

Study on Factors Affecting the Prognosis in Patients with Hollow Viscous Perforation Presenting with Peritonitis

¹Dr Rohini Kumar Sunnapu, Postgraduate student, Department of general surgery, Alluri sitaramaraju academy of medical sciences, Eluru 534005, West Godavari, Andhra Pradesh, India

²Dr. Sarath Bab, professor, Department of general surgery, Alluri sitaramaraju academy of medical sciences, Eluru 534005, West Godavari, Andhra Pradesh, India

³Dr. B. Raghavendra Srikanth, Assistant professor, Department of general surgery, Alluri sitaramaraju academy of medical sciences, Eluru 534005, West Godavari, Andhra Pradesh, India

Corresponding Author: Dr Rohini Kumar Sunnapu, Postgraduate student, Department of general surgery, Alluri sitaramaraju academy of medical sciences, Eluru 534005, West Godavari, Andhra Pradesh, India

How to citation this article: Dr Rohini Kumar Sunnapu, Dr. Sarath Bab, Dr. B. Raghavendra Srikanth, “Study on Factors Affecting the Prognosis in Patients with Hollow Viscous Perforation Presenting with Peritonitis”, IJMACR- March - 2023, Volume – 6, Issue - 2, P. No. 14 – 19.

Open Access Article: © 2023, Dr Rohini Kumar Sunnapu, et al. This is an open access journal and article distributed under the terms of the creative commons attribution license (<http://creativecommons.org/licenses/by/4.0>). Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Perforation peritonitis is a common surgical emergency. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, morbidity, and mortality due to this illness still remains high. This study is to analyse the effect of preoperative and intraoperative risk factors on outcome of the patient presenting with peritonitis due to hollow viscous perforation.

Aims and Objectives

- 1.To analyze the effect of social factors and clinical risk factors on outcome of the patient presenting with peritonitis due to Hollow viscous perforation.
- 2.To analyze the factors affecting morbidity and mortality in these patients.

Methodology

Prospective study was conducted at tertiary care hospital for a period of 18 months and on 30 patients satisfying the inclusion criteria.

Results

Highest incidence was amongst the age group of 60-69 years followed by 50-59 years with male to female ratio of approximately 6.5:1. Time of presentation, size of perforation and peritoneal contamination seem to have significant effect on morbidity and mortality in patients with peritonitis due to Hollow viscous perforation. Wound infection and chest infections were the leading postoperative complications among these patients.

Conclusion: According to the study, elderly patients are at increased risk of mortality and morbidity. Early

presentation, adequate resuscitation, emergency surgery and good postoperative care and monitoring can improve the outcomes of the patient.

Introduction

Hollow viscous perforation is one of the most common acute abdominal emergencies.

Peritonitis is defined as inflammation of the peritoneum and peritoneal cavity and the organs contained therein, usually caused by a localised or generalised infection.

2 types-

1. Primary peritonitis resulting from bacterial, chlamydial, fungal, or mycobacterial infection in the absence of perforation of G.I tract
2. Secondary peritonitis occurs due to G.I perforation due to peptic ulcer disease, acute appendicitis, colonic diverticulitis and pelvic inflammatory disease.

Peritonitis is often caused by introduction of an infection into the otherwise sterile peritoneal environment through perforation of bowel. The disease may also be caused by introduction of a chemically irritating material, such as gastric acid from a perforated ulcer.

Peritonitis secondary to perforation of the gastro intestinal tract, a common occurrence in this country, requires emergency surgical intervention and is associated with significant morbidity and mortality rates.

Aims And Objectives

- 1.To analyze the effect of social factors and clinical risk factors on outcome of the patient presenting with peritonitis due to hollow viscous perforation.
- 2.To analyze the factors affecting morbidity and mortality in these patients.

Methodology

Prospective observational study was conducted at tertiary care hospital for a period of 18 months and on 30 patients satisfying the inclusion criteria. All patients with

hollow viscous perforation who were admitted and treated in ASRAM Hospital between the period of July2021 – January 2023 were studied.

Inclusion Criteria

1. Clinical /Radiologically proven cases of perforation peritonitis
2. Perforation peritonitis due to penetrating trauma or blunt trauma.
3. Age> 13 yrs, irrespective of sex.
4. Patient giving written and informed consent

Exclusion criteria

1. Primary peritonitis
2. Post op peritonitis.
3. Patients who underwent previous abdominal surgeries and malignant ulcer perforation will be excluded from the study.

Patients fulfilling the inclusion and exclusion criteria were selected. Written and informed consent was taken. Data was collected by taking proper history, clinical examination, investigations, intra operative findings and post-operative status.

The relationship of preoperative and intraoperative factors on perforation peritonitis was assessed by administering a pre structured proforma.

Exploratory laparotomy+ Simple Omental patch closure/appendectomy/resection anastomosis/primary closure of perforation + thorough peritoneal lavage was performed for all the cases. All patients were put on appropriate antibiotics.

