA	48	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G1	SEROMA
HAJIRA BEGAM	40	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G0	NIL
MOHANA	54	F	NIL	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G0	NIL
KULSAR	53	F	DM	VENTRAL HERNIA-INCISIONAL	OPEN	MESH REPAIR	G3B	MESH INFECTION
PERIYASAMY	52	M	SHT,COPD	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	PAIN
SHANTHY	45	F	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	VOMITING
REETA	35	F	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	FEVER
BAKIYAM	45	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G2	UTI
INDRANI	60	F	SHT	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	WOUND INFECTION
RASHITHA BANU	32	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G1	VOMITING
VIMALA	42	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G0	NIL
JOTHI	54	F	DM	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	FEVER
GUNASEKARAN	33	M	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	WOUND INFECTION

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE-LAP/ OPEN	PROCEDURE	ACCORDING TO CLAVIEN DINDO CLASSIFICATION COMPLICATION GRADE	TYPE OF COMPLICATION OCCURRED
ARUMUGAM	44	M	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	PAIN
ASINA BEGAM	47	F	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	FEVER
DHANA LAKSHMI	32	F	NIL	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G0	NIL
USHA	24	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G1	PAIN, VOMITING
MARY	43	F	SHT	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G3B	MESH REJECTION WITH SUB ACUTE INTESTINAL OBSTRUCTION
SHENBAGAM	32	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G1	FEVER,VOMITING
SARASWATHY	50	F	DM	VENTRAL HERNIA-EPI GASTRIC	LAPAROSCOPIC	MESH REPAIR	G1	PAIN
INDRANI	57	F	SHT,DM	VENTRAL HERNIA-UMBILICAL	LAPAROSCOPIC	MESH REPAIR	G1	SEROMA
SHANTHI	44	F	NIL	VENTRAL HERNIA-INCISIONAL	LAPAROSCOPIC	MESH REPAIR	G1	PAIN, FEVER
LAKSHMI	29	F	NIL	CHOLELITHIASIS WITH RECURRENT CHOLECYSTITIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING
MEIYAMMAL	68	F	CAD,SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
ANURADHA	53	F	NIL	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G1	PAIN, VOMITING
SENDOORAMANI	24	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
PALAPANDI	25	M	NIL	CHOLELITHIASIS-GB DYSKINESIA	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN, FEVER
SULOCHANA	36	F	NIL	CHOLELITHIASIS-GB DYSKINESIA	OPEN	CHOLECYSTECTOMY	G2	UTI
SARITHA	28	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
GANDHI	66	M	CAD	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
PARAMANANTHUM	71	M	CKD	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	WOUND INFECTION

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLAVIEN DINDO CLASSIFICATION	TYPE OF COMPLICATION OCCURRED
MUNIYAMMAL	63	F	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	TRANCIENT ELEVATION OF SERUM CREATININE
SEENU RAJ	34	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
PADMA	40	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN, FEVER
MOHAMMED FAROOQ	52	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	WOUND INFECTION
KALYANI	25	F	NIL	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G1	PAIN
USHA	38	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	PNEUMONIA
SANTHANUM	55	M	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING
ROSYYAMMAL	47	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
MANJULA	42	F	NIL	CHOLELITHIASIS-ACUTE CHOLECYSTITIS	OPEN	CHOLECYSTECTOMY	G3A	BILIOMA
MALLIKA BEGAM	70	F	CAD	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G4A	AKI
MANOKARAN	61	M	COPD	ACALCULUS CHOLICYSTITIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	PNEUMONIA
MOHANA PRIYA	26	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
DHANALAKSHMI	30	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER,VOMITING
POONGODI	47	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING
DHANALAKSHMI	53	F	DM,CAD	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
TAMILSELVI	36	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
KRISHNAN	52	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
GANGADHARAN	39	M	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
SUMAN	28	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLASSIFICATION DINDO CLASSIFICATION	TYPE OF COMPLICATION OCCURRED
RAJAVENI	38	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING
NALINI	31	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
RAHMATH NISHA	48	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN, VOMITING
GANESH	56	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
PONNIYAMMAL	47	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	UTI
NAGAMMAL	45	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	UTI
AJITH	23	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
VISALACHI	34	F	NIL	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
LATHA	23	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
KUPPAMMAL	50	F	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	WOUND INFECTION
MUTHAMIL SELVAN	40	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
KANNIYAPPAN	55	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
KANNAMMAL	39	F	NIL	ACUTE CHOLECYSTITIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
RASITHA	37	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
UMA MAHESHWARI	39	F	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
RAJAM	68	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
CHELLAMMAL	63	F	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G3B	COMMON BILE DUCT INJURY
RAJESHWARI	46	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN,VOMITING
GURUSAMY	48	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G3A	BILE LEAK,PIG TAIL DRINAGE

