

Original Article

Acute Perforated Peptic Ulcer at El Obeid Hospital, Western Sudan

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ABSTRACT

Background: The pattern of peptic ulcer disease and its complications has changed during the last two to three decades.

Objectives: To state the frequency of acute peptic ulcer perforations and outcomes of their management at El Obeid Hospital, Western Sudan.

Materials and Methods: This is an audit of patients with acute perforated peptic ulcer admitted to the emergency wards of the University Surgical Unit at El Obeid Teaching Hospital, Western Sudan during the period from January 2006 to December 2012.

Results: There were 53 patients, 94.3% were males. The age ranged between 18 and 77 years. Most of the patients reported late and 45.3% during Ramadan and Shawal. All patients had emergency peritoneal lavage and simple closure with omental patch followed by anti-ulcer therapy. The post-operative mortality was 7.6%.

Conclusions: Perforated peptic ulcer in this community was mainly duodenal. Emergency peritoneal lavage and simple closure with omental patch followed by anti-ulcer therapy resulted in excellent outcomes. Old age, shock, peritonitis and septicaemia were the major risk factors for mortality.

Key words: Perforated duodenal and gastric ulcers.

Each year peptic ulcer disease (PUD) affects four million people around the world. Complications are encountered in 10%-20% of these patients and 2%-14% of the ulcers will perforate¹. The wide use of medical treatment for PUD like H₂ receptor antagonists, proton pump inhibitors and Helicobacter pylori eradication, has changed the pattern and incidence rate of its complications². Patients with bleeding peptic ulcers and gastric out-let obstruction are less common, but cases of perforations are still frequently seen with increasing life threatening morbidity and mortality varying from 10%-40%^{1,2}. In this study we report our experience with this last complication in a rural fast developing community at Western Sudan.

MATERIALS AND METHODS:

We conducted a retrospective descriptive

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study of the records of patients who reported with peptic ulcer perforation among patients presenting to the University Surgical Unit at El Obeid Hospital, Western Sudan, during the period from January 2006 to December 2012. The information collected included data on age, gender, duration of symptoms, clinical features, relevant investigations, treatment, subsequent therapy and outcomes. The data were analyzed using SPSS PC packages version 17.

RESULTS:

There were 53 patients (50 males 94.3% and 3 females 5.7%) with a male to female ratio of 16.7:1. The age ranged between 18 and 77 year. The mean age was 40 years \pm S.D. 15.8. Sixteen patients were below 30 years of age (30.2%), 26 patients were between 31 and 50 years (49.0%), whereas 11 patients were more than 50 years old (20.8%).

Eight patients presented within one day (15%), ten patients within two days (18.9%), twelve patients within three days (22.6%) and 23 patients (43.4%) within more than three days from the start of their symptoms.

24 patients reported during Ramadan and Shawal (45.3%). History of dyspepsia was found in 26% of the patients, but no information about smoking or alcohol consumption could be traced.

Most of the patients had sharp epigastric pain with vomiting (96%) complicated with fever, abdominal distension and constipation in those who presented after the first day (85%). On examination 60.4% of the patients (32 cases) had acute abdomen, of which ten patients (18.9%) were in acute intestinal obstruction. Other three patients (5.7%) presented in shock. Most of the cases were due to perforated duodenal ulcers (96.2%), and only two were perforated gastric ulcers (3.8%).

All patients had emergency surgical operations after adequate resuscitation measures in the form of intravenous fluid therapy, intravenous antibiotics and nasogastric suction. They were offered exploratory laparotomy under general anaesthesia with endotracheal intubation and muscle relaxants. There were fifty one anterior duodenal ulcers within the first part and two gastric pre-pyloric ulcers. The procedures included peritoneal lavage and simple closure of the perforation with omental patch after Graham for duodenal ulcers. Broad spectrum antibiotics in the form of metronidazole and second generation cephalosporin were started on admission and continued intra and post-operatively together with anti-ulcer therapy (Amoxicillin 500 mgs TID, Metronidazole 400 mgs TID and Omeprazole 20 mgs BID) orally for two weeks.

One gastric ulcer was closed by simple stitches with omental patch, while the other patient underwent partial gastrectomy. Biopsies were taken from the two gastric ulcers but no histological evidence of malignancy was found.

The main complications (26.4%) were surgical site infection recorded in six patients, post-operative fever in twelve patients and septicaemia in nine patients. The post-operative mortality was four patients (7.6 %) who reported more than 48 hours. They were

a-60-year-old male with ugly gastric ulcer who died after a leak from partial gastrectomy. The other three patients were elderly with duodenal ulcers who presented in shock and all died short post-operatively with septicemia.

All the 49 survivors attended the surgical outpatient clinic after two weeks, forty patients were seen after four weeks, but only eleven patients were followed up for six months to one year after discharge.

DISCUSSION:

Perforated peptic ulcer is one of the most serious complications of PUD with high risk of morbidity and mortality³. Although it was reported that perforation is less frequent than bleeding, with an incidence of around seven to ten per 100 000¹⁻³, in our community perforations are more common and we do very rarely see bleeding peptic ulcer. However, the present data does not reflect the true incidence of perforations as eight cases were excluded due to deficiency in the records. Some patients were treated in other units or in private centres. As hospital treatment is becoming increasingly expensive some patients may rely on native remedies and possibly pass away before reaching modern medical attention at all.

