



Effectiveness of early take-up of emergency appendicectomy in reducing the operative and postoperative complications

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ABSTRACT

Background: One of the most common abdominal emergency encountered in the surgical casualty is acute appendicitis. The present study was conducted to assess effectiveness of early take-up of emergency appendicectomy in reducing the operative and postoperative complications.

Materials & Methods: 70 cases of acute appendicitis of both genders were selected. Parameters such as type of surgery, symptoms, signs, duration of symptoms at the time of presentation, time interval between admission and operative procedure performed, Alvarado score and complications etc. was recorded.

Results: Out of 70 patients, males were 38 and females were 32. Type of surgery performed was open in 40 and laparoscopic appendectomy in 30. Symptoms were nausea/ vomiting in 54, anorexia in 62, right iliac fossa pain in 45 patients. Signs were RIF tenderness in 60, rebound tenderness in RIF in 51 and elevated temperature in 37 cases. Duration of symptoms at the time of presentation was within 24 hours in 18, within 2 days in 50 and within 1 week in 2 cases. Time interval between admission and operative procedure performed was within 12 hours seen in 63, 12-24 hours in 6 and >24 hours in 1 patient. Alvarado score found to be possible in 30, probable in 25 and very probable in 15 cases. The difference was significant ($P < 0.05$). Out of 63 who were operated within 12 hours, 40 had inflamed, 12 had perforated, 8 had gangrenous and 3 had mass formation. Out of 6 who were operated within 12- 24 hours, 6 had inflamed and out of 1 who were operated >24 hours, 1 had perforated appendix. The difference was significant ($P < 0.05$).

Conclusion: Complication rates were more in patients who presented late to the hospital and all had gangrenous appendix intra-operatively. Therefore, the appropriate timing of appendectomy from the time of admission should be followed.

Key words: Acute appendicitis, Laparoscopic appendectomy, Emergency

Introduction

One of the most common abdominal emergency encountered in the surgical casualty is acute appendicitis. Appendicitis is inflammation of the appendix.¹ Symptoms commonly include right lower abdominal pain, nausea, vomiting, and decreased appetite. However, approximately 40% of people do not have these typical symptoms. Men have the higher risk of developing acute appendicitis 8.6% as compared to a female who has a lower risk 6.7%. Severe complications of a ruptured appendix include widespread, painful inflammation of the inner lining of the abdominal wall and sepsis.²

Appendectomy is the most commonly performed operation in the world, 6% of all the surgical procedures and is done as emergency procedure wherever possible, the only exception is formation of appendicular mass or abscess. In these cases, interval appendectomy is performed as elective procedure.³Emergency laparoscopic or open appendectomy is the commonest emergency procedure performed all over the world.⁴

Laparoscopic appendectomy gives a better evaluation of the peritoneal cavity than that obtained by open approach and also facilitates other differential diagnosis. Advantages of laparoscopic approach include less operative time, less postoperative pain, reduced analgesia, less surgery associated complications, shorter hospital stay, faster recovery, reduced wound infection and minimal scarring.⁵The present study was conducted to assess effectiveness of early take-up of emergency appendicectomy in reducing the operative and postoperative complications.

Materials & Methods

The present study was conducted among 70 cases of acute appendicitis of both genders. Patients were informed regarding the study and their written consent was obtained.

Patient data such as name, age, gender etc. was recorded. Parameters such as type of surgery, symptoms, signs, duration of symptoms at the time of presentation, time interval between admission and operative procedure performed, Alvarado score and complications etc. was recorded. P value less than 0.05 was considered significant.

Results

Table I Distribution of patients

Total- 70		
Gender	Male	Female
Number	38	32

Table I shows that out of 70 patients, males were 38 and females were 32.

