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Original Article

Outcome of Wedge Excision of Perforation Site in the Management of Ileal Perforation

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ABSTRACT

Background: *In tropical areas, surgical emergencies involving perforation of the terminal ileum are common. This region is the sixth most common location for abdominal crises worldwide due to the high incidence of TB and enteric fever. Ileal perforation can occur in tropical countries like Bangladesh for a variety of reasons.* ***Objective:*** *The study's objective was to evaluate the outcomes of a wedge excision procedure used in the therapy of ileal perforations.* ***Materials and Methods****: From June to December 2018, this observational study was conducted in the surgical division of the Shaheed Ziaur Rahman Medical College Hospital in Bogra, Bangladesh. A set of inclusion and exclusion criteria was used to choose 56 individuals with small bowel illness who were having small intestinal surgery.* ***Results:*** *56 ileal perforation patients aged 15 to 67 were included in the research. After wedge site excision, primary repair was administered to all patients. Among the patients, stomach discomfort, fever, abdominal distention, constipation, and vomiting were more prevalent. In histology, typhoid, TB, nonspecific ulcer, and chronic nonspecific ulcer were identified. Only 10.8% of deaths were reported, with a mean hospital stay of 14.2 7.2 days. Following wedge excision and initial repair, all patients saw improvement.* ***Conclusion:*** *Wedge excision, followed by primary repair, is sometimes the most effective method for treating ileal perforation.*

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Keywords: *Ileal perforation, wedge excision, abdominal bowel surgery*

INTRODUCTION

Perforation of the ileum at its terminal segment might produce occult peritonitis. Symptoms include an increase in pain, stiffness, guarding, and soreness in the abdomen, especially in the area of the right iliac fossa. However, many patients may be unable to reveal their clinical symptoms in a safe setting, which might delay diagnosis and the opportunity for prompt surgical intervention.The high death rate and substantial morbidity[2] associated with this condition are worrisome despite the availability of advanced diagnostic technology and breakthroughs in therapeutic modalities [1].

Surgery is now widely accepted as the best option for treating typhoid perforation. Rehydration, restoration of electrolyte balance, antibiotics, and surgical intervention have all been demonstrated to improve survival rates after cardiac arrest.However, there is currently no generally accepted answer to the question of how to treat the condition. After adequate resuscitation, [3] it is currently recommended that every patient with an ileal perforation undergo surgical treatment [2]. Opinions among doctors on how extensive a surgery has to be might differ widely.Therefore, there is still a lot of back-and-forth over how best to diagnose an ileal perforation and how best to treat it surgically [4, 5]. They did the investigation and came up with the plan of "doing as much as required but as little as feasible" to remove the present collection and halt the contamination as quickly as possible.After considering the patient's overall condition, the site of the perforation, the number of perforations, and the level of peritoneal soiling, the surgeon should choose the surgical approach that is regarded to be the safest and most advantageous for the patient. Perforation closure with side-to-side ileotransverse anastomosis, ileostomy, in which the perforated colon is exteriorized after reshaping the margins, and wedge resection and ulcer closure are all viable alternatives to ileostomy. The peritoneal cavity must be thoroughly lavaged [6].

Typhoid enteritis is a common cause of ileal perforation, one of the most common surgical emergencies in the United States. Clean water shortages, improper waste management, low levels of education, and inadequate healthcare all have a role in the high incidence of this disease in the United States. Lack of readily available medical treatments is sometimes cited as a contributing factor to its high mortality and morbidity rates [7].

OBJECTIVE

To investigate the results of ileal perforation management's wedge excision of the perforated site.

METHODOLOGY

Type of study	Observational study
Place of study	Department of Surgery, Shaheed Ziaur Rahman Medical College Hospital,Bogra, Bangladesh.

Study period	June 2018 to November 2018
Study population	This study focuses on patients who were treated at the Surgery Department of the Shaheed Ziaur Rahman Medical College Hospital in Bogra for ileal perforation and had primary repair following perforation margin trimming or wedge excision. Patients were included in the study if they had undergone one of these two procedures.
Sample population:	Patients with ileal perforation who met the inclusion and exclusion criteria, as well as those who were hospitalized to the surgery department at the Shaheed Ziaur Rahman Medical College Hospital in Bogra, were included in the sample for primary repair following wedge excision.
Sampling technique	Sampling techniques were convenience and purposive.
Sample size:	56

Inclusion criteria:

- Clinical ileal perforations of various origins were included in the research, as were patients who had primary repair following wedge excision of the hole site or trimming of the perforation margin.

Exclusion criteria:

- People who have widespread peritonitis due to any other condition except ileal perforation.
- Death during surgery and resuscitation.
- Patients who were not candidates for primary repair, such as late instances, patients with severe intestinal wall edema, patients in extremely poor general health, patients with distal obstraction or adhesion, and patients with numerous perforations.

