

Clinicopathological Study Of Peptic Ulcer Perforation At Tertiary Care Hospital

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Abstract

Peptic ulcer disease and its complications remains a common problem encountered by surgeons all over, despite all the progress made in the diagnosis and treatment both medically and surgically for this condition. Among these, duodenal ulcer is definitely more prevalent than gastric ulcer. The study period was 22 months including follow up, comprising of 55 patients, who are satisfying inclusion criteria admitted in Tertiary care centre. It is a prospective, descriptive study. In our study males are affected more commonly than females, with 20-30years being the most common age group. Duodenal ulcer perforation predominates over gastric ulcer perforation with benign condition being the most common cause behind perforation, and patients diagnosed clinically and radiologically and treated surgically(Graham's/modified Graham's omental patch repair). Earlier the presentation better is the prognosis and also probability of early discharge and lower medical co-morbidities.

Keywords: Peptic ulcer perforation, duodenal ulcer perforation, peptic ulcer disease

Introduction

Peptic ulcer disease and its complications remains a common problem encountered by surgeons all over, despite all the progress made in the diagnosis and treatment both medically and surgically for this condition. Among these, duodenal ulcer is definitely more prevalent than gastric ulcer^[1-3].

Perforation of the peptic ulcer is due to the persistence of causative factors of peptic ulceration with a decrease in mucosal resistance.

Peptic ulcer disease has a major impact on health care system both economically and socially. Peptic ulcer perforation and bleeding remain dreadful complications of peptic ulcer.

Peptic perforation is a cause of acute abdomen and accounts for more than 50% of perforative peritonitis. Maximum number of peptic ulcer perforation is found in productive age group, males and rural population. Peptic ulcer perforation is most common among patients addicted to tobacco, especially smokers, and more than one factor like smoking, alcohol, spicy food,

NSAID's thus increasing the incidence of peptic ulcer perforation [4-8].

The evolution of the knowledge regarding etiopathogenesis of acid peptic disease from an acid-driven disease to an infectious disease has opened up this topic for various studies to find best possible options for management of this disease [9].

Johan Mikulicz-Radecki (1850–1905), often referred to as the first surgeon who closed a PPU by simple closure, said: 'Every doctor, faced with a perforated duodenal ulcer of the stomach or intestine, must consider opening the abdomen, sewing up the hole, and averting a possible inflammation by careful cleansing of the abdominal cavity' [10].

Despite improved medical treatment of peptic ulcer, it has not translated into decreasing hospitalization and death from complications of peptic ulcer [11].

As the incidence of peptic ulcer and acid peptic disorder is on the rise, there is an increase in perforations too [12].

Methodology

After Ethical Committee Approval and Obtaining Written Informed Consent from Patients, The Study was Undertaken.

Study design: Prospective, Descriptive study.

Sample size: 55 cases those are encountered during the study period.

Inclusion criteria

1. All Patients of perforated peptic ulcer diagnosed by clinical and radiologic methods.

Exclusion criteria

1. Patients with perforations other than peptic ulcer perforation.
2. Perforative peritonitis patients managed conservatively.

Results

Sex Predominantly male

Male: 41 Cases (74.5%)

Female: 14 Cases (25.5%)

