



A Study of Clinical Presentation and Accuracy of the Scoring System (Based on Boey) in Predicting postoperative Morbidity and Mortality of Perforated Peptic Ulcers

Authors

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Abstract

Background: *To evaluate the postoperative outcomes of perforated peptic ulcers (PPU) using Boey scoring system.*

Materials and Methods: *All patients who were operated for perforated peptic ulcers during the study period in our hospital. Boey scoring done preoperatively and surgical outcomes were interpreted. All patients were taken up for emergency laparotomy after informed consent and closure of the perforation done.*

Result: *The study consists of about 104 patients with the mean age being 43yrs and 88% found to be males. Overall mortality was found to be around 10% and morbidity around 35%. Both morbidity and mortality increased with increase in Boey score: 0%, 5%, 24% and 40% mortality for the scores 0,1,2 and 3 respectively. 25%, 35%, 62% and 100% morbidity for scores 0,1,2 and 3 respectively.*

Conclusion: *Although many scoring systems are available to stratify risks in PPU, Boey scoring system found to be an easy and useful predictor for estimating postoperative mortality and morbidity with three simple parameters.*

Keywords: *Perforation, peptic ulcer, Boey score, perforated ulcer, peritonitis.*

Introduction

Peptic ulcers are defined as focal defects in the gastrointestinal mucosal lining that may extend into submucosa or deeper. One of the most dreaded and common complication of peptic ulcers is perforation. Perforations account for about 5% of peptic ulcers^[9]. The incidence of

perforations are more in the middle aged people. The main etiological factors being *H.pylori* infection, NSAIDs usage, alcohol and dietary habits. It still remains as a surgical emergency and one of the leading causes of peritonitis^[4]. Usually present as acute abdomen and once diagnosed can be taken for emergency laparotomy and closure of

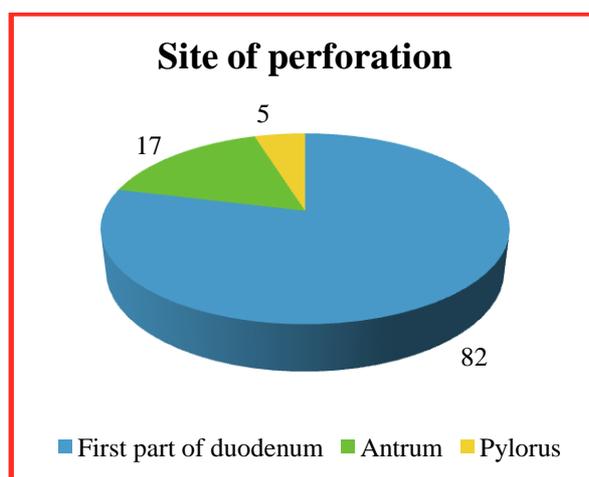
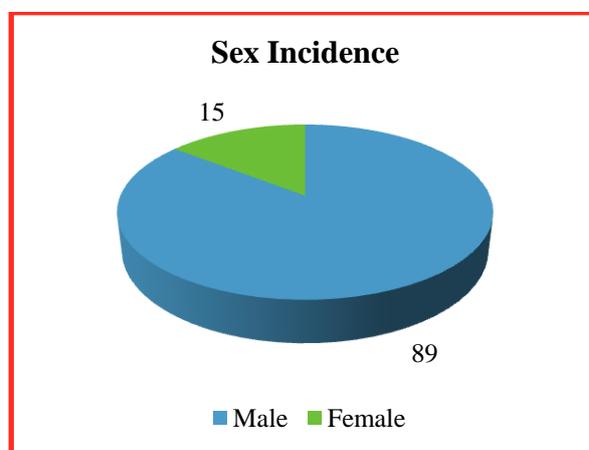
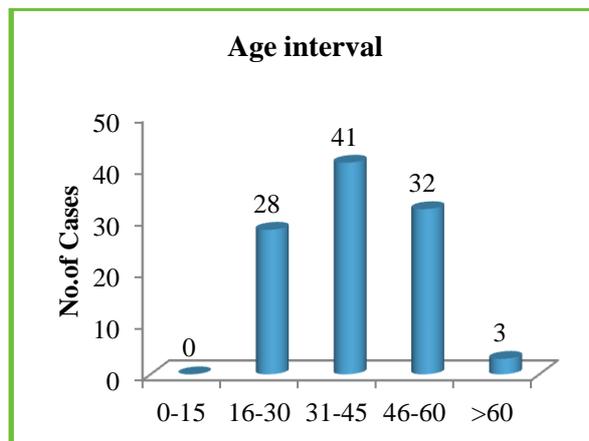
the perforation site. Non operative management is considered only for those who don't withstand the surgical stress and those who are not fit for anaesthesia.

