

# Original Article

## An Analysis of Demographic Factors in Peptic Ulcer Perforations: A Clinical Study

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### ABSTRACT:

**Background:** The most frequent emergency encountered by surgeons is the perforation of peptic ulcers<sup>1</sup>. The aim of this study is to evaluate the surgical results and the long-term outlook for individuals with peptic ulcer perforations. **Material and methods:** Information from 20 patients who underwent emergency exploratory laparotomy for peptic ulcer perforation was retrospectively collected in the field of general surgery. This included demographic details, clinical symptoms, intraoperative discoveries, surgical interventions, and post-operative results, all of which were subjected to analysis. **Results:** The mortality rate stood at 15%, with 44% of the total patients having co-existing medical conditions. These co-morbid illnesses were a significant contributing factor to the majority of fatalities, particularly in elderly patients<sup>2</sup>. The most prevalent complication observed was wound infection, and there was a higher number of male patients compared to females. **Conclusion:** Ensuring that patients arrive at the hospital promptly and receive adequate resuscitation is imperative for minimizing both morbidity and mortality in individuals with peptic ulcer perforation.

**Keywords:** Perforation, surgery, prognosis

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### INTRODUCTION

The frequency of emergency surgery for perforated ulcers has shown little variation, and in some instances, it may have even risen. Perforation stands as the second most common complication following bleeding in peptic ulcer cases.

The primary aim of this study was to investigate how patients present themselves, the methods of management employed, and the postoperative complications associated with perforated peptic ulcer disease<sup>3,4</sup>. The occurrence of perforated Peptic Ulcer Disease exhibits notable regional disparities, shaped by the socio-demographic and environmental conditions unique to each area. In developing nations, the patient demographic tends to be younger, with a predominant male presence. Patients often seek medical attention later, and a strong correlation with smoking is observed<sup>5</sup>. Conversely, in Western regions, the patient population tends to be older, and there is a higher incidence of ulcerogenic drug usage.

It is now widely acknowledged that infection with *H. pylori* and the consumption of nonsteroidal anti-inflammatory drugs (NSAIDs) are the foremost factors contributing to the development of peptic ulcers<sup>6,7</sup>.

### MATERIAL AND METHODS

This retrospective observational study was carried out at the Department of General Surgery. The study encompassed a population of 20 patients with peptic ulcer perforation (both diffuse and localized) who presented to the surgical emergency unit at Civil Hospital and subsequently underwent emergency exploratory laparotomy. In each patient, medical treatment with proton-pump inhibitors was initiated before the surgical procedure and continued for a minimum of 14 days. Once the clinical diagnosis of perforation peritonitis was confirmed, the patients were readied for an emergency exploratory laparotomy. The perforation margins were excised and subjected to histopathological examination to rule out any malignancy. In two cases where the perforation size was substantial, feeding jejunostomy was additionally performed<sup>8</sup>. Subsequently, all patients were initially managed in the postoperative ward with the administration of parenteral broad-spectrum antibiotics and fluids. Oral intake was initiated once bowel sounds were detected. Patients were discharged once they demonstrated proper dietary intake, mobility, and the ability to pass stool.

**RESULTS**

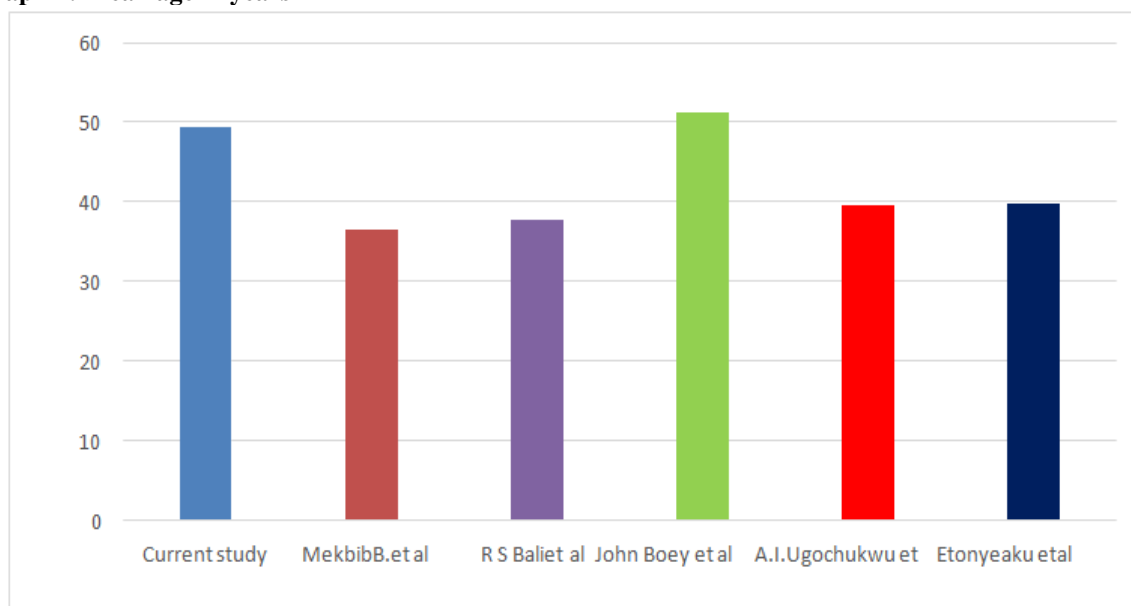
Among the 20 patients with peptic ulcer perforation in our study, we observed that the highest incidence occurred in individuals in their third and seventh decades of life. The majority of the patients were

