

## A Study of Site of Hollow VISCUS Perforation Influencing Outcome: Prospective Study

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### Abstract

Site of perforation show a wide variability in different studies and we conducted our study to find out the prognostic outcomes based on site of perforation. *Methodology:* A prospective survey of patients with acute generalized peritonitis due to hollow viscus perforation was carried out in general surgical wards of our institute during the period starting from August 2014 to December 2015. Study population consisted of 150 consecutive patients with perforative peritonitis, which confirmed on emergency laparotomy *Results:* Intra operative findings of 150 cases of perforative peritonitis were noted and the sites of perforation were confirmed. Majority were gastroduodenal perforation 109(72.66%), followed by small intestinal perforations 32(21.33%) which included 27 ileal perforations and 5 jejunal perforations. 9(6%) patients had large intestine perforation including 9 colonic perforation, 2 appendicular perforation and 1 rectal perforation. In the study group of 150 patients majority of the patients had gastroduodenal perforation (72.66%). Highest survival rate was seen among gastroduodenal perforation 83 of 109(76.75%).

**Keywords:** Small Intestine; Peritonitis; Hollow Viscus Perforation.

### Introduction

Peritoneum inflammation, called peritonitis, presents most commonly due to localized or generalized infection caused from various probable factors. Secondary peritonitis is the most common & follows an intraperitoneal source usually from perforation of hollow viscera. Acute generalized peritonitis coming forth due to underlying hollow viscus perforation is a critical & life-threatening medical condition. It is a common surgical emergency in most of The general surgical units, across the world. It is often associated with significant morbidity and Mortality [1-5].

The prognosis and outcome of peritonitis further depended upon the interaction of many factors, including patient-related factors, disease-specific factors, and diagnostic and therapeutic interventions. The site of perforation also determines the prognosis in hollow viscus perforation.

We conducted our study to find out the prognostic outcomes based on site of perforation.

The site specific location of perforation were classified and prognostic outcomes in various sites were determined and the location with most common cause for non survivors was determined.

### Materials and Methodology

Study setting: - General surgical wards of B M Patil Medical College Hospital and Research Centre, Vijayapura (Bijapur), Karnataka, INDIA

*Study Design:* Prospective study

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*Study Period*

August 2014 to December 2015.

*Study Population:* Patients with acute generalized peritonitis due to hollow viscus perforation

*Sample Size:* 150 consecutive patients with perforative peritonitis which were confirmed on emergency laparotomy.

*Inclusion Criteria*

1. Peritonitis secondary to hollow viscus perforation.
2. Age group more than 15yrs.
3. Non traumatic perforative peritonitis.

*Exclusion Criteria*

1. Perforation secondary to abdominal trauma.
2. Primary peritonitis.
3. Post op peritonitis due to anastomotic leak, etc.
4. Perforative peritonitis patients managed conservatively.

Diagnosis of peritonitis due to hollow viscus perforation was made by: History, Clinical examination and radiologically (gas under diaphragm)

Patient details suggestive of chronic health disorders such as cardiac, respiratory, renal, liver failure and immunodeficiency disorders noted. At the time of admission:

*Statistical Analysis*

Data entry and management was done in Excel sheet. After cleaning and coding the data was transferred to Single master sheet and statistical analysis was done using the SPSS 19 version software. Qualitative data was presented in the form of Proportions and percentages.

