

Prospective Study of Factors that Predict the Mortality and Morbidity in Perforated Gastroduodenal Ulcer in Tertiary Care Hospital North Karnataka

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ABSTRACT

BACKGROUND

With the introduction of H2 receptor antagonists and proton pump inhibitors, the incidence of elective surgery for peptic ulcer diseases have decreased, although complications of peptic ulcer such as perforation and bleeding have remained fairly constant.

AIMS AND OBJECTIVES

To identify the risk factors that predict the morbidity and mortality in perforated Gastro duodenal ulcer and to assess postoperative complications in patients with Gastro duodenal ulcer perforation.

MATERIALS AND METHODS

50 patients who underwent surgery (simple closure with omental patch) and laparoscopic closure for perforated Gastro duodenal ulcer admitted in S.Nijalingappa medical college and H.S.K Hospital, Bagalkot were studied from December 2011 to June 2013 were included in the study group. The following factors were analyzed in terms of morbidity and mortality: age, gender, associated medical illness, chronic ingestion of NSAIDs, alcohol ingestion and smoking habits, pre operative shock, delay in surgery (>24 hours), site and size of ulcer perforation and type of peritoneal contamination. Postoperative complications like wound infection, wound dehiscence, intra-abdominal abscess pleural effusion, septicemia, respiratory infections and renal failure were assessed.

RESULTS

There were 47 male and 3 female patients. Smoking (52%) and alcohol consumption (48%) were risk factors in causation of Gastro duodenal ulcer perforation. There were 47 duodenal and 3 gastric ulcer perforations. Laparotomy and simple closure of perforation with omental patch was performed in 43 patients and laparoscopic closure in 7 patients. A total of 51 postoperative

complications were present in 27 (48.3%) patients. Age \geq 65 years, associated medical illness, prolonged use of corticosteroids, duration of perforation of more than 24 hours, were statistically significant in determining postoperative complications.

CONCLUSION

Gastro duodenal ulcer perforation is a frequent cause of acute abdomen in south India. Patient's age 65 years and more, associated medical illness, prolonged use of drugs like NSAIDs or Corticosteroids, duration of perforation of more than 24 hours before surgery, presence of pre-operative shock on admission, size of ulcer perforation and purulent peritoneal contamination are factors significantly associated with fatal outcomes in patients undergoing emergency surgery for perforated peptic ulcer. Therefore, proper resuscitation from shock and decreasing delay in surgery is needed to improve overall results.

Keywords

Gastro duodenal ulcer perforation, Duration of perforation, peritoneal contamination; omental patch.

INTRODUCTION

Peptic ulcers are focal defects in the gastric or duodenal mucosa that extend into the submucosa or deeper. Most commonly, ulcers occur in the duodenum and stomach, but they may also occur in the esophagus, in the small intestine etc.

This illness affects nearly 10% of people in India. It is commonly found in young people and has been said to be associated with "hurry, worry and curry as stress factors.

However recent research has shown that the most important factor is the presence Helicobacter pylori. This bacterium enters the stomach by the oral route and is usually acquired at a young age.

The organism may be present in about 40 % of healthy people but transformation into disease like peptic ulcer and stomach cancer occurs only in few cases.

The complications of peptic ulcer include perforation, haemorrhage, and pyloric stenosis. Perforation of duodenal peptic ulcer is a common surgical emergency. There is decline in incidence of elective surgery for peptic ulcers, which is attributed to the era of H2 blockers and proton pump inhibitors, which provides symptomatic relief to patient, but the percentage of patients with perforation of peptic ulcer has not declined, probably due to increased inadvertent use of NSAIDs, corticosteroids and because of irregular use of medications for peptic ulcer (H2 antagonist drugs, PPI etc).

Among abdominal emergencies, perforations of peptic ulcer are the third most common other than acute appendicitis and acute intestinal obstruction. Prompt recognition by early diagnosis and treatment to reduce the mortality.

The treatment of perforation still continues to be controversial. Just closure of perforation may save life but chance of recurrence of ulcer is too high and patient may not turn up for a second curative surgery.

In spite of better understanding of the disease, effective resuscitation and prompt surgery under modern anaesthesia techniques, still there is high morbidity (36%) and mortality (6%). Hence, attempt has been made to analyze the various factors, which are affecting the morbidity/mortality of patients with peptic ulcer perforations.