Materials and Methods

All patients who are operated for perforated peptic ulcers in all the surgical units of Rajah Muthiah Medical College and Hospital between November 2015 and October 2017 are included in the study. Traumatic and Malignant perforations excluded. Once patients been received they were admitted and initial resuscitation done. All relevant history related to the peptic ulcer disease obtained and noted. Boey scoring system was applied and noted down in the case sheets. All relevant routine blood investigations and imaging studies for diagnosis were done. Also all mandatory investigations been taken for anaesthetic fitness and patient posted for emergency laparotomy. A proper well informed consent been obtained from the patients attenders and the risks of the surgery been explained. Under general anaesthesia laparotomies done with midline incision. Peritoneal cavity was cleaned with suction. Bowel survey done. Site of perforation then identified. The perforation site commonly found in the first part of duodenum and pylorus. Closure of the perforation were usually done with Graham's live omental patch and followed by thorough peritoneal lavage with normal saline. Intra peritoneal drain placement done. Wound closure done in layers. Postoperatively patients were shifted to postoperative wards and treated with intravenous fluids, antibiotics, analgesics and other supportive management. Oral diet started after return of bowel peristalsis and as tolerated. Drains were removed on 3rd or 4th postoperative day. A course of intravenous antibiotics were given. Patients were discharged after improving the general conditions and dietary advice been given and to stop smoking and alcohol. Suture removal done after 14 days. During the postoperative period patients been evaluated for morbidity and

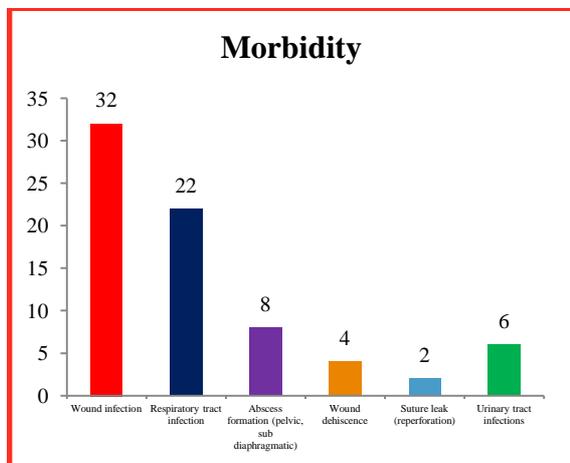
mortality and were assessed in relation to their preoperative Boey score.

Results



Boey score	No. of patients
0	12
1	62
2	25
3	5

Boey score	No. of patients expired	Mortality rate
0	0	0
1	3	5%
2	6	24%
3	2	40%



Boey score	No. of patients with morbidity	Morbidity rate
0	3	25%
1	22	35%
2	19	62%
3	3	100%

Boey score	Mortality rate	Morbidity rate
0	0%	25%
1	5%	35%
2	24%	62%
3	40%	100%

Discussion

Peptic ulcers are focal defects in the gastrointestinal tract that extend into the submucosa or deeper. They may be acute or chronic and, ultimately, are caused by an imbalance between mucosal defences and acid or peptic injury. Perforation of peptic ulcer occur in 2-10% of patients with PUD and this account for about 70% of deaths occurring due to PUD^[9].

The main etiological factors for the development of peptic ulcer disease are *H.pylori*^[10,11,12,15], NSAIDs usage^[20,21], Psychological stress, Cigarette smoking, Alcohol^[12], Prolonged fasting and Dietary habits.

Three clinical phases have been identified in the process of PPU^[22].

Phase 1: Chemical peritonitis.

Perforation leads to chemical peritonitis due to acid resulting in intense, diffuse abdominal pain.

Phase 2: Intermediate stage.

Occurs after a period of 7-10 hrs, patients obtain some amount of spontaneous relief of pain. This is because of dilution of irritating gastric contents by peritoneal exudative secretion.

Phase 3: Bacterial peritonitis.

After about 11-24 hrs infection supervenes and patients condition worsens.

Free air under diaphragm suggesting pneumoperitoneum is found about 70 to 80% of patients. After diagnosis patient been informed the prognosis and posted for emergency laparotomy.

The most simple of the scoring system is Boey scoring system^[1,2] which helps in risk stratification post operatively and the parameters includes,

- Delay in presentation (>24 hours)
- Pre operative shock (BP < 90 mmhg)
- Associated serious medical illness

With these scoring symptoms patients can stratified and prediction mortality and morbidity can be done.

A total of 104 patients were included in the study, out of which the lowest age was 16years and highest was 80. Mean age found to be 43.5years. Almost 90% of them were male patients as seen in many other studies.

89% of perforations found in the first part of duodenum, which is the most common site followed by pylorus and antrum.

All patients were stratified using Boey's score preoperatively which are compared with the surgical outcomes postoperatively. It is found that the prognosis worsens as the score increases^[1,2,3]. Out of all patients 11 patients expired and mortality is more with patients of higher score^[6,7]. Patients who received treatment within 6hrs have better prognosis. 5 patients had been positive for all three factors and 2 among them had expired because of the associated old age which contributed to poor prognosis.

It also holds true for complications and morbidity post operatively^[6]. It has been proved again and

again by numerous recent studies. The most common complication following surgery are wound infection, respiratory tract infections, abscess formation, urinary infections. There is almost cent percent chance for getting morbidity for patients with maximum scores.

There are a number of scoring systems available for predicting the outcome due to perforated peptic ulcer. Some of them are APACHE II, Mannheimer peritonitis index, PULP scoring and ASA scoring. they all have multiple parameters which are either difficult to doall or they are complex.

Advantages of Boey's scoring system:

- Three simple parameters
- Economical
- Bedside evaluation
- Can be repeated
- no expertise required

Data from the current study shows that the perforated peptic ulcersis life threatening emergency if many risk factors coexist with the presentation. Appropriate risk stratification is must to plan the management options.

Conclusion

Of all the scoring systems available, with the three simple clinical parameters, Boey's scoring system remains a useful and a reliable tool in predicting the postoperative outcomes.

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