

Mini-Appendectomy

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Abstract

Acute appendicitis is the most common surgical emergency requiring immediate surgical intervention for total cure and to avoid complications. Appendectomy is practiced worldwide as emergency as well as elective procedure. We, in our series performed appendectomy in emergency successfully in 75 cases (30 males and 45 females) in the age group of 11-63 years with a small transverse incision (2.5 to 3.5 cm long) in the right lower abdomen starting just on the lateral border of rectus muscle and extended laterally in the line of Mc Burney's point. The only muscle in the operation field was rectus that was retracted medially. No other muscle was cut/split. The time taken to complete the operation was 22.3 minutes (16 to 45 min). Post-operative analgesics used were 2.23 dose per patient (2-5 doses). Post-operative hospital stay was 2.3 days (2-7 days). There was no mortality and negligible morbidity in the form of wound infection (n=02), anterior abdominal wall haematoma (n=01). Better cosmesis and almost invisible scar is the hallmark of small incision appendectomy that is what we have observed in the study. Time to return to work (RTW) was 8.2 days (7-10 days). No complication was seen in follow up period extending from 15 days to 6 months. Success rate of small incision appendectomy was 96% with only 3 cases requiring extension of incision to maximum of 5 cm. We suggest that the operation may be called as Mini-appendectomy.

Key Words

Acute appendicitis, Mini-appendectomy, Rectus muscle

Introduction

Acute appendicitis is one of the most common "acute surgical abdomen" world over, requiring surgical operation for total cure as well as to avoid complications. As the notification of the disease is not required its exact incidence is unknown. Since the days of Mc Burney who devised muscle-splitting incision for appendectomy very few incisions have been devised (Rocky Dave's, Rutherford Morison's, Battle's incision and lately Lanz incision etc) for appendectomy (1). After the invent of minimally invasive procedures in the field of surgery especially after the invent of Laparoscopic surgery, a tidal wave have been set in with much enthusiasm among the surgical fraternity for minimally invasive surgery in order to give better comfort, better cosmesis and early recovery to the patients. Added to it is the fact that modern advertising continues to glorify the blemish free face and body, an exposed abdominal scar is viewed as

most objectionable. The strong desire of patients especially females to avoid abdominal scar has encouraged many surgeons to use a variety of incisions for abdominal visceral surgery that are hidden from exposure. Surgeons have tried from time to time cosmetically better incision for appendectomy (2-5) but without following them thereafter. Our study is based on a technique wherein small incision (2.5 to 3.5 cm) is given in right lower quadrant without cutting/splitting any muscle. We successfully performed small incision appendectomy in 72 cases (n=75) and suggested that it may be called mini-appendectomy.

Material and Methods

Seventy five patients, 30 males and 45 females in the age group of 11-63 years with clinical symptoms signs and of acute appendicitis were subjected to

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emergency appendectomy either under spinal or general anaesthesia from July 1999 to November 2001. A small transverse incision, 2.5 to 3.5 cm in the right lower quadrant of the abdomen was made. Appendectomy was successfully performed in 96% (n=72) and in 4% (n=03) incision had to be extended to 5 cm maximum. Patients with perforation peritonitis, clinically appreciable appendicular lump, doubtful diagnosis and obesity were kept out of study group.

Operative Technique

Mc Burney point and lateral boarder of the right rectus muscle was marked. Incision was started on the lateral borderof rectus muscle and extended transversally 2.5-3.5 cm towards Mc Burney'spoint. Anterior sheath was cut in line of the skin incision and rectus muscle retracted with the help of long pronged Skin/Czerni's/Langenbuch's retractors. Peritoneum is cut in the line of skin incision. Once abdominal cavity is entered, retractors are removed and subsequently it requires little effort and manipulation to trace the appendix. We could not come across any abnormally placed appendix in any of our cases. Rest of the procedure of appendectomy is done as per the standard protocol. We do not close peritoneum and retracted muscle comes to its place once the anterior sheath is sutured with chromic catgut. Skin is closed either with interrupted silk or subcuticular prolene. In three cases where incision was extended, rectus muscle medially and external oblique/internal oblique/transverses abdominus laterally were cut partially for the better exposure. No special retractors are required for the procedure.

Results

Out of 75 cases studied in this series, mini-appendectomy was completed successfully in 72 cases with only 3 cases (4%) requiring extension of the incision up to 5 cm maximum. Average operation time was 22.3 min. Analgesics used (injection diclofenac sodium in calculated doses) were 2.23 doses on average, hospital stay was 2.3 days on an average and return to routines was 8.2 days on an average. There was no mortality and negligible morbidity in the form of wound infection (2 cases) and anterior wall haematoma (1 case). In 60 cases bowel sounds were heard on first post-operative day and in same number of cases flatus was passed by the patient on first day. Intravenous fluids stopped on first postoperative day in quite a good number of patients (n=60) and on second postoperative day in majority of cases (n=70) because of early return of bowel sounds and passage of flatus. At operation, in 65 cases appendix was acutely inflamed, appendicular lump was seen in 2 cases

which probably was missed on clinical examination. In one case associated Meckel's diverticulum was also noticed which was dealt accordingly. In all these 03 cases incision was to be extended up to maximum up to 5 cm. This was in these three cases that we observed prolonged hospital stay, maximum being 7 days. In follow up period ranging from 15 days to 6 months, no complications were observed and patients were quite satisfied with the overall outcome of the surgery. The results of study are detailed in table I & II.