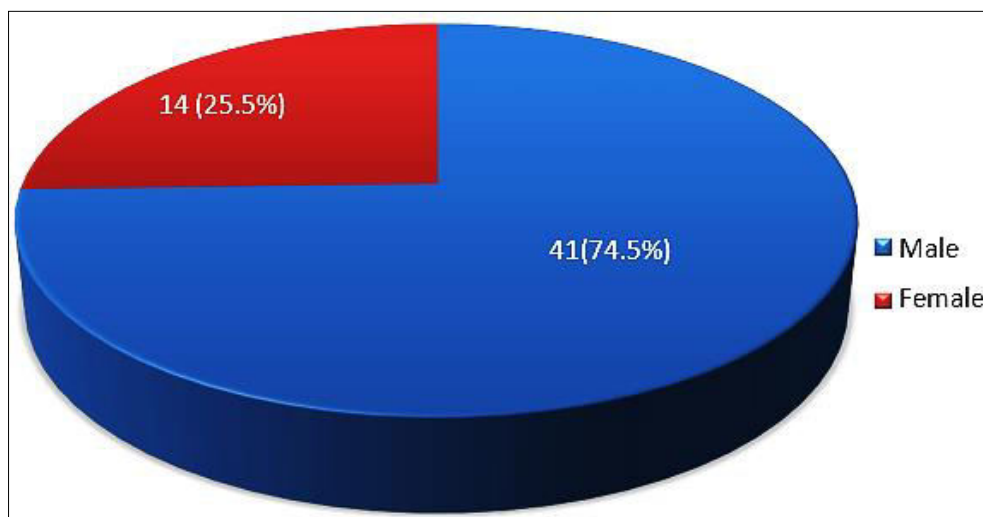


Fig 1: Sex

Occupation

| Occupation | No. of Cases |
|-----------------|--------------|
| Manual labourer | 34 Cases |
| Students | 02 Cases |
| Housewives | 05 Cases |
| Unemployed | 10 Cases |
| Graduate, clerk | 04 Cases |

17 patients were smokers and 13 patients were alcoholics.

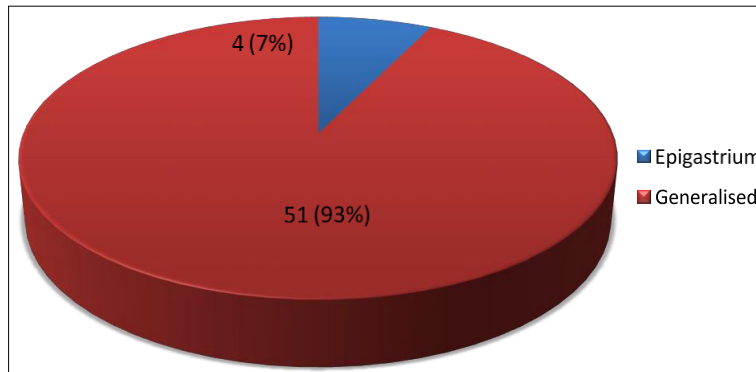


Fig 2: Pain location

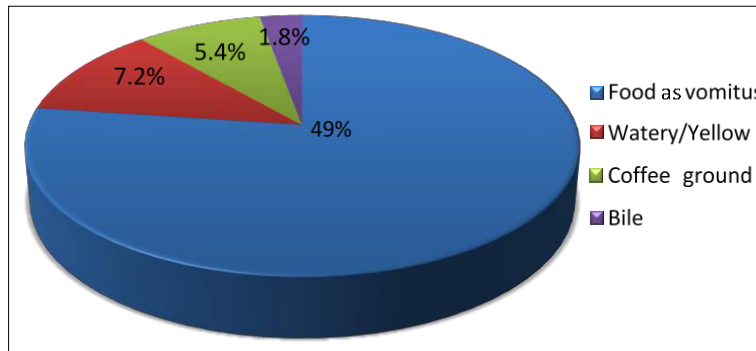


Fig 3: Vomiting content

Presenting complaint

Pain abdomen was a universal symptom.

| | |
|-------------|----------|
| Epigastrium | 04 Cases |
| Generalised | 51 Cases |

Duration from symptoms to presentation

| | |
|---------|-------------------------------|
| Minimum | 1 Day |
| Maximum | 3 Days (duodenal perforation) |
| Mean | 1.4 Day |

Character of pain

| | |
|-----------|----------|
| Burning | 50 Cases |
| Dull ache | 5 Cases |

Generalized abdominal distension: 43 Cases**Vomiting in 43 of the patients Food as**

| | |
|---------------|----------|
| Vomitous | 27 Cases |
| Bile | 1 Cases |
| Watery/yellow | 4 Cases |
| Coffee ground | 3 Cases |

Temperature

| | |
|-------------------|----------|
| Raised | 33 Cases |
| Fever with chills | 9 Cases |

Pastmedical history/Surgical history

| | |
|---------------|-------------|
| Hypertension | 12 Patients |
| Diabetes | 07 Patients |
| Heart disease | 03 Patients |

23 patients were treated with anti-ulcer medications.

