

Role of Conservative Management in the Treatment of Acute Non-Complicated Appendicitis

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ABSTRACT

Objective: The purpose of this study was to assess the efficiency of non-operative management of acute non-complicated appendicitis in terms of cost effectiveness, as well as related morbidity and mortality.

Study Design: A prospective observational research.

Place and duration: In the Surgical Unit of Islam Medical College and Teaching Hospital Sialkot for one-year duration from January 2021 to December 2021.

Methodology: The study included 110 patients with early acute non-complicated appendicitis who were identified by clinical history, physical, and laboratory testing. 110 patients were given intravenous antibiotics for two days, followed by oral antibiotics for seven days. A proforma was used to collect the data. Several morbidities were recognized and tracked in patients.

Results: There were 72 men and 38 women, with an average age of 20 years. Right iliac fossa pain, nausea, vomiting, and anorexia were the most frequent symptoms, whereas fever, tachycardia, and rebound tenderness in the right iliac fossa were the most common signs. Patients were randomly assigned to one of two groups. After an uneventful stay of 2 to 4 days. Patients in Group 1 (36.4 percent) who were treated conservatively had no problems and were discharged after a hospital stay of 2 to 4 days. Within four months, 5 patients (12.5%) and three patients (3%) experienced recurrence within six months. They had appendicectomies done in the traditional way. Wound infection was the sole postoperative complication in one patient (5%). Their hospital stay lasted anywhere from three to six days. Two (2.9%) patients with perforated/gangrenous appendix with appendicolith was found in Group-2 patients who had standard appendicectomy. Wound infection occurred in 4 individuals (5.7 percent), pelvic collection in 3 (4.3 percent), and subsequently small intestinal obstruction (adhesive) in two patients (2.8 percent). Their hospital stay lasted anywhere from four to nine days.

Conclusion: Patients who were treated conservatively with antibiotics had minor discomfort and required fewer analgesics. Although surgery-related morbidity, death, and costs were averted, the recurrence rate was not insignificant.

Keywords: Acute appendicitis, Conservative management, Recurrence

INTRODUCTION

In 18861, Reginald Filz was the first to describe acute and chronic appendicitis¹⁻². Males between the ages of 10 and 20 are the most prevalent victims of acute abdomen, although it may strike anybody at any age³. Although occlusion of the lumen is required for appendiceal gangrene and perforation, numerous other causes, such as an infectious agent or a virus, have been identified as causative factors for mucosal inflammation and lymphoid hyperplasia. There is also a seasonal variation in incidence⁴⁻⁵. Symptoms include migratory pain that becomes worse with movement or coughing, nausea, vomiting, and anorexia, as well as fever, tachycardia, localized tenderness, guarding, and rebound tenderness in the right iliac fossa⁶⁻⁷. Differential diagnoses for acute appendicitis include gastrointestinal, urological, and gynecological causes of abdominal pain, as well as metabolic, neurological, and malignant causes of abdominal pain.

The major methods for diagnosing acute appendicitis are clinical examination and expertise, aided by several grading systems such as the Alvarado system⁹⁻¹⁰. Urinalysis, full blood count, C reactive protein with ultrasound assistance, computed tomography (CT) scan, and diagnostic laparoscopy are also helpful tests¹¹. Medical therapy, such as antibiotics or appendicectomy, preferably laparoscopic are available after appendicitis has been identified, although population-based studies have shown considerable long-term hazards following appendicitis investigation¹². By 30 years, 1.3 percent of people have small bowel obstruction that will need surgery, with a 30-day death risk of 0.24 percent with an enhanced standard mortality rate. A negative appendicectomy is also fraught with complications¹³.

The purpose of this study was to assess the efficiency of non-operative management of acute non-complicated appendicitis in terms of cost effectiveness, as well as related morbidity and mortality.