Objectives

- The pre-operative factors like age, sex, pre-operative shock, delay in treatment and associated concurrent diseases like chronic obstructive pulmonary disease, cardiovascular disease, impaired liver function, renal diseases, diabetes mellitus and hypertension.
- The operative findings like site and size of ulcer perforation and grades of peritoneal contamination.
- The post operative complications like wound infection, wound dehiscence, paralytic ileus, residual abscess, pneumonia, pleural effusion, respiratory failure, renal failure, cardiac failure, septicemia and multi-organ failure.

METHODOLOGY

This is a prospective study of 50 cases operated for gastroduodenal ulcer perforation admitted to S.Nijalingappa medical college and H.S.K Hospital Bagalkot, from December 2011 to June 2013.

Inclusion Criteria

1. Patients with Gastroduodenal ulcer perforation of age > 15 years.
2. Patients with duodenal or gastric perforation of peptic ulcer origin.
3. Patients who will underwent simple closure with omental patch as a standard operative procedure or Laparoscopic closure of perforation.

Exclusion Criteria

1. Ulcers due to trauma, malignancy, iatrogenic and recurrent perforation.

Immediate resuscitation was done with nasogastric suction, intravenous fluids, antibiotics, and urine output monitoring. Patients of peptic ulcer perforation were operated as simple closure with omental patch or laparoscopic closure of perforation. Gastric biopsy was done to rule out perforations due to malignancy of stomach.

Patients were followed up every day monitoring in the immediate post-operative period. Due attention was paid to note the development of any complication.

Postoperative complications like wound infection, wound dehiscence, leak from closed perforation site, pleural effusion, paralytic ileus, septicemia, residual intra-abdominal abscess, fistula, septicemia, respiratory infections and renal failure were assessed.

After improvement, patients were discharged and regular follow-up at 1 month, 3 months and 6 months. A detailed structured proforma was used to collect this information.

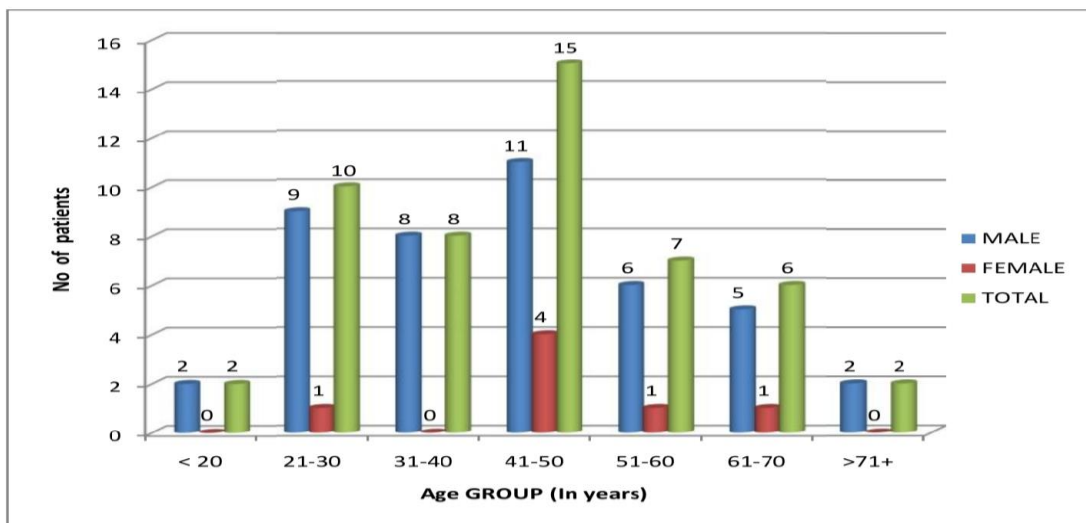
OBSERVATIONS AND RESULTS

Age (Years)	Males		Females		Total	
	No.	%	No.	%	No.	%
<20	2	4.7%	0	0	2	4%
21-30	9	20.9%	1	14.3	10	20%
31-40	8	18.6%	0	0.0	8	16%
41-50	11	25.6%	4	57.1%	15	30%
51-60	6	14.%	1	14.3	7	14%
61-70	5	11.6%	1	14.3	6	12%
>71+	2	4.7 %	0	0.0	2	4%
Total	43	100.0	7	100.0	50	100.0
Mean+/-SD	44.65+/-15..62		49.29+/-12.4		44.4+/-15.9	

Table 1: The age and sex incidence in patients with gastro duodenal ulcer perforation

Perforation was more common in males compared to females, the ratio being 7:1. Out of 50 cases 43 were males. The mean age (SD) of the patients was 44.65 (15.62) years. The mean ages (SD) were, for males 49.29 years and for females 44.4 years.

