

**Retrospective Study in Eastern Odisha: The Most Common Site of Gastro-Intestinal Perforation**Parikshita Dalai<sup>1</sup>, Jyotirmaya Nayak<sup>2</sup>, Chandan Das<sup>3</sup>, Jayashree Mallick<sup>4</sup><sup>1</sup>Associate Professor, Department of General Surgery SCB Medical college and Hospital, Cuttack<sup>2</sup>Assistant Professor, Department of General Surgery, SCB Medical College, Cuttack<sup>3</sup>Senior Resident, Department of General Surgery, SCB Medical College, Cuttack<sup>4</sup>Post Graduate, Department of General Surgery, SCB Medical College, Cuttack

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Conflict of interest: Nil

**Abstract:**

**Introduction:** Every time an abdominal incision is made on a patient, there is a risk of gastrointestinal perforation. The origin of the illness varies depending on where it is found. The purpose of this research is to identify the most prevalent GI perforation sites, together with their associated morbidity, mortality, and clinical aspects, in a tertiary care hospital in Cuttack, Orissa (SCB Medical College and Hospital Cuttack, Odisha).

**Methods:**

- **Type:** retrospective observational study
- **Time period of study:** October 2021-October 2011.
- **Place of study:** Department of General Surgery S.C.B. medical college & Hospital, Cuttack.
- **Sample size:** Convenient sample

**Materials of Study:**

- **Inclusion:** All patients with features of rigidity and guarding with pain abdomen and confirming as a gas under diaphragm in x-ray chest are included/ Ultrasound findings of bowel perforation.
- **Exclusion:** All other cases which excludes all above mentioned clinical and diagnostic features.

**Aims and Objective:** These patients were assessed with respect to clinical presentations, causes, site of perforation, surgical management, postoperative complications and mortality if any. Following resuscitative measures, all patients with peritonitis underwent emergency exploratory laparotomy, where the cause of perforation was explored and controlled.

**Conclusion:** Early recognition, prompt intervention might lead to better outcomes and curtail mortality and morbidity associated with this disease. In the present study, most common site of perforation is noted.

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**Background**

In India, gastrointestinal perforation is the leading cause of urgent surgery. Acute abdominal discomfort typical of peritonitis is the most typical symptom. In India, local variations in perforation aetiology persist throughout the country. [1] Our research sought to shed light on the leading causes of perforation peritonitis and the most prevalent areas of the digestive system affected by this condition among patients hospitalised to SCB Medical College in Cuttack, Odisha.

**Patients and Methods**

A retrospective analysis of 3325 patients of perforation peritonitis was done over a period of ten years at SCB Medical College and Hospital, Cuttack.

**Inclusion criteria**

All cases found to have peritonitis features as a result of perforation of any part of gastrointestinal tract at the time of admission to the hospital were included in the study.

**Exclusion criteria**

All other cases of pain abdomen and features of peritonitis secondary to wound dehiscence or anastomotic leak were excluded.

**Procedure**

The clinical presentation, radiological examinations, surgical findings, and postoperative course of all patients were analysed. Indoor records, operating room records, and outpatient follow-up data were compiled. Exploratory laparotomy was performed on all patients after a clinical diagnosis of perforation peritonitis and

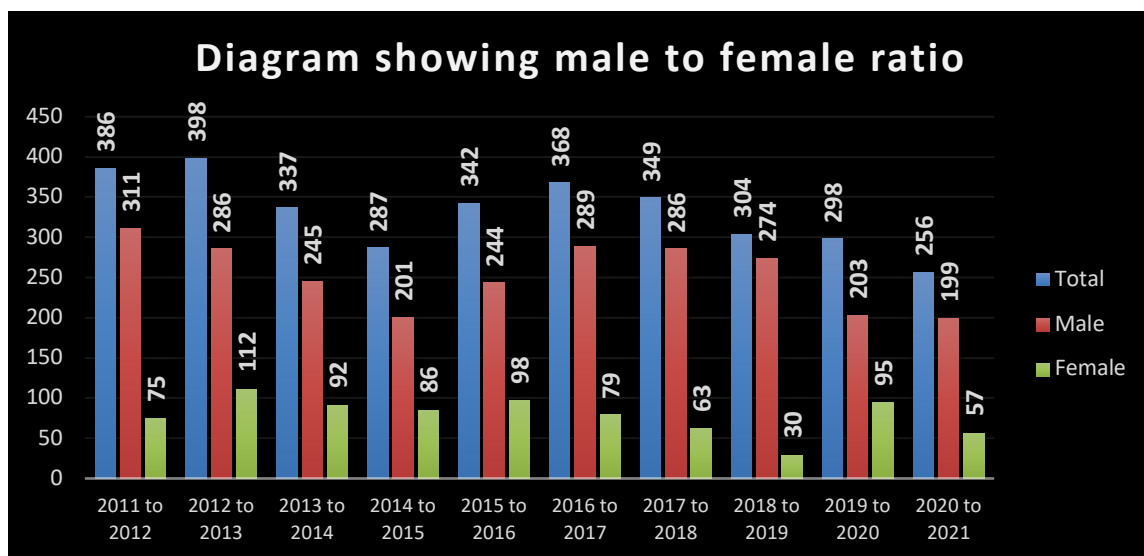
appropriate resuscitation. During the operation, the pollution source was investigated and managed. After inserting a CRD at the pelvis in the event of appendicular perforation or a pelvic drain in the event of gastroduodenal or colonic perforation, the peritoneal cavity was irrigated with 5-6 litres of warm normal saline. Using a continuous delayed absorbable suture, the rectus sheath was closed. Although appropriate perioperative broad-spectrum antibiotics were given to all patients, it was ultimately up to the treating surgeon to choose which antibiotics would be most effective depending on the location of the perforation.[5,6]

