

IMPROVED SURVIVAL OUTCOME WITH PRIMARY ILEO-TRANSVERSE ANASTOMOSIS IN TYPHOID ILEAL PERFORATION

Sohail Ahmad¹, Rajesh Kumar², Shiva Nand³

¹Senior Resident. Department of General Surgery, Darbhanga Medical College and Hospital, Bihar, India.

²Assistant Professor. Department of General Surgery, Darbhanga Medical College and Hospital, Bihar, India.

³Assistant Professor, Department of General Surgery, Darbhanga Medical College and Hospital, Bihar, India.

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Corresponding Author:

Dr. Shiva Nand,

Email: drshivanand.pnch@gmail.com.

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Abstract

Background: Typhoid fever is persistent global health problem with devastating socio-economic impact on the developing countries of the world; it is systemic disease caused by ingestion of food and water contaminated with salmonella typhi/ Para typhi. My present work is intended to evaluate the exact role and effectiveness of decompressive ileo-transverse anastomosis (bypass) with simple closure to divert the fecal stream, in comparison with simple closure of perforation to determine the exact role and effectiveness of decompressive ileo-transverse anastomosis bypass with simple closure of perforation. **Material and Methods:** In present series the cases who were admitted from surgical emergency of Darbhanga medical college hospital Laheriasarai for the management of typhoid perforation were taken for the study, only those cases were taken for the study who were confirmed by operation. So, we divided the patient in to two groups Group- A, only simple closure of perforation in two layers Group B- a decompressive ileo-transverse anastomosis (bypass) operation to direct the fecal stream with simple closure of perforation. **Results:** Out of 80 patients, 40 odd numbers and 40 even numbers. Typhoid fever constitutes 7.6% of total gastrointestinal perforation, Seasonal incidence in of typhoid perforation- rainy- 60% summer- 30 %, winter- 10 %, maximum age incidence of perforation 21-30 years accounting 55%. Sex incidence M: F ratio 4:1. 45% cases of perforation had presented in 3 rd. week followed by 2nd week. All cases presented with pain abdomen, 95% had distension of abdomen, fever- 92.5 %, headache- 60 %, diarrhoea- 40%, constipation- 60 % Abdominal tenderness was present in 100 % while rigidity in 85%, bowel sound was normal in 2.5% diminished in 15% and absent in 82.5%, obliteration of liver dullness, in 60 % and free peritoneal fluid in 40 % cases, Majority of cases have leukocytosis and neutrophilia. **Conclusion:** We have found encouraging result of decompressive ileotransverse anastomosis in comparison with only simple closure to reduce the post-operative complication (wound sepsis wound dehiscence, fecal fistula, hospital stay, and mortality).

INTRODUCTION

Typhoid fever is persistent global health problem with devastating socio-economic impact on the developing countries of the world, it is systemic disease caused by ingestion of food and water contaminated with salmonella typhi/ Para typhi, and it is endemic disease in some part of India and other tropical countries with high mortality rate. Osler regarded typhoid perforation as almost fatal.^[1] While Eggleston found mortality of 32 percent,^[2] Vaidyanathan – 10 %, ^[3] Tarpley - 32 percent,^[4] A

Jao,^[5] and Pal,^[6] reported mortality of 15 %. The usual victim of typhoid fever is children and young adult at the beginning of their economically productive year. Typhoid perforation is still a very common cause of perforation of terminal ileum in tropical countries usually occur during the third week and occasionally is the 1st sign of the disease; it is one of the serious intestinal complication of typhoid fever. Usually death in treated person result from hemorrhage and perforation, hemorrhage occur in 4-7 % of treated patient and perforation in 2 percent.^[7]

Chemotherapy especially chloramphenicol which helped in the reduction of mortality in early days, recently newer drug like ciprofloxacin and ceftriaxone (3rd generation cephalosporin) have come up with better results.

Huckstep advocated conservative treatment but it is now universally accepted that the treatment of typhoid perforation must be surgical.^[8] Archampong EQ advocated it as a lifesaving procedure.^[9] Adequate resuscitation, correction electrolyte disturbances, appropriate antibiotics therapy and surgery have proven to be essential for successful outcome.^[10] Many factor such as late presentation adequate preoperative resuscitation, delayed operation, the number of perforation and extent of fecal peritonitis have been found to have a significant effect on prognosis, the major postoperative complication are wound infection, wound dehiscence, residual intrabdominal abscess, fecal fistula and death, There has been persistent effort to evolve a satisfactory surgical method of treatment of this condition for the treatment of enteric perforation to reduce the post-operative complication; various operative techniques described in the literature are,