The highest incidence was observed in Fifth decade of life. The youngest patient was 18 years old and oldest was 80 years old.



Graph 1: The Age and Sex incidence in patients with gastro duodenal ulcer

Age related morbidity and mortality in patients with GDUP

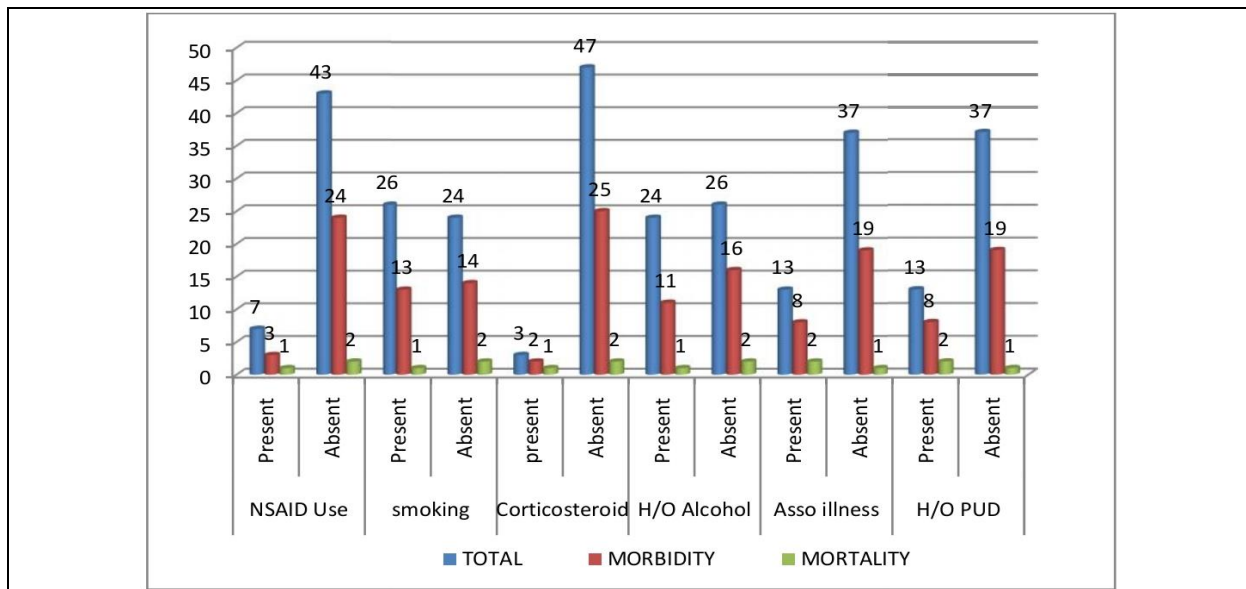
Age group (in years)	No. of cases	Good Recovery	Morbidity	Mortality
< 20	2	1	1	0
21 – 30	10	5	5	0
31 – 40	8	3	5	0
41 - 50	15	7	6	2
51 – 60	7	1	5	1
61 -70	6	3	3	0
>71+	2	0	2	0

Table 2: Showing Age related morbidity and mortality in patients with GDUP

Morbidity is increased in age group of > 71+ it is 100%, this shows morbidity increases as the age advances. 2 patients expired in the age group of 41-50.