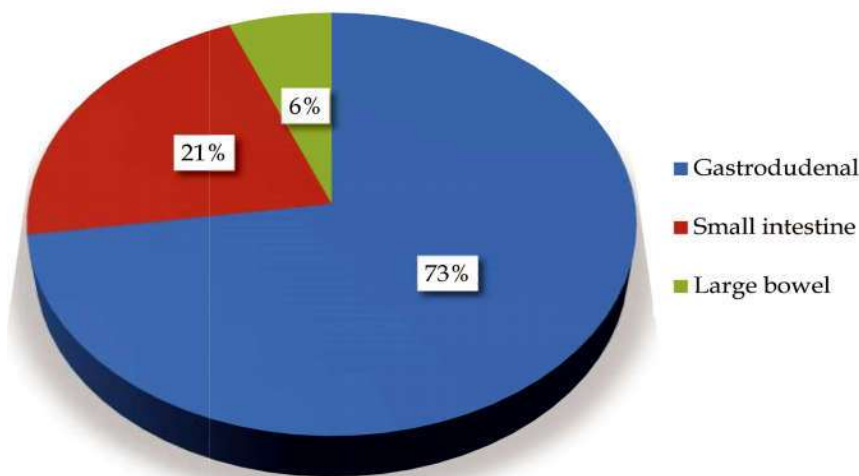
**Results**

*Etiological Spectrum*

Intra operative findings of 150 cases of perforative peritonitis were noted and the sites of perforation were confirmed. Majority were gastroduodenal perforation 109 (72.66%), followed by small intestinal perforations 32 (21.33%) which included 27 ileal perforations and 5 jejunal perforations. 9 (6%) patients had large intestine perforation including 9 colonic perforation, 2 appendicular perforation and 1 rectal perforation. (Graph 1).

*Prognosis in each etiological group*

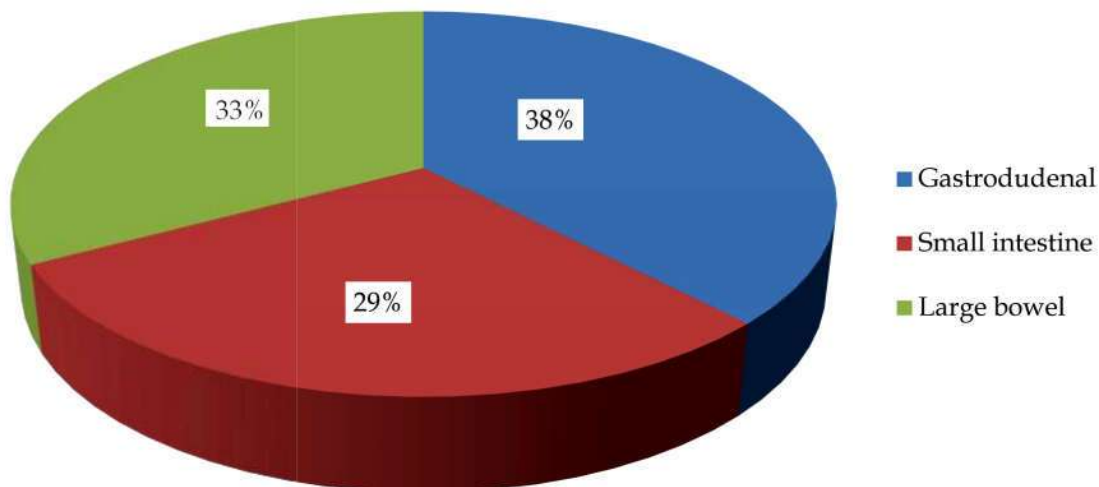
Mortality rate and rate of survival according to etiology were tabulated as in Table 1. In the study group of 150 patients majority of the patients had gastroduodenal perforation (72.66%). Highest survival rate was seen among gastroduodenal perforation 83 of 109 (76.75%). Highest mortality was seen among small intestinal perforation group 40.6%. (Graph 2 and 3).



