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Comparison between primary suturing of multiple perforations in terminal ileitis caused by typhoid disease with segmental resection

Ali Raheem Almussawy
AL-Diwaniyah Teaching Hospital, Al-Qadisiyah, Iraq

Abstract

Background: Typhoid fever, a febrile sickness caused basically by a gram-negative bacillus Salmonella typhii, has kept on being a general medical issue in many creating nations

Objective: To evaluate advantages and disadvantages of primary suturing of multiple perforations in terminal ileum caused by typhoid disease, Comparing that with the segmental resection.

Patients and Methods: Prospective randomized clinical study of 62 patients who have been admitted to the emergency department ent of AL-Diwaniyah Teaching Hospital for acute abdomen with known history of typhoid fever and intraoperative suspicion of such disease confirmed postoperatively by histopathology and patients who undergone laparotomy for acute abdomen of unclear cause and patients mistakenly diagnosed as acute appendicitis.

The cases after that arranged into two groups according to an initial operation which is done. Group (A) for primary suturing in (45) patients and Group (B) for segmental resection in (17) patients.

Results: Group (A) show less s operative time, less amount of suture materials and less surgical equipment and packing used. The probability of missed perforation could be higher in the group (A). Group (A) show less incidence of postoperative complications. Surgical site infection and pelvic collection are more prevalent in the group, (B). The incidence of fistula formation is equal for each group. The anastomotic dehiscence was not reported in this study. The degree of peritoneal contamination has the most significant effect on postoperative outputs.

Conclusion: Typhoid intestinal puncturing is as yet endemic in our nation and conveys critical breathe rises. The choice of surgical procedure in the form of primary repair or segmental resection with anastomosis does not appear "To a limited extent" to effect on the severity of postoperative morbidity and postoperative mortality, as much as do the initial condition of the patients. The primary suturing of multiples perforations seems more convent he it than the other procedure in most patients.

Keywords: Typhoid disease; multiple perforations; terminal ileitis; segmental resection

INTRODUCTION

Typhoid fever, a febrile sickness caused basically by a gram-negative bacillus Salmonella typhii, has kept on being a general medical issue in many creating nations [1,2,3]. Typhoid contamination is for the most part transmitted by fecal-oral course and may every so often prompt a plague, especially in regions with poor sanitation and constrained accessibility of perfect, consumable water [1,4]. It is a worldwide medical issue that can devastatingly affect asset developing nations. It is evaluated that more than 33 million instances of typhoid fever happen yearly causing more than 500,000 passings [2,5,6]. While control of the contamination has been accomplished in created nations by compelling general wellbeing measures, creating countries keep on bearing the weight of the infection, chiefly because numerous networks still have lack of norms for drinking water, cleanliness, and sanitation [2,7,8]. The careful inconveniences of typhoid fever are a reason for huge grimness and mortality [4,6]. Intestinal puncturing is a genuine entanglement of typhoid fever and remains an outstanding careful issue in creating nations, where it is related with high mortality and dreariness, because of the absence of clean drinking water, poor sanitation and lack of therapeutic offices in remote zones and postponement in hospitalization [9]. The rates of puncturing have been accounted for in writing to change somewhere in the range of 0.8% and 18% [10-11]. The high frequency of puncturing in most creating nations has been credited to late analysis and the development of multidrug safe and harmful strains of Salmonella typhi [12]. The malady generally influences youthful grown-ups who contribute gigantically to the economy of underdeveloped nations [12-13]. It additionally influences kids, and it is most regular in individuals in the low financial strata [14]. The administration of typhoid intestinal aperture has analytic and remedial difficulties to general specialists honing in asset restricted nations [6,14]. The medical procedure is viewed as the treatment of decision with the end goal to enhance the odds of survival of patients with this condition, who regularly present late [15]. The administration of these patients gives various remarkable difficulties to the going to a specialist. A considerable lot of these patients present and oversaw in-country clinics where assets are regularly extremely constrained. The result of treatment of typhoid intestinal aperture might be poor particularly in creating nations where the absence of demonstrative apparatus and development of Multi-medicate safe strains of S. Typhi coming about because of wrong and unpredictable utilization of anti-infection agents are among the signs of the illness [6]. Late introduction, lacking preoperative revival, postponed activity, some apertures and the degree of fecal peritonitis have been found to affect forecast [13] significantly. While mortality in the created nations has dropped to somewhere in the range of 0% and 2%, death in the creating scene stays high at somewhere in the field of 9% and 22% [14,15]. In this thesis, we attempt to determine the most appropriate method of management for multiple perforations of typhoid ileitis, inform of less operative time, less postoperative complications, less admission period and less long-term complication in term of preserving bowel length and continuity mainly the functions of the terminal ileum and ileocecal valve. The real reason for this examination was to portray our encounters on the careful administration of typhoid intestinal puncturing sketching out the clinical profile and treatment result of this infection and to decide the prognostic elements for bleakness and mortality in our nearby setting. It is trusted that the ID of these components will help in strategy essential leadership, administration needs and enhancing the nature of consideration in typhoid intestinal puncturing.