History of use of NSAIDs, Smoking, Alcohol, Associated illnesses and GDUP

Graph 2: History of use of NSAIDs, Smoking, Alcohol, Associated illnesses and PUD predicting the morbidity and mortality in patients with GDUP



Graph 2: History of use of NSAIDs, Smoking, Alcohol, Associated illnesses and GDUP

In this study 7 (14%) patients had history of regular ingestion of NSAIDs and 3(6%) patients had history of ingestion of corticosteroid. History of regular smoking was present in 26

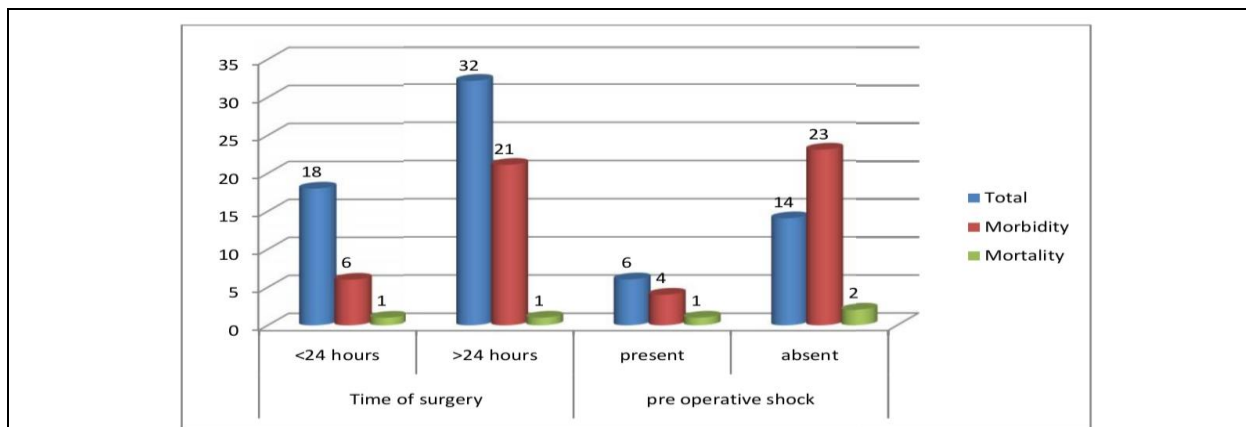
(52%) patients, 20 patients developed postoperative complications and 2 patients expired in postoperative period. History of regular alcohol consumption was present in 24 (48%) patients, 11 patients developed postoperative complications and 1 patient expired in postoperative period.

A previous history of dyspepsia or peptic ulcer symptoms was present in 13(15%) out of 50 patients. 13 (26%) patients had associated comorbid conditions, Hypertension was present in 6 patients, COPD was present in 3 patients, 2 patients were known asthmatic, 1 patient was diabetic, 1 patient had Ischemic Heart Disease (IHD), and 8(61.5%) patients developed postoperative complications and 2 patient expired in postoperative period.

Time of surgery, Shock on admission

Parameter		Total	Morbidity	Mortality
Time of surgery	24 hrs	18	6	1
	>24 hrs	32	21	2
Pre-operative Shock	Present	6	4	1
	Absent	44	23	2

Table 3: Time of surgery, Shock on admission, predicting the morbidity and mortality in patients with GDUP



Graph 3: Time of surgery, Shock on admission predicting the mortality & morbidity

32 (64%) patients underwent surgery after 24 hours of perforation, the rest were seen before 24 hours. 21 (65.6%) patients who underwent surgery after 24 hours developed postoperative complications and 2 (66%) patients expired. At the time of admission, shock (systolic BP less than 100) was present in 6 (12%) patients. 4 (66.6%) patients developed postoperative complications and 1(16.6%) patients expired in postoperative period.

Site of perforation and Type of peritoneal collection affecting morbidity and mortality in patients with GDUP

Grades of Peritoneal Contamination	Grades	Total no of patients	Morbidity	Mortality
	0	1	1	0
	1	20	11	1
	2	22	9	1
	3	5	5	0
	4	2	1	1

Table 4: Type of peritoneal contamination predicting the morbidity and mortality in patients with GDUP

Site	Total	Morbidity	Mortality
Duodenal	47	25	3
Gastric	3	2	0

Table 5: Site of Perforation predicting the morbidity and mortality in patients with GDUP

47(94%) patients had duodenal perforation and 3 (6%) patients had gastric perforation. On exploration, 20 (40%) of the patients had grade 1 peritoneal contamination, 22(44%) had grade 2 peritoneal contamination, 5(10%) had grade3 peritoneal contamination 2(4%) had grade 4 peritoneal contamination. 43 patients underwent exploratory laparotomy with simple omental patch closure of the perforation and good peritoneal wash. Rest of the 7 patients underwent laparoscopic closure of perforation with good peritoneal wash.

