Original Article

Primary repair with ileotransverse anastomosis in enteric perforation as an alternative procedure to diversion procedure

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Abstract

Background: Enteric perforation is a serious complication of typhoid fever. Development of faecal fistula is the key apprehension in primary closure. The purpose of this study is to find out benefit of an ileotransverse anastomosis when done with primary closure. **Objectives:** 1. A study of primary repair of perforation with ileotransverse anastomosis in typhoid ulcer perforation cases. 2. Assessment of results of surgery in typhoid ulcer perforation in view of faecal fistula, wound infection, return of bowel sounds and prevent second surgery after ileostomy. **Methods:** A prospective study was performed on 25 cases of enteric perforation cases surgically managed by primary repair with ileotransverse anastomosis and postoperative complications were observed. **Results:** There were 25 cases of enteric perforation. Simple closure of the perforation with side to side ileotransverse anastomosis was the mainstay of surgical management. In our study, the incidence of faecal fistula formation was 1/25 (4%), wound infection was 5/25(20%) and death of patient in 1/25(4%). **Conclusion:** Primary repair with ileotransverse anastomosis gives very good results in enteric perforation cases. This procedure allows rest to the diseased segment and prevents faecal matter from passing over the closed perforation thus decreasing the chances of faecal fistula and need to do second surgery after ileostomy.

Key Word: ileotransverse anastomosis, diversion procedure.

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INTRODUCTION

Despite of recent improvements in water supply and public health facilities, typhoid fever remains a public health problem in developing country like India. Enteric perforation is a serious complication of typhoid fever which is responsible for most of its fatalities. Enteric perforation occurs in about 0.88% of typhoid cases but its incidence is on increase (Chauhan and Pandey 1982)[1] Surgery is the treatment of choice for enteric perforation for which numerous operative procedures ranging from simple closure of perforation (Dawson 1970)[2], resection of ileum (Kim *et al.* 1975)[3], hemicolectomy (Welch and Martin 1975)[4], ileostomy through perforation (Kaul 1975)[5], side to side ileotransverse colostomy(Prashad *et al.* 1975)[6], and end to side ileotransverse colostomy (Kala *et al.* 1978, Egglestone 1979)[7] have been advocated. Beniwal Uday Singh in 2003 concluded that repair of the typhoid perforation is better procedure than temporary ileostomy in enteric perforation due to its cost effectiveness and absence of complications related to ileostomy.[8] Unfortunately no matter what procedure has been used, post operative complication leads to increased morbidity and sometimes increased mortaliy. Most important being faecal fistula (Egglestone and Santoshi 1979).[7] Keeping the above facts in view, in this study we report the surgical experience regarding treatment of typhoid ileal perforation in our setup by primary repair with ileotransverse anastomosis.

MATERIAL AND METHODS

A prospective study was performed on 25 cases of enteric perforation surgically managed by primary repair with ileotransverse anastomosis admitted to surgical ward of Mahatma Gandhi Hospital Jaipur over a period of 2 years from 2013 to 2015.

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Management

The preoperative provisional diagnosis of enteric perforation was made on the basis of history, clinical features and radiological findings. Patients were kept NBM and Ryles tube aspiration was done for G.I. decompression. Further intravenous fluids were started and broad spectrum antibiotics like Ceftriaxone and metronidazole were given. Surgery was conducted under general anaesthesia. In all cases abdomen was explored by midline incision. Peritoneal cavity was always found contaminated with faecopurulent fluid which was sucked out and peritoneal lavage done with two to three litres of normal saline solution. In all cases, the perforation(s) was/were closed with interrupted non absorbable silk suture in two layers and side to side anastomosis was done between healthy ileum proximal to perforation and transverse colon (ileotransverse anastomosis) with vicryl 3 zero continuous suture for inner layer and silk 3 zero interrupted suture for outer layer. A drain kept in pelvis, abdomen closed in layers. Post operatively patients were kept NBM with continuous Ryles tube aspiration, IV fluids and broad spectrum antibiotics were administered. A strict intake and output chart maintained. Ryles tube was taken out usually, on 3rd or 4th day when there was no distention, bowel sounds were audible and nasogastric aspiration reduced to 200ml/ 24 hrs. Patient allowed oral feeding usually on 6th postoperative day starting by sips of water and juices. On 8th day parenteral fluid completely stopped and kept on semi-solid diet. Antibiotic coverage kept for 2 weeks.