Table II Assessment of parameters

Parameters	Variables	Number	P value
type of surgery	Open	40	0.27
	laparoscopic appendectomy	30	
Symptoms	Nausea/ vomiting	54	0.82
	Anorexia	62	
	Right iliac fossa pain	45	
Signs	RIF tenderness	60	0.05
	Rebound tenderness in RIF	51	
	Elevated temperature	37	
duration of symptoms at the time of presentation	Within 24 hours	18	0.01
	Within 2 days	50	
	Within 1 week	2	
time interval between admission and operative procedure performed	Within 12 hours	63	0.01
	12-24 hours	6	
	>24 hours	1	
Alvarado score	Possible	30	0.82
	Probable	25	
	Very probable	15	

Table II, graph I shows that type of surgery performed was open in 40 and laparoscopic appendectomy in 30. Symptoms were nausea/ vomiting in 54, anorexia in 62, right iliac fossa pain in 45 patients. Signs were RIF tenderness in 60, rebound tenderness in RIF in 51 and elevated temperature in 37 cases. Duration of symptoms at the time of presentation was within 24 hours in 18, within 2 days in 50 and within 1 week in 2 cases. Time interval between admission and operative procedure performed was within 12 hours seen in 63, 12-24 hours in 6 and >24 hours in 1 patient. Alvarado score found to be possible in 30, probable in 25 and very probable in 15 cases. The difference was significant ($P < 0.05$).

Graph I Assessment of parameters

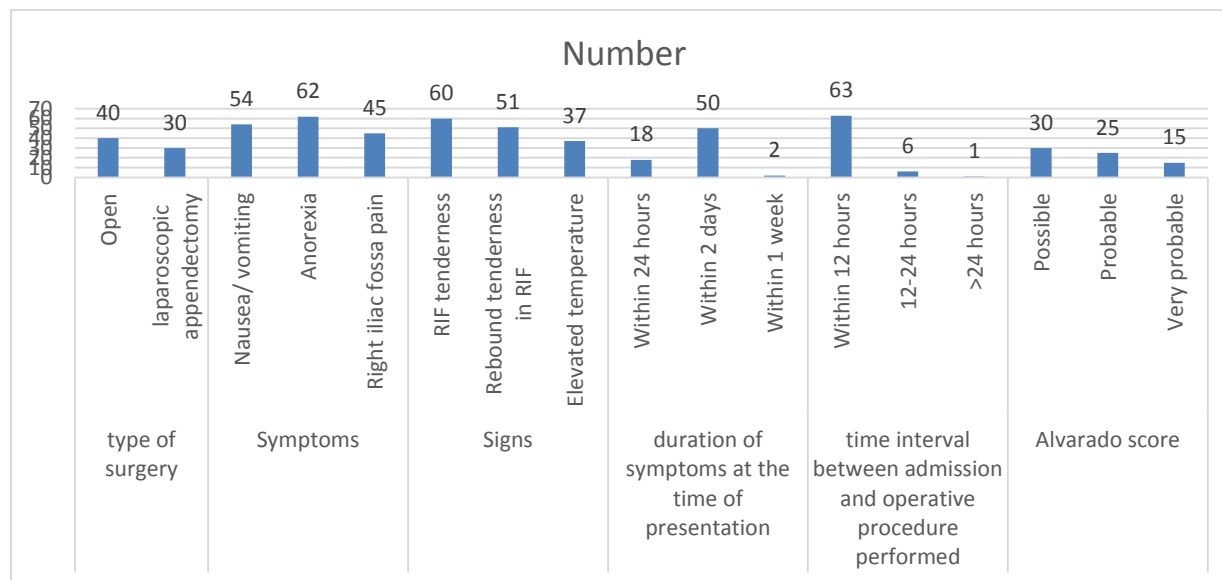


Table III Complications related with time interval between admission and surgery performed

Time interval	Number	Inflamed	Perforated	Gangrenous	Mass formation	P value
Within 12 hours	63	40	12	8	3	0.01
12-24 hours	6	6	0	0	0	0.24
>24 hours	1	0	1	0	0	0.75

Table III shows that out of 63 who were operated within 12 hours, 40 had inflamed, 12 had perforated, 8 had gangrenous and 3 had mass formation. Out of 6 who were operated within 12-24 hours, 6 had inflamed and out of 1 who were operated >24 hours, 1 had perforated appendix. The difference was significant ($P < 0.05$).