1. Simple closure of perforation if presented early
2. Resection of affected ileum with end to end anastomosis
3. Proximal ileostomy
4. Simple closure with ileo-transverse anastomosis
5. Wedge resection of bowel and closure in two layers
6. Resection of affected ileum with ileo-transverse anastomosis
7. Purse string suture of ulcer in seromuscular layer
8. Exteriorization of affected loop and delayed closure
9. End to end anastomosis of ileum after resectioning 10 cm at each side of the distal and proximal perforation
10. Primary closure with tube caeco-ileostomy

Aims and objectives

My present work is intended to evaluate the exact role and effectiveness of decompressive ileo-transverse anastomosis (bypass) with simple closure to divert the fecal stream, in comparison with simple closure of perforation to determine the exact role and effectiveness of decompressive ileo-transverse anastomosis bypass with simple closure of perforation,

So, we divided the patient in to two groups

Group- A, only simple closure of perforation in two layers

Group B- a decompressive ileo-transverse anastomosis (bypass) operation to direct the fecal stream with simple closure of perforation

Relevant points have been tried to evaluate the diagnosis treatment and prognosis of enteric perforation particularly the role of decompressive ileo-transverse anastomosis in preventing the post-operative complication morbidity and mortality of enteric perforation.

We have found encouraging result of decompressive ileotransverse anastomosis in comparison with only simple closure to reduce the post-operative complication (wound sepsis wound dehiscence, fecal fistula, hospital stay, and mortality).

MATERIALS AND METHODS

In present series the cases who were admitted from surgical emergency of Darbhanga medical college hospital Laheriasarai for the management of typhoid perforation were taken for the study, only those cases were taken for the study who were confirmed by operation.

Demographics, name, age sex, occupation, marital status,, presenting complains, fever, pain abdomen, vomiting, bowel disorder, micturition difficulty, past history- similar attack of pain abdomen or fever, family, history, socio economic study, patient examination, general examination, appearance, tongue, temperature, pulse, respiration, blood pressure, on local examination, while inspecting- contour of abdomen, movement of abdomen with respiration, during palpation, guarding, rigidity, tenderness, liver spleen palpability, any parietal and intrabdominal mass, on percussion obliteration of liver dullness, shifting dullness,, fluid thrill, on auscultation of bowel sound absent diminished or normal on rectal examination- pelvic tenderness, on systemic examination- state of consciousness, evidence of neuritis, examination of spine, on respiratory- pleural effusion consolidation, on cardiovascular -apex beta, heart sound,

Routine investigation, hemoglobin estimation, total leukocyte count, differential leukocyte count, routine examination of urine, plain x-ray of abdomen, to demonstrate the free gas under diaphragm biochemistry, blood urea serum creatinine Widal test for H and O titer.

Culture and sensitivity of blood urine and peritoneal fluid, and histopathological examination the excised edge of the perforation.

Preoperative resuscitations

Most of the patients were dehydrated and in low condition, all cases were resuscitated by intravenous fluid, riles tube placement, blood transfusion, and medication, some patient may need oxygen support,

Operative technique

The time elapsed between perforation (time of onset of symptoms like sudden pain abdomen, and other features of peritonitis, and operation was noted, all patients divided in group A and B.

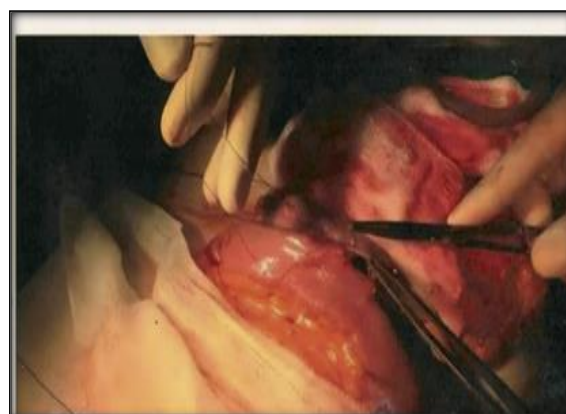
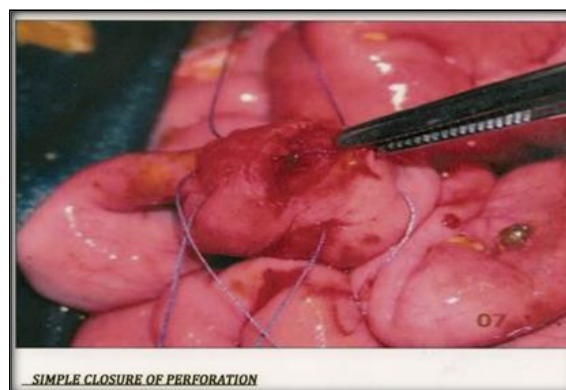
In group A all, odd number of patient's perforation in serial perforation was repaired in two layer. in group B patients with even number in serial are taken in which after accomplishing the primary repairs in two layers, side to side ileotransverse anastomosis done by pass proximal to the site of perforation to divert the fecal stream.