Size of perforation predicting mortality and morbidity

In 18(36%) patients the size of perforation was < 0.5 cm in which 9(50%) patients developed post operative complications. In 28 patients the size of perforation was 0.6-1 cm in which 15(54%) patients developed post operative complications and 3 died. In 4(8%) patients the size of perforation was >1 cm in which 3(75%) patients developed post operative complications

Size of perforation	Total no of patients	Morbidity	Mortality
< 0.5 cm	18	9	0
0.6-1cm	28	15	3
>1cm	04	3	0

Table 6: Showing Size of perforation predicting the mortality

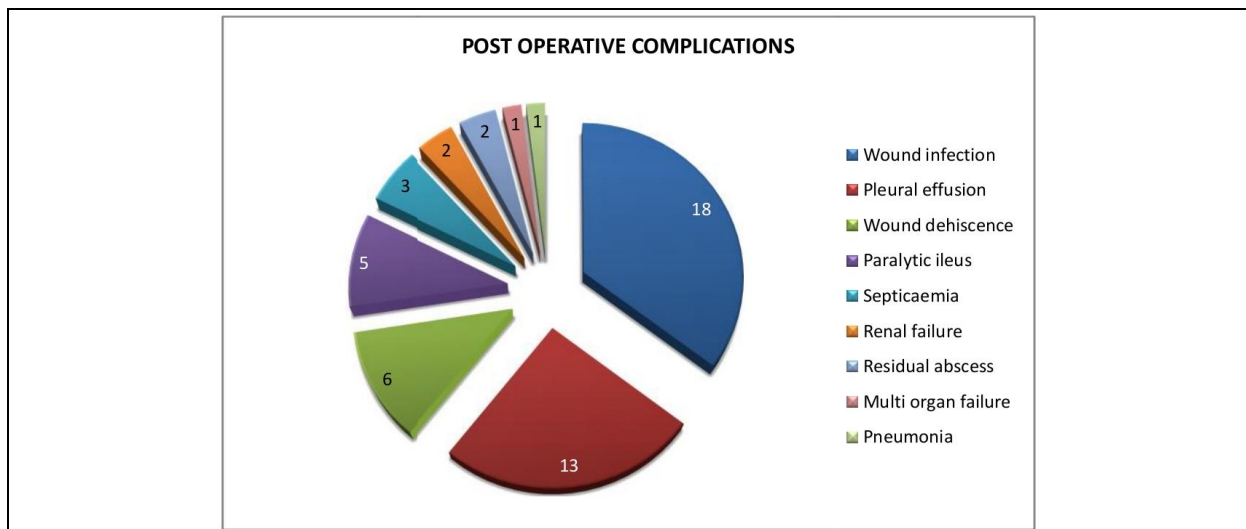
Type of surgery predicting mortality and morbidity

43(86%) patients underwent open exploratory laparotomy and closure of perforation with omental patch out of which 26(60%) developed post operative complications and 7% mortality. 7(14%) patients underwent laparoscopic closure of perforation in which 1(14%) developed post operative complications and there was no mortality.

Postoperative complications

27(54%) patients had postoperative complications. Most common was wound infection 18(36%) patients followed by pleural effusion in 13 patients (26%), 6 patients had wound dehiscence in which tension suturing was done, 5 patients had prolonged paralytic ileus, 3 patients had septicemia, 2 had renal failure, 2 had residual abscess in which USG guided aspiration was performed, one developed pneumonia and 1 developed multi organ failure and recovered with mechanical ventilation and conservative management.

3 patients were expired, 2 females and 1 male and all were aged above 50 years. All 3 patients had undergone surgery after 24 hours from the time of onset of symptoms. One patient was a known case of hypertension and on regular course of corticosteroid for rheumatoid arthritis. 2 patients were known cases of peptic ulcer disease and developed septicemia and multi organ failure in post operative period.



Graph 4: Various factors predicting the morbidity in patients with GDUP

In the analysis of 50 patients, age 65 years and more (p-value 0.04) are statistically significant predictors of morbidity.