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLAVIEN DINDO CLASSIFICATION GRADE	TYPE OF COMPLICATION OCCURRED
ASHA	26	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	DIARRHOEA-NON INFECTIOUS
RENGARAJ	23	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
PUSHPARAJ	57	M	DM,CAD	ACALCULUS CHOLICYSTITIS	OPEN	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
RANI	60	F	DM	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G3A	PELVIC ABCESS
SUSEELA	60	F	NIL	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G1	FEVER,VOMITING
SUBULAKSHMI	60	F	NIL	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G2	BLOOD TRANSFUSION
HARI PRIYA	39	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN, VOMITING
SEKAR	49	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
KARIKALAN	48	M	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	WOUND INFECTION
MURALI	25	M	NIL	GALL BLADDER POLYP	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
KALAIVANI	40	F	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
SAMPATHRAJ	49	M	SHT,DM	ACUTE CALCULUS CHOLECYSTITIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	UTI
SAMPATH	50	M	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	WOUND INFECTION
RAJESHWARI	55	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
SATHYAVANI	40	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
KASTHURI	45	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	VOMITING
SUJATHA	32	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
VARALAKSHMI	44	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
SAMUNDESHWARI	53	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLAVIEN DINDO CLASSIFICATION	TYPE OF COMPLICATION OCCURRED
MUTHULAKSMI	58	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
LALITHA	35	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
CHARUMATHI	55	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
PARVATHY	48	F	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	UTI
RAMANI	65	F	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
SUDHA	25	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	UTI
KANNIYAMMAL	75	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G2	PNEUMONIA
DHANAM	65	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
IRUSAMMAL	65	F	SHT,DM	CHOLELITHIASIS	OPEN	CHOLECYSTECTOMY	G4B	RENAL FAILURE
SUGUNA	48	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
VINCENT RAJ	63	M	SHT	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	TRANCIENT ELEVATION OF SERUM CREATININE
MUNIYAMMAL	45	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	PAIN
LAKSHMIDEVI	20	F	NIL	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G1	FEVER
ESHWARI	56	F	DM	CHOLELITHIASIS	LAPAROSCOPIC	CHOLECYSTECTOMY	G0	NIL
PALANIYAPPAN	54	M	DM	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TEP	G1	PAIN
PANDIYAN	67	M	SHT	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	PAIN
ABRAHAM	46	M	SHT	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G1	TRANSCIENT ELEVATION OF SERUM CREATININE
AMIRTHARAJ	24	M	CKD	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G1	PAIN, FEVER
SIRAJUDEEN	58	M	DM	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	WOUND INFECTION