**Results**

The study included 3325 patients, the breakdown of which by gender is shown in table1 and figure1. Patients' ages ranged from 12 to 88 (with a median of 35.9), and although men made up the vast majority (76.33%), over a quarter of them were aged 50 and older. Perforation locations were associated with varying patient presentations (Table 2). Pain in the epigastrium or upper abdomen, accompanied with generalised tenderness and guarding, is a common presenting symptom of duodenal ulcer rupture. Only 1 in 5 patients reported never using an NSAID, whereas almost 4 in 5 patients who smoked ganja also reported ever drinking alcohol.

**Table 1:**

Year	Total	Male	Female
2011 to 2012	386	311	75
2012 to 2013	398	286	112
2013 to 2014	337	245	92
2014 to 2015	287	201	86
2015 to 2016	342	244	98
2016 to 2017	368	289	79
2017 to 2018	349	286	63
2018 to 2019	304	274	30
2019 to 2020	298	203	95
2020 to 2021	256	199	57
Total	3325	2538	787



**Figure 1:**

**Age**

- <50yrs - 64%
- >50yrs - 36%

**Sex**

- Male (76.33%)
- Female (23.67%)

**Signs and symptoms**

- Pain (98%)
- Vomiting (75%)
- Abdominal distention (52%)
- Constipation (42%)
- Fever (23%)

**Vitals**

- Tachycardia (pulse >/110/minute) (56%)
- Hypotension (Systolic blood pressure <100 mm Hg) (34%)
- Urine output (<30 ml/hr) (12%)
- Tachypnoea (respiratory rate >20/minute) (37%)

**Investigations**

- Pneumoperitoneum on Chest X-Ray (76%)
- Air fluid levels on abdominal X-Ray (28%)
- USG findings like traumatic perforation (21%)
- Malignancy (5%)
- Appendicular perforation (6.4%)

**Discussion**

According to our data, the most frequent location for a GI perforation is the gastroduodenal (77.02%), followed by the small intestine (9.74%), the appendix (6.4%), the jejunum (3.0%), and the colon (0.02%). The accompanying table and figure reveals that acid etic illness (74.74%) is the leading cause of gastroduodenal mc, followed by trauma and cancer. Patients with jejunal or ileal perforation first experienced lower abdominal discomfort, followed by a protracted history of fever or an evening spike of fever, or in certain instances, a history of pulmonary tuberculosis. Constipation was the third most common symptom (44%), followed by vomiting (60%), and abdominal distention (52%). When admitted, 26% of patients were already in shock. Pneumoperitoneum was seen in 56% of upright chest X-rays. Periumbilical or right iliac fossa discomfort, nausea and vomiting (66%), and fever (43%), are classic symptoms of an appendicular perforation. They had either right iliac fossa rebound soreness (68%) or localised guarding (77%). Appendicular perforation and pelvic collection were detected by ultrasonography of the abdomen and pelvis. On supine chest X-ray, no appendicular perforation patients had gas beneath

the diaphragm. Illnesses can cause Gastro-Intestinal Perforation, including:

- Appendicitis, which is more common among older persons.
- Diverticulitis, which is a digestive disease.
- A stomach ulcer/Duodenal Ulcer
- Gallstones
- Gallbladder infection
- Inflammatory bowel diseases such as Crohn's disease or ulcerative colitis, which is less common
- Inflamed Meckel's diverticulum, which is a congenital abnormality of the small intestine that's similar to the appendix.
- Cancer in the gastrointestinal tract  
The condition may also be due to:
- Blunt trauma to the abdomen
- A knife or gunshot wound to the abdomen.
- Abdominal surgery
- Stomach ulcers due to taking aspirin, non-steroidal anti-inflammatory drugs, and steroids (more common in older adults)
- Ingestion of foreign objects or caustic substances
- Smoking and excessive use of alcohol increase your risk of Gastro-Intestinal Perforation.

In most cases, surgery is necessary to close the hole and treat the condition. The goals of the surgery are to:

- Fix the anatomical problem.
- Fix the cause of peritonitis.

The digestive tract and the abdominal cavity should be cleared of any potentially harmful substances, including excrement, bile, and food. It may be necessary, on sometimes, to remove a section of intestine. Having a colostomy or ileostomy means that your small or large intestine has been surgically rerouted to empty into a bag that is then linked to your abdominal wall.

