

# Postappendectomy wound infection-incidence and management

Syed Qaisaruddin<sup>1\*</sup>, Raghuveer Bhonsle<sup>2</sup>, Abhishek Jadhav<sup>3</sup>

Indian Institute of Medical Science and Research, Warudi, Tal.-Badnapur, Dist.-Jalna, Maharashtra, INDIA.

Email: [syedqaisaruddin@hotmail.com](mailto:syedqaisaruddin@hotmail.com)

## Abstract

This is a review of 448 cases of Appendicitis operated in the Indian Institute of Medical Science and Research, Warudi over a period of 3 years. Appendectomy is one of the commonest operation performed in Surgery Department. In uncomplicated Appendicitis, the incidence of wound infection is less than 5% but in complicated cases like perforation and gangrene, the incidence varies according to severity of Appendicitis ranging from 11 to 100%. Early intervention, proper scrubbing, aseptic technique, wound protection, antibiotics and wound irrigation before and while closing significantly reduce the incidence of wound infection.

**Keywords:** Appendicitis, Wound infection, Appendectomy, Complications.

## \*Address for Correspondence:

Dr. Syed Qaisaruddin, Indian Institute of Medical Science and Research, Warudi, Tal.-Badnapur, Dist.-Jalna, Maharashtra, INDIA.

Email: [syedqaisaruddin@hotmail.com](mailto:syedqaisaruddin@hotmail.com)

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regions with certain basic practices being common but mainly depends on personal clinical experience.

## PATIENTS AND METHODS

All cases of Appendicitis operated at the Indian Institute of Medical Science and Research, Warudi over 3 year period [from 1<sup>st</sup> January 2012 to 31<sup>st</sup> December 2014] were reviewed. Their records were checked for age, sex, time of presentation and operation, postoperative complications, duration of hospital stay and management of complications.

## INTRODUCTION

Appendectomies are one of the most commonly performed operations. The incidence of Appendicitis varies in different regions but approximately one in 2000 persons will require an Appendectomy during his or her lifetime<sup>1</sup>. Appendicitis is most common between the ages of 10 and 25 years but no age is exempt and male to female ratio is 1.4:1<sup>2</sup>. History taking and physical examination remain the diagnostic cornerstone in evaluating pain in right lower abdominal quadrant<sup>3</sup>. Lab results and sonography are helpful. In uncomplicated appendicitis, the incidence of wound infection is less than 5% but in complicated appendicitis like perforation or gangrene, the incidence of wound infection may vary from 11% to 100%<sup>4</sup>. Some basic principles should be followed to prevent wound infection<sup>4</sup>. The management of postoperative wound infection varies indifferent

## RESULT

In 3 years, 448 cases of Appendicitis were operated at the Indian Institute of Medical science and research, Warudi.38 patients were operated in 2012, 95 patients in 2013 and 315 patients in 2014 [Table-1]. The age of the patients ranged from 6 years to 55 years [Mean age- 19 years].27 patients were in the pediatric age group and 421 patients were adults.239 were female and 209 male patients [Table-2]. 414 had uncomplicated Appendicitis and 34 patients had complications like perforation, gangrene, appendicular mass and appendicular abscess. In uncomplicated cases, 9[2.17%] developed wound infections which resolved with dressing and antibiotics. In complicated cases 8 [23.52%] developed wound infection[Table-3].5 of these cases had major wound infection.2 cases presented with appendicular abscess and later developed fistulae[after drainage].Both were treated conservatively.

**Table 1: No of cases year wise**

Sr. No.	Year	No.
1	2012	38
2	2013	95
3	2014	315
<b>Total</b>		<b>448</b>

**Table 2: Age and Sex distribution**

Sr. No.	Year	Male	Female	Paediatrics	Adult
1	2012	17	21	2	36
2	2013	44	51	8	87
3	2014	148	167	17	298
<b>Total</b>		<b>209</b>	<b>239</b>	<b>27</b>	<b>421</b>

**Table 3: Incidence of wound infection**

Sr. No.	Type of case	No.	Wound infection	percentage
1	Uncomplicated	414	9	2.17
2	Complicated	34	8	23.52
<b>Total</b>		<b>448</b>	<b>17</b>	<b>3.79</b>

