

A study of open versus laparoscopic removal of appendix at tertiary health care center

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Abstract

Background: laparoscopic appendectomy (LA) has struggled to prove its superiority over the open technique. This is in contrast to laparoscopic cholecystectomy, which has promptly become the gold standard for gallstone disease despite little scientific challenge. **Aims and Objectives:** To Study Open versus Laparoscopic removal of appendix at tertiary health care Center. **Methodology:** This was a hospital based cross-sectional study carried out in the department surgery during the one year period i.e. January 2016 to January 2016. during one year there were 70 cases selected for study in that 35 each randomly allotted to Laparoscopy and 35 to open operation group. The statistical analyses was done by Chi – square test, unpaired t-test calculated by SPSS 19 version software. **Result:** In our study we have found that the majority of the patients were in the age group of 20-30 i.e. 40.00% followed by 10-20 were 24.29%, 30-40 were 18.57%, 50-60 were 12.86%, >60 were 4.29% respectively. The majority of the patients were Male i.e. 67.14% and female were 32.86%. The duration of surgery was significantly higher for Laparoscopy as compared to Open ($X^2=11.43$, $df=4$, $p<0.05$). The post operative parameters like Post-operative pain (VAS- Score) (mean \pm SD)- 5.43 ± 5.62 , 7.34 ± 3.4 ($t=2.07$, $df=68$, $p<0.04$) ; Post operative hospital stay (mean \pm SD)- 2.21 ± 1.42 , 5.78 ± 2.41 ($t=2.07$, $df=68$, $p<0.04$) ; Post-operative duration to return work - 5.67 ± 2.12 , 15.62 ± 3.4 . ($t=5.12$, $df=68$, $p<0.001$). The most of the complications like Vomiting i.e. 11.43% as compared to 20%, Abdominal abscess -2.86%, 14.29; Wound infection -2.86, 8.57; Ileus -0.00, 5.71 in Laparoscopy as compared to Open surgery respectively. ($p<0.05$). **Conclusion:** Except the duration of surgery in all other perspective like Post-operative pain. Post operative hospital stay, Post-operative duration to return work and less complications like Vomiting, Abdominal abscess, Wound infection, Ileus ; laparoscopy was superior to open laprotomy for the removal or appendix.

Key Words: VAS- Score (Visual analogue Scale –Score), Laparoscopic removal of appendix, Abdominal abscess Ileus.

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INTRODUCTION

Since its initial description by Semm¹ in 1983, laparoscopic appendectomy (LA) has struggled to prove its superiority over the open technique. This is in contrast to laparoscopic cholecystectomy, which has promptly become the gold standard for gallstone disease despite

little scientific challenge.² Open appendectomy (OA) has withstood the test of time for more than a century since its introduction by Mc Burney³: the procedure is standardized among surgeons and, unlike cholecystectomy, OA is typically completed using a small right lower quadrant incision and postoperative recovery is usually uneventful. It is the second most common general surgical procedure performed in the United States, after laparoscopic cholecystectomy, and the most common intraabdominal surgical emergency, with a lifetime risk of 6%. The overall mortality of OA is around 0.3%; and morbidity, about 11%.⁴

MATERIAL AND METHODS

This was a hospital based cross-sectional study carried out in the department surgery during the one year period i.e. January 2016 to January 2016. All the patients with

suspected of appendicitis were included screened and investigated thoroughly like CBC, USG, X-ray abdomen etc. those confirmed cases of acute or chronic appendicitis with their written consent were included into the study, so during one year there were 70 cases selected for study in that 35 each randomly allotted to Laparoscopy and 35 to open operation group. All details of the patients like age, sex, duration of surgery required like Post-operative pain measured by VAS- Score (Visual Analogue Scale-Score) (mean ±SD) Post operative hospital stay (mean ±SD), Post-operative duration to return work various complications if any were recorded. The statistical analyses was done by Chi –square test, unpaired t-test calculated by SPSS 19 version software.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
10-20	17	24.29
20-30	28	40.00
30-40	13	18.57
50-60	9	12.86
>60	3	4.29
Total	70	100.00

The majority of the patients were in the age group of 20-30 i.e. 40.00% followed by 10-20 were 24.29%, 30-40 were 18.57%, 50-60 were 12.86%, >60 were 4.29% respectively.

Table 2: Distribution of the patents as per the sex

Sex	No.	Percentage (%)
Male	47	67.14
Female	23	32.86
Total	70	100.00

The majority of the patients were Male i.e. 67.14% and female were 32.86%

Table 3: Distribution of the patients as per the duration of surgery required

Duration	Laparoscopy (n=35)	Open (n=35)
<30 min	2	5
30-60 min	17	9
60-90min	13	13
90-120 min	3	5
120-180 min	0	3
Total	35	35

($X^2=11.43$, $df=4$, $p<0.05$)

The duration of surgery was significantly higher for Laparoscopy as compared to Open ($X^2=11.43$, $df=4$, $p<0.05$)

Table 4: Distribution of the patients as per the various post operative parameters

Parameter	Laparoscopy (n=35)	Open (n=35)	Unpaired t-test
Post-operative pain (VAS- Score) (mean ±SD)	5.43 ± 3.21	7.34 ± 4.4	t=2.07, df=68,p<0.04.
Post operative hospital stay (mean ±SD)	2.21 ± 1.42	5.78 ±2.41	t=4.52, df=68,p<0.05.
Post-operative duration to return work	5.67 ± 2.12	15.62 ± 3.4	t=5.12, df=68,p<0.001.

