

ORIGINAL RESEARCH

To Assess the outcome of Perforation Peritonitis of unfit patients by the use of Intra-Abdominal Drain Preoperatively under Local Anaesthesia

¹Dr. Abhishek Khera, ²Dr. NarinderPal Singh, ³Dr. Jagdeep Singh, ⁴Dr. Kiranjeet Kaur, ⁵Dr. Satpal Hans

¹Senior Resident, ^{2,3}Assistant Professor, ⁵Professor, Department of Surgery, Govt. Medical College, Amritsar, Punjab, India

⁴Assistant Professor, Department of Obstetrics and Gynaecology, Govt. Medical College, Amritsar, Punjab, India

Corresponding Author

Dr. NarinderPal Singh

Assistant Professor, Department of Surgery, Govt. Medical College, Amritsar, Punjab, India

Email: dr.narinderpal@gmail.com

ABSTRACT

Background: Perforation peritonitis is a common surgical emergency. Laparotomy has been the gold standard for the definitive management. However in high risk patients there are various alternatives to immediate laparotomy are present like primary peritoneal drainage (PPD), laparoscopic sanitation; Taylor's conservative method, laparotomy and planned re-laparotomies. **Objective:** To study the no. of patients survived & expired and change in blood parameters and vitals after insertion of pre-operative intra-abdominal drain. **Material and methods:** This is a prospective study in which patients presenting with clinical suspicion of perforation peritonitis in the department of Surgery, Guru Nanak Dev Hospital/ Govt. Medical College, Amritsar. Patients were subjected to detailed history, thorough physical examination, blood investigations like cbc, rft, serum electrolyte and radiological investigations like xray abdomen, USG abdomen/pelvis CT-abdomen. All diagnosed patients will be subjected to insertion of intraabdominal drain under local anesthesia. **Results:** The pre-operative intraabdominal drain in unfit patients improves the blood parameters and vitals thus decreasing symptoms and morbidity. **Conclusion:** The various co-morbidities and unstable vitals of patients are often hurdles to the surgeon to decide whether to operate or wait or not to operate. So in mean time pre-operative intra-abdominal drain help in improving overall status of such unstable patients.

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INTRODUCTION

Perforation peritonitis is a condition in which there is perforation of hollow viscous of intra-abdominal organs due to various etiological factors and this lead to the leakage of the gut contents into peritoneum which further results into the inflammation of peritoneum i.e. peritonitis and which if untreated further leads to septicemia

Perforative peritonitis is a common surgical emergency. The relative incidence of various types of perforations is Variable.^{1,2} In majority of cases, presentation to the hospital is late with well-established generalized peritonitis with purulent/faecal contamination and varying degree of septicaemia.^{3,4}

Diagnosis of perforation peritonitis is made on basis of clinical history, physical examination, and investigations like xrays abdomen erect and usg abdomen. There is abdominal distention, pain

abdomen, vomiting in history and on examination abdominal tenderness, rigidity and guarding, other signs are tachycardia, obliteration of liver dullness, shock, and absence of bowel sounds. On xray abdomen pneumoperitoneum is detected in many and multiple air-fluid levels with or without pneumoperitoneum is finding in other case. And on usg most common ultrasonographic findings are free fluid in the peritoneal cavity and dilated gut loops with sluggish or absent peristalsis.

There are various mortality and morbidity predication factors in final outcome of perforation peritonitis patients. time of presentation to hospital for definitive management is an important factor for the morbidity associated with these patients.