## DISCUSSION

Indian Institute of Medical Science and Research is situated in a rural area. It started functioning in 2010 and Major operations were started in 2011. The number of patients gradually goes on increasing [Table-1]. Clinical examination remains the most important step in the diagnosis of Appendicitis<sup>3</sup>. Ultrasonography supports the diagnosis and laboratory investigations like CBC and CRP may be helpful. The rate of negative appendectomies has decreased over the years although it still remains high in some studies. Diagnostic accuracy is important. The rate of negative appendectomies in females [24%] is twice that among males [12%] but perforation rate is higher in males [18%] than in females [13%]<sup>5,6</sup>. Children and elderly patients are at high risk of perforation, children because of short omentum and low immunological response and elderly due to several factors- concurrent chronic medical diseases like Hypertension, Chronic cardiac disease, Diabetes Mellitus, Chronic obstructive airway disease, End stage renal disease or Malignancy.<sup>7,8</sup> Early intervention is important as delay in surgical intervention is one of the important factors in development of complications. Wound infection in Appendectomy varies with the presence or absence of complications like Perforation, Gangrene, Mass formation and Abscess. Wound infection is directly proportional to the severity of Appendicitis. Earlier, in some Institutes, conservative treatment was done for some selected cases of Appendicitis which resolved with I.V.Fluids, Antibiotics and keeping the patient N.B.M. but now a days, early operative intervention is the treatment of choice to prevent complications. Appendicitis can also present with chronic abdominal pain and sometimes misdiagnosed due to absence of classical symptoms and signs and no suspicious finding

on Sonography. In perforated Appendix, immediate exploration, Appendectomy and proper peritoneal lavage should be done. There is 4 fold risk of wound infection in perforated than in nonperforated appendicitis<sup>11</sup>. Appendicular mass is managed conservatively with Antibiotics, I.V.Fluids, Analgesics and keeping the patient N.B.M. till he settles down. Intervention may be needed if patient does not settle down and continues to have fever, tachycardia and appears toxic. Once the mass resolves, interval appendectomy is done 4 to 6 weeks later. Appendicular abscess needs drainage of pus. Some of these cases may develop fistula like 2 of our cases. Sometimes the patient may initially present with fistula<sup>12,13</sup>. Certain standard procedures should be followed to prevent wound infection in complicated Appendicitis. Early operative intervention is one of the key factors in preventing further complications like wound infection, intraabdominal infections and collection. Proper scrubbing, peritoneal lavage in peritonitis, wound irrigation after each layer closure specially peritoneum, covering and protecting the wound by gauze soaked in Betadine and use of drain as and when needed are important factors. Antibiotics also play an important role. The morbidity and mortality in complicated appendicitis has reduced significantly in the recent past and advanced antibiotics have played a significant role. Some surgeons recommend delayed primary closure in perforated appendix. It can be done in few selected cases with severe contamination but not recommended routinely<sup>9</sup>. In our series, there is no significant difference in the incidence by age and sex as compared to other series [Table-2]. The overall incidence of wound infection was 3.79% with 2.17% in uncomplicated and 23.52% in complicated appendicitis. [Table-3]. Once the wound infection occurs,

management depends on the severity of infection. Any pus collection should be drained immediately and pus swab taken for culture and sensitivity. Daily dressing is done and appropriate antibiotics are used. Fistulae usually heal with conservative management but larger fistula may need surgical intervention. Nowadays Laparoscopic appendectomy is being recommended but it is expensive and not available in all places. For procedures like Cholecystectomy, definitely Laparoscopy is recommended but for appendectomy, open procedure is comparable to Laparoscopy and there is little difference<sup>16</sup>.

## CONCLUSION

Appendicitis is a very common condition. Clinical examination remains the most important diagnostic tool and sonography is helpful. Accurate diagnosis is very important as there are several conditions with similar presentation. Once diagnosis has been made, early intervention is the key factor in preventing complications and in those cases who have developed complications like perforation and gangrene, further complications can be prevented. Certain standard procedures have to be followed to prevent wound infection and intraabdominal collection. Antibiotics also play an important role. The morbidity and mortality have significantly reduced in the recent past.

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