

# EXPERIENCE WITH PERFORATED APPENDICITIS

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## SUMMARY

This prospective study on perforated appendicitis consists of eighty-six cases who were operated during one year period (1996-1997) in Surgical "A" Unit Lady Reading Hospital, Peshawar. The purpose of the study was to find out the prevalence of perforated appendicitis and stream line the management policy. The main cause of perforation was delayed presentation. Seventy-nine percent of these cases had symptoms for more than 24 hours. Out of 86 cases 58 were male patients (male to female ratio 2:1). The disease was common in young males. All the cases were managed surgically. Pre-operative treatment included proper fluids and electrolyte balance, control of fever, intravenous antibiotics and nasogastric aspiration to reduce the abdominal distention. The common complications were wound infection (11.6%); intra peritoneal sepsis/abscesses (23%); paralytic ileus (1.2%); acute renal failure (1.2%); chest infection (1.2%) and iatrogenic gut injury (1.2%). Mortality was zero.

## INTRODUCTION

Acute appendicitis is the most common abdominal emergency for a general surgeon to deal with. Delay in diagnosis and treatment leads to its perforation. In a health setup like ours where the health facilities are far from ideal, patient often reach the hospital when the appendix has already perforated. The incidence of perforated appendix in third world is still very high and carries a high morbidity and significant mortality.

Curiously, a condition as common as appendicitis was not recorded in medical history until about five centuries ago. (Sabiston-1991). Preserved perforated appendix has been found in an Egyptian mummy.<sup>1,2</sup>

The first ever appendicectomy was performed in 1736 by Claudius Amyand.<sup>2</sup> William Parker of New York in 1867 advised early incision in the treatment of appendicular abscess.<sup>3</sup>

In 1880, Lawson Tait of Birmingham, removed a gangrenous appendix with full recovery of the patient. As his case was not published until 1890. So credit for the first published account of appendicectomy went to Kronlein in 1886.

Tareves F. (1888) and Senn N. (1889) buried the stump using several lembert sutures. Charles Mc Burney (1889) pioneered early diagnosis and early surgery and also devised the muscle splitting incisions named after him. He also described appendicitis.<sup>3</sup> In 1931 Professor Wilkie advised open treatment of the wound in perforated appendix.<sup>4</sup> In 1983 Semm. K. used laparoscopy to remove the appendix of a patient with chronic appendicitis but it was not until after 1990 that this method was more commonly employed for treating acute appendicitis. At present, with the advent of antibiotics, intravenous fluids, better anaesthetic and surgical techniques the mortality of appendicitis had decreased to almost zero percent.

## MATERIAL AND METHODS

A perspective study of 86 patients with perforated appendix admitted in Surgical "A" unit of Lady Reading Hospital, Peshawar during one year period (December 1996-November 1997) was carried out. A total of 2170 patients were operated during this period. Out of 398 appendicectomies 86 had perforated appendix (22%). All these patients presented as an acute abdomen in casualty surgical department. The diagnosis of perforated appendix was made primarily on the basis of history and physical examination and exploratory laparotomy. Laboratory tests and Radiological examination were found to be only of secondary importance. Patients with acute appendicitis presented with pain abdomen (R.I.F.), nausea, anorexia, vomiting and low grade fever. Perforation of appendix was indicated by generalized abdominal pain, duration of symptoms usually more than 48 hours, high grade fever, diarrhoea and toxic appearance. Tachycardia, fever, tenderness, rebound tenderness, guarding and rigidity in the right lower quadrant (R.L.Q.) were common clinical signs of acute appendicitis. Sings of peritoneal irritation beyond the R.L.Q. (Rt. Lower Quadrant) indicates perforation. D.R.E. (Digital Rectal Examination) may reveal tenderness, bogginess and mass in perforated cases.

The laboratory investigations which were commonly done showed neutrophil leucocytosis. Urine analysis and abdominal X-ray were done routinely.

### Pre-Operative Management:

Before undergoing surgery, the following steps were taken.

- (1) All patients were kept nil orally and nasogastric suction instituted.
- (2) Fluid & electrolyte balance was ensured.
- (3) Intake & out put charts were maintained.

- (4) Intravenous antibiotics (triple regimen), were given.

### Surgical Technique

In most of the cases a grid iron, or right para median incision was given (Table No. 1). On opening the peritoneal cavity all the pus/fluid was sucked out carefully. Appendix was removed, the stump was buried whenever possible. Copious irrigation of the peritoneal cavity with normal saline to achieve clear return was performed. A free lying fecolith was removed. Bowel distention was handled by manual decompression. Peritoneal drain put in and wound closed in layers.

### Post Operative Management:

After recovery from anaesthesia these patients were shifted to the surgical "A" ward for further management.

1. Patients were kept N.P.O till return of bowel activity and nasogastric suction was continued for 24-48 hours.
2. Fluid and electrolytes balance was maintained.
3. Intravenous antibiotics and regular analgesia was given.
4. Early ambulation was encouraged and start of fluid diet initially, usually after 24 hours of surgery was routine.

TABLE - I  
INCISIONS USED FOR PERFORATED  
APPENDIX.

No.	Incision	Cases	%age
1.	Grid Iron	41	48
2.	Right Paramedian	36	42
3.	Midline	05	05
4.	Lanz	03	35
5.	Pffannenstiel	01	1.2
Total		86	100

5. Post operative complications were recorded and managed accordingly.
6. They were discharged when fully ambulant, afebrile, had opened bowel and had clean wound.
7. Follow up was arranged as out patient.