15 patients with duodenal ulcer perforation were treated with Non-steroidal anti-inflammatory drugs.

General physical and local examination

1. Most of the patients were moderately built and nourished.

| | |
|-------------|------------------------------------|
| Dehydration | 23 Patients |
| Shock | 06 Patients |
| Pallor | 11 Patients |
| Icterus | 03 Patients (alcoholic hepatitis). |

2. Pulse rate

| | |
|-------------|-------------|
| <60 | 02 Patients |
| 60-90/min | 09 Patients |
| 90-110/min | 22 Patients |
| 110-130/min | 14 Patients |
| >130/min | 08 Patients |

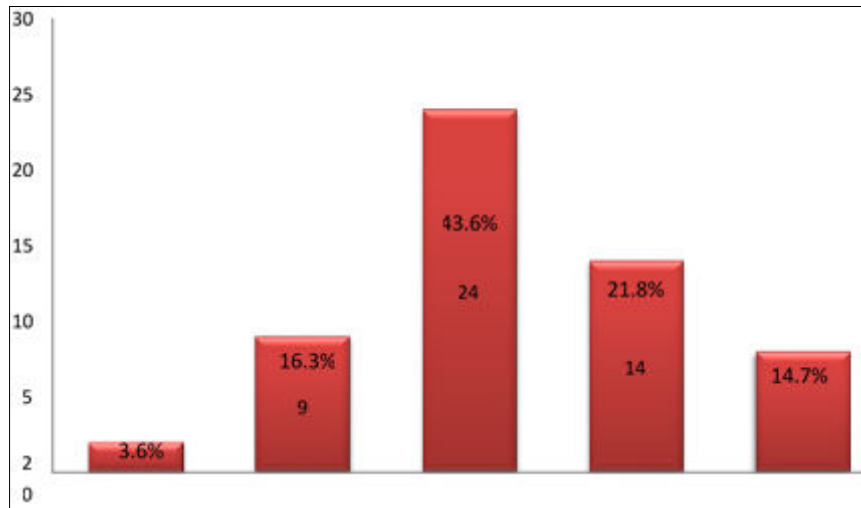


Fig 4: Pulse rate

2 Patients were in shock with systolic B.P <70mmHg.

4 Patients had features of basal lung consolidation.

Local examination

Abdomen was distended in 43 cases

13 patients had scars in the abdomen: 2 Appendectomy, 3 openhernioplasty, 1 open cholecystectomy, 7 Tubectomy.

Tenderness was noted in all patients with rigidity in 23 patients.

Liver dullness was obliterated in 31 patients. Bowel sounds were either sluggish or absent in most cases.

Investigations

Haemoglobin

<10gm/dl 09 Patients

10-13gm/dl 35 Patients

>13gm/dl 13 Patients

The higher haemoglobin could be due to hemoconcentration.

Total count was raised above 11,000 cell/mm³ in 37 patients with predominant neutrophilia.

6 patients were in pre-renal type of acute renal failure.

Altered liver function was found in 3 patients.

Gas under the diaphragm was seen in 49 patients (89%).

Ultrasound was done in 55 patients.

