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RESEARCH

A comparison of complications between Laparoscopic appendicectomy and Open appendicectomy.

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CONFLICTS OF INTEREST
THERE ARE NO CONFLICTS OF INTEREST FOR ANY OF THE AUTHORS.

ABSTRACT:
Laparoscopic appendicectomy was first described by Semm in 1982. Since the time of its inception it has struggled to prove its supremacy over open technique. This is due to the fact that open apendicectomy is done by a small right iliac fossa incision most of the times and postoperative period is usually uneventful. While the complications that occur with both the techniques are same i.e. superficial or deep surgical site infections, the incidence of these infections is hypothesized to be less with laparoscopic appendicectomy. There are a number of randomized studies, meta-analyses and systematic reviews comparing the two techniques but the heterogeneity of the measured variables and other weaknesses in the methodology have not allowed to draw definitive conclusions and generalizations.

INTRODUCTION

Laparoscopic appendicectomy was first described by Semm in 1982. Since the time of its inception it has struggled to prove its supremacy over open technique. This is due to the fact that open apendicectomy is done by a small right iliac fossa incision most of the times and postoperative period is usually uneventful. While the complications that occur with both the techniques are same i.e. superficial or deep surgical site infections, the incidence of these infections is hypothesized to be less with laparoscopic appendicectomy. There are a number of randomized studies, meta-analyses and systematic reviews comparing the two techniques but the heterogeneity of the measured variables and other weaknesses in the methodology have not allowed to draw definitive conclusions and generalizations.

OBJECTIVES

To compare the incidence of complications with laparoscopic and open appendicectomies.

MATERIALS AND METHODS

A retrospective analysis of patient data compiled by assessment of follow up recorded over the period encompassing from January 2010 – July 2016 at RL Jalappa hospital and research centre, in department of General surgery, Tamaka, Kolar. The comparison of the incidence of complications with the two procedures was done using logistic regression model.

Inclusion criteria

Subjects who underwent appendicectomy during the study period in our center.

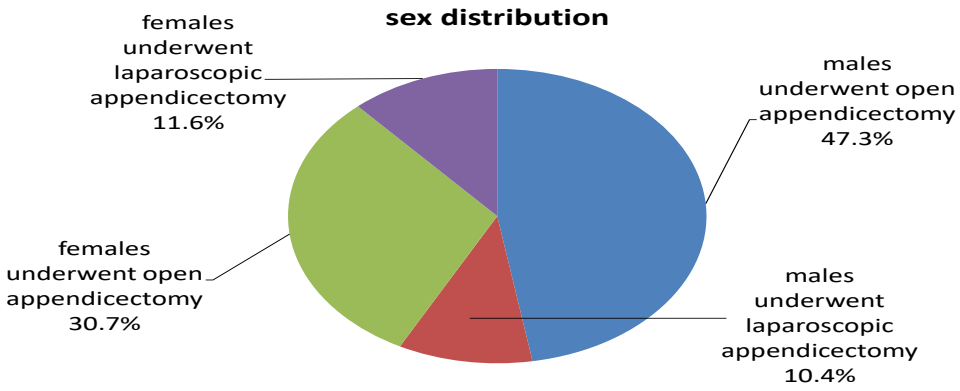
Exclusion criteria

Subjects operated on emergency basis for appendicular perforation or abscess.
Subjects with stump appendicitis

RESULTS

A total of 469 subjects underwent appendicectomy during the study period of which 103 subjects underwent laparoscopic surgery while 366 subjects underwent open procedure. Out of the 103 subjects who underwent laparoscopic surgery, 49 were male and 54 were female and out of the 366 subjects who underwent open surgery, 222 were male and 144 were female.

Figure 1



One of the open appendicectomies mentioned above was started as laparoscopic procedure and had to be converted to open procedure due to mass formation.

Out of the 103 subjects who underwent laparoscopic procedure, 54 had recurrent appendicitis and 43 had acute appendicitis. While one subject had appendicular perforation, 5 subjects underwent diagnostic laparoscopy for chronic pain in abdomen and on identification of appendicular pathology, appendicectomy was done in the same sitting.

Out of the 366 subjects who underwent open procedure, 77 had recurrent appendicitis and 243 had acute appendicitis. 35 subjects had appendicular perforation. 7 subjects underwent interval appendicectomy for resolved appendicular mass. In one subject diagnostic laparoscopy for chronic pain in abdomen was taken up and subsequently appendicular mass was detected and had to be converted into open procedure as the mass could not be dissected laparoscopically.

Table 1. Indications for the procedures

Indication	Laparoscopic procedure(n=103)	Open procedure(n=366)
Recurrent appendicitis	54 (52.4%)	77(21.0%)
Acute appendicitis	43(11.7%)	243(66.3%)
Appendicular perforation	1(0.009%)	35(0.09%)
Chronic pain in abdomen	5(0.04%)	1*(0.0027%)

*started as diagnostic laparoscopy and later open appendicectomy was done.

A total of 74 subjects developed complications in the open appendicectomy group which accounts to 20.2% of the 366 subjects while a total of 20 complications were noted in the laparoscopic appendicectomy group which accounts to 19.4% of the 103 subjects. No deaths were observed in either of the groups.

Table 2. Overall complication rates

Complications	Open appendicectomy (n=366)	Laparoscopic appendicectomy (n=103)
Total	74 (20.2%)	20 (19.4%)

All the subjects who developed complications were treated by regular dressings and antibiotics according to culture sensitivity of discharge followed by secondary closure in case of superficial surgical site infections and ultrasonogram guided aspiration and antibiotics according to culture sensitivity of aspirate in case of deep surgical site infections.

DISCUSSION

Acute appendicitis is the most common general surgical emergency encountered and early surgical intervention improves the outcomes. Richard Hall reported the first survival of a patient after removal of perforated appendix and later in 1894 McBurney described the right lower quadrant muscle splitting incision for appendicectomy. It was almost a century before laparoscopic appendicectomy was described in 1982. Laparoscopic appendicectomy is being offered in our center for almost a decade now but it is limited by the cost factor. Also it does not offer any major advantages over open procedure as the scar is small and length of hospital stay is usually the same with both the techniques. In this scenario the study of incidence of complications with these two is warranted.

In this retrospective study we found that the incidence of complications in subjects who underwent open appendicectomy was 20% and the incidence of complications in subjects who underwent laparoscopic appendicectomy as 18%. In 5% of the subjects procedure started as laparoscopic technique but later converted to open due to various reasons.

Thus we say that laparoscopic appendicectomy has minimal or no advantage over open procedure and is not economical to the patient. , based on this study conducted in this teaching hospital.

However this study has various limitations like smaller sample size of laparoscopic group due to monetary issues and less awareness among people, ours being a rural setup and the study itself being a single centric, the results cannot be generalised to the entire population. Furthermore the rate of complications and incidence of conversion of laparoscopic to open procedure differs from surgeon to surgeon.

CONCLUSIONS

Laparoscopic appendicectomy has slightly less incidence of complications while being more costly and thus offers little benefit as compared to open appendicectomy. However further studies with larger sample sizes and multicentric trails within and across the country are needed to generalise these results to the world population.

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