

Research Article

Clinical Outcomes of Conservative versus Surgical Treatment in Patients with Complicated Peptic Ulcer Disease

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ABSTRACT

Background: Some people with peptic ulcer disease improve with medicines and supportive care, while others need surgery because of severe complications. So, it is important to choose the correct treatment at the right.

Objective: Comparing the outcomes of conservative and surgical treatment in complicated peptic ulcer disease patients.

Methodology: This comparative observational study was carried out at Khyber Medical University Kohat from July 2025 to December 2025. A total of 120 patients were divided into conservative treatment group and surgical treatment group. Demographic details, laboratory findings, type of complication, hospital stay, ICU admission, recurrence, postoperative complications, and mortality were recorded. Data analysis was done using SPSS version 26. Independent sample t-test and chi-square test were applied. A p-value below 0.05 was taken as significant.

Results: The mean age of patients was 46.8 ± 13.5 years. Perforated ulcer was more frequent in the surgical group, while bleeding ulcer was commonly managed conservatively. Mean hospital stay was lower in the conservative group (5.8 ± 2.3 days) compared to the surgical group (9.4 ± 3.6 days). ICU admission was observed in 25.8% surgical patients and 12.1% conservative patients. Recurrence was higher in conservative treatment patients (22.4%), whereas wound infection was more common after surgery (17.7%). Mortality did not show significant difference between both groups.

Conclusion: Conservative treatment was associated with shorter hospital stay and fewer procedure-related complications. Surgical treatment gave better disease control in severe cases, especially perforation. Careful patient selection can improve treatment outcome.

Keywords: Peptic Ulcer Disease, Conservative Management, Surgical Treatment, Perforation, Clinical Outcome.

INTRODUCTION

Peptic ulcer disease is one of the common gastrointestinal problems seen in daily clinical practice [1]. It occurs when the lining of the stomach or duodenum gets damaged because of acid and pepsin activity [2]. Helicobacter pylori infection and prolonged use of non-

steroidal anti-inflammatory drugs are considered major causes of this disease. While, smoking, stress, alcohol use, and irregular medicine intake are among the major risk factors [3]. Although treatment facilities have improved, complicated peptic ulcer disease is still frequently reported.

Bleeding is among the common complications of this disease, while perforation is considered the most dangerous [4]. Delayed presentation often increases the risk of severe infection, emergency surgery, prolonged hospital stays, and mortality [5]. Conservative treatment of this disease usually includes intravenous fluids, proton pump inhibitors, antibiotics, nasogastric tube placement, and close monitoring [6]. Endoscopic procedures are commonly used in bleeding ulcers [7]. Surgical treatment is mainly reserved for perforation, failed medical treatment, uncontrolled bleeding, generalized peritonitis, or unstable patients [8]. Recent studies have shown that selected stable patients may recover successfully with conservative management, while severe cases still require surgical intervention [9] [10].

Several international studies have compared outcomes of conservative and surgical treatment in complicated peptic ulcer disease. Some studies reported shorter hospital stay and fewer procedure-related complications with conservative treatment [11] [12]. On the other hand, surgery provides better definitive control in severe disease, especially perforated ulcers. However, postoperative complications and ICU admissions may increase after emergency surgery [13] [14].

In Pakistan, limited local studies are available regarding comparison of these two treatment approaches. Most available studies focus only on one type of complication or one treatment option. Therefore, this study was conducted to compare the clinical outcomes of conservative and surgical treatment in patients with complicated peptic ulcer disease. The results may help surgeons in selecting suitable management according to patient condition and disease severity.

METHODOLOGY

This hospital-based comparative observational study was conducted at Khyber Medical University-Institute of Medical Sciences, DHQ Teaching Hospital KDA Kohat, Pakistan, over a period of six months from July 2025 to December 2025. The study was designed and reported according to the STROBE guidelines for observational studies [15]. Ethical approval was obtained from the Institutional Research and Ethics Committee of KIMS DHQ Teaching Hospital Kohat under reference number KIMS/ERC/2025/GS-147. Written informed consent was taken from all patients or their attendants before enrollment.