Discussion

The diagnosis of acute appendicitis is often difficult, and challenging. The most common cause of surgical abdomen is appendicitis affecting all the age groups.⁶ The maximum incidence is documented to be about 7-10 % of the general population in the second and third decades of life.⁷ Appendectomy is the operation which is most commonly performed by the general surgeons.^{8,9} The laparoscopic appendectomy has gained acceptance with the technological

advances of the past two to three decades as a diagnostic and treatment method for acute appendicitis. From that time, this procedure has been used widely.^{10,11}

We found that out of 70 patients, males were 38 and females were 32. Wu et al¹² assessed the therapeutic effects of emergency laparoscopic appendectomy (LA) in treating complicated appendicitis (CA) in 115 elderly patients. Of these, 59 patients consented to open appendectomy (OA), and LA was performed in the other 56 patients. The perioperative and follow-up variables of the 2 groups were analyzed. The operative time in the LA group was longer than the OA group (LA: 70.5±16.0 min versus [vs.] OA: 59.3±12.0 min, $p < 0.001$). The LA group had lower chances of incision infections (LA: 8.9% vs. OA: 28.8%, $p = 0.007$) and shorter hospital stay (LA: 6.1±2.5 days vs. OA: 9.6±3.5 days, $p < 0.001$). Return to soft diet (LA: 1.4 ± 0.8 days vs. OA: 3.0 ± 1.6 days, $p < 0.001$) and time to out of bed (LA: 1.3±0.5 days vs. OA: 2.5±0.9 days, $p < 0.001$) was faster in the LA group. The incidence of complications and 30-day readmission rate in the LA group was much lower than the OA group.

We found that type of surgery performed was open in 40 and laparoscopic appendectomy in 30. Symptoms were nausea/ vomiting in 54, anorexia in 62, right iliac fossa pain in 45 patients. Signs were RIF tenderness in 60, rebound tenderness in RIF in 51 and elevated temperature in 37 cases. Vinayagam et al¹³ in their study out of 66 patients, 12 patients had surgical site infection among which 9 were female and 3 were male. 6 patients presented after 2 days of onset of symptoms, 3 patients presented after 3 days, 3 patients presented after 4 days. All patients were operated within 12 hours of hospital admission. All patients underwent open appendectomy and intra-operatively 9 patients had gangrenous appendix and 3 patients had appendicular mass.

We found that duration of symptoms at the time of presentation was within 24 hours in 18, within 2 days in 50 and within 1 week in 2 cases. Time interval between admission and operative procedure performed was within 12 hours seen in 63, 12-24 hours in 6 and >24 hours in 1 patient. Alvarado score found to be possible in 30, probable in 25 and very probable in 15 cases. We found that out of 63 who were operated within 12 hours, 40 had inflamed, 12 had perforated, 8 had gangrenous and 3 had mass formation. Out of 6 who were operated within 12- 24 hours, 6 had inflamed and out of 1 who were operated >24 hours, 1 had perforated appendix. Gupta et al¹⁴ compared and evaluated the open and laparoscopic method of appendectomy in acute appendicitis. The subjects undergoing appendectomy were evaluated for age, sex, episode number, duration of pain before presentation in hospital, operative time, conversion rate, wound infection, post-operative intra-abdominal abscess formation, and stay in hospital. It was found that average operative time in open surgery was 67.5 minutes and 104 minutes in laparoscopic surgery, with a conversion to open in about 20% of the cases. Oral feeding in the open group was around the 5th day while it was around 2nd day in the laparoscopic group. Average hospital stay was also low in the laparoscopic group, being only around 5 days in laparoscopic group and

around 8 days in the open group. Overall complications were also low in the laparoscopic surgery group.

The shortcoming of the study is small sample size.

Conclusion

Authors found that complication rates were more in patients who presented late to the hospital and all had gangrenous appendix intra-operatively. Therefore, the appropriate timing of appendectomy from the time of admission should be followed.

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