Right paramedian incision, 5 ml of peritoneal exudates for culture and sensitivity, the site of, size and number of perforations were noted, In group a primary suturing, in group b, primary repair of perforation with ileo-transverse anastomosis. Post-operativemanagement- inj ceftriaxone, gentamicin and metronidazole were given, oral was allowed when ileus subsided, and patients were followed up for 6 months.

RESULTS

Out of 80 patients, 40 odd numbers and 40 even numbers. Typhoid fever constitutes 7.6% of total gastrointestinal perforation, Seasonal incidence in of typhoid perforation- rainy- 60% summer- 30 %, winter- 10 %, maximum age incidence of perforation 21-30 years accounting 55%. Sex incidence M: F ratio 4:1. 45% cases of perforation had presented in 3 rd. week followed by 2nd week. All cases presented with pain abdomen, 95% had distension of abdomen, fever- 92.5 %, headache- 60 %, diarrhoea-40%, constipation- 60 % Abdominal tenderness was present in 100 % while rigidity in 85%, bowel sound was normal in 2.5% diminished in 15% and absent in 82,5%, obliteration of liver dullness, in 60 % and free peritoneal fluid in 40 % cases, Majority of cases have leukocytosis and neutrophilia and were anemic,44 patients were proven Widal test positive, 42 patients had gas under diaphragm and 24 patients with gas and fluid level in addition to gas under diaphragm, 10patients showed only multiple air fluid level and 4 patients had no x-ray abnormality. Peritoneal fluid culture was positive in 60 cases; Maximum number 60% of perforations were situated at 21-40 cm from ileocecal vale. Maximum 90 % of cases had single perforation,

In group A- 50 % developed wound sepsis, in group B only 30 %. Wound dehiscence in group A 40 % and in group B – 15 %. Intraabdominal abscess was higher in group A 30 %in group B 4 %. Incidence of fecal fistula 40 % in group A and in group B 10 % incidence of toxemia were equal in both group. Hospital stay was minimum in group B showing less morbidity and speedy recovery. Mortality in group A 30 % in group B 10%.



DISCUSSION

Typhoid is every day problem in developing countries. typhoid perforation of ileum is the most frequent and serious complication during typhoid illness, Incidence of typhoid ileal perforation in our study- 7.6 %, Prasad et al,^[1] also showed incidence of 8 %.

The figure given merely indicate the frequency of detectable cases and do not represent actual incidence , the reason is that in advanced cases especially those in toxic state the diagnosis is extremely difficult, if not possible, and is often missed because of severe degree of toxemia with or without abdominal distension, only when all the death from typhoid are autopsied can one know

accurately how many had perforation, some salmonella strain is virulent producing fulminating intestinal lesion, incidence was found to be higher in tropical countries compared to western population, because of unhygienic condition and poor sanitation, this explains its common occurrence in undeveloped and developing countries .

In our study the highest incidence of typhoid perforation was in 3rd decade (55%) followed by 2nd decade (20%). The youngest patient was 8 years old, and oldest one was 42 years of age. The mean age of perforation at 19.5 years, after age of 30 years fall in incidence due to acquisition of immunity from clinical and subclinical infection.^[13]

In our study male to female ratio-4:1, franklin reported male to female ration of 4:1,^[14] Sandeep Jain et al 3.6:1,^[15] more cases are reported among males than females as a result of increased exposure to infection because in our societies the male is leading member of family.

Seasonal incidence- incidence was highest in rainy season, 60%. Followed by summer, 30%. winter season 10%, Olurin reported a peak incidence of perforation two times during May, June, July in descending order and during December and January, incidence was lowest in march and April, the monthly variation are closely related to climate condition, , the peak occurrence at the beginning of rainy season due to when flooding of the rivers and wells cause heavy contamination of drinking water, while at height of the dry season, march and April, when rivers and wells are particularly dry with consequent less concentration of infecting organism the incidence get low.^[16] Trapley et al found no seasonal variation, the peak incidence is reported during July and September , this period coincides with the rainy season and on increase in fly population.^[4]

Time of perforation

The maximum number of perforation occurred in the 3rd week of illness 45% followed by 2nd week 30 % , franklin observed that earliest perforation occurred at 5th day and latest at 16th day of illness, the main pathological change of typhoid infection is in terminal ileum.^[17] The Peyer's patches show hyperplasia a later necrosis and ulceration in 2nd week. These ulcers heal without scarring during the 4th week, the vascular thrombosis in the Peyer's patches in distal ileum to ischemia ulceration and perforation; occasionally this process can occur in jejunum and caecum.

On clinical feature, abdominal pain accounts 100 % cases whereas Trapley et al,^[4] found abdominal pain in 90% cases, abdominal distension in 95%.