A total sample size of 120 patients was calculated using OpenEpi software by taking 95% confidence level, 80% study power, and expected difference in complication rate between conservative and surgical treatment groups from previous published studies. Patients were selected through non-probability consecutive sampling. Adult patients aged 18 to 70 years diagnosed with complicated peptic ulcer disease, including perforation, gastric outlet obstruction, or bleeding ulcer confirmed on clinical examination, laboratory findings, upper gastrointestinal endoscopy, or imaging studies, were included in the study. Patients with malignant ulcers, severe liver disease, end-stage renal disease, previous gastric surgery, traumatic perforation, pregnancy, or incomplete medical records were excluded.

Patients were divided into two groups according to the treatment decided by the treating surgical team. The conservative treatment group received intravenous fluids, proton pump inhibitors, nasogastric decompression, antibiotics, blood transfusion if needed, and close monitoring. The surgical treatment group underwent operative management according to the disease severity and surgeon preference. Baseline variables including age, gender, smoking history, diabetes, hypertension, NSAID use, duration of symptoms, type of complication, hemoglobin level, white blood cell count, and duration of hospital stay were recorded on a structured proforma.

The primary outcome was clinical recovery without major complication. Secondary outcomes included postoperative complications, mortality, need for ICU admission, duration of hospital stay, and recurrence during follow-up. Confounding factors such as age, comorbidities, smoking, and severity of disease were controlled by stratification during analysis. Patients with missing important clinical information were excluded from final analysis. Data were entered and analyzed using SPSS version 26. Quantitative variables were presented as mean and standard deviation, while qualitative variables were presented as frequency and percentage. Independent sample t-test was used for comparison of continuous variables and chi-square test was applied for categorical variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 120 patients with complicated peptic ulcer disease were included in the study. Among

them, 58 (48.3%) patients were managed conservatively while 62 (51.7%) underwent surgical treatment. The overall mean age of the patients was 46.8 ± 13.5 years. Most patients were male. Baseline demographic and clinical

characteristics of both groups are shown in Table 1. No significant difference was observed between the two groups regarding age, gender, smoking status, diabetes, hypertension, or NSAID use ($p > 0.05$).

Table 1: Baseline Demographic and Clinical Characteristics of Study Participants

Variables	Conservative Group (n=58)	Surgical Group (n=62)	p-value
Age (years), Mean $\pm$ SD	45.7 $\pm$ 12.9	47.9 $\pm$ 14.1	0.381
Male Gender, n (%)	39 (67.2%)	44 (71.0%)	0.648
Smokers, n (%)	24 (41.4%)	30 (48.4%)	0.441
Diabetes Mellitus, n (%)	12 (20.7%)	15 (24.2%)	0.651
Hypertension, n (%)	14 (24.1%)	17 (27.4%)	0.683
NSAID Use, n (%)	19 (32.8%)	25 (40.3%)	0.392
Duration of Symptoms (days), Mean $\pm$ SD	3.4 $\pm$ 1.2	4.1 $\pm$ 1.5	0.006
Hemoglobin (g/dL), Mean $\pm$ SD	10.8 $\pm$ 1.9	10.1 $\pm$ 2.1	0.058
White Blood Cell Count ($\times 10^9/L$), Mean $\pm$ SD	11.6 $\pm$ 3.1	13.4 $\pm$ 3.8	0.004

Perforation was the most common complication in the surgical group while bleeding ulcers were more frequent in the conservative group. Gastric outlet obstruction was observed in both

groups with no significant difference. Distribution of disease complications is shown in Table 2.

Table 2: Distribution of Complicated Peptic Ulcer Disease among Study Groups

Type of Complication	Conservative Group (n=58)	Surgical Group (n=62)	p-value
Bleeding Ulcer, n (%)	29 (50.0%)	18 (29.0%)	0.018
Perforated Ulcer, n (%)	15 (25.9%)	32 (51.6%)	0.004
Gastric Outlet Obstruction, n (%)	14 (24.1%)	12 (19.4%)	0.528

Clinical outcomes were compared between both treatment groups. Patients managed conservatively had shorter hospital stay and lower ICU admission rate. However, recurrence was higher in the conservative group. Surgical

treatment showed better definitive recovery but higher postoperative complications. Mortality was slightly higher in the surgical group but the difference was not statistically significant (Table 3).