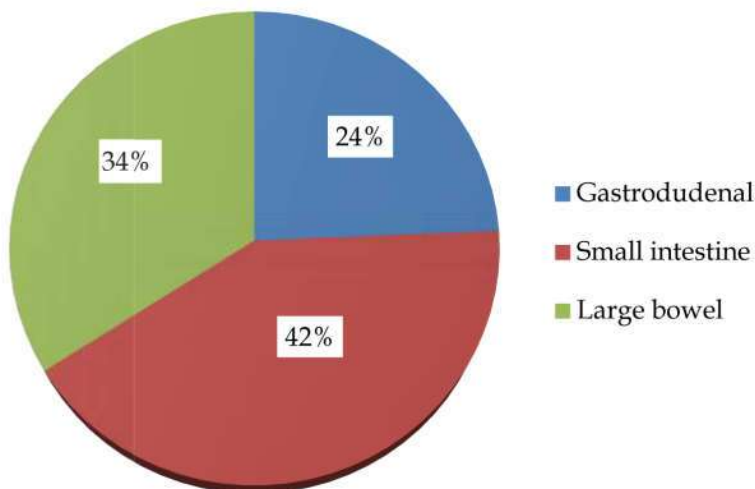
**Graph 1:** Etiological spectrum

**Table 1:** Prognosis in each etiological group

Cause of peritonitis	Total	No of Survivors	Percentage of Survivors	No of deaths	Percentage of deaths
Gastrodudenal	109	83	76.75	26	23.8
Small intestine	32	19	59.3	13	40.6
Large bowel	9	6	66.6	3	33.33
Total	150	108	72	42	28



Graph 2: Sites of perforation in survivors



Graph 3: Sites of perforation in non survivors

**Discussion**

*Etiological Spectrum of Perforation*

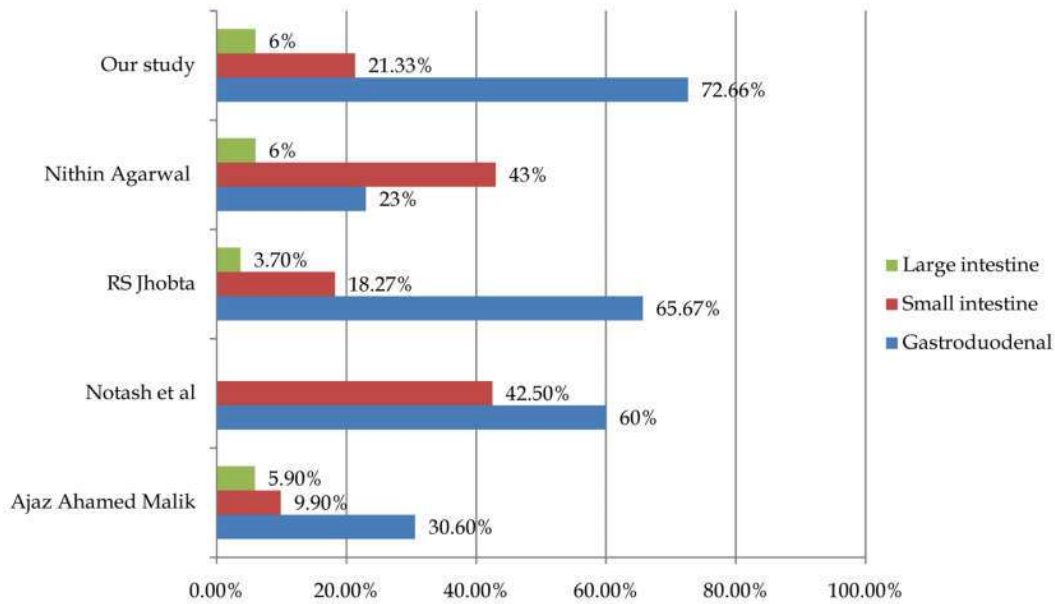
Site of perforation show a wide variability in different studies as shown in Table 2 and Graph 4. The perforations of proximal gastrointestinal tract were six times as common as perforations of distal gastrointestinal tract as has been noted in earlier

studies from India, which is in sharp contrast to studies from developed countries like United States, Greece and Japan which revealed that distal gastrointestinal tract perforations were more common [6].