METHODOLOGY

A total of 110 patients with early acute non-complicated appendicitis were included in the trial In the Surgical Unit of Islam Medical College and Teaching Hospital Sialkot for one-year duration from January 2021 to December 2021. The diagnosis was established based on history, clinical examination, laboratory studies, and operational results. The research eliminated those patients who presented beyond 24 hours and those who had abdominal discomfort owing to reasons other than acute uncomplicated appendicitis. Patients were alienated into two groups based on the treatment method.

There were 40 people in Group-1 who were kept NPO, given intravenous fluids, and intravenous third-generation cephalosporin with metronidazole for two days and oral antibiotics for seven days. There were 70 people in Group-2 who had emergency appendicectomy using the conventional method. Patients were carefully monitored for any complications or changes in their morbid diseases. Those who were given conservative treatment were discharged within 12-24 hours and were observed for six months. Treatment method, symptom alleviation, recurrence, postoperative complications, and postoperative hospital stay were all examined to see how they affected the result.

RESULTS

The participants were between the ages of 18 and 35 years of age (mean:20 years). Males were 72 and females were 38 (M: F=2:1). Patients reported pain in the right iliac fossa in 100 percent of cases, nausea and vomiting in 86.4 percent of cases, and anorexia in 76.4 percent of cases. Fever (80.1 percent of cases), pulse rate >90 beats per minute (70.9 percent of cases), and rebound tenderness in the right iliac fossa in 64.5 percent of cases were the most frequently reported signs and symptoms. The presence of white blood cell counts more than 11,000/mm³ was detected in 85 (77.3 percent) of the individuals studied. Patients in Group 1 (36.4

percent) who were treated conservatively had no problems and were discharged after a hospital stay of 2 to 4 days. Within four months, 5 patients (12.5%) and three patients (3%) experienced recurrence within six months. They had appendicectomies done in the traditional way. Wound infection was the sole postoperative complication in one patient (5%). Their hospital stay lasted anywhere from three to six days.

Table 1: Clinical features

Clinical features	Number of patients	Percentage
Symptoms:		
Pain right iliac fossa	110	100
Nausea/vomiting	95	86.4
Anorexia	84	76.4
Signs: Fever		
Tachycardia	89	80.1
Rebound tenderness	78	70.9
Leucocytosis	71	64.5
	85	77.3

Table 2: Postoperative complications

Complications	Group-1 (recurrent cases) Number of patients (%)	Group-2 Number of patients (%)
Wound infection	1 (2.5%)	4 (5.7%)
Pelvic collection	0 (0%)	3 (4.3%)
Adhesive small bowel obstruction	0 (0%)	2 (2.8%)

Two (2.9%) patients with perforated/gangrenous appendix with appendicolith was found in Group-2 patients who had standard appendicectomy. Wound infection occurred in 4 individuals (5.7 percent), pelvic collection in 3 (4.3 percent), and subsequently small intestinal obstruction (adhesive) in two patients (2.8 percent). Their hospital stay lasted from four to nine days.

No additional pathology, such as carcinoid of the appendix, was seen in any of the two groups of patients.

DISCUSSION

Males outnumbered females in our research, with a mean age of 20 years, which matched the results of Styruud J et al¹²⁻¹³. 70 individuals with acute non-complicated appendicitis who presented within 24 hours were treated medically with antibiotics in our research. They got well sooner than expected, and their time in the hospital was uneventful¹⁴. Several studies have looked at the function of medical care in the treatment of acute appendicitis that isn't complicated. Early acute appendicitis may resolve spontaneously, and medical therapy with antibiotics may be an option to surgery¹⁵.

In all of our conservatively treated patients, we employ 3rd generation cephalosporins and metronidazole. Many efficient combination antibiotic regimens have been created in the previous decade, and the availability of monotherapy for the treatment of intra-abdominal infection has rendered the use of triple antibiotic regimens¹⁶⁻¹⁷.

Recurrent appendicitis rates have been reported to vary from 6 to 14 percent in many small studies. Another randomized study comparing appendicectomy with antibiotic treatment in 18 to 50-year-old males revealed that 88% recovered without surgery and 14% had recurrence appendicitis after a year¹⁸⁻¹⁹.

