

# INITIAL EXPERIENCE OF LAPAROSCOPIC APPENDICECTOMY WITH SUPRAPUBIC CAMERA PORT

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## ABSTRACT

**Objective:** To evaluate the results of Laparoscopic Appendicectomy using midline suprapubic port for camera.

**Methodology:** This prospective descriptive study was done from January 2007 to 30 April 2008. All patients undergoing Laparoscopic Appendicectomy during the study period were included. Operative time, conversion, complications & hospital stay were analyzed.

**Results:** Total number of patients was 34 which included 21(61.76%) males and 13(38.24%) females with mean age of 25.12 years. Mean operative time was 54.39 minutes. Three (8.82%) patients required conversion to open Appendicectomy whereas two (5.88%) patients developed wound infection. Mean hospital stay was 1.29 days.

**Conclusion:** Laparoscopic Appendicectomy with suprapubic camera port is a safe and attractive option.

**KEY WORDS:** Appendicitis, Laparoscopy, Appendicectomy, Laparoscopic Appendicectomy (LA) Suprapubic Camera port.

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## INTRODUCTION

Appendicectomy is one of the commonest general surgical procedures. Charles McBurney in 1889 presented a report on early operative intervention in acute appendicitis to the New

York Surgical Society and five years later he formalized the procedure and described McBurney's incision.<sup>1,2</sup> First laparoscopic Appendicectomy (LA) was reported almost after a century in 1983 by a German Gynaecologist, Kurt Semm.<sup>3</sup> Today even after a quarter century laparoscopic appendicectomy has not been able to gain the popularity and acceptance earned by laparoscopic cholecystectomy. Many early randomized trials failed to show any overall benefit for laparoscopy, the increased operation time, comparable hospital stay and increased risk of intra-abdominal collection or postoperative ileus with LA outweighed any improvement in wound complication, recovery time or cosmesis. Current studies indicate a shift in favour of laparoscopy, probably due to the increase in laparoscopic exposure at all levels of surgical training. They present evidence of reduction in operating time, faster recovery, and lower

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wound complication rate, with the reversal in the risk of developing ileus in favor of laparoscopy.<sup>4</sup>

Different techniques have been described by different authors for LA in respect to port placement, handling the base of appendix, division of mesoappendix and removal of appendix.<sup>5-12</sup> Regarding camera port placement the main difference has been the use of either the periumbilical or suprapubic site.<sup>6,7,13</sup> We used the suprapubic port for camera as it has been reported to be safe and optimum in terms of ergonomics and cosmesis.<sup>5</sup> As the most commonly performed laparoscopic surgery by general surgeons is cholecystectomy, this technique has an advantage that the functional three ports are moved one quadrant down, i.e. telescope from umbilicus to suprapubic, right hand working port from epigastrium to umbilicus and left hand working port from right hypochondrium to right iliac fossa, and thus the team and theatre setup essentially remains unchanged. This is an initial report of our experience with this technique of LA.

### METHODOLOGY

All patients undergoing laparoscopic Appendicectomy from 1<sup>st</sup> January 2007 to 30<sup>th</sup> April 2008 were included in the study. Patients were placed supine on the operating table and general anesthesia was used in all patients. After induction, an indwelling urinary catheter was placed to decompress the bladder, which was removed at the end of surgery. The surgeon and camera assistant stood at the patient's left side, facing the video monitor placed at the right side of the table.

Pneumoperitoneum was established using open Hasson technique through a 10-mm infraumbilical incision. A forward-viewing 10-mm laparoscope was inserted into the abdominal cavity and diagnostic laparoscopy was performed, then under video guidance another 10mm port was inserted 2cm above the pubic symphysis in the midline and the telescope was transferred to suprapubic site. Another 5mm port was introduced in the right iliac fossa. (Fig-1) The umbilical and right iliac fossa ports

were used for the right and left hand instruments respectively.

Retraction and dissection were done by the two-handed technique. Skeletonization of appendix was carried out either by dissection and application of clips to the mesoappendix or by cauterizing with bipolar forceps. The base was ligated with self made chromic catgut endoloops. Endobags were used for removal of thick appendix whereas thinner ones were removed through the reducer sleeve.

### RESULTS

During the study period thirty four patients underwent laparoscopic Appendicectomy using the above technique out of which twenty one (61.76%) were male and thirteen (38.24%) female. Mean age was 25.12 years, ranging from 15 to 53 years. The mean operative time for these 34 patients was 54.39 minutes (range 25 to 120 minutes). After excluding three patients who were converted to open procedure the mean operative time was 49.19 minutes.