Data collection:

The history, the physical examination, the relevant laboratory and radiological studies, the operational results, and the histopathology report were all recorded in a predesigned case record form.

Study procedure:

As part of this observational study, we will conduct interviews with all ileal perforation patients admitted to the SZMCH surgical unit. The following procedures will be used to gather information. The patient's medical history, physical examination, relevant laboratory and radiographic tests, operation results, and histopathological report were all recorded in a standardized case record form.

A standard questionnaire was used to collect each patient's demographic information and medical history at the time of admission. Symptoms such as anemia, jaundice, dehydration, edema, lymphadenopathy, nutritional status, pulse, blood pressure, abdominal signs like tenderness, muscle guarding, abdominal distension, liver dullness, bowel sound, and digital rectal examination were recorded for each case after a thorough physical examination was performed. Tests included CBC with differential, urine R/M/E, serum creatinine, blood urea, random blood sugar, Widal test, supine abdominal X-ray (to capture diaphragm domes), and abdominal and pelvic ultrasound for each patient.

Statistical analysis:

To evaluate the information, we used programs like SPSS (Statistical Package for the Social Sciences) after hand-editing and cleaning the data. We calculated the mean and standard deviation for the continuous data, and the percentage for the categorical data. The statistical test was carried out. All statistical tests were considered to be significant when the probability value was 5% or below (p=0.05 or p0.05).

RESULTS

The age of the patients underwent ileal perforation surgery was ranging from 15 to 67 years. **Table 1** shows maximum number of patients found 21-30 years. The mean ± SD age was 32.1 ± 17.1 years

Table-1: Distribution of the respondents by age (n=56)

Age in years	n	%
15-20	14	25
21-30	24	42.8
31-40	8	14.3
41-50	2	3.5
≥50	8	14.3
Mean ± SD	32.1 ± 17.1	
Range	**15-67**	

This study was carried out in 56 cases. They were divided into male & female group. Out of which 82.2% were made male & rest 17.8% were female patients Male female ratio was 4.6:1(**Figure 1**).

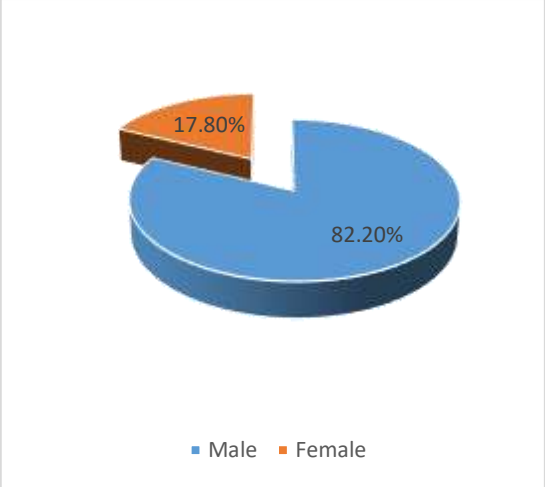

Fig.1: Sex distribution of the patients (n=56)

The cause of perforation of the study subjects was 52 (92.9%) due to typhoid, 2(3.6%) tubercular & 2(3.6%) traumatic (**Table-2**).

Table-2: Distribution of patients on causes of perforation (n=56)

Causes of perforation	n	%
Typhoid ulcer	**52**	**92.9**
Tubercular	**2**	**3.6**
Traumatic	**2**	**3.6**

Both symptoms and signs are considered part of the clinical presentation. Patients in all groups revealed nearly identical symptoms, including stomach discomfort, H/O temperature, abdominal distension, constipation, and vomiting.

Table-3 displays the frequency distribution of ileal perforation in clinical presentations.

Table-3: Distribution on clinical presentation of ileal perforation
(Frequency exceeds total number due to multiple complications in same patients).

Clinical Presentation	n	%
Abdominal Pain	**56**	**100**
Fever	**52**	**92.8**
Abdominal distension	**42**	**75**
Constipation	**34**	**60.7**
Vomiting	**32**	**57.1**

According to histological findings it was observed 12(21.4%) Typhoid, 2(3.5%) Tuberculosis, 14(25.0%) Nonspecific ulcer & 28(50.0%) chronic nonspecific ulcer among the patients (**Table 4**).

Table 4: Histopathological findings of the study patients: (n=56)

Histopathological findings	n	%
Typhoid	12	21.5
Tuberculosis	2	3.5
Nonspecific ulcer	14	25.0
Chronic non specific ulcer	28	50.0

Post-operative fever was observed 30 (53.5%) among the patients (**Figure2)**.

