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PROS & CONS OF MANAGEMENT OF ACUTE APPENDICITIS – CONVENTIONAL OPEN METHOD V/S LAPAROSCOPIC PROCEDURE-PROSPECTIVE STUDY OF 250 CASES

KEYWORDS: Laparoscopic, Conventional operation, Laparoscopic vs Open appendisectomy.

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ABSTRACT *Laparoscopic appendisectomy is gaining the popularity day by day due to its numerous advantages compared to conventional open method. Though the open method was the gold standard before introduction of Laparoscopic method which was 1st described in 1983. This study was aimed to compare Laparoscopic with open appendisectomy and ascertain the benefit in the overall management of appendicitis.*

INTRODUCTION :

Appendicitis was first recognised as disease entity in the 16th century and was called perityphlites. Mc.Burney described the clinical findings in 1889. Minimal access surgery has been proved to be a useful surgical technique. New standards have been establish for various indications. Patients comfort is the important entity in 21st century. The new technology and skills afford a better choice of surgery. This document gives the advantages of the latest Laproscopic method of operation over the conventional method.

AIMS :

The aim of the study is to compare the advantage of Laproscopic method over conventional method (Fig: 1, 2) and its safety profile and complications of both procedure.

- Mode of selection of the patient
- Modality of operative technique
- Duration of surgery
- Complication both per and postoperative
- Analgesia given
- Allowing oral diet duration
- Morbidity of procedures
- Quality of life, post surgery

Materials and Methods :

Literature is seen from the internet search technique about 3400 topics found from the search of Appendicitis, Appendicectomy, Laparoscopy. More than 20 no. of cases selected. Universally accepted procedure were selected. Institution where the study performed (Specialised institution of Laparoscopic surgery).

Content :

Advent of LaparoscopicAppendicectomy : It has been introduced when the Laparoscopic Cholecystectomy has parallely acquired the importance and become the gold standard.

In female patients commonly gynaecological problems are differential diagnosis for the Appendicitis to be ruled out. Clinically and Therapeutically the Gynaecologists commonly perform the diagnostic Laparoscopic procedure for the Gynaec problems. Semm, a German Gynaecologists performed the first LaparoscopicAppendicectomy in 1983. After its invention day by day LaparoscopicAppendicectomy has gained its popularity over the conventional open method there are so many factors to consider in deciding the ideal method.

Diagnostic Criteria:

The diagnosis done mainly clinically with symptoms of pain vomiting temperature. As there are so many differential diagnosis for acute Appendicitis to rule out the signs like Mcburney tenderness, Rovsings sign, Rebound tenderness, Sherrens triangle asthesia etc., helps clinically to diagnose the disease.

Sometimes there maybe diarrhoea, fever, chills mimicking the Gastroenteritis. Renal calculi the important differential diagnosis to be ruled out. Torsion of right ovary, ulcerative colitis and Crhons disease etc.,

Despite new x-ray techniques CT scan and Ultrasound the diagnosis of Appendicitis can be challenging. The history and physical examination lead to correct diagnosis.

According to our prospective non randomised study Laparoscopy may prevent unnecessary Appendicectomy in 24% of patients. Laparoscopyreveals a misdiagnosis rate of 8% in males in 41% in females of reproductive age group[54,55]. Laparoscope gives a better evaluation of peritoneal cavity then that of a conventional open method (grid iron). This procedure allows rapid and thorough exposure of paracolic gutters, pelvic cavity which is not possible with grid iron incision.

There is also a debate on whether a normal looking Appendix has to be removed or not. There are so many occasions where the normal looking appendix reported as acutely inflammed according to pathology report. Walker et al reported that 3.2% of the Intraoperatively normal appearing appendices demonstrated acute inflammation after pathological examination[41]. Mucosal inflammation obviously can never be determined if the appendix is left in place. The majority of the surgeons state that the normal looking appendix should not be removed[52]. Previously there was a doubt on the colour reliability of the image of the inflamed appendix on the monitor but after advent of the three chip camera the sensitivity ofLaparoscopic diagnosis of appendix is 92%[53].

Advantage of Laparoscopic Appendicectomy women vs men : When a patient is young female with a vague lower abdominal pain and its progress to appendicectomythere are innumerable reports showing that Laparoscopy im-

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proves diagnosis and reduces unnecessary appendicectomies in fertile women[29,30,41,50,63,65,70].

One study was done in Dublin on 100 premenopausal women who are admitted with abdominal pain. After final assessment patients were placed in following diagnostic criteria. Gynaecological (30%), Renal (9%), Acute Appendicitis (23%), Nonspecific abdominal pain (29%), Miscellaneous (9%).

Laparoscopy vs Open Appendicectomy in pregnancy :A prospective study is done in pregnant women selectivity between first, second, third trimester for laparoscopy 10 patients and 10 patients Open appendicectomy taking following criteria into consideration.

- Obstetric Gynaecologic risk factors.
- Time of procedure
- Per operative and postoperative complications
- Duration of stay

The study showed that the LaparoscopicAppendicectomy is safe in all trimesters. There was now fetal loss nor other adverse outcome of pregnancy. Some surgeons suggestive that whenever possible operative procedure should differed until second trimester when fetal risk is lowest[68]. Pneumoperitoneum enhances the lower extremity venous stasis, which already present in pregnant ladies.