Table 1. Peri-operative parameters in mini-appendectomy.

Length of incision	2.5-3.5cm (2.7cm)
Operation time	16-45 min (22.3min)
Incision extension	03cases
Analgesic used	2-5 doses (2.23doses)
Hospital stay	2-7 days (2.3days)
Return to Routines	7-10 days (8.2days)
Satisfaction to the Scar	96% (n=72)
Minor Complication	4% (=03)

Table 2. Peri-Operative findings

Operative findings	No. of cases
Actual inflammation/Suppuration	65
Gangrene of the tip	02
Appendicular lump	02
Associated pathology(Meckle's)	01
Normal	05

Discussion

Claudius Amyand, had the credit to incidentally do appendectomy in 11 years old boy who had a right scrotal hernia. Within the scrotum was found appendix, perforated by a pin. The appendix was ligated and all or more like a part of it was removed, with the recovery of the patient (6). In 1886 Fitz, used the term "Appendicitis" and went on to stress upon "the vital importance of early recognition of perforated appendicitis" (7). Credit of first published appendectomy goes to Kronlein. His patient, who was 17 year old died two days after the surgery (6).

Mc Burney took the credit to pioneer early diagnosis and early operative intervention devising muscle splitting incision for appendectomy named after him (6,8). Mc Burney's incision is more than a century old but still the most frequently used incision for appendectomy. As the civilization advanced, strong desire of patients especially the female to avoid abdominal scar has encouraged many surgeons to use a variety of cosmetically better incisions in visceral surgery. For appendectomy very few surgeons have worked on the subject that too without following their work, hence this area of one of the most common emergency visceral surgery remained without an established minimally

invasive incision. Since the first published laparoscopic cholecystectomy in 1987 by Phillippe Mouret, there had been a real revolution in the field of visceral surgery (9). Kurt Semm did first laparoscopic appendectomy in 1983 (10) but first published laparoscopic appendectomy was reported in 1987 (11). Unfortunately like mini incision, laparoscopic appendectomy too have failed to establish itself as surgical technique of choice for acute appendicitis, laparoscopic equipment being expensive and takes longer operating time (12,13). Suh tried small incision 1.5 to 2.5cm (microceliotomy) combined with laparoscopic instruments to diagnose and do subsequent appendectomy (14). It too have failed to establish, as it loses its essence where concomitant facilities of laparoscopic instruments are not available.

Enthusied by minimally invasive surgery and non-establishment of laparoscopic appendectomy we have done a clinical trial of small incision appendectomy, wherein 2.5 to 3.5cm transverse incision was made in the right lower quadrant near ileocaecal region in 75 patients with success rate of 96%. In our study group, age of the patients was 11-63 years with 35 males and 40 females. The time taken to complete surgery was 22.3 min (16-45 min) that was much less than what is seen in conventional and laparoscopic appendectomy. There was less need for analgesics i.e. 2.23 doses per patient (2-5 doses). On average post-operative hospital stay was 2.3 days (2-7 days) and time to return to work was 8.2 days (8-12 days). In three cases (two of appendicular lump and one Meckle's diverticulum) incision had to be extended maximum to 5 cm. It was these cases who took longer stay in the hospital, maximum 7 days. There was no mortality and acceptable but negligible mortality in the form of anterior wall hematoma (n=01) and wound infection in 02 cases. The patients were quite satisfied with the outcome of surgery as well as cosmetically much better scar. In our study the incision was small and without much muscle/nerve derangements, hence we could not encounter any case of incisional hernia on follow up period of 15 days to 6 months.

Conclusion

Enthusiasm among surgical fraternity for minimally invasive surgery have almost made the aphorism "The Bigger the Surgeon, the Bigger the incision" lose its essence. Our experience of 75 cases of mini-appendectomy reveals that appendectomy done by this technique is safe,

cosmetically much better without mortality and negligible morbidity. Furthermore, mini-appendectomy enables less hospital stay, less need for analgesics and early return to the routine. Small incision causes less tissue trauma and anoxia, thereby, decreasing risk of pain, wound infection and incisional hernia. This ultimately decreases hospital stay as well as helps in early recovery. Patient with perforation peritonitis, appendicular lump, obesity and doubtful diagnosis are unsuitable for the procedure. It is also true that minimally invasive surgery not only improves the quality of surgical treatment but also increases the efficacy of health care investments and mini-appendectomy done by mentioned technique is one of them. We believe that experience in the field of mini-appendectomy needs further evaluations with respect to its comparisons with conventional appendectomy and laproscopic appendectomy in order to establish it as a minimally invasive procedure of choice for appendectomy.

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