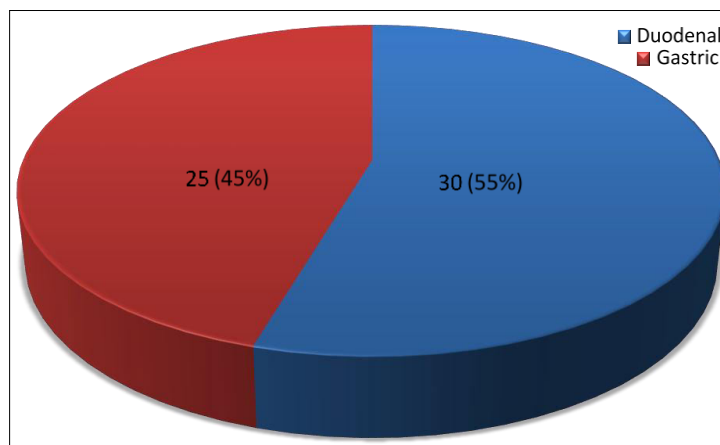


Fig 5: Site of perforation

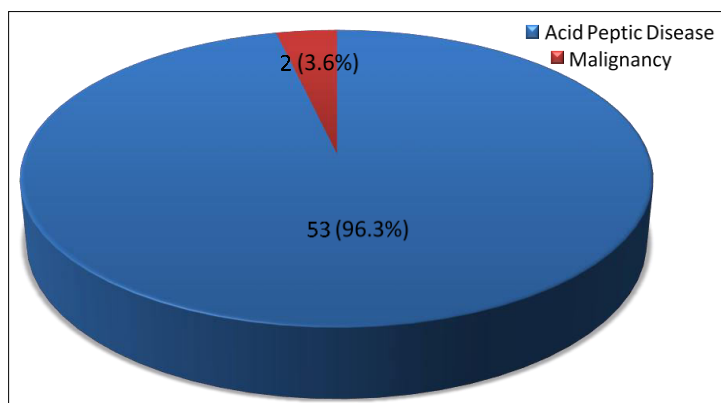


Fig 6: Cause of perforation

Treatment

All patients were put on 'IV fluids' and antibiotics consisting of a cephalosporin (cefaperazone), and an antimicrobial against anaerobe (metronidazole).

A watch was kept on vital signs and abdominal girth.

All patients were taken up for emergency laparotomy.

Anaesthesia: General anaesthesia.

Incision: Midline- 55 Cases

Peritoneal fluid: Varied from 500 ml-2 litres.

Greenish 29 Patients

Feculent 0 Patients

Purulent 5 Patients

Flakes Present in 25 patients.

Sites of perforation

Acute gastric perforation 25 Cases (45%)

Acute duodenal perforation 30 Cases (55%)

Based on etiology

Gastric ulcer perforation

Benign 23 Cases

Malignant 02 Cases

Duodenal ulcer perforation 30 Cases

Gastric ulcer perforations

23 benign ulcer perforations, 09 towards the lesser curvature, 14 in the pre-pyloric region. All gastric ulcers were biopsied and because of delayed presentation (later than 12hrs), simple closure with vicryl was done, in one layer.

Patients were put on H2 blockers or proton pump inhibitors. However there were two malignant gastric ulcer perforations.

Duodenal ulcer perforations

There were 30 duodenal ulcer perforations. All were spontaneous duodenal ulcer perforations. These perforations were closed using Roscoe Graham method using a pedicle omental graft, to plug the perforation.

Post-operative management

Ryle's tube aspirate

Gastric and duodenal perforations -Avg 1.2 days

IV fluids

- Dextrose
- Dextrose with normal saline.
- Ringer lactate
- Normal saline

Antibiotics used

- Cefaperazone
- Piperacillin-Tazobactem
- Meropenem/Imipenem
- Metronidazole
- Gentamicin

Electrolyte imbalance

In nine patients who developed electrolyte imbalance six developed acute renal failure, managed conservatively and recovered.

Complications

Burst abdomen

One cases, tension suturing was done.

Wound infection (SSI)

7 cases. In each case culture and sensitivity was done and three cases required secondary suturing.

Lower respiratory tract infection

6 patients developed features of basal pneumonia. One patient developed residual abscess. One patient developed faecal fistula.

Deaths

There were 4 deaths recorded in the study.