Laparoscopic Appendicectomy in Obese patients : Laparoscopic appendicectomy has got an advantage over the open procedure in a faster postoperative recovery. A group of 50 patients with body mass index <26.4 respectively included for the study. They were underwent Laparoscopic appendicectomy.

The prolonged hospital stay was abolished when these patients where operated .Laparoscopic procedure were however more prolonged in the obese than in normally nourished[13,57].

Postoperative pain in Laparoscopic appendicectomy : It is proved that the pain was less in case of Laparoscopicappendicectomy comparedto conventional method. And within 48 hrs the patients gets the feeling of well being and use of analgesics and narcotics is reduced compared to open method.

Postoperative recovery after Laparoscopic appendicectomy vs open method : It is proved that the patients who have underwent successfully Laparoscopic appendicectomy has a better postoperative recovery compared to conventional open technique. The early ambulation reduces the risk of early postoperative complications of pneumonia and embolism.

A prospective study was conducted in 130 patients and found that the patients who underwent Laparoscopic appendicectomy had good postoperative recovery compared to open method.

Wound infection in both procedures: Some study show that postoperative intra abdominal abscess with perforated appendicitis after Laparoscopic appendicectomy[9,11,27,45,15,47].

Barkhausen. S. et al conducted one trial in which 930 patients were analysed respectively. Conventional Appendicectomy was performed in 330 patients, Laparoscopic in 554 patients. The incidence of Intra abdominal abscess formation rate was same in both groups.

In Los Angeles 2947 Appendicectomies were reviewed retrospectively. Indication for these procedures include acute appendicitis 57%, Gangrenous appendicitis 12% and perforated appendicitis 31% there was no difference in rate of intra abdominal abscess formation.

Operative time in Laparoscopic appendicectomy : The operating time depends upon the experience of the surgeon. It may range from 15-30min. In complicated retrocecal or pre mass formation it may prolonged due to adhesions. The prospective study done in 15 case with preoperative mass where the procedure was delayed.

In general time may be calculated from the insertion of first trocar to the end of the procedure.

Kazemier et al in their report of a non randomised clinical trial of 201 patients found that Laparoscopic appendicectomy is superior to open surgery regarding postoperative pain and postoperative complication, recovery time and financial[66].

Complications in both Laparoscopic and conventional methodlong term : Commonly in long term complications the adhesions may lead to intestinal obstruction. A reduce incidence of adhesions in case of Laparoscopic method compare to open method.

A study reported on adhesions rate of 80% after open appendicectomy compared to 10% after Laparoscopic appendicectomy,when patients were Laparoscoped 3 months after surgery[1].

Risk of anaesthesia in Laparoscopic and conventional method : The general anaesthesia and the pneumoperitoneum required as part of the Laparoscopic procedure dose increasing in certain patients group.

- Patients with cardiovascular disease
- Patient with COPD and Lung disease
- Pneumoperitoneum creation can lead to postoperatively complication etc.,

Cost effectiveness of Laparoscopic appendicectomy : Debate still exists about the cost comparison between Laparoscopic and open surgery. Most surgeons have the opinion that Laparoscopic appendicectomy is cost effective. It may be more expensive for the hospital but it offers diagnostic accuracy and among employed patients, offers cost savings to society has a result of faster return to work[2,14,18,64].

Laparoscopic appendicectomy and conventional open appendicectomy. Study our experience :

Method	No. of cases	Acute	Gangrenous	AppendicularMass
Conventional open appendicectomy	100	60	25	15
Laparoscopic appendicectomy	150	100	30	20

This study conclude that the operating time depends and skill of the surgeons and the early and late complications

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are comparatively less and postoperative analgesia and early ambulation are good compared to conventional open appendicectomy.

DISCUSSION :
This study is done to compared the different parameters of the patients and pros and cons of the Laparoscopic appendicectomy compared to conventional open method.

The study is done in different groups of patients like Obese, male and female, early diagnosis and delayed diagnosis. Diagnostic criteria having advantage for early diagnosis. Relative risk factors and early late complications of the patients, cost effectiveness, early ambulation and return to work in early time.

his study concludes that Laparoscopic appendicectomy definitely has a great advantage compared to conventional open method with so many advantages provided the skill of the surgeon and technical perfection. The advantage in females to rule out the other differential diagnosis and advantage in Obese patients.

Bleeding : It is one of the problem which sometimes becomes difficult to manage i.e., Appendicular artery bleeding during the dissection of meso appendix, the artery may retract. It can be prevented by adequate exposure during surgery and technical perfection. Postoperative it can be diagnosed by tachycardia, hypotension and decreased urine output, anaemia and other signs of haemorrhagic shock.

Visceral injury due to diathermy : A diathermy burns is one of the problem of Laparoscopic appendicectomy during the dissection. Usage of bipolar cautery is good practice to avoid rather than monopolar cautery. Trocar injury to the intestines and abdominal aorta should be avoided.

Incisional hernia : It is one of the complication in Laparoscopic appendicectomy at the trocar site. A meticulous suturing of the rectus sheath is done to avoid this complications.

CONCLUSION : Laparoscopic appendicectomy has definitely an advantage over conventional method with less morbidity in experienced surgeon.

It is useful to reduce the hospital stay, complications. Time has come where the Laparoscopic appendicectomy is gaining more popularity compared to conventional open technique.

Fig-1 : Image showing Endo loop knot of Appendix Fig-2 : Image showing the acute in flamed (laparoscopic method) ap pendix (open method)

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