Parameter		No.	Morbidity	%	P-Value
Sex	Males	43	24	55.8%	0.26
	Females	7	3	42.8%	
Age	<65 yrs	47	24	51.06%	0.04
	65 yrs	3	3	100%	
Drug (NSAID)	Present	7	3	42.8%	0.26
	Absent	43	24	55.8%	
Corticosteroid	present	3	2	66.6%	0.32
	absent	47	25	53.4%	
H/O Smoking	Present	26	13	50%	0.27
	Absent	24	14	58.3%	
H/O Alcohol	Present	24	11	45.8%	0.13
	Absent	26	16	61.5%	
Associated Illness	Present	13	8	61.5%	0.26
	Absent	37	19	51.3%	
Time of surgery	24 hrs	18	6	33.3%	0.06
	>24 hrs	32	21	65.6%	
Preoperative-Shock	Present	6	4	66.6%	0.25
	Absent	44	23	52.7%	
H/O PUD	Present	13	8	61.5	0.13
	Absent	37	19	51.4	
Hb	<11	15	10	66.6	0.09
	>11	35	17	48.5	
Site	Duodenal	47	25	53.19	0.85
	Gastric	3	2	66.6	

Table 7: Various factors predicting the mortality in patients with GDUP

In the analysis of 50 patients, factor viz. male and female ratio, patient with associated illness and patients on corticosteroid (p-value <0.05) was statistically significant predictor of mortality.

Parameter		No.	Mortality	%	P-Value
Sex	Males	43	1	2.32%	0.0006
	Females	7	2	28.57%	
Age	<65 yrs	47	3	6.38%	0.65
	65 yrs	3	0	0	
NSAIDs use	present	7	1	14.2%	0.15
	absent	43	2	4.65%	
Corticosteroids use	Present	3	1	33.3%	0.01
	Absent	47	2	4.25%	
H/O Smoking	Present	26	1	3.84%	0.25
	Absent	24	2	8.33%	
H/O Alcohol	Present	24	1	4.16%	0.30
	Absent	26	2	7.69%	
Associated Illness	Present	13	2	15.38%	0.04
	Absent	37	1	2.70%	
Time of surgery	24 hrs	18	6	5.5%	0.06
	>24 hrs	32	21	6.25%	
Shock	Present	6	1	16.6%	0.12
	Absent	44	2	4.54%	
H/O PUD	Present	13	8	5.38%	0.13
	Absent	37	19	2.7%	
Hb	<11	15	2	13.3%	0.09
	>11	35	1	2.85%	
Peritoneal Collection	Grade 0	1	0	0	0.07
	Grade 1	20	1	33.3%	
	Grade 2	22	1	33.3%	
	Grade 3	5	0	0	
	Grade 4	2	1	33.3%	
Site	Duodenal	47	3	6.38	0.85
	Gastric	3	0	0	

Table 8: Various factors predicting the mortality in patients with GDUP

DISCUSSION

Peptic ulcer perforation is one of the commonest surgical emergencies. Although incidence of surgery for peptic ulcer diseases has reduced drastically with advent of H2 receptor antagonist and proton pump inhibitors, but surgery for perforation has not changed.

Age Incidence

Peptic ulcer perforation is common in second and third decade. Mean age of patients with peptic ulcer perforation in study by Kocer et al. (2007)¹ was 43 years and in the study by J. C. Dakubo et al. (2009)² it was 41 years. However Sharma et al.(2006)³ another Indian study showed mean age of 33 years. Study by Irvin (1989)⁴ showed older age group patients (mean age 70 years) were commonly affected.

Present study matches with studies by Kocer et al. (2007) and J. C. Dakubo et al. (2009). Peptic ulcer perforation was common in the age group of 30-50 years with mean age 46 years in our study. But age is no bar for perforation to occur. It has also been reported in 4 years old child (Bhattacharya, 1969).⁵

Sex Incidence

In study by Testini et al. (2003)⁶ ratio was 2.9:1 and that in study by Sharma et al. (2006)³ was 18.2:1. Present study matches with J. Boey et al. (1982)⁷ with ratio of 6.6:1. In our study 62% were males and 38% were females, and the male-female ratio being 6.2:1.

History of use of NSAIDs, Smoking and alcohol consumption

In a study by Kocer et al. in 2007,¹ 8.9% patients had history of regular ingestion of NSAIDs whereas in study by J. C. Dakubo² et al. in 2009, it was 36.2%. In our study 14% patients were chronic NSAIDs users.