## RESULTS

A total of 86 patients with perforated appendicitis were studied during one year period (December 1996 November 1997). There were 58 (67%) male and 28 (32%) female patients with a ratio of 2:1. Average age of patients was 45 years with a range 11-80 years. Eighty percent of our patients were in the age range of 20-29. It is evident that the disease affects the younger earning population of the community. Most of our patients presented with abdominal pain, nausea vomiting and low grade fever (Table No. II).

The diagnosis of perforated appendix was based mainly on clinical ground i.e. history and clinical examination. The following investigation were carried out as base line.

1. Full Blood count, routine urine analysis, electrolytes.
2. Blood Urea, Sugar and creatinine.

Tachycardic, rigidity and tenderness was present in 100% of cases X-Ray

TABLE - II  
SYMPTOMS OF PERFORATED  
APPENDIX.

No.	Symptoms	Cases	%age
1.	Pain abdomen	86	100
2.	Fever	76	86
3.	Nausea	54	63
4.	Anorexia	49	57
5.	Vomiting	42	49
6.	Diarrhoea	16	19

TABLE - III  
SIGNS OF PERFORATED APPENDIX.

No.	Sign	Cases	%age
1.	Tachycardia (Pulse > 100 per min.	86	100
2.	Rigidity	86	100
3.	Tenderness	86	100
4.	Diminished/absent bowel sounds	68	79
5.	Abdominal distention	37	43

abdomen, chest X-Ray and abdominal ultrasound was done in selected patients (Table No. III).

Post operatively 10 patients had wound infection which was treated with appropriate antibiotics after culture and sensitivity reports, and wound toilet. Paralytic ileus, renal failure and intra-abdominal abscess were treated conservatively. Chest infections needed broad-spectrum antibiotics (3rd generation cephalosperine) (Table No. V).

TABLE - IV  
PERFORATED APPENDIX (DURATION  
OF SYMPTOMS).

No.	Days	Cases	%age
1.	One day	18	21
2.	More than one day	68	79
Total		86	100

## DISCUSSION

Acute appendicitis is the most common surgical emergency. In a setup like ours, where the health facilities are far from ideal, it is not surprising that a large number of patients reach the hospital when the appendix has already perforated. Late presentation and delayed surgical intervention are well recognized causative factors in

TABLE – V  
POST OPERATIVE COMPLICATIONS  
OF PERFORATED APPENDIX.

No.	Complications	Cases	%age
1.	Wound infection	10	11.6
2.	Intra abdominal abscess/Sepsis	02	01.3
3.	Paralytic ileus	01	01.2
4.	Acute renal failure	01	01.2
5.	Chest infection	01	01.2
6.	Iatrogenic colonic injury	01	01.2
Total		16	18.6

appendicular perforation<sup>5</sup>. At the time of presentation 22% of our acute appendicitis cases had already perforated. Other series show a perforation rate of 20.5%<sup>7,9,11,12</sup>.

Late presentation of our cases is reflected by the fact that 79% of them had symptoms for more than 24 hours duration (Table No. IV). Economic impact of this disease is enhanced by the fact that it affects young members of the community. Almost 80% of our patients belonged to this younger age group. A similar trend was noted by other authors too<sup>7,12</sup>. Average hospital stay in our patients was 5.4 days (range 4-28 days) which is comparable with other studies. With a better understanding of this disease and its management the mortality has dropped to less than 1%. We encountered no mortality during our study but other have reported 0.4% and 2.35%<sup>7,11</sup>.

Although the mortality of perforated appendix has decreased significantly, while a high morbidity rate still exists. Our over all complication rate was 18.6% (Table-V), though not exemplary, is still comparable with other studies<sup>7,10,11,12</sup>. The most common post operative complication in this study was wound infection (11.6%).

Despite a century of experience with the surgical treatment of acute appendicitis, controversies still exists over certain aspects of its management. Drainage of peritoneal cavity, peritoneal lavage and primary closure of the wound are the main issues of disagreement in the management of perforated appendix. The question of whether to place a drain is as old as surgery itself. Some authors have recommended the peritoneal drainage for well localized abscesses. Despite all these reservations about peritoneal drainage, one school of thought strongly recommend the use of drains and include the drains as routine in their management protocol for perforated appendix<sup>6,8,11,13</sup>. Low wound infection rates in the range of 0.3% have been reported by some authors<sup>11,13</sup>. We used intra peritoneal drains in all cases and noted wound infection rate of 11.6% which is higher than most of the studies. This may be due to resistant strains of bacteria, as most of our patients are already given broad spectrum antibiotics in the periphery before arrival in our hospital. Many authors have reported good to excellent results with peritoneal lavage<sup>14</sup>. We used normal saline lavage in all patients. The third most controversial issue in the management of perforated appendix is wound closure. Due to its economic, physical, psychological and cosmetic drawbacks, most of the surgeons now prefer primary closure with excellent results. We performed primary wound closure in all cases with silk or nylon.

In a third world country like Pakistan, where the health facilities are far from ideal and out of reach of a common man, a large number of patients reach the hospital with a perforated appendix. Socio-economic burden from this disease further increases by the fact that it mainly affect male adult population. Early referral and prompt surgical intervention is recommended to prevent perforation of appendix and its consequent morbidity. An ideal healthy policy which make the medical treatment available

to poor population must be formulated. Quackery must be banned to reduce the morbidity and mortality from this disease. To achieve this, early diagnosis, aggressive resuscitation and prompt surgical intervention is recommended.

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