The male dominance in this study (Male: female ratio 16.7:1) was also reported before²⁻⁴, probably related to life-style anxiety and tension commonly seen in males. Abu Farsakh reported that male gender is a risk factor for peptic ulcer perforation⁴. Perforations during Ramadan and Shawal accounted for 45.3% of cases. An increased incidence of perforation during Ramadan was reported from Khartoum (37.9%) and elsewhere⁶⁻⁸. That may also reflect on male dominance as men have to continue fasting the whole month while women are allowed few days of break during their menstrual periods⁷.

The mean age was 40 years and 79.2% of our patients were less than 50 years old i.e. of young or middle age similar to reports from developing countries^{4, 5}. In Khartoum 47.1% of the perforated peptic ulcer patients were

below 30 years compared to 30.2% in our series. Prevalence of perforated duodenal ulcer in young male was also reported before from different African communities⁹⁻¹². This is in sharp contrast to reports from western countries where the disease is more common in elderly patients often using anti-inflammatory drugs, alcohol or smoking¹³. In a similar finding to Khartoum study⁶, ingestion of non-steroidal anti-inflammatory or immunosuppressant drugs were not found to be an etiological factor in our patients.

The majority of our patients (95%) were not on regular anti-ulcer therapy and hence the effect of these drugs in reduction of perforations needs further assessment in future trials. Concomitant disease was present in six patients with no resultant effect on both morbidity and mortality. Frank history of dyspepsia could only be found in the records of 26% of the patients, without more information about its quality, its duration or previous management and hence no conclusions could be drawn as indicated in other series¹⁴. We believe that in our community and similar developing countries, PPU should be highly suspected in all patients elder than the second decade of life presenting to emergency rooms with acute abdomen, regardless of a definitive history of dyspepsia.

In our study, 92.1% perforations were found in the duodenum and 7.9% in the stomach, with a duodenal to gastric ulcer ratio of 25.5:1. A similar high duodenal to gastric ulcer ratio of 25: 1 was reported in Sudan before⁵, and a ratio of 17.7:1 in another recent report from Khartoum⁶. This observation is in agreement with similar data from neighboring African communities¹⁵.

Most of the patients presented late in 48 hours or more (85%), compared to 24% presenting within that duration in Khartoum⁶, because of the rural nature of our catchment area. Some of these patients presented to local health care units, but were misdiagnosed. The classical clinical presentation of sudden severe abdominal pain accompanied with signs of acute abdomen with rigid board-like rigidity

was found in 80% of patients, compared to 77.6% to 90% in other studies⁶. The demonstration of gas under the diaphragm on erect plain chest radiograph was positive in 48 patients (90.6) %, similar to the findings at Khartoum⁶ and in-line with the findings in other developing communities⁹⁻¹¹. We found real time ultrasound scan to be highly useful in demonstrating the perforation and assessment of intra-peritoneal soiling when performed by experienced personnel. Computerized tomography (C.T.) scan with oral contrast was described to be a superior investigation¹⁶, but its use at our set up in emergency situations was not feasible.

All patients had adequate resuscitation followed with open operative simple closure of the perforation with omental patch after Graham. Recent reports confirmed that such simple surgery is rapid, easy and associated with significantly less morbidity and mortality¹⁷. Emergency laparoscopic surgery or definitive traditional ulcer surgery in the form of truncal vagotomy and drainage were not practiced in our unit. The value of post-operative anti-ulcer therapy and complete eradication of *Helicobacter pylori* after simple closure of the perforation was documented in different series to prevent the risk of re-perforation¹⁸. Those findings were confirmed in controlled randomized trials¹⁹ and later evidenced in systematic reviews and meta-analysis²⁰.

The post-operative complications (26.4%) are comparable to other series^{14, 15}. The main complications were surgical site infection recorded in six patients, post-operative fever in twelve patients and septicaemia in nine patients. The post-operative mortality in our series was less than reported from Khartoum⁶ or other African countries¹⁴⁻¹⁶. The main identified risk factors were elderly age, late presentations, shock, generalized peritonitis and septicaemia were in-line with observations in neighboring communities¹⁴⁻¹⁶ and worldwide²¹⁻²⁴. Pre-operative risk scores like the Boey's risk score serve as a reasonable, simple and precise predictor for postoperative mortality and morbidity^{9, 22},

although they were not used in our patients. Obvious limitation of this study is its retrograde nature. The records of eight patients were deficient and they were discarded from the study group. Follow up data about the patients could only be granted for short periods ranging from six months to two years.

CONCLUSIONS

Perforated peptic ulcer in this community was mainly duodenal. Early diagnosis with prompt aggressive resuscitation, emergency peritoneal lavage and simple closure with omental patch followed by anti-ulcer therapy resulted in excellent outcomes. Elderly age, late presentations resulting in peritonitis and septic shock were the major risk factors for mortality.

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