In a study by Kocer et al. in 2007, 73.2% patients had history of regular smoking whereas in study by J. C. Dakubo in 2009, it was 12.6%. In our study 52% patients were chronic smokers. In a study by Kocer et al. in 2007, 12.3% patients had history of regular alcohol consumption whereas in study by J. C. Dakubo in 2009, it was 48.8%. In our study 48% patients were chronic alcoholics.

In study by J. C. Dakubo et al. in 2009, peptic ulcer perforation was common in younger male patients with low socio-economic status. According to them, males are confronted with stressful life activities and there is an increase in alcohol consumption among the youth. Alcohol intake was statistically significant in predicting postoperative complications and mortality.

Even in our study also, peptic ulcer perforation was common in younger male patients in age group of 30-50 years. This may be due to high population of people having spicy food and increase in smoking and alcohol consumption among them as a result of urban life style. In our study smoking and alcohol consumption were important risk factors in peptic ulcer perforation but these factors did not affect postoperative morbidity and mortality.

Morbidity and Mortality in different Age Groups

Study	Parameter		Age of patients	
			< 65 yrs	65 yrs
Kocer et al. (2007)	No. of patients		216	53
	Morbidity	No.	35	30
		%	16.2	56.6
	Mortality	No.	3	20
		%	1.4	37.7
J. C. Dakubo et al. (2009)*	No. of patients		220	34
	Morbidity	No.	55	7
		%	25.0	20.6
	Mortality	No.	15	9
		%	6.8	26.5
Present study	No. of patients		47	3
	Morbidity	No.	24	3
		%	51	100
	Mortality	No.	3	0
		%	6.8	0

* Age > 60 years

Table 9: Morbidity and mortality in patients with GDUP in different age groups

In study by Kocer et al. in 2007, patients older than 65 years had a higher morbidity rate (56.6% vs 16.2%) and mortality rate (37.7% vs 1.4%) when compared to younger patients.

In study by J. C. Dakubo et al. in 2009, patients older than 60 years had a higher mortality rate (26.5% vs 6.8%) when compared to younger patients. Factors like age above 60 years, excessive alcohol intake were statistically significant in predicting postoperative complications and/or mortality in their study. In our study, patients older than 65 years had a higher morbidity rate (100% vs 51%). Hence age 65 years and more is statistically significant in predicting postoperative morbidity and mortality in our study. Factors like age above 60 years, excessive alcohol intake were statistically significant in predicting postoperative complications and/or mortality in our study.

Type of Peritoneal Contamination

On exploration, 20 (40%) of the patients had grade 1 peritoneal contamination, 22 (44%) had grade 2 peritoneal contamination, 5(10%) had grade 3 peritoneal contamination 2 (4%) had grade 4 peritoneal contamination. All patients were treated surgically by simple omental patch closure of the perforation and good peritoneal wash was given.

In our study 58% patients had purulent peritoneal collection and 42% patients had bilious peritoneal collection. 52.2% of patients with purulent peritoneal collection developed postoperative complications and out of 3 patients 2 patients expired who had purulent peritoneal contamination. Wound infection was common postoperative complications in patients with purulent peritoneal collection.

The morbidity percentages are compared with other studies (Goudar et al)⁸ in which grade 3 and 4 shows 26% morbidity due to purulent peritoneal contamination.

In our study grade 3 and grade 4 peritoneal contamination shows 100% and 50% morbidity. This concludes patient with purulent peritoneal contamination morbidity will be increased.

Site of Perforation

In our study morbidity is 53% in case of duodenal perforation when the perforation is present in the first part of the duodenum and 66% in case of gastric perforation. Morbidity in case of patients with gastric and duodenal perforations are compared with study conducted by Noguiera et al⁹ and Eduardo et al.¹⁰ Study conducted by Noguiera et al shows morbidity is 60% in case of duodenal perforation and 42% in case of gastric perforation. Study conducted by Eduardo et al shows morbidity is 24.6% in case of duodenal perforation and 38% in case of gastric perforation. In our study mortality is 6.8% in case of duodenal perforation and 0% in gastric perforation when the perforation is present in the first part of the duodenum. Study conducted by to Eduardo et al 62 shows mortality 19% in patients with duodenal perforation and 17.6% in gastric perforation. Study conducted by Noguiera et al shows mortality 13.2% in patients with duodenal perforation and 10.6% in gastric perforation. Mortality is less in our sturation dy as compared to Eduardo et al and Noguiera et al studies and gastric perforation has less mortality compared to duodenal.