**Intra-Operative data: most common site of perforation****Table 2: Preoperative Data(in percentage)**

Site	Number	Percentage
Duodenal	2561	77.02
Ileal	324	9.74
Jejunal	146	4.4
Appendicular	212	6.4
Gastric	50	1.5
Colonic	32	0.94

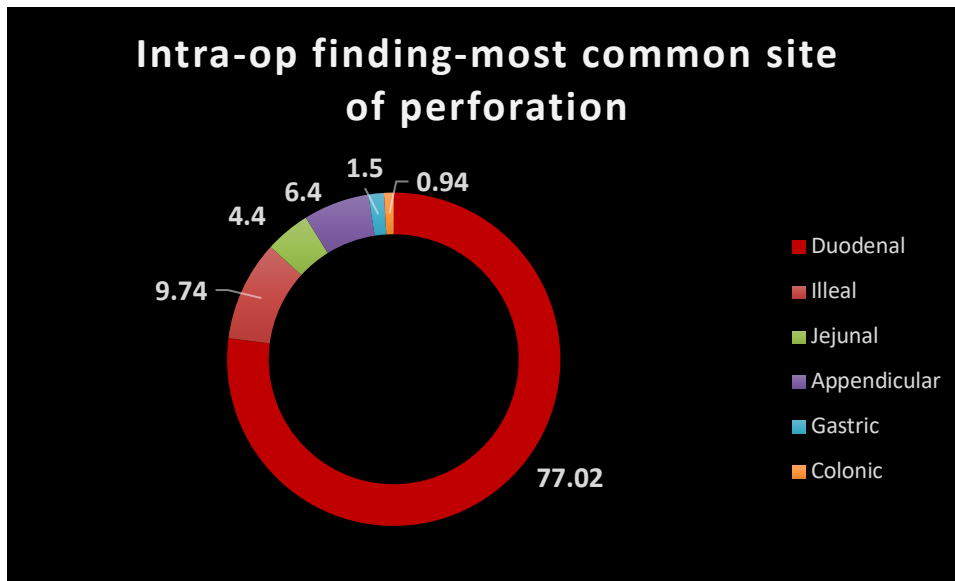


Figure 2:

**Causes of GI Perforation**

Table 3:

Cause	Number	Percentage
Acid Peptic	1952	74.74
Trauma	524	20.04
Malignancy	129	4.92
Unknown	6	0.3

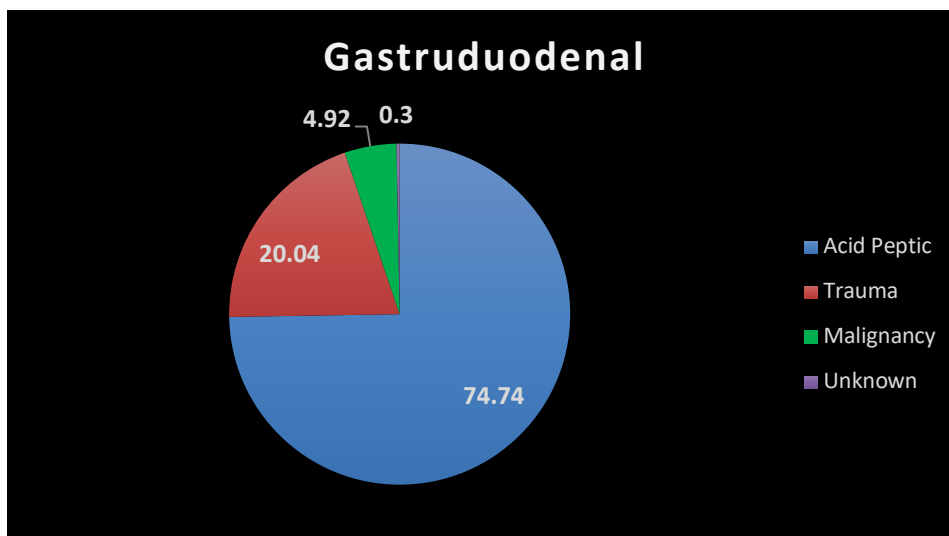


Figure 3

**Post OP data: Complications**

- Pneumonia (23%)
- Dyselectrolytaemia (33%)
- Septicaemia (14%)
- Wound infection (45%)
- Acute renal failure (16%)
- Burst abdomen (43%)
- Anastomotic leak (2%)
- Abdominal collection (6%) are noted

## Conclusion

Among young males in India, gastrointestinal perforation peritonitis is a prevalent surgical emergency. Peritonitis may be clinically diagnosed in all patients based on the presence of the classic signs and symptoms. Previous research from India found that proximal gastrointestinal perforations were six times more prevalent than distal gastrointestinal perforations. The locale and the etiological elements both vary greatly across different regions.

The death rate in this analysis was 11%, while the morbidity rate was 34%. Duodenal (D1) perforation is the most prevalent kind of hollow viscus perforation caused by acid peptic illness, however the case ratio has been progressively reducing from 2011 to 2022 year because to the introduction of pharmacological and awareness.

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