Three patients were converted to open Appendicectomy, two of them because of gangrenous bases and third because the appendix was embedded in the small bowel mesentery

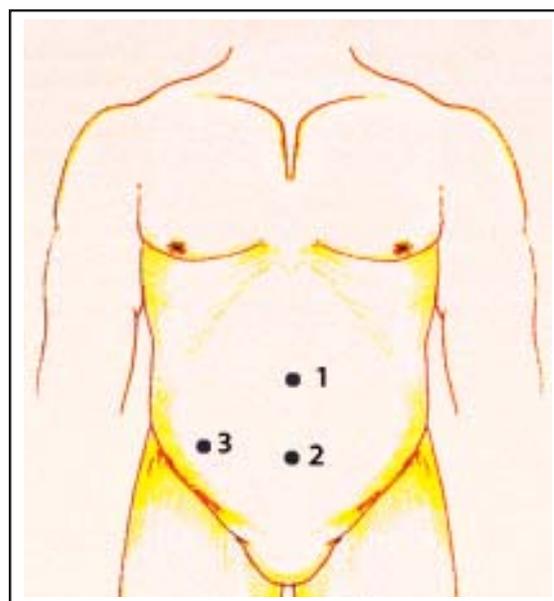


Fig-1: Port Placement

1. 10mm Right hand working port
2. 10 mm Camera port
3. 5 mm Left hand working port

and could not be handled laparoscopically. Two (5.88%) patients developed wound infection which settled on conservative measures. Twenty six (76.47%) patients were discharged after one day, six (17.65%) after two days and two (5.88%) after three days of surgery with a mean hospital stay of 1.29 days.

## DISCUSSION

The popularity of LA has increased since its conception but it is still far from attaining the status of "Gold Standard". The advantages of LA are quicker & less painful recovery, fewer complications, superior cosmesis and better assessment of other intra-abdominal pathologies.<sup>14</sup>

Different techniques have been described to perform LA by different authors.<sup>5-12</sup> Either periumbilical or suprapubic port has been used for placement of telescope. The location for the working ports also varies from right upper quadrant to Mc Burney's point, lower midline and left iliac fossa in standard surgical and laparoscopic texts.<sup>15-17</sup> We used the midline suprapubic port as camera port and periumbilical and right iliac fossa ports as right and left working ports respectively. This port placement provides superior visualization of the inferior surface of the caecum and the appendiceal base. It simulates the port placement in Laparoscopic cholecystectomy as the three main ports are essentially moved one quadrant down and it has also been reported to be ergonomically and cosmetically superior by other authors.<sup>6</sup>

The operative time for LA is reported to be longer than open appendicectomy but it has been shown to decrease with increasing experience.<sup>18</sup> The reported average operative time varies considerably from 18 minutes reported by Hussain et al<sup>19</sup> to 110 minutes.<sup>20</sup> Our mean operative time of 54.39 minutes is comparable to many published studies. Mustafa Kamal from Multan has also reported mean operative time of 55 minutes.<sup>21</sup>

Conversion to open appendicectomy was required in 3(8.82%) patients. Two of them had gangrenous base of appendix and anatomy

was unclear in the third patient as the appendix was embedded in the small bowel mesentery. Different authors have reported conversion rates varying from 0.55% to 21.5%.<sup>22,23</sup> Ng et al from Hong Kong using the same technique have reported conversion in 8.7% of their 795 patients.<sup>5</sup> Conversion increases the operating time and hospital stay and in this study the average operating time for the converted patients was 90 minutes whereas excluding these three patients it was 49.19 minutes. The main reasons for conversion reported in the literature are difficult anatomy and complicated appendicitis (perforation, gangrene and abscess).<sup>24</sup>

Mean hospital stay of 1.29 days is in accordance with published local and international studies.<sup>18,25</sup> In a Meta analysis Bennett et al demonstrated a statistically significant reduction in hospital stay for LA as compared to open appendicectomy.<sup>4</sup> Gilliam et al have shown LA to be safe and effective even in day care setting for selected patients.<sup>26</sup>

In this study wound infection occurred in two (5.88%) patients and this matches well with that published by other authors.<sup>26,27</sup> Wound infection has been reported to be lower with LA as compared to open appendicectomy.<sup>4,29</sup> This is attributed to the technique of appendix removal, as removal in endobag or reducer sleeve avoids any contact between the inflamed appendix and wound.<sup>21,28,30</sup> One of the reported disadvantages of LA is increased incidence of intra-abdominal abscess formation.<sup>4</sup> None of the patients in this study developed intra-abdominal abscess and this may be because of limited number of patients.

## CONCLUSION

Although the number of patients is small but as the results are comparable to the published literature, we conclude that Laparoscopic Appendicectomy with suprapubic camera port is a safe and attractive option.

*Limitations of the study:* Case control comparison would have definitely enhanced the value of the study but we had certain limitations. We did not perform any lap appendicectomies

through umbilical camera port, thus those who were submitted to Lap Appendectomy had it only by this technique whereas others had open appendectomy.

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