OBSERVATION

Table 1

Sr No	Operative Findings	No of Cases	%
1	No. of perforation (s)		
	One	18	72
	Two – Three	6	24
	>Three	1	4
2	Perforation in Terminal ileum from Ileocaecal Junction		
	Within 7 inches	15	60
	>7 – 12 inches	5	20
	More than 12 inches	5	20

Table 2

No. of patients	No. of death	(%)
25	1	4

Table 3

Sr. No	Complications	Number	%
1	Wound infection	5	20
2	Burst abdomen	1	4
3	Respiratory	2	8
4	Faecal Fistula	1	4
5	Septicaemia	1	4

In 72% of cases there was single perforation. 24% of cases were with 2-3 perforation and 4% of cases were with more than 3 perforation in terminal ileum. Thus about 1/3rd of cases have more than one perforation in terminal ileum. The perforation(s) was/were present within 7 inches in 60%, > 7 – 12 inches in 20% and more than 12 inches in 20% in terminal ileum from ileocaecal junction. Overall mortality rate was 4 % in primary repair with ileotransverse anastomosis. The above table show that rates of complications which were wound infection 20%, faecal fistula 4%, respiratory complication 8%, burst abdomen 4% and septicaemia 4%. 3 patients underwent reoperation, in 1 patient resection and anastomosis was done for faecal fistula, in 1 patient tension suturing of abdomen was done for burst abdomen and in 1 patient resuturing was done for wound infection. Patients were followed up for 3 months.

DISCUSSION

The management of enteric perforation and associated mortality has been the major area of research and despite of improvement in various facilities the mortality is continue to be high. Optimal operative management of Typhoid perforation has been debatable since the eighteenth century. In a series by K. P. Singh *et al.* 1991.[9] at operation 71% of patient had single perforation, 19.1% patient had double perforations and 9.5% of patient had multiple perforations in terminal ileum. In our study, 74 % of patients had single perforation and 1/3 of cases had more than two perforations. These findings were similar to the above mentioned series. We had a maximum number of perforations within 2 feet of terminal ileum from ileocaecal junction. Purohit (1978)[10] reported the most frequent site of perforation to be within two feet from ileocaecal junction in terminal ileum. Huckstep in 1960[11] observed that enteric perforation occurred more in terminal ileum. He explained that this is due to accumulation of lymphoid follicles as payer's patches which are attacked in typhoid fever, these follicles are the sites of typhoid ulcer which perforate. Primary closure is still the procedure of choice, because it is simple, quick, and cost-effective.[12] Typhoid fever produces ulceration, which are most extensive in terminal ileum and caecum, in the lymph follicle and peyers patches involving the mucosa and submucosa. They are not visible on external inspection of the bowel accordingly surgeon cannot be certain that the suture he places are in non ulcerating area. Yet failure to avoid these ulcer may compromise healing and perforation and faecal fistula may follow. It is for this reason that we have deliberately elected to perform a proximal ileotransverse anastomosis utilizing normal tissue for suturing. Due to side to side ileotransverse anastomosis, there is diversion of faecal stream from

diseased segment thus help in reducing the pressure gradient and rest to diseased segment of ileum. We also performed this by pass procedure in critically ill patient like in which duration of perforation was more than 1 day, and perforation near to ileocaecal junction and patient with more than one perforation. Complications in our case series were mainly wound infection (20%) and respiratory infection (8%) which were similar to those observed by S.K.Nair *et al.*, 1981[13] as wound infection (52%) and respiratory infection (4%). The most common complication is the surgical site infection; the possible cause of this infection may be contamination of wound during laparotomy.[14,15,16] Ileostomy has disadvantage of peristomal ulceration which provokes skin pain, inducing the patient to self-limitation of food intake. This can result in malnutrition, cachexia and death. Patient feels isolated due to faecal soilage. The most important of all need of second operation for ileostomy closure. Overall mortality rate was 4 % in primary repair with ileotransverse anastomosis which was very much lower than the range as quoted by Naorani.[17]