Table 3: Comparison of Clinical Outcomes between Conservative and Surgical Treatment Groups

Clinical Outcomes	Conservative Group (n=58)	Surgical Group (n=62)	p-value
Clinical Recovery Without Major Complication, n (%)	42 (72.4%)	53 (85.5%)	0.078
ICU Admission, n (%)	7 (12.1%)	16 (25.8%)	0.049
Hospital Stay (days), Mean $\pm$ SD	5.8 $\pm$ 2.3	9.4 $\pm$ 3.6	<0.001
Wound Infection, n (%)	0 (0%)	11 (17.7%)	<0.001
Respiratory Complications, n (%)	4 (6.9%)	10 (16.1%)	0.117
Recurrence During Follow-up, n (%)	13 (22.4%)	4 (6.5%)	0.012
Mortality, n (%)	3 (5.2%)	5 (8.1%)	0.531

Stratification analysis showed that advanced age, diabetes mellitus, perforated ulcer, and elevated white blood cell count were associated with poor clinical outcome irrespective of

treatment modality. Patients older than 60 years had significantly increased ICU admission and mortality rates ($p < 0.05$) as shown in Table 4.

Table 4: Factors Associated With Poor Clinical Outcome

Variables	Poor Outcome n (%)	Good Outcome n (%)	p-value
Age >60 years	18 (62.1%)	19 (20.9%)	<0.001
Diabetes Mellitus	14 (48.3%)	13 (14.3%)	<0.001
Perforated Ulcer	20 (69.0%)	27 (29.7%)	<0.001
WBC Count >14 ×10 ⁹ /L	17 (58.6%)	21 (23.1%)	0.001
Smoking	15 (51.7%)	39 (42.9%)	0.404

DISCUSSION

In this study, we compared the clinical outcomes of conservative and surgical treatment in patients presenting with complicated peptic ulcer disease. The results showed that both treatment options had important benefits and limitations depending upon disease severity and patient condition. Conservative treatment was associated with shorter hospital stay and lower procedure-related complications [12], while surgical treatment provided better definitive management in severe cases, especially perforated ulcers [13].

The baseline demographic characteristics including age, gender, smoking history, diabetes, hypertension, and NSAID use were almost similar in both groups. This finding suggests that both groups were reasonably comparable. However, patients in the surgical group had longer duration of symptoms and higher white blood cell count at presentation. This may indicate delayed hospital presentation and more severe inflammatory response in surgically managed patients. Previous studies have also shown that delayed presentation is associated with increased risk of perforation, peritonitis, and emergency surgery in peptic ulcer disease [16].

Bleeding ulcer was more commonly managed conservatively in our study. Many patients improved with intravenous fluids, proton pump inhibitors, blood transfusion, and supportive care. Similar findings have been reported in previous studies where most bleeding ulcers were successfully treated without emergency surgery [17]. In contrast, perforated ulcer was more frequent in the surgical group. This finding is expected because perforation usually leads to generalized peritonitis and sepsis, therefore operative management becomes necessary in many patients. Surgical treatment in these cases helps control contamination and prevents further clinical deterioration [18].

Hospital stay was significantly shorter in the conservative group. This may be related to less invasive treatment and lower postoperative stress. On the other hand, surgically managed patients required longer recovery due to

operative intervention, wound care, and postoperative monitoring. ICU admission and wound infection were also more common after surgery. Emergency abdominal surgery itself increases the risk of respiratory complications, wound infection, and prolonged recovery, especially in elderly and diabetic patients.

Recurrence was higher in patients treated conservatively. One possible explanation is that medical treatment controls the acute episode but underlying causes such as *Helicobacter pylori* infection, smoking, or NSAID exposure may continue to persist [19]. Surgical treatment provided better definitive control in severe disease, therefore recurrence remained lower in that group [20].

Poor clinical outcome was more common in elderly patients, diabetics, patients with perforated ulcer, and those having raised white blood cell count. These findings are clinically understandable because advanced age and diabetes are associated with delayed healing and poor immunity. Similarly, perforation and elevated inflammatory markers indicate severe disease and systemic infection.

The present study has some limitations. It was a single-center study with relatively small sample size. Long-term follow-up was also limited. In addition, treatment selection depended upon clinical judgment of the treating surgical team, therefore selection bias may be present. Future multicenter studies with larger sample size and longer follow-up may provide more reliable evidence regarding long-term recurrence and survival outcomes.

In conclusion, conservative treatment was associated with shorter hospital stay and fewer treatment-related complications in selected stable patients. Surgical treatment provided better definitive management in severe complicated peptic ulcer disease, particularly in perforation cases. Early diagnosis, timely referral, and proper patient selection remain important factors for improved clinical outcome.

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