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLAVIEN DINDO CLASSIFICATION GRADE	TYPE OF COMPLICATION OCCURRED
BASKAR	18	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	PAIN
RASAPPAN	37	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G2	UTI
VENKATESAN	33	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	PAIN
PARAMASIVAM	45	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TEP	G1	DIARRHOEA-NON INFECTIOUS
MANI	62	M	SHT	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G2	UTI
KUMAR	59	M	SHT,DM	INGUINAL HERNIA-BILATERAL	LAPAROSCOPIC	TEP	G4A	AKI
KUMAR	57	M	DM	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	VOMITING
PALANI	52	M	DM	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TEP	G1	PAIN
KANNIYAPPAN	65	M	CKD	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G4B	RENAL FAILURE
ANBU	25	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G1	PAIN,FEVER, VOMITING
NARAYANAMOORTHY	27	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G1	FEVER
RATHNABARATHI	57	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G0	NIL
MUNIRATHINUM	60	M	SHT	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G1	PAIN
RASU	60	M	DM,CAD	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TEP	G0	NIL
BHARATHIRAJA	32	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G0	NIL
KANNIYAPPAN	49	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TAPP	G0	NIL
DESSAPPAN	75	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TEP	G1	PAIN
MANI	58	M	NIL	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TEP	G1	VOMITING
KARTHIKEYAN	35	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TEP	G1	PAIN

NAME	AGE	SEX	CO MORBIDITY	DIAGNOSIS	TYPE OF PROCEDURE- LAP/ OPEN	PROCEDURE	CLAVIEN DINDO CLASSIFICATION GRADE	TYPE OF COMPLICATION OCCURRED
BOOPATHY	50	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TEP	G1	FEVER
KANNIYAPPAN	60	M	SHT	INGUINAL HERNIA-LEFT	LAPAROSCOPIC	TEP	G0	NIL
SIVANANTHAM	40	M	NIL	INGUINAL HERNIA-BILATERAL	LAPAROSCOPIC	TEP	G0	NIL
ANBAZHAKAN	55	M	NIL	INGUINAL HERNIA-RIGHT	LAPAROSCOPIC	TAPP	G0	NIL
ANNAMALAI	35	M	NIL	INGUINAL HERNIA-BILATERAL	LAPAROSCOPIC	TAPP	G1	PAIN
CHELLAMAIYA	80	M	SHT	INGUINAL HERNIA-BILATERAL	LAPAROSCOPIC	TEP	G1	PAIN
AMBUJAM	75	F	NIL	RECTOSIGMOID GROWTH	OPEN	HIGH ANTERIOR RESECTION	G3B	WOUND GAPING
MEIYAMMAL	68	F	DM, SHT	PERI AMPULLARY CARCINOMA	OPEN	WIPPLES PROCEDURE	G5	DEATH
KUPPAMMAL	54	F	DM,CAD	PERI AMPULLARY CARCINOMA	OPEN	WIPPLES PROCEDURE	G5	DEATH
SAMPATH	57	M	SHT,DM	PERI AMPULLARY CARCINOMA	OPEN	WIPPLES PROCEDURE	G4B	AKI,RESPIRATORY FAILURE
RANGASAMY	45	M	COPD	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G2	BLOOD TRANSFUSION
KANNAN	52	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G2	BLOOD TRANSFUSION
KUPPAN	58	M	DM,SHT	INGUNAL HERNIA-LEFT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G4A	AKI
SELVAMANI	55	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G0	NIL
SENTHIL	45	M	NIL	INGUNAL HERNIA-LEFT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G1	WOUND INFECTION
VIJAYAN	58	M	SHT	INGUNAL HERNIA-LEFT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G3A	WOUND GAPING
IMRANKAN	45	M	CAD	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G1	ABDOMINAL PAIN
BALAMURUGAN	48	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN	OPEN	HERNIOPLASTY	G2	BLLOD TRANS FUSION

RAJENDRAN	46	M	DM	INGUINAL HERNIA-LEFT (SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G1	FEVER, WOUND INFECTION
SUGUMAR	53	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN	OPEN	HERNIOPLASTY	G0	NIL
KANNUMANI	51	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN	OPEN	HERNIOPLASTY	G2	PNEUMONIA
KUPPAN	61	M	SHT,COPD	INGUINAL HERNIA-LEFT (SCROTAL ABDOMEN)	OPEN	HERNIOPLASTY	G2	UTI
RANGANATHAN	71	M	NIL	INGUNAL HERNIA-RIGHT(SCROTAL ABDOMEN	OPEN	HERNIOPLASTY	G1	FEVER