PATIENTS AND METHODS

This imminent randomized clinical preliminary directed on (62) patients who were worked for typhoid intestinal holes. Achieved at AL-Diwaniyah Teaching Hospital for patients who displayed to the crisis office from October 2016 and October 2017 were tentatively enlisted in this investigation, of those (41) patients were male and (21) female.

The following inclusion criteria were used:

1. All patients with a recent history of typhoid fever presented with sudden severe abdominal pain and imaging findings of the perforated viscus.
2. Patients who operated for explorative laparotomy that reveal typhoid intestinal perforation.
3. Patient those who operated for suspected acute appendicitis with intraoperative findings of typhoid intestinal perforations.

The preoperative investigations that were done and as following;

• C.B.C.

Virology screen.

• Erect chest X-ray with the diaphragm.

Abdominal sonography.

Preoperatively every one of the patients had gotten intravenous fluid and anti-toxins in crisis division. After revival, all patients under general anesthesia were worked.

• laparotomy was performed by lower midline entry point for patients with generally affirmed determination.

• Upper or lower midline incision according to maximum tenderness for explorative laparotomy.

• Mcburney incision for those mistakenly diagnosed as acute appendicitis.

The grimy yellow purulent material was suctioned from the peritoneal cavity. Peritonitis was recorded as general when the entire midriff was included within excess of 1litre suctioned, and nearby when peritonitis was constrained to the lower stomach quadrants with suctioned liquid under 1 liter. A general survey of the abdominal cavity was done.

Exclusion criteria were used;

1. pediatric age group.
2. elderly patients with the severe comorbid disease.
3. patient with single intestinal perforation.
4. perforations located more than 60cm from the ileocecal junction.

Operative technique;

Multiple perforations (2 -6) of ≥ 5cm between each other of less than 2cm diameter after trimming provided mild-moderate bowel inflammation has been closed primarily by full thickness continuous suturing (vicryl 2/0) followed by interrupted neuromuscular suturing (vicryl 2/0), irrespective of the distance from the ileocecal junction.

Multiple perforations (2-6)of ≤ 4cm between each other of any diameter and apertures of more than 2cm diameter of any number. Undergone segmental resection and anastomosis, the type of resection was determined by the status of the ileocecal region. Ileostomy and damage control surgery has been not reported. Bountiful peritoneal lavage was finished with warm isotonic saline; two channels were put, one in the pelvis, the other in the privilege paracolic canal, and conclusion of the guts were finished utilizing nylon-1. The skin was shut with staples. Post-operatively patients were kept nil orally till the return of bowel sounds, and around then nasogastric tubes were evacuated. Intravenous anti-infection agents were utilized for multi-week. Channels were evacuated on the fifth postoperative day as a rule.