One patient developed sub-acute intestinal obstruction on the 14th postoperative day. Patient managed conservatively for 7 days. Patient taken for exploratory laparotomy as patient was deteriorating, multiple adhesions found, resection anastomosis done. Patient died on post-operative day 28.

A case of prepyloric perforation died on post op day 4 due to cardiopulmonary arrest secondary to ARDS.

Case of duodenal perforation died on post op day 14 secondary to ventilator induced pneumonia, hypovolaemia (Dengue) and MODS.

A case of gastric perforation died on post op day 4 due to septic shock.

Discussion

In our study males 41(74.5%) outnumbered females 14(25.5%). Maximum number of patients between 20-50 yrs. age group 42 (76.3%) and 30-50yrs age group 26 (48%).

In Dilip *et al.* ^[13] study males were 88.54% as compared to 11.46% females and majority i.e. 34.4% fell in the age group of 30-49yrs.

In Wei-Guo Dong *et al.* ^[14] study 79.9% males were affected compared to females 20.1%. Incidence of Peptic ulcer perforation among males in our study is comparable with incidence in Dilip *et al.* and Wei-Guo Dong study.

The most common age group affected in our study is comparable with age group of Dilip *et al.* study when 30-50 year patients are considered. In our study 76.3% patients with peptic ulcer perforation fall in the age group of 20-50 years.

In our study duodenal perforation seen in 55% of cases and gastric ulcer in 45% of cases which is lower compared to study conducted by Wei-Guo Dong *et al.* In both the studies duodenal perforation outnumbered gastric perforation.

In Wei-Guo Dong *et al.* Duodenal ulcer perforation accounts for 69.6% more common than gastric ulcer perforation (31.4%).

In our study pain is noticed in 100% patients, vomiting in 63.6%, and abdominal distension in 78.1% cases.

In Dilip *et al.* study pain was noticed in 100% cases, vomiting in 52.2%, and abdominal distension in 36.3% cases.

Our study resembles Dilip *et al.* study in view of pain abdomen and vomiting, but abdominal distension is more common in our study (78.1%) compared to their study (36.3%).

In our study 89% of patients had gas under the diaphragm while in Ramachandra *et al.* study 72% and Roberto Grassi *et al.* study 85.5% of patients had gas under the diaphragm.

In all three studies the finding of gas under diaphragm in X-ray resembles each other.

In our study wound infection (12.7%), lead the list of postoperative complications with residual abscess (1.8%), faecal fistula (1.8%) and burst abdomen (1.8%) ^[8].

In Dilip *et al.* study wound infection lead the list of post op complications (71.7%), followed by fecal fistula (4.7%), burst abdomen (1.35%), intraperitoneal abscess(1.35%).

In both studies the complications like residual abscess and burst abdomen resembles each other, incidence of fecal fistula is comparable but the incidence of wound infection is significantly low in our study (12.7%) compared to Dilip *et al.* study.

In our study 6 (10.9%) patients developed respiratory complications, while in Jhobta *et al.* study 12(20%) developed respiratory complications.and in both studies it's almost comparable.

Conclusion

- A study of 55 cases of peptic ulcer perforations showed that duodenal perforations (30) were maximum. Most perforations were treated surgically with Graham's omental patch repair.
- There were few complications like wound infection (7), residual abscess (1) and burst abdomen (1) and there were 4 postoperative deaths due to varied medical and surgical causes.
- Earlier the presentation better is the prognosis and also probability of early discharge and lower medical co-morbidity (basal lung consolidation 6 patients)
- This study began with preconceived notion that with the introduction of better H2 receptor blockers and proton pump inhibitors the incidence of peptic perforations would be low.
- Early recognition of perforation, prompt surgical intervention, adequate drainage, recognition of co-morbid conditions and complications would help reduce morbidity and mortality.
- Surgery remains the mainstay in all perforations. To avoid it Zimmerack had said, "Throw that cigarette, break that bottle, or better still stay in the confines of your home."

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