ORIGINAL ARTICLE

MANAGEMENT OF TYPHOID ILEAL PERFORATION: A SURGICAL EXPERIENCE OF 44 CASES

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ABSTRACT

Background: Typhoid perforation of ileum is a serious complication of typhoid fever. There are different surgical methods of repairing the perforation. The aim of this study was to report the surgical experience regarding treatment of typhoid ileal perforation in our setup.

Material & Methods: It wa a retrospective, observational study carried out at Departments of Surgery Unit I and Pathology, Peoples Medical College and Hospital Nawabshah from July 2003 to June 2008. Forty-four patients were admitted through causality as cases of acute abdomen, 28 (63.63%) were males and 16 (36.36%) females, with age range of 10-45 years. The diagnosis of typhoid perforation was made on clinical grounds, laboratory investigations, x-ray, ultrasound examination, and operative findings. Exploratory laparotomy was carried out and perforations were managed. The variables studied in the post operative period were wound infection, wound dehiscence, entero-cutaneous fistula, residual abscess, mortality, hospital stay and incisional hernia.

Results: Fever with abdominal pain and distension were the symptoms in all subjects followed by diarrhoea, vomiting and constipation Widal test more than 1:320 was positive in 35(79.45%) cases and typhi dot (IgM in all cases and IgG in 15) was positive in all cases. Blood culture was positive in 32 (72.7%) cases. X-ray abdomen revealed pneumoperitoneum in 22 (50%) cases. Ultrasound shows free peritoneal collection in 40 (90.90%) cases. On operation the abdominal cavity was heavily contaminated in 12 (27.27%) patients while in 32 (72.72%) patients the peritoneal cavity was having moderate contamination. 36 (81.81%) patients had single perforation & 8 (18.18%) patients had more than one perforation. In 32 (72.72%) patients perforations after freshening the ulcer were closed by single layered interrupted extra mucosal technique with vicryle 2/0, 4 (9.09%) needed resection & anastomosis & in remaining 8 (18.18%) loop ileostomy was made.

Conclusion: The typhoid ileal perforation still carries high morbidity and mortality. The typhoid ileal perforation should always be treated surgically. There are many operative techniques to deal typhoid ileal perforation but no one is fool proof. Regardless of the operative technique timely surgery within 24 hours with adequate and aggressive resuscitation is a way to decrease the morbidity and mortality.

Key words: Typhoid Fever, Ileal Perforation, Acute Abdomen.

INTRODUCTION

Typhoid fever is a protracted disease that includes bacteremic phase with fever and chills during the first week, wide spread reticuloendothelial involvement with rash, abdominal pain and prostration in the second week, and ulceration of Payer's patches with intestinal bleeding and perforation during the third week. It is caused by salmonella typhi. There are longitudinal ulcers on antimesenteric border, situated within 45 cms of ileocaecal valve in majority of patients.[1] Typhoid is endemic in many developing countries, where disease occurs through out the year.[2] The most lethal complications of typhoid fever are intestinal bleeding and ileal perforations, both arising from necrosis of Peyer's patches in the terminal ileum.[3] Typhoid perforation of ileum is a serious complication of typhoid fever. It is also a challenging surgical emergency in developing countries.[4] The resulting peritonitis in such a seriously ill patient may be rapidly fatal unless it is treated promptly and vigorously.[5] Initially l00% death rate was reported for the perforation.[6,7] Nowadays, the mortality rate although decreasing, still remains very high ranging from 1 to 39% with significant morbidity inspite of therapeutic progress.[8] Surgery although associated with a high morbidity and mortality, offers the greatest hope of survival.[5] There are different surgical methods of repairing the perforation. Primary closure, excision and closure, resection and anastomosis are some of the techniques. The postoperative complications are many including wound sepsis, residual intra-abdominal abscesses, wound dehiscence, faecal fistula and death.

Keeping the above facts in view, in this study we report the surgical experience regarding treatment of typhoid ileal perforation in our setup.

PATIENTS AND METHODS

This retrospective, observatiopnal study was conducted in the Departments of Surgery Unit-I and Pathology, Peoples Medical College, Nawabshah, during July 2003 and June 2008.

The data of each patient was collected on a proforma designed for this study, including demographic details, clinical features, past medical history, interval between onset of symptoms and hospital admission, operative findings, procedure performed, postoperative complications and duration of stay in hospital. The patients included in the study were either typhi dot and/or blood culture positive.

