Print ISSN: 2321-6379
Online ISSN: 2321-595X
DOI: 10.17354/ijss/2016/576

Original Article

Early Surgical Management of Appendicular Mass: A Retrospective Analysis

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Abstract

Introduction: For decades the management of appendicular mass has been of initial conservative treatment followed by interval appendectomy. Early surgical intervention is an effective alternative to the conservative management. In our hospital, we follow early surgical management, usually laparoscopic appendectomy for all the cases of appendicular mass, laparotomy and procedure if the same cannot be done laparoscopically. By doing so, there is no need of the second admission. The purpose of our study is to do the retrospective analysis and asses the outcome of early surgical management in appendicular mass.

Materials and Methods: A retrospective analysis was performed for all the patients who were treated laproscopically for appendicitis and appendicular mass. A total of 45 patients were treated for appendicitis from September 2015 to October 2016. A retrospective review of these patients demonstrated that 14 patients had appendicular mass in which 11 cases were managed laproscopically, and 3 were converted to open. Postoperatively, all the patients were recovered satisfactorily with no significant morbidities noted. Masses which were not inflammatory or due to neoplasms were not included in this study.

Results: A total of 45 patients were treated for appendicitis from September 2015 to October 2016. A retrospective review of these patients demonstrated that 14 patients had appendicular mass in which 11 cases were managed laproscopically and 3 were converted to open. The ages of the patient were in the range of 12-67 years. 9 patients were male and 5 patients were female. The average operative time was 1 h 40 min. The length of hospital stay was in the range of 6-8 days. No morbidities were noted.

Conclusion: The results of our study suggests that early surgical management in the form of laproscopic appendectomy is safe and feasible for the patient with appendicular mass as it not only reduces the hospital stay but also eliminates the need of the second admission.

Key words: Appendicitis, Appendicular mass, Early laparoscopic surgery

INTRODUCTION

Acute appendicitis is the most common surgical pathology which a surgeon notices in his daily practice. For decades open appendectomy was the standard treatment for all form of appendicitis.[1] In today's, era laproscopic appendectomy is the treatment of choice for appendicitis.[2]

Access this article online

www.ijss-sn.com

Month of Submission : 09-2016
Month of Peer Review : 10-2016
Month of Acceptance : 10-2016
Month of Publishing : 11-2016

Laproscopic appendectomy was first performed by Semm in 1983 and initially was performed incidental to other pelvic procedures.[3] As the operative techniques were refined, the indications were extended to patients with suspected appendicitis.[4,5]

Laproscopic appendectomies have reported minimal morbidity and a shortened recovery period which demonstrates its superiority over open procedures.

Appendicular mass is usually seen in patients presenting late to the hospital in the course of appendicitis. The initial conservative management followed by interval appendectomy was the traditional approach for the treatment of appendicular mass. With recent advances in

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minimally invasive surgical procedures, the management of appendicular masses has seen a tilt towards early surgical intervention.[6,7]

Early surgical management in the form of laproscopic appendectomy is an effective alternative to the conventional conservative management as it not only confirms the diagnosis and in a single go offers complete treatment in a single sitting thereby eliminating the need of the second admission.[8]

In our set up, lot of patients belong to the poor socio-economic background where the follow-up of the patient is always difficult and once the symptoms subsides many patients do not turn up for the interval appendectomy. In such scenario, early surgical management is always better as it is cost effective, reduces the hospital stay and eliminates the need of the second admission.

MATERIALS AND METHODS

A retrospective analysis was performed for all the patients who were treated for appendicitis and appendicular mass from September 2015 to September 2016 in SIII unit, Department of General Surgery, St. Martha's Hospital, Bengaluru (Table 1). A total of 45 patients were treated for appendicitis and a retrospective review of these patients demonstrated that 14 patients had appendicular mass in which 11 cases were managed laproscopically and 3 were converted to open. The ages of the patient were in the range of 12-67 years, 9 patients were male and 5 patients were female. The average hospital stay was 8 days. Postoperatively, all the patients recovered satisfactorily with no morbidities noted.

Technique

In our series, all the patients underwent laproscopic appendectomy using standard three-port technique. Open technique was used to put in the first (umbilical) port. Harmonic scalpel was the energy source used in all the cases. Catgut endoloops were used to ligate the base of the appendix. After appendectomy, the abdominal collection is aspirated, and the peritoneal cavity is thoroughly washed with normal saline. An abdominal drain was kept in all the cases. Postoperatively, all the patients were given parentral broad-spectrum antibiotic coverage for 5 days followed by oral antibiotics.

RESULTS

A total of 14 cases of appendicular mass were treated from September 2015 to September 2016. All the patients were managed by early surgical intervention. The ages of the patients were in the range of 12-67 years. 9 patients were male and 5 patients were female. All the patients at the time of admission presented with fever, pain abdomen and mass in right iliac fossa. All the patients had leukocytosis (>11000/mm^3) (Table 2).