CONCLUSION

Study of 25 cases of enteric perforation at Mahatma Gandhi Hospital Jaipur shows that enteric perforation is common cause of acute abdomen in our region, and it usually occurs within 2nd week of enteric fever. 25% of patients had multiple perforation which present within 2 feet of terminal ileum, so terminal 2 feet ileum should be carefully examined at laparotomy. Multiple perforations, more than 1 day duration of perforation, excessive friability of bowel wall, gross faecal contamination, and perforation near ICJ makes high risk cases & in these cases a proximal side to side ileotransverse anastomosis should be added to bypass diseased segment & further ceftriaxone, amikacin and metronidazole should be the antibiotic combination of choice to have a better outcome. Thus result of 4% mortality and reduction in complication rate in our cases strengthen the observations obtained in this prospective clinical study of two years.

REFERENCES

1. Chauhan M.K and Pande. SK; a review of 344 patients with typhoid perforation. Br. J,S. 1982; 69: 173-175.
2. Dawson J.H.: Surgical management of typhoid perforation of the ileum. Am. Surg. 1970; 36: 620-2.
3. KIM J.P., Oh, S.K. and Jarret F; Management of ideal perforation due to typhoid fever. Ann. Surg. 1974; 181:88-91.
4. Welch T.P. and Martin N.C.: Surgical treatment of typhoid perforation. Lancet 1975; 1: 1078-80.
5. Kaul, B.K.: Operative management of typhoid perforation in children. Internat. Surg. 975;60:407.
6. Prasad PB and Choudhary DK: Typhoid perforation treated by closure and proximal ileotransverse colostomy. J.I.M.A. 1975; 65: 297-299.
7. Eggleston FC, Santoshi B & Singh CM: Typhoid perforation of bowel experience in 78 cases: Ann Surgery 1979; 190: 31-35.
8. Beniwal Udai Singh, Jindal Dinesh, Sharma Jagdish, Jain Sumita, Shyam Ghan. Comparative study of operative procedures in typhoid perforation IJS2003; 65(2): 172-177.
9. Singh KP, Singh K, Kohli JS. Choice of surgical procedure in typhoid perforation: experience in 42 cases. J Indian Med Assoc 1991;89:255-256.
10. Purohit PG. Surgical treatment of typhoid perforations: Experience of 1976 Sangli epidemic. Indian J Surg 1978; 40:227–238.
11. Huckstep RL – Recent advances in the surgery of typhoid fever. Ann R Coll Surg Engl 1960;26:207-30.
12. Mansoor T, Husain M, Harris SH. Modified ileotransverse anastomosis in selected cases of typhoid perforation of bowel. Indian J Gastroenterol.2003; 22:110-111.
13. Nair SK & Singhal VS: Non – traumatic intestinal perforation. I. J. S. 1981; 43: 5, 371 – 377.
14. Edino ST, Mohammed AZ, Uba AF, Sheshe AA, Anumah M, Ochicha O, Yakubu AA, Alhassan SU, Mamman M: Typhoid enteric perforation in North Western Nigeria. *Nig J Med* 2004, 13:345-9.
15. Osifo OD, Ogiemwonyi SO: Typhoid ileal perforation in children in Benin City. *Afr J Paediatr Surg* 2010, 7:96-100.
16. Kella N, Radhi PK, Shaikh AR, Leghari F: Qureshi MA: Factors affecting the surgical outcome in typhoid intestinal perforation in children. *Paed Surg* 2010, 16(4):567-570.
17. Naorani M, Sial I, Pain V. Typhoid perforation of small bowel: a study of 72 cases. JR Coll Surg Edinb 1997; 42: 274-6.

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