Laparotomy has been the gold standard for the definitive management. In the event of high risk status of patient, and non-improvement in general condition despite following intensive resuscitative protocols, the

immediate laparotomy under general anesthesia is not advisable.¹³ Various alternatives to immediate laparotomy recommended are: primary peritoneal drainage (PPD), laparoscopic sanitation; Taylor's conservative method, laparostomy and planned re-laparotomies.¹³⁻¹⁶ PPD under LA has long been established as definitive approach of management in infants with necrotizing enterocolitis associated peritonitis

Therefore, the study undertook with intent to evaluate efficacy as well as advantage, if any of primary peritoneal drainage under local anesthesia to overcome the immediate and added insult of major abdominal surgery and effects of general anesthesia in already critically ill patients. Evaluations is also done to see whether this procedure provides definitive cure, or a temporary alternative of source control and optimization of the patient for definitive surgery

Drain provides an exit for fluids, pus, blood or necrotic debris that interferes with wound healing or may be a source for bacterial proliferation. Intra peritoneal drainage is done using polyvinyl chloride (PVC) or red rubber tube drain with multiple perforations at the tip. It is placed through a stab wound near the operation site or in natural abdominal fossae (hepato-renal pouch or pelvis), where there is maximum chances of fluid collection. Drain enables fluid to escape by gravity and capillary action. A stitch is used to prevent migration or pull out of drain from abdominal cavity

MATERIAL AND METHODS

This is a prospective study in which patients presenting with clinical suspicion of perforation peritonitis in the department of Surgery, Guru Nanak Dev Hospital/ Govt. Medical College, Amritsar, were taken into study

Fifty cases will be taken up for study and patients were subjected to detailed history and thorough physical examination. Patients undergoing necessary investigations like cbc, rft, serum electrolyte. And xray abdomen, USG abdomen/pelvis CT-abdomen (as and when required). All diagnosed patients will be subjected to insertion of intraabdominal drain under local anesthesia.

Final outcomes is evaluated which includes No of patients survived after preoperative intra-abdominal drain in which Definitive laprotomy cannot be done because of presence of comorbidities or unfit for GA (General Anesthesia). Improvement in the blood investigations like CBC (Complete Blood Count), RFT (Renal Function Test), Electrolyte and improvement in vitals like BP (Blood Pressure), Pulse, Respiratory Rate after insertion of drain.

All data were collected and analyzed using SPSS 2 version. Chi-square test and student t test were performed for comparison of groups. A p values <0.05 was considered as statistically significant.

RESULTS

The patients of perforation peritonitis in this study

having mean+SD of age was 38.34+14.20 years and males are 43(86%) and females are 7(14%). There were 34(68%) rural patients and 16(32%) urban patients. Most of patients i.e. 20(40%) were presented between 3-5 days after onset of symptoms. Patients in this study had various kinds of comorbidities and some patients had more than one comorbidity. Most of patients had cardiac/ECG abnormalities i.e. 42(84%) and 17(34%) patients had more than one comorbidity.

In this study of 50 patients diagnosed with perforation peritonitis, 17(34%) were expired while 33(66%) survived.

The maximum incidence of perforation peritonitis occurred in 21-40 years age group in which 15(30%) cases were survived and 10(20%) expired. There were 14(28%) males patients expired out of 43 males and out of 7 females patients 3(6%) expired. There were 11(22%) rural patients expired out of 34 and 6(12%) urban patients expired out of 16 urban patients.

Drain output is collected in bag and measured after every 24 hours. Mean+SD of drain output on Day 1 is 1230+366.17, on Day2 is 914+340.47, on Day3 is 776+306.77. The association between decreasing drain output with time is significant as p value is <0.001.

The total leucocyte count (TLC) is measured before and after insertion of intraabdominal drain. Before insertion of drain, mean+SD of T.L.C. was 21750+5627.4 and after insertion of drain mean+SD T.L.C. at 6 hrs is 20480+5772.88 and at 24 hrs mean+SD of T.L.C. was 18840+5668.06.

The Blood Urea is measured before and after insertion of intraabdominal drain. Before insertion of drain, mean+SD of blood urea was 52.28+13.27 and after insertion of drain at 6 hrs. mean+SD of blood urea was 51.18+12.45 and at 24 hrs. mean+SD of blood urea was 49.66+12.21.