All the patients were carefully followed in the postoperative period and their progress was noted.

Results

Age Incidence: In the present study highest incidence is seen in the age group of 61-70 years, followed by 51-60 years and 41-50 years.

Sex Incidence: Perforated duodenal ulcer is more common in men compared to women. In this study, perforated duodenal ulcer is seen in 26 males and 4 females. This gives a male to female ratio of 6.5:1.

Table 1: Time of Presentation

| | No. of Patients | Percentage |
|---------|-----------------|------------|
| <24 Hrs | 16 | 58.3% |
| >24 Hrs | 14 | 46.7% |

In This Study, Most of The Cases Presented Within 24hrs Of Onset of Symptoms. Out Of 30 Cases Presented with Perforated Duodenal Ulcer, 16 Cases Presented Within 24hrs Of Onset of Symptoms.

Smoking And Hollow Viscous Perforation

Smoking Is One Of The Commonest Precipitating Factors For Hollow Viscous Perforation. In The Present Study, Out Of 30 Who Presented With Duodenal Ulcer Perforation, 20 Members Were Smokers Contributing To 66.67% And 10 Members Were Non Smokers Contributing To 33.33%.

Alcohol Consumption and Hollow Viscous Perforation

Alcohol Consumption Is One Of The Risk Factors For Precipitation Of Perforation. In This Present Study, Out Of 30 Duodenal Ulcer Perforation 16 Cases 53.33% Were Alcoholics.

Table 2: Site of Perforation

| Anatomical Site Involved | Frequency | Percentage |
|--------------------------|-----------|------------|
| Stomach | 1 | 3.33% |
| Duodenum | 18 | 60% |
| Jejunum | 1 | 3.33% |

| | | |
|----------|----|--------|
| Ileum | 4 | 13.33% |
| Appendix | 6 | 20% |
| | 30 | 100% |

The Commonest Site Involved In Hollow Viscus perforation in this study was duodenal ulcer perforation (60%) followed by appendicular perforation (20%) and ileal perforation (13.33%)

Size of Perforation

In this study, out of 30 patients presented with perforated duodenal ulcer, 18 patients had perforation of size 0.1 to 0.5 cm, 8 patients had perforation of size 0.6 to 1 cm and 4 patients had perforation of size more than 1cm. Of the 18 patients with perforation size 0.1 to 0.5 cm, mortality was seen in 1 patient, out of 8 patients with perforation of size 0.6 to 1 cm, mortality was seen in 1 patient and out of 4 patients with perforation of size more than 1 cm, mortality was seen in 2 patients.

Table 3: Post-Operative Complications:

| | No. of Patients | Percentage |
|------------------|-----------------|------------|
| Wound Infection | 9 | 56.25% |
| Chest Infection | 2 | 12.5% |
| Wound Dehiscence | 1 | 6.25% |
| Burst Abdomen | 1 | 6.25% |
| Total | 16 | 100% |

In this study, wound infection and chest infection were the most commonly seen post-operative complications.

Factors Affecting Mortality

In the present study out of 30 patients mortality is seen in 4 cases. Mortality was more in the older age group.

Table 4: Relationship between perforation duration and mortality

| | Expired | Survived | Percentage |
|---------|---------|----------|------------|
| <24 hrs | 1 | 16 | 25% |
| >24 hrs | 3 | 14 | 75% |

In this study out of 60 patients, 16 presented within 24 hours, with mortality was seen in 1 patient. In the remaining 14 patients who presented after 24hrs, mortality was seen in 3 patients.

Table 5: Size of Perforation And Mortality

| | Expired | Survived | Percentage |
|-------|---------|----------|------------|
| <1 cm | 2 | 26 | 7.69% |
| >1cm | 2 | 4 | 50% |

In this study out of 60 patients presented with perforated duodenal ulcer, 18 patients had perforation of size 0.1-0.5 cm, 8 patients had perforation of size 0.6-1 cm and 4 patients had perforation of size more than 1cm. Of the 18 patients with perforation size 0.1 to 0.5 cm, mortality was seen in 1 patient. Out of 9 patients with perforation of size 0.6 to 1cm, mortality was seen in 1 patient. And out of 4 patients with perforation of size > 1 cm, mortality was seen in 2 patients.

Table 6: Peritoneal Contamination and Relation to Mortality

| | No. of cases | Deaths | Percentage |
|---------|--------------|--------|------------|
| <1 lit | 20 | 2 | 10% |
| 1-2 lit | 7 | 1 | 14.28% |
| >2 lit | 2 | 1 | 50% |

In this study out of 30 patients, 20 patients had a contamination of less than 1 litre, of which mortality seen in 2 patients. 7 patients had peritoneal contamination of 1-2 litres, with a mortality of 1 patient. 2 patients had peritoneal contamination of more than 2 litres, with mortality of 1 patient.

