

RETROSPECTIVE ANALYSIS OF PATIENTS WITH ACUTE DIFFUSE PERITONITIS

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SUMMARY

A personal review of 146 patients operated between 1st April 1991 and 31st March 1994 is presented. All these patients underwent laparotomy for acute diffuse peritonitis. The two main causes were: spontaneous and traumatic gut perforations. Povidone Iodine solution and Cephadrine were used for thorough peritoneal toilet. Of the 146 patients 21 died within seven days of admission. Eleven of these 21 had purulent peritonitis secondary to a perforated viscus, 8 had sustained firearm injuries and two had stab wounds. Out of 21, five died of pulmonary embolism, 2 of aspiration pneumonia. Three patients developed small bowel fistula; one of these three died while the other two recovered with TNP (Total Parenteral Nutrition). Complications occurred in 59 cases (morbidity of 4.39%). It is concluded that thorough peritoneal lavage with antiseptic and antibacterial drugs may reduce mortality and morbidity in patients with acute diffuse peritonitis.

INTRODUCTION

Acute diffuse peritonitis due to a perforated viscus and traumatic perforations of small and large bowel carries a high mortality rate. The reported worldwide incidence is 21-63%. Drugs like Gentamycin, Vancomycin, Cephalosporin, Metronidazole and Tetracycline have been used for peritoneal lavage by various authors with good results. Patients on CAPD (Continuous Ambulatory Peritoneal Dialysis) get episodes of bacterial peritonitis. Small gut perforation due to acute salmonella enteritis or tuberculosis is no more seen in developed countries. Similarly firearms injuries are uncommon in Western Europe.

MATERIAL AND METHODS

This is a retrospective analysis of patients treated in a period of three years i.e 1.4.1991 to 31.3.1994. All patients who were admitted with acute

diffuse peritonitis when the author's team was on take, and the author did the operation himself, are included. Any patient with the same pathology dealt with by the other sister general surgical units or those operated by a member of the author's own unit are, therefore, not included. One hundred and forty six patients so treated can be put into two main groups: those who had penetrating abdominal injuries and those who had perforation of gut with resultant diffuse purulent or faecal peritonitis due to a disease process like typhoid perforation of ileum, perforation of peptic ulcer. (See Table No I for various pathological conditions treated).

All patients admitted with a clinical diagnosis of acute diffuse peritonitis were resuscitated for 1-6 hours before operation. Resuscitation was done with intravenous fluids, catheterized for monitoring of urine output and were

TABLE-I
TREATED PATHOLOGICAL
CONDITIONS

Perforated Appendicitis.....	27
Perforated Gastric Ulcer.....	03
Perforated Duodenal Ulcer.....	14
Typhoid Perforation of Small Bowel.....	24
Tuberculous Perforation of Small Gut.....	13
Pelvic Peritonitis in Females.....	04
Primary Peritonitis.....	04
Perforated Mackel's Diverticulum.....	01
F.A.I. Stomach.....	10
F.A.I. and Blunt Trauma Duodenum.....	02
F.A.I. and Stab Wounds Small Gut.....	33
F.A.I. Caecum and Colon.....	14
F.A.I. Rectum.....	05
F.A.I. Liver.....	06
Pancreatic Trauma.....	04
Non Traumatic Perforation of Caecum & Colon.....	06
Urological Injuries.....	03

*F.A.I. =Fire Arms Injuries.

Age wise patients were put into three groups (see Table II).

given stat intravenous doses of Flagyl¹ 500mg 1-6 hours (metronidazole; Rhone-Poulenc U.K), Velosef 500mg (cephradine Squibb INC. USA) and Gentacine 40 or 80mg (Gentamycine Nicholas Lab Ltd. Slough U.K.). A nasogastric tube was passed into the stomach. Necessary Roentgenograms were done preoperatively. A midline incision was used in all patients of trauma. This approach was adopted keeping in mind the possibility of Ileostomy and Colostomy. In clinically suspected cases of perforated appendicitis a right lower paramedian; typhoid perforation of gut a central midline; and in cases of peptic ulcer perforation an upper midline incision was implied.

After thorough laparotomy any recognized pathology was dealt with. Then a thorough peritoneal lavage was done first with one gram of Velosef in two litres of normal saline and then with 200 ml of 7.5% Beradine (povidone iodine solution, Napp Lab Ltd. Cambridge UK) in two litres of normal saline (a ratio of 1 in 10). All the potential spaces of the peritoneal cavity were lavaged and fluid sucked out. The peritoneal cavity and the viscera were dried up with large size three abdominal swabs. No drains were put in.¹

RESULTS

Out of 146 patients 21 died within seven days of hospital admission; a mortality rate of 17.5%. Forty one patients out of 146 had sustained multiple organ injuries and 20 out of these 41 died; five of them had initially an exploratory laparotomy done in a peripheral hospital and subsequently been referred; and these patients had undergone a second laparotomy by the author.

The break up of 21 patients who died is mentioned in Table III.