The postoperative result was observed. Information on every patient was gone into some ace format arranged for the investigation. The investigation factors included. Sex, age, clinical introduction, agent discoveries, (for example, the seriousness of peritonitis and level of sullying, number, width, and separation from the ileocecal intersection of apertures) and kind of surgery at that point performed.

RESULTS

A total number of 62 patients were studied among that (45) patients in group A & 17 patients in group B

Table (1): No. Of cases in each group

	frequency	percent
Group A	45	72.6 %
Group B	17	27.4 %
Total	62	100 %

1- Age;

The age of the patient in the study ranging from 17 to 65 years, with a mean ±SD (41 ± 3) years.

Group A; The age go was (17-55) years, with a mean ±SD (36±2.7) years.

•group B; the aged run was (37-65) years, with a mean ±SD (51± 2.2) years. As appeared in the table (2).

Table (2): mean age of group A&B.

	Mean ± SD(years)
Group A	36 ± 2.7
Group B	51 ± 2.2
Total	41 ± 3

2- Gender ;

• A total No. Of 41 (66%) patients were males & 21 females (34%). Fig. (1)

• Group A; 29 patients (64%) were males & 16 (36%) patients were females.

• Group B; 12 (70%) patients were males & 5 (30%) patients were females. Table (3).

Table (3): gender distribution in group A, B.

Gender	Group A	Group B	p-value
Male	29(64%)	12(70%)	0.7
Female	16 (36%)	5(30%)	0.7

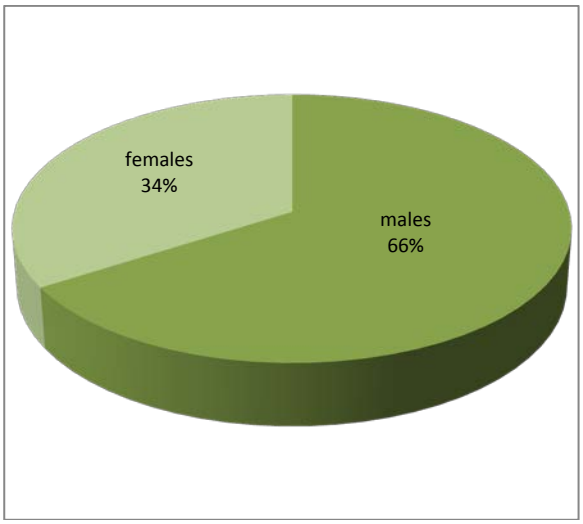

Fig. (1): gender distribution.

3-Mode of presentation;

• Complicated typhoid disease was the most common presenting 38

(61%) of cases, 17 (27.4%) represents an acute abdomen with obscure history and 7(11.6%) presented as suspected A.A., fig. (2)

Table (4): mode of presentation.

Complicated typhoid disease	30(66.6%)	8(47%)	**0.3**
Unspecified acute abdomen	10(22.2%)	7(41%)	**0.3**
Suspected A.A.	5(11.1%)	2(12%)	**0.3**

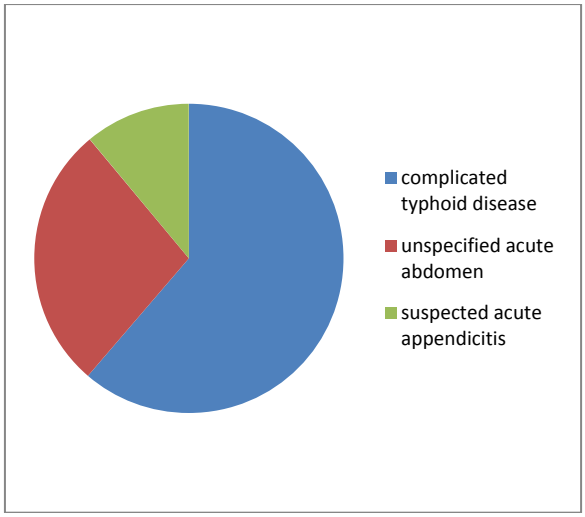

Figure (2): mode of presentation.