The Serum Creatinine is measured before and after insertion of intraabdominal drain. Before insertion of drain, mean+SD of serum creatinine was 1.613+0.35 and after insertion of drain mean+SD of serum creatinine at 6 hrs. was 1.54+0.36 and at 24 hrs. mean+SD of serum creatinine was 1.437+0.33. The association between change in serum creatinine with time is significant as p value is <0.015.

The serum potassium is measured before and after insertion of intraabdominal drain. Before insertion of drain, mean+SD of serum potassium was 2.916+0.22 and after insertion of drain mean+SD of serum potassium at 6 hrs. was 3.134+0.24 and at 24 hrs. mean+SD of serum potassium was 3.514+0.30. . The association between change in serum potassium with time is significant as p value is 0.001

The mean+SD of Blood Pressure of patient before insertion of drain was 84.9+7.59. After insertion of drain, average of blood pressure at 6 hrs. had mean+SD of 87.6+6.94 and at 24 hrs. had mean+SD of 94.2+9.71. The association between change in blood pressure with time is significant as p value is

<0.001

The mean+SD of respiratory rate of patient before insertion of drain was 18.72+1.55. After insertion of drain, average of respiratory rate at 6 hrs. had mean+SD of 16.4+1.34 and at 24 hrs. had mean+SD of 15.2+1.57. . The association between change in respiratory rate with time is significant as p value is <0.001

The mean+SD of pulse rate of patient before insertion of drain was 130.16+24.05. After insertion of drain, average of pulse rate at 6 hrs. had mean+SD of 122.9+20.85 and at 24 hrs. had mean+SD of 111.16+21.57. . The association between change in respiratory rate with time is significant as p value is <0.001.

When the drain output was less than 40 ml for 2 consecutive days various investigation like X-ray abdomen erect, USG abdomen & CECT abdomen and abdomen examination for bowel sounds was done. When all findings are within normal limits, patients were started on enteral feeding. When patient tolerated enteral feeding for 2 days without any complaint, drain was removed. In this study patient who survived, most of the drain removal was done between 11-15 days which includes 25(50%) patients having mean+SD of 11.81+1.89.

After drain removal, patients were observed for 2-3 days and when stools were passed normally, they were discharged. So in survived patients most of the discharge i.e. 23(46%) happened between 16-20 days having mean+SD of 16.93+2.28.

DISCUSSION

Perforative peritonitis is a common serious surgical emergency. Laparotomy has been the gold standard for the definitive management. But despite advances in surgical techniques, antimicrobial therapy, and intensive care support, management of peritonitis continues to be highly demanding, difficult, and complex.

Most of the cases presented late. So time of presentation to hospital for definitive management is an important factor for the morbidity associated with these patients. The various others predictors of morbidity and mortality in patients has been well-described.^{46,47,48} The most commonly associated are age, serum lactate levels, acidosis (pH), base excess, and multiple organ failure. Among others are sex, site of perforation, preoperative shock, hypoglycemia, renal dysfunction, the duration of symptoms, and delay in surgical treatment have been reported as the determinants of mortality in patients with perforation peritonitis. Similarly hyperlactatemic lactic acidosis, increased Tumor necrosis factor (TNF), procalcitonin levels, and intramucosal gastric

pH have been used as markers of hypoperfusion resulting from sepsis and are considered as indirect determinants of sepsis.

So in patients of perforation peritonitis, preoperative intra-abdominal drain pours out contaminated peritoneal fluid which is source of sepsis. Thus by decreasing the sepsis and other various impacts of sepsis, drain helps in decreasing mortality and giving symptomatic relief to the patient.

CONCLUSION

Acute peritonitis has been and will remain a challenging problem that presents to the surgeon with a wide choice of differential diagnosis. The various co-morbidities and unstable vitals are often hurdles to the surgeon to decide whether to operate or wait or not to operate. So in mean time surgeon can help to patient via decreasing symptoms and morbidity by insertion of intra-abdominal drain under local anesthesia in flanks.

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