Sixteen patients either came in with septicaemia or went into septicaemia during hospitalization; two of these 16 died. Three patients developed post operative small gut fistula; one of them (80 years old male) died while the other 2 recovered with Total Parenteral Nutrition Regimen. One patient (40 years old male) got ill with rapidly

TABLE-II
AGE DISTRIBUTION

0 to 20 years.....	59
21 to 50 years.....	60
51 years and above.....	27

TABLE-III

CAUSES OF DEATH OF 21 PATIENTS

Septicaemia	2
Small Gut Fistula	1
Pulmonary Embolism	5
Aspiration of Vomitus	1
Irreversible Hypovolumic Shock	9
Postoperative Hepatitis	1
Intractable Pneumonia	1
Respiratory Decompensation	1

deteriorating post operative jaundice. He had received blood transfusion during operation and was HBsAg positive. A patient who died of intractable pneumonia had, in addition to abdominal injury, spinal cord transaction at the mid dorsal level. The patient who died of respiratory decompensation had received serious injury to the right lower chest. He had massive haemothorax, perforation of the diaphragm and shattered right lobe of liver. His diaphragm and liver injuries had been repaired successfully. A high mortality rate was recorded in patients who had sustained multi-organ injuries, patients who had injury to pancreas, rectum and chest; and in those who were brought late. Patients who were young (below 25 years) did well. A small percentage of patients with non-traumatic purulent peritonitis died. Out of 146 patients 59 developed complications; a morbidity rate of 40.4%. See Table IV.

Wound dehiscence occurred in almost all cases of wound infection (Exact number could not be ascertained from the record). The exclusive cause for urinary tract infection was a urethral catheter. Renal failure of acute nature was successfully treated in two patients. In minor complications, post operative vomiting of short duration, post operative ileus, and a pyrexia of more than 100°F

TABLE-IV
MORBIDITY RATE

Wound infection	34(23%)
Chest Infection	02(1.4%)
Septicaemia	11(11%)
Small Bowel Fistula	03(2%)
Urinary Tract infection	02(1.4%)
Intra abdominal/pelvic sepsis/ abscess	03(2%)
Renal Failure	02(1.4%)
Others Minor complications	03(2%)

in the first 48 to 72 Hrs were noted in statistically insignificant number of cases.

DISCUSSION

Acute purulent or faecal peritonitis carries a high mortality rate. The reported incidence varies from 21% to 63%. Due to this very high mortality, research workers have been implying different approaches to get better results. Lavage of the peritoneal cavity has so far been very successful in this regard. A good peritoneal toilet has been established as a standard therapeutic measure.¹ The question remains as whether to use only normal saline, antibiotics or antiseptics; or a combination of these. Some authors recommend a programmed lavage over a period of 24 to 48 hours.¹ In cases of purulent and/or faecal peritonitis, many authors have used intraperitoneal antibiotics with good results. Gentamycin, Vancomycin, Metronidazole, Cephadrine, Povidone-Iodine and more recently Ciprofloxacin have been tried with varying outcome.^{8,9,10,12,13}

A Randomized control trial in Sweden where patients with purulent/faecal peritonitis due to perforated appendicitis or perforated colon were randomized; to have post operative

lavage with normal saline for 72 hours or to have no lavage. No difference was found in morbidity and mortality between the two groups.⁵

In cases of purulent peritonitis the peritoneal cavity is full of bacteria and the exudate is acidic in reaction. Therefore it has been suggested to use Sodium Bi-carbonate in addition to normal saline in the lavage of the peritoneal cavity.⁶ The effect of antibiotics in lavage was studied in experimentally produced faecal peritonitis in rabbits. The best result (the lowest mortality) was recorded in those who received pararectal antibiotic (Cefotaxen) plus peritoneal toilet with Cefotaxen in normal saline.⁷ Cephadrine (Velocef) was used orally or intraperitoneally in patients of CAPD peritonitis. It was found that oral was as effective as intraperitoneal.⁹

Surgeons are always faced with the problem of closure of laparotomy wound in patients of peritonitis. Primary closure almost always result in wound infection, dehiscence and intra-abdominal sepsis. As mentioned above some surgeons also prefer to leave these wounds open for continuous lavage in the first few days.

The problems with open wounds include evisceration, need for ventilatory support and recurrent abdominal sepsis. To overcome these problems a technique of abdominal closure with a Marlex mesh sheet containing a zipper has been used successfully. Manual exploration and lavage is performed daily through the zipper. The zipper is removed when all signs of sepsis disappear.¹¹

In our study a mortality rate of 17.5% was recorded. Peritoneal lavage was performed with Cephadrine (Velocef) and diluted Povidone-Iodine solution. The low mortality rate may be

attributable to this regimen. Povidone-Iodine has been used by other research workers worldwide. Some have found it beneficial while others have not found it so.¹² In Pakistan in general and in NWFP in particular no such trials have been reported before. It is concluded that with the above regimen many patients may be saved particularly those who would otherwise die of septicaemia/abdominal sepsis secondary to purulent/faecal peritonitis.

ACKNOWLEDGEMENT

I thank the Trainee Medical Officers, the Medical Officers, the House Officers, the Nursing Staff and the Doctors and Technicians of Anaesthesia department working in Casualty Operating Theatre whose patience and co-operation made this tiresome undertaking possible and much easier.

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