Table 7: Presence of Shock and Mortality

| Presence of Shock | Expired | Survived | Percentage |
|-------------------|---------|----------|------------|
| Yes | 3 | 2 | 60% |
| No | 1 | 24 | 41.67% |

In this study out of 30 patients, 25 patients presented without shock at the time of presentation with mortality in patients without shock to 1 patient. Out of 5 patients presented with shock mortality was seen in 3 patients.

Discussion

A prospective observational study was done on 30 patients of hollow viscous perforation with peritonitis in ASRAM Hospital, Eluru to find out the preoperative factors and intraoperative factors affecting the mortality and morbidity in these patients.

Common precipitating factor for duodenal ulcer perforation are smoking followed by alcohol and usage of NSAIDS. Highest incidence of perforations occurred during the months of September followed by August and October.

The most common age group was 61- 70 years followed by 51-60 years. More common in males with a male to female ratio of 6.5:1.

The common site involved in Hollow viscous perforation in this study was Duodenal ulcer perforation followed by Appendicular perforation and Ileal perforation.

Delayed presentation of more than 24 hours following onset of perforation was associated with increased mortality when compared with those presenting within

24 hours. Size of perforation of more than 1 cm was associated with increased mortality. In cases with increased peritoneal contamination with more than one litre of contaminated fluid, there is increase in mortality rate.

Most common postoperative complication following surgery for perforated duodenal ulcer perforation was wound infection followed by respiratory infections. Mortality was more in elderly age group that is in patients more than 60 years of age.

Conclusion

In my study overall all mortality rate is 13.33%.

In my study smoking, alcohol and comorbidity conditions like diabetes mellitus are predisposing factors for hollow viscous perforation.

Elderly patients had increased risk of mortality and morbidity.

Shock presentation, delayed presentation and peritoneal contamination were important predictors of postoperative morbidity and mortality.

Early presentation, prompt diagnosis, adequate resuscitation, emergency surgery and postoperative monitoring are useful for successful management and good outcome of Hollow viscous perforation.

References

1. Ramakrishnan K, Salinas RC. Peptic Ulcer disease. *Am Fam Physician*. 2007;1:1005–12.
2. Billing A, Fröhlich D, Schildberg FW. Prediction of outcome using the Mannheim peritonitis index in 2003 patients. *Br J Surg*. 1994;81:209–13
3. Marshall JC, Maier RV, Jimerz M. Source control in the management of severe sepsis and septic shock: an evidence– based review. *Crit Care med* 2004. 32 : 5513 – 55

4. Mulari K, Leppäniemi A: Severe secondary peritonitis following gastrointestinal tract perforation. *Scand J Surg*. 2004 ; 93 : 204 – 208
5. Afridi SP, Malik F, Rahman S, Shamim S, Samo KA. Spectrum of perforation peritonitis in Pakistan: 300 cases Eastern experience. *World J Emerg Surg*. 2008 ; 3: 31
6. Kulkarni S, Naik A, Subramanian N. APACHE-II scoring system in perforative peritonitis. *Am J Surg*. 2007; 194 : 549 - 552
7. Singh R, Kumar N, Bhattacharya A, Vajifdar H. Preoperative predictors of mortality in adult patients with perforation peritonitis. *Indian J Crit Care Med*. 2011; 15 :157 - 163
8. Jhobta RS, Attri AK, Kaushik R, Sharma R, Jhobta A. Spectrum of perforation peritonitis in Indiareview of 504 consecutive cases. *World J Emerg Surg*. 1006 ;1 : 26
9. Suvas S. Advancing age and immune cell dysfunction: is it reversible or not? *Expert OpinBiolTher*. 2008 ;8 : 657 – 668
10. Svanes C, Lie RT, Svanes K, Lie SA, Soride O. Adverse effects of delayed delayed treatment for perforated peptic ulcer. *Ann Surg*. 1994 ; 220 :168 – 175
11. Levy MM, Fink MP, Marshall JC, Abraham E, Angus D, Cook D, et al. 2001 SCCM/ESICM/ACCP/ATS/ SIS International Sepsis Definitions Conference. *Crit Care Med*. 2003; 31:1250 – 1256
12. Horiuchi A, Watanabe Y, Doi T, Sato K, Yukumi S, Yoshida M, et al: Evaluation of prognostic factors and scoring system in colonic perforation. *World J Gastroeneterol*. 2007 ; 13 (23): 3228 – 3231

13. Kocer B, Surmeli S, Solak C, Unal B, Bozkurt B, Yildirim O, et al: Factors affecting mortality and morbidity in patients with peptic ulcer perforation. *J Gastroenterol Hepatol.* 2007; 22 : 565 – 570
14. Malangoni MA, Inui T. Peritonitis the western experience. *World J Emerg Surg.* 2006 ; 1 : 25
15. Adesunkanmi A, Badmus T, Ogundoyin O. Causes and determinants of outcome of intestinal perforations in a semiurban African community. *Ann Coll Surg HK.* 2003 ; 7 : 116 - 123