All the admissions were carried out through causality as cases of acute abdomen and were resuscitated with intravenous fluids, nasogastric tube to decompress the stomach and urethral catheter to monitor urine output. Adequate resuscitation was achieved within 6-10 hours of admission in 90.7% of patients. Intravenous antibiotics comprising quinolones, gentamycin and metronidazole were commenced immediately, the investigations carried out were blood complete picture,ESR, widal test, typhi dot, blood culture, blood urea, blood sugar, serum electrolytes, abdominal & chest radiographs and abdomino-pelvic ultrasound. The diagnosis of typhoid perforation was made by above investigations and on clinical grounds of abdominal pain, distension, tenderness, and buttressed by x-ray findings of pneumoperitoneum or air under the diaphragm. Also, diagnosis was further supported by operative findings of ileal perforation, and on acutely inflamed and oedematous terminal ileum with associated peritoneal soiling. After resuscitation all patients under full general anaesthesia were subjected to exploratory laparotomy within 24 hours. Laparotomy was performed by a midline incision, all dirty yellow purulent material was aspirated from peritoneal cavity. General survey of peritoneal cavity was made. After dealing with perforation the peritoneal cavity was thoroughly washed with copious amount of normal saline and drains were kept in pelvis. Abdomen was closed by mass closure technique with proline size 1 and skin was closed with interrupted silk. Post-operatively patients were kept nil orally till return of bowl sounds and at that time nasogastric tubes were removed. IV antibiotics were used for one week. Drains were removed on 6th post operative day. The variables studied in the post-operative period were wound infection, wound dehiscence, entero-cutaneous fistula, residual abscess, mortality, hospital stay and incisional hernia.

RESULTS

Forty-four patients underwent surgery for typhoid ileal perforation during the study period. They included 28 (63.63%) males and 16 (36.36%) females with having ages range of 10 to 45 years (Mean 29.36 years). Majority of patients were in the 2nd and 3rd decades. (Table-1)

Fever with abdominal pain and distension were the symptoms in all subjects followed by diarrhoea, vomiting and constipation in 5 (11.36%), 12 (27.27%) and 4 (9.09%) patients respectively. (Table-03). Mean duration of fever before presentation was 8 days (Range 3-14 days). Mean duration of abdominal pain was 5.6 days (Range 2-11 days). Mean temperature was 101.3 ^{0}F (Range 99.5-103 ^{0}F). Pulse rate ranged between 108-140 beats per minute with a mean pulse rate of 116. Widal test $\geq$ 1:320 was positive in 35 (79.45%) cases and typhi dot (IgM in all cases and IgG in 15) was positive in all cases. Blood culture was positive in 32 (72.7%) cases. X-ray abdomen revealed pneumoperitoneum in 22 (50%) cases. Ultrasound detected free peritoneal collection in 40 (90.90%) cases, hypokalaemia was found in 8 (18.18%) cases. Blood complete picture revealed leucopenia in 13 (29.54%) leucoytosis in 4 (9.09%) patients while total leukocyte count was normal in 27 (61.36%) patients with raised ESR ranging from 48 to 74 mm of Hg in the first hour. (Table-2)

Operative findings were; abdominal cavity heavily contaminated in 12 (27.27%) patients while in 32 (72.72%) patients the peritoneal cavity was found in a comparatively better condition. 36

Table-1: Age distribution of patients.

Age in years	No of patients (%)
10-20	11 (25.0)
21-30	20 (45.4)
31-40	05 (11.4)
> 40	08 (18.2)
Total	44 (100)

Table-2: Clinical features of patients with typhoid ileal perforation.

Clinical Features	Number of Patients (%)
Fever	44 (100.0)
Abdominal pain	44 (100.0)
Abdominal distension	44 (100.0)
Diarrhoea	05 (11.4)
Vomiting	12 (27.3)
Constipation	04 (09.1)

(81.81%) patients had single perforation and 8 (18.18%) had more than one perforation. (Table-5) In all cases perforations were within the last 60 cm of ileum.

Perforations were surgically treated depending upon the number of perforations, general health status of patient and degree of faecal contamination. In 32 (72.72%) patients perforations after freshening the ulcer were closed by single layered interrupted extra-mucosal technique with vicryle 2/0, 4 (9.09%) needed resection & anastomosis and in the remaining 8 (18.18%) loop ileostomy was made.

The complications were wound infection in 30 patients (68.18%), wound dehiscence in 12 patients (27.27%), and intra-abdominal abscess in 4 patients (9.09%), entero-cutaneous fistula in 6 patients (13.36%). In this series there were 6 (13.36%) deaths. Sixteen (36.36%) patients developed incisional hernia. In 8 patients, in whom loop ileostomy was made stoma related complications like stomal prolapse in 3 (37.5%) patients, retraction in 2 (25%) patients, bleeding in 2 (25%) patients and skin excoriation was seen in 8 (100%) cases. (Table-3)

Table-3: Post-operative complications.