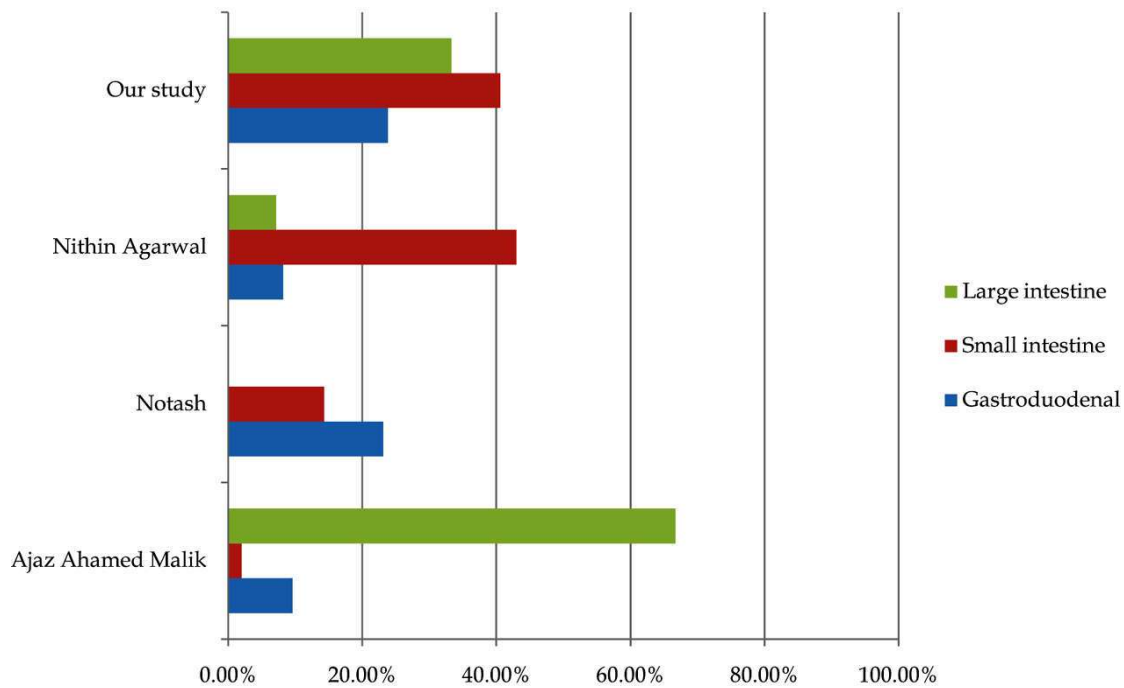
Gastroduodenal perforations were most common site of etiology for perforation. But many studies had small intestine as most common site.

Table 2: Site of perforation in different study group

Study	Gastroduodenal	Small intestine	Large intestine
1 AjazAhamed Malik et al <sup>2</sup>	30.6%	9.9%	5.9%
2 Notash et al <sup>7</sup>	60%	42.5%	
3 RS Jhobta <sup>8</sup>	65.67%	18.27%	3.7%
4 Nithin Agarwal et al <sup>9</sup>	23%	43%	6%
5 Our study	72.66%	21.33%	6%



Graph 4: Site of perforation in different study group



Graph 5: Comparing site specific mortality rate in different study group

Table 3: Comparing site specific mortality rate in different study group

Study	Gastroduodenal	Site specific mortality rate Small intestine	Large intestine
1 AjazAhamed Malik et al <sup>2</sup>	9.6%	2%	66.7%
2 Notash et al <sup>7</sup>	23.1%	14.3%	
4 Nithin Agarwal et al <sup>9</sup>	8.2%	43%	19.2%
5 Our study	23.8%	40.6%	33.3%

*Site Specific Mortality*

Overall mortality rate in peritonitis due to hollow viscus perforation in our study was 27.6%. The individual mortality according to etiology showed highest with small intestine perforation (40.6%) as

seen in Nithin Agarwal study , but Ajaz found highest mortality in large intestine perforation as shown in Table 3 and Graph 5. Most of the study showed maximum mortality with colonic perforation.

## Conclusion

We can conclude by our study that gastroduodenal is the most common site of perforation and highest mortality was recorded with small intestinal perforation.

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