

Original Research Article

Role of peritoneal drainage in moribund patients of perforation peritonitis

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ABSTRACT

Background: Objective of the present study was to evaluate applicability of primary peritoneal drainage under local anesthesia in moribund patients as pre-laparotomy support when laparotomy under general anesthesia could not be done. Also to assess outcome in terms of survival, patients needing definitive surgery and complications associated with the procedure on immediate and follow up basis.

Methods: We conducted this study in Teerthanker Mahaveer Medical College, Moradabad, UP, India from October 18 to October 2019. 71 patients were admitted as cases of perforation peritonitis in moribund condition, demographic data of all patients was noted, peritoneal drainage under local anesthesia in flanks was done and variable amount of fluid was drained in different patients, simple parameters were taken in to consideration in pre and post drainage phase. We also noted the complications after the definitive surgery.

Results: Out of 71 patients, admitted in late and in very critical state, 61 patients improved after drainage and resuscitative procedures, although in ASA grade 3 and 4 they underwent surgical treatment and we were able to save their lives. 13 patients expired after definitive surgery inspite of best efforts.

Conclusions: Peritoneal drainage under local anesthesia in late reporting and critical patients, not only improves general condition but makes patients better to undergo further surgery, and can prove to be life saver. It being a simple procedure can easily be done at even PHC level, before patient is referred or shifted to higher centre for further management.

Keywords: Perforation peritonitis, Drainage, Moribund patients

INTRODUCTION

Peritonitis is inflammation of the peritoneum and peritoneal cavity, caused by a localized or generalized infection.¹ Primary peritonitis results from bacterial, fungal in the absence of perforation of gastrointestinal (GI) tract whereas secondary peritonitis occurs in the setting of GI tract perforation. Peritonitis is a serious life threatening and most common general surgical emergency. In developing countries the perforations of proximal gastrointestinal tract are six times more

common than distal gastrointestinal tract.²⁻⁴ Although exploratory laparotomy is gold standard procedure for perforation peritonitis, but in high risk patients and no improvement in general condition despite all resuscitative measures taken, emergency laparotomy under general anaesthesia is not advisable.⁵ Various alternatives to immediate laparotomy recommended are primary peritoneal drainage (PPD), laparoscopic sanitation; Taylor's conservative method. Gastrointestinal perforations constitute a sizable number of patients in emergency department of every hospital. The causes of

perforation and its etiological factors differ in different parts of the world but even in same country, like India. In UP also, etiological factors differ from west to eastern part.

In early part of 19th century conservative treatment was the main stay of treating these in India majority of patients, report too late at a centre where curative treatment is available, especially in rural areas where much facilities for such patients are not there, and even in some district headquarters as well, thus the patients coming to tertiary care hospitals are in moribund condition, this adds and increases the morbidity and mortality. It has been reported in various meta-analysis that the delay in treatment is major factor in increasing mortality of the problem. This delay is because of many reasons, like treatment by local practitioner, diagnosis, transport facilities, poverty and ignorance about disease, and the combined effect of all these factors increases morbidity and mortality, and when patients report to a proper minimally or maximally equipped hospital, it is too late.

This study focuses on these patients who report in a very late state of disease, where pulse, is either very feeble or not palpable, very low or unrecordable BP, rapid respiratory rate, low urinary output and oxygen carrying capacity and with cold and clammy peripheries. This study is an attempt to save the life of such patients and also suggests to follow the simple drainage procedure of peritoneum and the procedure can easily done at even primary health center level under local anaesthesia and patient can safely be transferred to higher center.

We also evaluated our study, whether it can reduce morbidity and mortality, even can cure, or prepares patients for definitive surgery.

METHODS

This study was a prospective study conducted in the Department of Surgery, Teerthanker Mahaveer Medical College and Research center, Moradabad, India from 1st October 2018 to 31st October 2019 as per inclusion and exclusion criteria.

Inclusion criteria

Patients with perforation peritonitis with shock, patients not fit for general anaesthesia, general condition could not improve even after resuscitative measure taken for six hours were included.

Exclusion criteria

Haemodynamically stable patients, haemodynamically unstable but improved after resuscitation with six hours, patients with malignancy, cirrhosis, kidney involvement and previous surgery were excluded.

After admission in hospital, intensive resuscitative treatment was given with IV fluids, minimum necessary investigations, like hemogram, ABG analysis, were done, data were recorded and tabulated and after improvement in general condition definitive diagnostic investigations were performed to reach final diagnosis. Included patients who fell in our inclusion criteria, were subjected to peritoneal drainage in flanks under local anaesthesia, fluid drained was collected and measured. We did not include those unfortunate patients who could not be revived and expired with in few hours of admission.

Operative procedure

Percutaneous peritoneal drainage was done under local anaesthesia with 4% xylocaine in flanks, 2.5 cm incision was given. The external oblique aponeurosis, internal oblique, and transverses abdominis were split under vision with the help of artery forceps. Upon entering the peritoneal cavity, the index finger was swiped in all direction to allow protection and good drainage. One wide bored intra-abdominal tube drains of 28F were placed through these incisions. Pus/fluid/bile was evacuated and collected for culture and sensitivity. Patients who could be clinically optimized after PPD, and who continued pouring excess fluid through drains were subjected to standard laparotomy for definitive surgical procedure.

RESULTS

It was very important to observe patients aggressively in post drainage period. Strict monitoring of pulse, BP, oxygen saturation, urinary output, conscious level, respiratory rate, was done and recorded, patients were supplemented with IV fluids, antibiotics. Mini venesection and central line were used when required.