The post operative parameters like Post-operative pain (VAS- Score) (mean ±SD)- 5.43 ± 5.62, 7.34 ± 3.4 (t=2.07,df=68, p<0.04); Post operative hospital stay (mean ±SD)- 2.21 ± 1.42, 5.78 ±2.41 (t=2.07,df=68, p<0.04); Post-operative duration to return work - 5.67 ± 2.12, 15.62 ± 3.4. (t=5.12,df=68, p<0.001)

Table 5: Distribution of the patients as per the various complications

Complications	Laparoscopy (n=35)	Open (n=35)	p-value
Vomiting	4 (11.43)	7 (20)	P<0.05
Abdominal abscess	1 (2.86)	5 (14.29)	P<0.05
Wound infection	1 (2.86)	3 (8.57)	P<0.05
Ileus	0 (0.00)	2 (5.71)	P<0.05
Total	6 (17.14)	17 (48.57)	P<0.05

The most of the complications like Vomiting i.e. 11.43% as compared to 20%, Abdominal abscess -2.86%, 14.29; Wound infection -2.86, 8.57; Ileus -0.00, 5.71 in Laparoscopy as compared to Open surgery respectively. (p<0.05)

DISCUSSION

Laparoscopy is more often applied not only in elective surgery, but also in emergency surgeries. Suspected appendicitis is undoubtedly the most common indication for emergency surgical intervention, with a lifetime risk of 6%.^{5,6} The advantages of LA over OA are thought to be less postoperative pain, shorter hospital stay and early return to usual activity.^{7,8} While the incidence of postoperative wound infection is thought to be lower after the laparoscopic technique.^{9,10} There are however notions showing only minimal benefit from laparoscopic appendicectomy, with higher cost of this method. However conversion to open surgery is inevitable in some cases. The conversion causes prolongation of hospital stay, increased total cost and dissatisfaction of the patients. The most valuable aspect of laparoscopy in the management of suspected appendicitis is as a diagnostic tool, particularly in women of child-bearing age¹⁰. Though multiple prospective randomized trials, meta-

analyses⁹⁻¹¹ and systematic reviews¹²⁻¹⁵ In our study we have found that the majority of the patients were in the age group of 20-30 i.e. 40.00% followed by 10-20 were 24.29%, 30-40 were 18.57%, 50-60 were 12.86%, >60 were 4.29% respectively. The majority of the patients were Male i.e. 67.14% and female were 32.86%. The duration of surgery was significantly higher for Laparoscopy as compared to Open ($X^2=11.43$, $df=4$, $p<0.05$). The post operative parameters like Post-operative pain (VAS- Score) (mean \pm SD)- 5.43 ± 5.62 , 7.34 ± 3.4 ($t=2.07$, $df=68$, $p<0.04$) ; Post operative hospital stay (mean \pm SD)- 2.21 ± 1.42 , 5.78 ± 2.41 ($t=2.07$, $df=68$, $p<0.04$) ; Post-operative duration to return work - 5.67 ± 2.12 , 15.62 ± 3.4 . ($t=5.12$, $df=68$, $p<0.001$). The most of the complications like Vomiting i.e. 11.43% as compared to 20%, Abdominal abscess -2.86%, 14.29%; Wound infection -2.86, 8.57; Ileus -0.00, 5.71 in Laparoscopy as compared to Open surgery respectively. ($p<0.05$). These findings are similar to S Carbin Joseph et¹⁶ al they found pain score was 2.7 ± 0.9 for open group as compared to 1.3 ± 0.5 in lap group ($P<0.05$) because of longer incision, stretch of muscles and woundv infection. Post operative complications like vomiting was lower 8% in laparoscopic group in contrast to 36% in open group ($P<0.05$) and ileus was lower in laparoscopic group with 17.3 ± 7.1 and for open group 30.8 ± 8.9 with $P<0.05$. There is significant reduction in incidence of post operative wound infection in lap group 4% as compared to open group 26% ($P<0.05$). Duration of hospital stay was significantly lower for lap group 2.8 ± 0.9 as than open group 4 ± 2.9 . The return to normal activity was earlier for lap group 8 ± 3.15 days than open group 13.7 ± 3.15 days. Duration of surgery for open appendectomy was 48.2 ± 12.4 while that for lap appendectomy was 68.5 ± 20.3

CONCLUSION

Except the duration of surgery in all other perspective like Post-operative pain Post operative hospital stay, Post-operative duration to return work and less complications like Vomiting, Abdominal abscess, Wound infection, Ileus laparoscopy was superior to open laprotomy for the removal or appendix.

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