male, constituting 16 individuals (76%), while female patients numbered 4 (24%). This resulted in a male-to-female ratio of 3.1:1. Additionally, it's noteworthy that most of the patients were under the age of 40 years.

**Table1: Gender and Male:Female Ratio**

	Male	Female	M:FRatio
Currentstudy(Total20 patients)	16(76%)	04(24%)	3.1:1
MekbibB.etal[6](Total130patients)	115 (84.66%)	21(15.44%)	5.5:1
RSBalieta[7](Total400patients)	274(68.5%)	126(31.5%)	2.1:1
JohnBoey etal[8](Total256patients)	204(78.7%)	55(21.23%)	3.6:1
A.I.Ugochukwuetal[9](Total76patients)	58(76.31%)	18(23.68%)	3.2:1
Etonyeakueta[10](Total45patients)	37(82.22%)	8(17.77%)	4.5:1

**Graph 1: Mean age in years**



In our study, the mean age of the patients was 48.44 years, with ages ranging from 20 to 82 years. Seven patients sought medical attention within 20 hours after the onset of symptoms, whereas 16 patients presented after 20 hours had passed since the symptom onset. Notably, all patients with a systolic blood pressure (BP) below 90mmHg arrived at the hospital more than 24 hours after the symptoms started. Abdominal tenderness was observed in all of the patients.

Regarding the perforation locations, 14 patients had perforations in the pre-pyloric region, 4 had pyloric perforations, 4 patients had perforations in the body of the stomach, and 3 patients had duodenal anterior wall perforations.

**DISCUSSION**

The observation that males were more affected than females in our study aligns with findings from other studies, such as those conducted by Mekbib B. et al and R. S. Bali et al<sup>9</sup>. Historically, peptic ulcer perforation predominantly affected middle-aged patients, with a male-to-female ratio of 2:1. However, over time, there has been a gradual shift in the

demographics of this complication. There is now a notable increase in the average age of patients experiencing peptic ulcer perforation, and there is a rising number of female patients affected. Consequently, peptic ulcer perforations are currently more commonly observed in elderly female patients. Our study has noted a significant impact of delayed presentation on surgical outcomes, which is consistent with findings in studies by John Boey et al and Etonyeaku et al.<sup>10</sup> Moreover, there is a notable level of postoperative morbidity, affecting as many as two-thirds of the patients. This morbidity encompasses complications such as pneumonia, wound infections, and intraabdominal abscess formation. In our study, among multiple risk factors, tobacco chewing was the most prevalent, affecting 44% of the patients. This differs from the findings in A. I. Ugochukwu et al's study, where alcohol abuse was the leading risk factor, impacting 72.4% of patients. Additionally, in Mekbib B. et al's study, alcohol abuse was a factor for 17.6% of patients. These variations highlight the diverse risk factor profiles observed in different research studies.

Our study was retrospective in nature, which inherently comes with certain limitations that should be acknowledged. While we did not investigate the prevalence of *Helicobacter pylori*, it's worth noting that it tends to be more common among individuals in lower socio-economic groups. In our study, we did not find any records of attempts at *Helicobacter pylori* eradication therapy<sup>11</sup>.

The majority of our patients were from the low socio-economic strata based on their occupation. It's important to emphasize that the prognosis of perforated peptic ulcer disease is closely associated with factors such as age, comorbid illnesses, and the timing of surgical intervention. Therefore, it is crucial not to delay surgical treatment, and in elderly patients, the prognosis is primarily influenced by the presence of comorbid conditions.

### CONCLUSION

Peptic perforation in India presents a distinct scenario compared to Western countries. In this context, early surgical intervention, along with thorough and aggressive resuscitation, and the correction of electrolyte imbalances, all under the administration of broad-spectrum antibiotics, is imperative for achieving an excellent prognosis. This underscores the importance of tailoring treatment strategies to the specific regional characteristics of the condition.

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