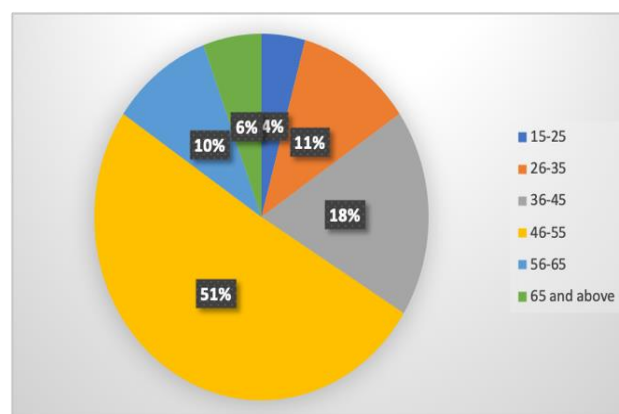


Figure 1: Age distribution.

Seventy-one patients who presented in our emergency as a case of perforation peritonitis as pre our inclusion criteria over a period of 1 year were included in this study. Out of which maximum number of patients were in the age group of 46 to 55 yrs (51%) (Figure 1). 37 (52.1%) patients reported very late after appearance of

first symptom (Table 1) and were in moribund condition. In all seventy-one moribund patients primary peritoneal drainage was done and there was slight improvement in blood pressure and urine output after drainage (Table 2). In first 24 hrs, the drain output of the patients had a range from 500 to 1000 ml. In 23 (32.39%) patients drain fluid was less than 500 ml and in 38 (53.5%) patients drain fluid was more than 1000 ml. Out of 71 patients 10 patients expired within 24 hrs of placing drain (Table 3). After 24 hrs patients who survived were taken up for definitive procedure i.e. exploratory laparotomy and proceed. Post-operative complications were shown in Table 4. Surgical site infection (SSI) was most common complication after laparotomy and in 4 patients fistula formation was observed. 13 patients expired ARDS and MODS after definitive surgery inspite of every effort made to save life.

Table 1: Duration of presentation.

S. no.	Days	Number of patients (%)
1	Less than 3 days	11 (15.4)
2	4-5 days	23 (32.3)
3	More than 5 days	37 (52.1)

Table 2: Average of vitals.

S. no.	Vitals	Pre drainage	Post drainage
1	Temperature	103° F	100° F
2	Pulse	146/min	120/min
3	Blood pressure	66/40 mmHg	106/76 mmHg
4	Respiratory rate	26/min	20/min
5	SPO ₂	93%	95%
6	Urine output	120 ml	350 ml

Table 4: Distribution of patients according to amount of fluid drained (n=71).

S. no.	Amount of fluid drained in first 24 hrs	Number of patient (%)
1	Less than 500 ml	23 (32.39)
2	500-1000 ml	10 (14)
3	More than 1000 ml	38 (53.5)

Table 5: Complications after laparotomy.

S. no.	Complications	Number of patients
1	SSI	27
2	Chest infection	10
3	Fistula formation	4
4.	Burst abdomen	7
4	Mortality	13

DISCUSSION

Perforation peritonitis of any hollow viscus, is the commonest surgical emergency in casualty section of every hospital, as in our tertiary care center, The Teerthanker Mahaveer Medical college and research Center Moradabad UP India. 71 Patients in about one year time reported to this center in late stage of peritonitis in a very critical condition with rapid thread pulse, very low BP, toxic look and cold & clammy extremities, hyper pyrexia, low urinary output, along with disturbed conscious level. Gold standard treatment of perforation peritonitis is surgery, principle being, removal of septic focus and necrotic tissue, but achieving this goal with single surgery is not always possible.⁶

Notzel in 1900 did partial lavage and called it “Source Control”, before definitive surgery, but mortality remained 60-90%.⁷Kirschner in 1926 in study on 5468 patients, introducing basic principles of surgery in intra-abdominal infections added elimination of septic foci, removal of necrotic tissue, drainage of purulent material. This brought down the mortality to 50%, still with better antibiotics it further came down to 30%.⁸

Taylor in 1956 recommended conservative treatment of such conditions, supported by Donovan at el advocating the phenomenon of self-healing, as it was efficient enough in 50% cases.⁹⁻¹¹ They were of opinion that peritoneal drainage in itself is a healing modality, if peritoneal collection is drained.

The role of peritoneal drainage in early and premature neonates with NEC has been well established in various studies. Pre peritoneal drainage under LA has been established as a definite approach of management in infants with necrotizing enter colitis associated with perforation but its use is still under debate in adults.^{12,13}

Number of patients with peritoneal perforation reporting to our casualty is quite high, but in study period we had 71 patients in very morbid condition, aggressive resuscitative measures along with peritoneal drainage and, definitive surgery later, we were successful to save 58 lives. Thus reducing mortality to 18.3% in our set up. Post- operative complications also were not very different from those who underwent pre-peritoneal drainage.

No major complication during drainage procedure was noted and we had no herniation in our series, the mean hospital stay duration was on average 18 days which was on higher side as compared to previous studies 10, 8 days respectively.

CONCLUSION

Perforation peritonitis is a very commonly faced emergency by every surgeon and sizable number of patients report in a very late stage, when definitive surgery is not possible, delay increases morbidity and

mortality even after definitive surgery. We, in our study conclude that if a peritoneal drainage is done under local anaesthesia, fluid is drained out, general condition improves, later definitive & curative surgery can be done, life can be saved and we could save 48 such patients.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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