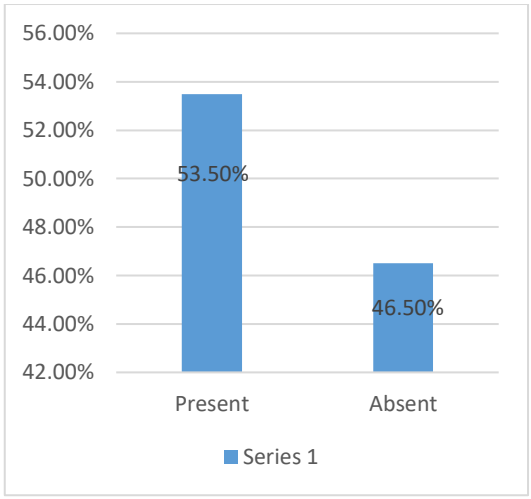

Figure2: Post-operative fever of the study patients: (n=56)

Infection of the wound was seen in 30 (53.5% of the total) of the patients (**Figure 3**).

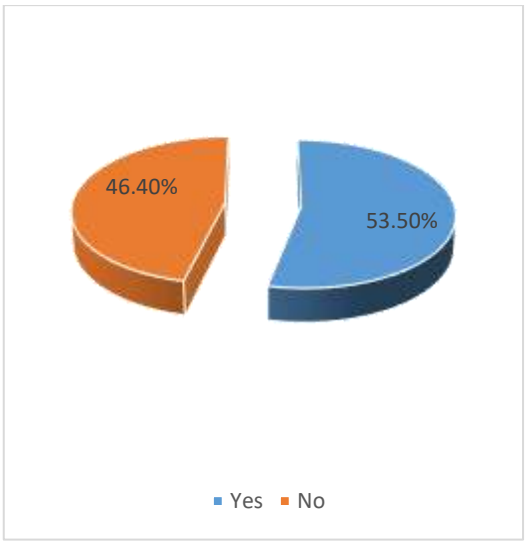

Figure 3: Wound infection of the study patients: (n=56)

The duration of hospital stays ranged anywhere from 5 to 26 days, with a mean of 14.2 days and a standard deviation of 7.2 days (**Table 5**).

Table-5: Duration of hospital stay of the study patients: (n=56)

Traits	Range	Mean ± SD
Hospital Stay(Days)	**5-26**	**14.2 ± 7.2**

Among the patients, there was two death (3.5%) found (**Table-6**).

Table 6: Distribution of mortality of the study patients: (n=56)

Death	n	%
Yes	**2**	**3.5**
No	**54**	**96.5**

DISCUSSION

This observational research aimed to assess the success rates of two approaches to treating ileal perforation: wedge excision of the perforated site and trimming the perforation margin followed by primary repair. The secondary objectives of the study were to characterize the microbial communities present in the lesions, describe the clinical features of frequent ileal perforations, and identify the underlying diseases via laboratory investigations (including histopathological examination of tissue from the lesions).

The study comprised 56 patients with ileal perforation who were treated at the Department of Surgery at the Shaheed Ziaur Rahman Medical College Hospital between June and November of 2018. All patients had primary repair after having the perforation margin trimmed or a wedge removed. The ages of our patients covered the gamut from 15 to 67.

Both groups in the current study reported experiencing abdominal pain. Nonetheless, 92.8% and 96.4% of the population did not have any fever. 75% and 64.3% of people had abdominal distension.

Patients had a rate of 39.3% nausea, 60.7% constipation, and 57.1% vomiting. Nadkarni [8, 9], Dickson[10], and Khundker[10] all shared similar observations on the clinical presentation. Fever was present in 75%, 89.5%, and 80% of patients in the Khundkar and Hoarder[11] series, lending credence to the results of this investigation. Antibiotic and antipyretic usage, as well as hypocalcemic shock, have been linked to a drop in body temperature preceding presentation. In 53.5% of instances, an infection set in due to the wound.

Hoarder, Eggleston et al. [13], Hossain [12], Khundker and Hossain all reported the same thing, with 82.29, 86.58, 37.18, and 29.71 percent of patients developing wound infection. Average hospitalization was 14.2 days, with a range of 7.2. The fatality rate was 3.5%. Rahman et al.2 found that surgical treatment did not appear to reduce mortality from intestinal perforation. It is difficult to evaluate any surgical treatment for this situation because of unpredictable circumstances, the authors say, such as toxemia, septic shock, and multiple organ failure. Death rates were highest in the ileostomy group (7/9), lowest in the primary closure group (2/7) and highest in the wedge resection/resection anastamosis group (3.5%), as reported by Atamanalp et al. [14]. The mortality rate was reduced in this series by wedge excising the perforated location following first hole repair, although this procedure did not significantly reduce the total morbidity rate. Wedge excision in conjunction with primary repair was shown to be a safer option than trimming alone with primary repair in a statistical comparison.

CONCLUSION

By treating ruptured typhoid ulcers with rapid resuscitative techniques followed by ultimate surgery, morbidity and mortality rates may be reduced. Wedge resection, followed by primary repair, is considered by many medical professionals to be the most effective treatment for ileal perforation in some patients. The findings of this study indicate that wedge excision, rather than primary repair, is the treatment of choice.

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