Size of Perforation

Morbidity is increased as the size of perforation increases. In our study patients with size of perforation is <0.5 cm morbidity was 50%, in the size of between 0.5-1 cm morbidity was 54% and if the > 1cm it was 75%. In the study perforation conducted by Kocer et al¹ morbidity was 71% in patients with size of perforation <0.5 cm, 21.9% in patient with size of perforation 0.5-1cm and 7.1% size is more than 1 cm. Our study shows increased morbidity directly proportional to increase in size of perforation.

Type of Surgery

In open surgery morbidity is more compared to laparoscopic surgery , study conducted by Svanes et al¹¹ shows morbidity in patients who underwent open surgery as 44% and by laparoscopic surgery as 8%. In our study also morbidity was more in open surgery like 60% in open surgery compared to laparoscopic surgery 14%.

Risk factors predicting morbidity and mortality in GDUP

According to study by Testini et al⁶ in 2003, age above 65 years, one or more associated medical diseases, shock on admission, delayed abdominal surgery, postoperative abdominal complications and/or wound infections, were significantly associated with increased mortality in patients undergoing surgery. According to study by Kocer et al in 2007, age, delayed surgery, presence of shock and definitive surgery are factors significantly associated with fatal outcomes in patients undergoing emergency surgery for perforated peptic ulcer.¹

According to study by J. C. Dakubo et al. in 2009, age 60 years and above, duration of perforation for more than 24 hours before admission, alcohol intake and resectional surgery were statistical significance in predicting post-operative morbidity and/or mortality.² In our study, age

65 years and more, associated medical illness, use of corticosteroid, presence of shock on admission, type of surgery were statistically significant predictors of morbidity and/or mortality.

Postoperative complications in patients with gastro duodenal ulcer perforation

In study by Testini et al. in 2003, wound infection (16.7%) was commonest complication followed by respiratory infections (14.6%) and septicemia (14.6%). Patients developing postoperative abdominal complications i.e. abscesses and wound infections, the mortality rate was significantly higher than those without abdominal complications.⁶

According to study by Kocer et al. in 2007, a total 108 postoperative complications were seen in 65 (24.2%) patients. Respiratory failure (37.04%) was commonest complication followed by wound infections (18.52%), renal failure (9.25%) and sepsis (8.34%). A total of 23 patients died (8.5%). The most frequent causes of death were myocardial failure and sepsis.¹

According to study by J. C. Dakubo et al. in 2009, seventy three (27.7%) patients developed postoperative complications. Chest infection, septicaemia, and abdominal wound infection were the most common complications followed by leakage of the closed perforation and intra abdominal sepsis. There were 36 (11%) deaths.²

In our study, a total of 51 postoperative complications were seen in 27(48.3%) patients. Most common complication was wound infection (36%) followed by pleural effusion (26%), wound dehiscence (12%), paralytic ileus (10%), septicemia (6%), renal failure (4%), residual abscess (4%) and pneumonia 2%. Number of postoperative deaths were 3(6%).

In patients with wound infection in postoperative period, intra-abdominal abscess should be ruled out which may lead to septicemia and death.

CONCLUSION

Perforated gastro duodenal ulcer disease is emerging as a frequent cause of acute abdomen in south India. The perforation is common in the age group of 30-50 years. It is more common in males. Age more than 65 years, associated medical illness, prolonged use of drugs like NSAIDs or corticosteroids, the duration of perforation more than 24 hours and presence of shock on admission, size of perforation, patients with purulent peritoneal contamination (grade III or grade IV) and type of surgery is associated with increased morbidity and mortality in patients with gastro duodenal ulcer perforation. Early diagnosis and prompt management of shock and septicemia is important for better prognosis of patients.

Morbidity rate in our study is 48.3% and mortality rate is 5%. Age more than 65 years, Male: Female ratio, associated medical illness, prolonged use of drugs like NSAIDs or corticosteroids, type of surgery, are the factors which are statistically significant and are associated with fatal outcomes in patients undergoing emergency surgery for perforated peptic ulcer. Therefore, proper resuscitation from shock, improving and decreasing delay in surgery is needed to improve overall results

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