4-Intraoperative finding;

• 250-1500cc of peritoneal free fluid was initially drained according to the patient condition, generalized peritoneal contamination
(≥1000cc) in 21 (34%) & localized peritoneal contamination (≤ 1000cc) 41(66%).

• The distance of perforation from ileocecal junction was ≥ 15c in 80% of cases

• the No. of perforation was ≤ 6 in 82.2% of cases.

• the size of perforation was ≤ 2cm after trimming in 91% of cases.

Table (5): degree of contamination.

	Group A	Group B	p-value
Localized contamination	35 (77.7%)	6 (35.3%)	0.03
Generalized contamination	10 (22.2%)	11 (64.7%)	0.03

Table (6): distance of perforation from the ileocecal junction.

	Group A	Group B	p-value
≥15cm	38 (84.5%)	12 (70.5%)	0.2
<15cm	7 (15.5%)	5 (29.5%)	0.2

Table (7): No. of perforations

No.	Group A	Group B	P value
>6	----------	11 (64.7%)	0.001
≤6	45 (100%)	6 (35.3%)	0.001

Table (8): Size of perforation after trimming

Size (cm)	Group A	Group B	P value
≤ 2cm	45 (100%)	12 (70.5%)	0.001
≥ 2cm	----------	5 (29.5%)	0.001

5- postoperative complications.

Generally, Postoperative intricacy rate was 34%. The general length of hospital stay was 10days.

Table (9): frequency of postoperative complications for each group;

	Group A	Group B	p-value
Postoperative ileus	11 (24%)	4 (23%)	0.9
Persistent fever≥3days	13 (28.8%)	6 (35%)	0.9
S.S.I	7 (15.5%)	3 (17.6%)	0.9
Pelvic collection	2 (4.5%)	2 (11.7%)	0.9
Fistula formation	2 (4.5%)	1 (5.8%)	0.9
Wound dehiscence	1 (2.2%)	1 (5.8%)	0.9

DISCUSSION

Its high frequency considers the vital of typhoid intestinal puncturing in creating Nations, its ha high bleakness, its high predominance in youthful age gatherings in 75% of patients [19], in our experience 71% of patients were 21-36 years old, the way can clarify the expanding event of typhoid intestinal puncturing in this age aggregate in our setting that adolescents are for the most part braver and portable and will probably eat unhygienic nourishment outside the home. There. Is likewise high danger of fecal defilement as they visit, open toilets. In concurrence with different investigations [16,22], typhoid intestinal aperture was more typical in guys than in females. In our experience typhoid intestinal perforation. Presents in different modes, in addition to patients with known history of typhoid fever (61%) were expected to have an intestinal perforation in other patients typhoid intestinal perforation discovered only when operated as explorative laparotomy for unspecified acute abdomen (27.4%) or. Operated as suspected acute appendicitis (11.6%).
In such patients the quantity of typhoid punctures is broadly factor (extend 1– 7) in writing [16,17,18] and as far as we can tell we watched 1 case with more than seven apertures. The number and size of hole s have no association with the seriousness of side effects [17].