Two (2.9 percent) patients in Group-2 had a ruptured appendix with faecolith. Since the 1980s, the frequency of perforation in acute appendicitis has remained steady at around 20 percent to 30 percent, despite improvements in diagnostic accuracy and shorter time between presentation and treatment in the form of appendectomy (appendicitis surgery)²⁰⁻²¹.

In our research, 10 (9.1%) of surgically treated patients had postoperative problems. For acute appendicitis without perforation, the overall postoperative complication rate is approximately 10% to 19%, and for perforated appendicitis, the rate is around 12 to 30%.

Surgical exploration for appendicitis has been linked to significant long-term hazards, according to population-based studies²²⁻²³. As a result, there has lately been a surge in interest in antibiotic therapy as a main treatment²⁴. The findings of our

research back up the above-mentioned procedure.

CONCLUSION

It is possible to treat nonoperatively patients with a brief history of stomach discomfort, localized soreness, and hemodynamic stability since it is more cost-effective and reduces the mortality and morbidity associated with standard appendectomy, as well as the risk of infection

REFERENCES

- Charalampopoulos A, Dimopoulos I, Koliakos N, Kopanakis K, Liakakos T, Machairas A. TL. Non-complicated acute appendicitis in adults treated successfully by conservative treatment without recurrences. *Chirurgia (Bucur)*. 2017 Jan 1;112(1):25-32.
- Federico C, Paola F, Massimo S, Enrico C, Maria GS, Gioacchino L, Gian LD, Federica G. Conservative treatment of acute appendicitis. *Acta Bio Medica: Atenei Parmensis*. 2018;89(Suppl 9):119.
- Zejnnullahu V, Isjanovska R, Bicaj B, Zejnnullahu VA, Hamza AR, Ivanova VC. The Diagnostic Role of Hyperbilirubinemia in Complicated and Non-complicated Appendicitis. *Albanian Journal of Trauma and Emergency Surgery*. 2018 Jul 20;2(2):151-62.
- Dubina ED, Lee SL. Non-operative Management of Complicated Appendicitis. In *Controversies in Pediatric Appendicitis 2019* (pp. 63-75). Springer, Cham.
- Podda M, Cillara N, Di Saverio S, Lai A, Feroci F, Luridiana G, Agresta F, Vettoretto N. Antibiotics-first strategy for uncomplicated acute appendicitis in adults is associated with increased rates of peritonitis at surgery. A systematic review with meta-analysis of randomized controlled trials comparing appendectomy and non-operative management with antibiotics. *The Surgeon*. 2017 Oct 1;15(5):303-14.
- Fugazzola P, Ceresoli M, Agnoletti V, Agresta F, Amato B, Carcoforo P, Catena F, Chiara O, Chiarugi M, Cobiainchi L, Coccolini F. The SIFIPAC/WSES/SICG/SIMEU guidelines for diagnosis and treatment of acute appendicitis in the elderly (2019 edition). *World Journal of Emergency Surgery*. 2020 Dec;15(1):1-5.
- Kuruvilla J, Sunil M. An Analysis of Role of Computed Tomography Scan Abdomen in Differentiating Perforated from Non-perforated Appendicitis Accurately and Comparing with Histopathology Reports. *INTERNATIONAL JOURNAL OF SCIENTIFIC STUDY*. 2020;7(11):32-6.
- Abouhamda A, Jan Y, Alturkstani M, Alsaadi F, Garah R, Alaql S, Al Thobaiti F. Interval appendectomy operative vs. non-operative management of appendicitis in Saudi Arabia. *The Egyptian Journal of Hospital Medicine*. 2017 Jan 1;66(1):221-6.
- Sartelli M, Baiocchi GL, Di Saverio S, Ferrara F, Labricciosa FM, Ansaloni L, Coccolini F, Vijayan D, Abbas A, Abongwa HK, Agboola J. Prospective observational study on acute appendicitis worldwide (POSAW). *World Journal of Emergency Surgery*. 2018 Dec;13(1):1-0.
- Goktekin MC, Yilmaz M, Bozdog A. Role of hematological parameters in the selection of acute appendicitis treatment.
- Allan Z, Al-Habbal Y. Non-Operative Management of Acute Appendicitis—Evidence versus Practice in Eastern Health, Victoria, Australia. *J Surg Oper Care*. 2018;3(2):205.
- Destek S, Gul V. Effectiveness of conservative approach in right colon diverticulitis. *ULUSAL TRAVMA VE ACIL CERRAHI DERGISI-TURKISH JOURNAL OF TRAUMA & EMERGENCY SURGERY*. 2019;25(4).
- Zaid A, Kottb M, Hokkam E, Saber A. Laparoscopy in Simple and Complicated Appendicitis: How Does It Differ. *Journal of Surgery*. 2017;5(3-1):23-7.
- Riedesel EL, Weber BC, Shore MW, Cartmill RS, Ostlie DJ, Leys CM, Gill KG, Kohler JE. Diagnostic performance of standardized ultrasound protocol for detecting perforation in pediatric appendicitis. *Pediatric Radiology*. 2019 Dec;49(13):1726-34.
- Moletta L, Pierobon ES, Capovilla G, Costantini M, Salvador R, Merigliano S, Valmasoni M. International guidelines and recommendations for surgery during Covid-19 pandemic: a systematic review. *International Journal of Surgery*. 2020 Jul 1;79:180-8.
- Li J, Xu R, Hu DM, Zhang Y, Gong TP, Wu XL. Effect of delay to operation on outcomes in patients with acute appendicitis: a systematic review and meta-analysis. *Journal of Gastrointestinal Surgery*. 2019 Jan;23(1):210-23.
- Pappalardo GC, Sparavigna M, Meniconi R, Mazzari A, Barra F, Orsenigo E, Pertile D. Consensus Statement of the Italian Polispesialistic Society of Young Surgeons (SPIGC): Diagnosis and Treatment of Acute Appendicitis.