Complication	Number of Patient (%)
Wound Infection	30 (68.2)
Incisional Hernia	16 (36.4)
Wound Dehiscence	12 (27.3)
Enterocutaneous Fistulae	06 (13.4)
Intra Abdominal Abscess	04 (09.1)

Mean hospital stay was 17.63 days ranging from 10 to 45 days.

DISCUSSION

Perforation of a typhoid ulcer usually occurs during the third week and is occasionally the first sign of the disease.[9] The incidence of disease varies considerably in different parts of the world, 15-33% in West Africa and 1-3% in Egypt and Iran.[10] There is universal consensus that the typhoid ileal perforation is best treated surgically, contrary to the former belief that they are better managed conservatively,[11] because surgery eliminates the peritoneal soilage and endotoxemia but still there is controversy over extent of surgery. The complete list of surgical procedures described for a typhoid ileal perforation includes simple repair (single or double layer), wedge / sleeve resection, and resection- anastomosis of affected segment of gut, simple closure and temporary lateral ileostomy through healthy gut, terminal ileostomy, Ileostomy through the site of perforation, closure of the perforation and ileotransverse colostomy, and exteriorized anastomosis.[12]

Typhoid ileal perforation is still seen in our environment with higher male incidence. This is similar to reports in other series,[13-15] this may due to fact that young men in search of job are compelled to eat unhygienic food out side the home. The mean age of our patients was 29.36 years (range 10-45 years) which is also similar to previous reports[5]. In our study the clinical presentations, laboratory investigations, x-ray and ultrasound findings were in consistent with other reports.[13,16,17] Regarding the number and location of perforations in our series, 36 (81.81%) patients had single perforation & 8 (18.18%) patients had more than one perforation, these figures are near another study[l]. All perforations were 7-60cm (mean 20cm) away from ileocaecal junction along the antimesenteric border of the ileum this is similar to previous reports.[4,16] The degree of faecal contamination, general health status of patient, number and location of perforations were main deciding factors for selecting type of surgical operation. When there was minimum peritoneal contamination with single perforation quite far away from ileocaecal junction good general health of patient we preferred for primary repair, but in moderate peritoneal contamination with multiple perforations very close to each other we opted for resection-anastomosis. When we found heavily contaminated peritoneal cavity, toxic and moribund patient, we preferred for ileostomy primarily. The mortality and the morbidity rate do not depend on the surgical technique, but rather than on the general status of the patient, the virulence of the germs and the duration of disease before surgical treatment, that is why it is so important to provide adequate and aggressive pre-operative resuscitation with antibiotic therapy based on quinolones.[5,7,8,19]

In our study we found wound infection in 30 (68.18%) patients this similar to a Nigerian study.[18] Wound dehiscence was noted in 12 (27.27%) patients, this figure is also near to previous report,[18] our 6 patients (13.36%) developed enterocutaneous fistula this figure is near to figure as reported by Sachan Talwar[5]. Of the entire postoperative complications faecal fistula remains most threatening. Reasons may be dehiscence of anastomotic or primary repair, synchronous impending perforation that has been missed at the time of initial surgery or development of metachronous perforation of diseased ileum during postoperative period. In this series there were 6 (13.36%) deaths this within range as quoted by Noorani[8]. In our series 66.66% (4 out of 6) deaths were due to faecal fistula. Temporary ileostomy has the advantage of avoiding any intestinal suture in septic tissues and the subsequent risk of postoperative dehiscence of anas-

tomosis or repair that is associated with a high mortality rate. Unfortunately, the management of stoma remains difficult in developing countries because of the shortage of suitable equipment in this respect, peristomal ulceration remains a major problem. Indeed, peristomal ulceration provokes skin pain, inducing the patient to self-limitation of food intake. This can result in malnutrition, cachexy and death. In this study 2 (33.33%) deaths were due to this complication as that is of Nouyen.[20] Intra abdominal abscess was noted in 4 patients (9.09%) and 16 (36.36%) patients developed incisional hernia this is near to Nigerian studies.[16,18]

CONCLUSION

Typhoid ileal perforation still carries high morbidity and mortality. The typhoid ileal perforation should always be treated surgically. There are many operative techniques to deal typhoid ileal perforation but no one is without complications. Regardless of the operative technique timely surgery within 24 hours with adequate and aggressive resuscitation is a way to decrease the morbidity and mortality.

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