In our experience, we found the degree of contamination has a significant impact on postoperative complications, and the finding of severe peritonitis was not correlated with the number and size of perforations in the majority of cases, it is probably due to a delayed presentation or delayed diagnosis and was the first issue is to consider immediate surgical intervention. The careful treatment for perfect aperture stays dubious [16,17]. The sorts of surgery prescribed in writing incorporate essential repair; straightforward extraction of the edges of the puncturing and conclusion; wedge resection and conclusion; segmental resection with crucial end-to-end anastomosis; and right hemicolectomy with ileocolic or ileotransverse anastomosis [17,20]. So we can state that there are two pervasive surgeries: essential repair and intestinal resection with anastomosis, in our experience the decision between crucial suturing of the puncturing and segmental resection of the track included can be controlled by various elements, incorporate gross appearance and state of the gut (ischemia, edema, aggravation) and the seriousness of peritonitis and to a less broaden number, size and site of holes. On a fundamental level we can attest that a single puncturing ought to be sutured and the peritoneal hole ought to be irrigated [21], then again, for a situation of different apertures, segmental resection with anastomosis is to be favored [22,24]. As far as we can tell, in instances of different generally little holes have been shut by essential suturing in 75% of cases (group A and segmental resection with anastomosis has been considered for seriously aggravated ileum with large or diffuse punctures in around 25% (assemble B). As we have said, the apertures were a very factor in number, measure, their area in connection to the ileocecal intersection and level of gut aggravation and related peritonitis. So the decision of technique has been impacted by these factors. Essential suturing is positively the least difficult and speediest strategy, and can subsequently in principle be performed by any specialist. Truth be told the ileo-caecl valve can build up a state of hypertension above it, or, in other words, to the territory punctured and repaired (by resection and anastomosis), it could be viewed as a hazard factor for dehiscence [38]. As far as we can tell the decision of technique was regardless of area of punctures from ileo-cecal intersection in 95% of cases. Where around 80% of apertures were found in excess of 15 cm from the ileocecal junction, a circumstance affirmed in writing [23] , we see that essential suturing was the most habitually embraced method paying little respect to the separation of the holes from the intersection, anyway resection with anastomosis was performed

for punctures under 10 cm from the intersection in some muddled cases, with no factual hugeness (p = 0.35), consequently the decision of surgery presumably relies upon various parameters: number of holes, measure, site and especially level of aggravation taken together.

Actually, most patients with holes found under 15 cm from the intersection and subjected to resection had different apertures with a normal of 2.5cm distance across with severe related aggravation of terminal ileum notwithstanding summed up peritoneal pollution (p-esteem 0.02), while for the essential repair patients the punctures were likewise numerous , never in excess of 2 cm measurement ,paying little respect to the site with gentle to direct irritation has been met factual importance (p-esteem = 0.03). Along these lines, the tract of ileum < 15 cm from the valve, with various little apertures with related gentle to direct aggravation was repaired more regularly than resected (p-esteem 0.03), with no essential repair dehiscence at < 15 cm. Accordingly the separation of the holes from the intersection alone appears to have little impact on the careful decision and its results. In spite of what may be normal, resection does not seem to diminish the danger of new perforations [24], yet as far as we can tell the risk of missed aperture was high in essential repair, we have not discovered any information in writing concerning the rate of missed holes. It very well may be assumed that the constancy of ailing health, peritoneal phlogosis and the septic status hold the recuperating of the intestinal divider, in this circumstance the danger of repeat of anastomotic dehiscence is so high in indistinguishable patient from to lead us to make an ileostomy once the principal dehiscence is experienced, along these lines a few examinations recommend an ileostomy in cases with various punctures and peritoneal severe tainting [25], particularly in instances of intestinal ischemia, irritation and edema, however all things considered reports more noteworthy mortality in ileostomy patients, most likely not because of the ileostomy itself but instead to the extraordinary seriousness of clinical conditions in these patients.

In this manner, the occurrence of postoperative complexity was joined between the two gatherings and factually inconsequential. As far as we can tell the anastomotic dehiscence was not detailed, where it is by all accounts by and large under 10% [26]. A few examinations [27] found no relationship between's the surgeries received and mortality. Then again, some others [28] found the rates of mortality and dismalness in resection-and-anastomosis patients lower than in essential repair patients.

CONCLUSION

The choice of surgical procedure in the form of primary repair or segmental resection with anastomosis does not appear " to a limited extent" to effect on the severity of postoperative morbidity and postoperative mortality, as much as do the initial condition of the patients. The primary repair does carry less intraoperative morbidity inform less operative time, less blood loss and so on. In primary repair we avoid the long-term consequences of terminal ileum resection with loss of ileocecal valve function inform of it. B12 deficiency and interruption of enterohepatic circulation which may lead to gallstone disease in an already typhoid infected patient.

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