11 patients underwent laproscopic appendectomy, and 3 patients were converted to open appendectomy (Table 3). The reason for conversion was dense interbowel loops adhesions due to which the appendix could not able be localized. In two cases there was perforation of the base of the appendix with interbowel adhesions and abscess formation. The average operative time 1 h 40 min. The length of the hospital stay was in the range of 6-8 days. Peroperative findings were listed in Table 4. Intraoperatively, there were no complications.

Postoperatively, all the patients recovered well. No morbidities were noted.

Table 1: Total number of cases of appendicitis and appendicular mass

Diagnosis	Number of cases (%)
Appendicitis	31 (68.88)
Appendicular mass	14 (31.11)

Table 2: Preoperatively the patients went following investigations

Investigation	Number of patients (%)
USG abdomen and pelvis	45 (100)
CT abdomen	10 (22.22)
MRI abdomen	1 (2.220

USG: Ultrasound sonography, CT: Computed tomography, MRI: Magnetic resonance imaging

Table 3: Surgeries for appendicitis and appendicular mass

Surgeries	Number of patients (%)
Lap. appendectomy	31 (68.88)
Lap. appendectomy for mass	11 (24.44)
Open appendectomy for mass	3 (6.66)
Total	45 (100)

Table 4: Peroperative findings in appendicular mass

Findings	Total number of cases (%)
Bowel adhesions	14 (100)
Appendicular abscess	5 (35.71)
Perforated appendix	2 (14.28)
Gangrenous appendix	3 (21.42)
Loculated pus collection	3 (21.42)

DISCUSSION

The management of patients with appendicular mass is controversial. The controversies exist regarding conservative management, surgical management, duration of antibiotic therapy, drain usage and skin closure. Recently, performing laproscopic appendectomy for appendicular mass has been added to the list of controversies.

Appendicular mass develops in 2-6% of cases following acute appendicitis.[9] Pathologically, this may represent a spectrum ranging from phlegmon to abscess.[10] It is always difficult to distinguish between the appendicular mass and appendicular abscess.

Immediate appendectomy has the advantages of being safe, cost effective, eliminates the risk of recurrent appendicitis and thereby the need of the second admission for the interval appendectomy.[9,11] In our study, all the patients underwent an immediate appendectomy.

Jordan *et al,* in 1974-1979 performed 42 open appendectomies in palpable masses and recommended early surgery in patients with appendicular mass. However, he also reported that it has a high complication rate (36%), almost comparable to that for perforated appendicitis.[8] It may also lead to dissemination of infection and fistula formation.[9] In this study, all the cases of appendicular mass underwent early surgical intervention, and we did not come across any such complication.

Nonoperative management has been proposed for the management of patients with localized abscess formation due to perforated appendicitis.[12] Antibiotic therapy is successful in about 93% of these patients; in about 20% of them, image guided percutaneous drainage of the abscess will eventually be required.[13] In our study, 5 patients had appendicular abscess in which laproscopic appendectomy and pus drainage was done. Postoperatively, patient did not have any complication and was discharged satisfactorily.

The average length of hospital stay in conservative approach is a little more compared to one time early surgical approach, with a further second admission required for interval appendectomy. The length of hospital stay in our study was 6-8 days.[14,15]

Horwitz *et al.,* and others have reported increased risk of post-operative intraabdominal abscesses in laproscopically approached complicated appendicitis. In our study, none of our patients developed such complications. In all the cases, collection in the peritoneal cavity was aspirated and a through saline wash was given followed by drain *in situ*.[16]

Valla *et al.,* suggested open approach in appendicular masses.[17] In our study, out of 14 cases 11 were treated laproscopically and 3 were converted to open due to dense adhesions. Hence, we suggest laproscopic approach is more safe and feasible for the patients with appendicular mass.

Richards *et al,* reported that laproscopic appendectomy resulted in less complications, a shorter hospital stay, and cost-effective compared to open appendectomy in patients with perforated appendicitis.[18]

Tirabassi *et al.* reported a high conversion rate (36%) after laproscopic operation for perforated appendicitis.[19] We had 6% of conversion rate in our study. The reasons for conversion was dense inter bowel adhesions due to which the appendix was not localized.

The laproscopic approach has lot of advantages in cases with complicated appendicitis. It allows the surgeon to have a panoramic view of the abdominal cavity, easy accessibility, and feasibility to give a thorough peritoneal lavage in compare with the open cases where atypical localization of the appendix may require an extension of the incision. Furthermore, laproscopic approach allows the patient early mobility, less pain and less hospital stay compare to open cases.

CONCLUSION

Early surgical intervention in the form of laproscopic appendectomy in cases of appendicular mass is safe and feasible option.

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How to cite this article: Sathyakrishna BR, Shinde P, Nayar S. Early Surgical Management of Appendicular Mass: A Retrospective Analysis. Int J Sci Stud 2016;4(8):91-94.

Source of Support: Nil, **Conflict of Interest:** None declared.