18. Vaghela K, Shah B. Diagnosis of Acute Appendicitis Using Clinical Alvarado Scoring System and Computed Tomography (CT) Criteria in Patients Attending Gujarat Adani Institute of Medical Science—A Retrospective Study. *Polish journal of radiology*. 2017;82:726.
19. Memon AG, Memon AI, Shah SK, Sahito RA, Habib-ur-Rehman Leghari S, Baloch S. An experience of treatment outcome in acute appendicitis with antibiotics and appendectomy at a tertiary care hospital. *InMed Forum* 2017 Mar (Vol. 28, No. 3, pp. 136-140).
20. Lamture YR, Gajbhiye VP, Shinde RK, Kiran K. Impact of post appendectomy pain. *International Surgery Journal*. 2017 Aug 24;4(9):2932-6.
21. Viorel M, Petru B, Galina P, Sergiu B. Risk factors in the development of acute appendicitis complications. *The Moldovan Medical Journal*. 2018;61(4).
22. Jahangiri F, Nasiri SJ, Negahi A, Nouhifard B, Farazmand B, Hoseini M. Prognostic Value of Serum Fibrinogen Level in Determining the Severity of Appendicitis Inflammation in Adult and Pediatric Patients Undergoing Appendectomy in Two Local Centres in Tehran. *International Journal of Child Health and Nutrition*. 2019 May 21;8(2):50-4.
23. Siribumrungwong b. Comparison of surgical site infection between delayed primary wound closure versus primary closure in complicated appendicitis: a multicenter randomized controlled trial (doctoral dissertation, Mahidol University).
24. Li J, Xu R, Hu D, Zhang Y, Gong T, Wu X. Prehospital delay and its associated psychosocial factors in patients presenting with acute appendicitis in a southwestern city in China: a single-centre prospective observational study. *BMJ open*. 2019 Jun 1;9(6):e023491.
25. Scaglione M, Galluzzo M, Santucci D, Trinci M, Messina L, Laccetti E, Faiella E, Beomonte Zobel B. Small bowel obstruction and intestinal ischemia: emphasizing the role of MDCT in the management decision process. *Abdominal Radiology*. 2020 Oct 14:1-5.