Fever were recorded in 92.55,^[4] Archampong,^[3] in 55.7%, headache seen in 66 % cases Archampong,^[3] found in 75.2%, all patient had abdominal tenderness, temperature >100 and tachycardia and ad fall in BP in 90%.

Bowel sound was absent in 82.5%, Olurin reported in 93 % cases,^[16] Archampong,^[3] in 30.4%, purohit,^[15] advocated the peristaltic sound could be

heard in 40% cases on admission, their presence didn't rule out the diagnosis of perforation.

Obliteration of liver dullness in 60% cases, Olurin in 25%,^[16]

In radiological examination gas under diaphragm were seen in 82.5%, Vaidyanathan,^[11] found in 73.3 % , the greater the is the degree of distension prior to perforation, more will be chance of free gas under diaphragm, obliteration of liver dullness is sufficient evidence of gas under diaphragm, this will be absent only when peritoneal adhesion have been formed preventing the ascent of gas under diaphragm,

In our study 40% cases had free peritoneal fluid, Archampong,^[18] in 11.6%, In our study, 60% cases had leukocytosis, Badejo et al,^[19] got leukocytosis in 92% cases and leukopenia in 7.77% cases.

On Widal test -H titre and O titre positive in 55% cases, Dickson et al,^[20] 35 % Vaidyanathan,^[3] in 73%.

Blood culture and peritoneal fluid culture, positive in 70%, Gorbach found in 90 % cases.

In our study, perforation was single in 90 % cases, franklin et al,^[17] single perforation in all except one, purohit,^[15] in all cases, Vaidyanathan,^[3] in 89.95%.

In our study, primary closure of perforation and bypass ileo-transverse anastomosis with omental patch were done. Prasad et al,^[11] reported 20 % mortality, Eggleston et al,^[2] found no difference between two procedure, Trapley et al reported anastomotic leak in 8 % , Pal D K advocated 25% mortality, Udai singh Beniwal et al found that repair of perforation is a better procedure than temporary ileostomy. Incidence of fecal fistula 10% in our study, Eggleston,^[2] reported less incidence of fecal fistula. Pal D K reported fecal fistula following simple closure, leading to 25 % mortality, whereas no fistula was found following closure of perforation with side to side ileo-transverse anastomosis, leading to lower mortality in 6.22 % ,

Rahman GA et al,^[21] found that commonest post-operative complication were wound infection and enterocutaneous fistula,

Udaisingh Beniwal et al,^[22] reported wound infection 23% bleeding 5.5%, fecal fistula 16.5 %

In present series there was 12 deaths in primary closure and 4% death in primary closure with ileo-transverse anastomosis that ileo-transverse anastomosis has got main role in reducing the mortality from 30 % to 10%.

The mortality is due to toxemia reported 20 % mortality in ileo-transverse anastomosis group, Eggleston,^[2] no difference between two groups, Vaidyanathan,^[3] reported mortality rates following surgery in typhoid perforation vary wide from 10-56%, he recognized two pattern of morbidity and mortality, death in early post-operative period was due to toxemia and septic shock, late morbidity and mortality from complication and fecal suppuration.

CONCLUSION

Cases of typhoid perforation with special emphasis on its treatment by perforation closure combines with ileo-transverse anastomoses, 80 cases of typhoid perforation were included, typhoid perforation constituted 7.6% of total cases of gastrointestinal perforation, majority of the patient ranged between 21-30 years of age, there was definite male predominance, M:F 4:1. Typhoid perforation was more common in rainy season than summer and winter, maximum incidence occurred in 3rd week of illness, majority of cases gave history of abdominal pain and continuous fever prior to perforation, 100% cases had abdominal pain, tenderness rigidity, majority of cases had low general condition and blood pressure systolic below 100 mm hg.

X-ray demonstration of free gas under diaphragm was seen in 52.5%. Majority of cases 60 had leukocytosis and 90 % had anemia, positive peritoneal fluid culture was found in 75%.

Maximal number 90 % had single perforation, and were situated 21- 40 cm from ileocecal valve, the usual post-operative complication was wound sepsis in both groups but less in group b. overall mortality was 25%, group A 30 % group B 10%.

Typhoid perforation is a surgical emergency, resuscitation immediate surgery provide the only hope for survival, simple closure of perforation along with side rin 89.95%, to side ileo-transverse anastomosis is the best surgical procedure for closure of typhoid perforation, reducing the hospital stay and mortality as compared to simple closure of perforation only, typhoid ileal perforation still has poor prognosis with high morbidity and mortality late presentation delayed operation, multiple perforation, severe peritoneal contamination and post-operative fecal fistula that have adverse effect on mortality, most death were during the early postoperative period with survivors having prolong hospital stay.

In present series of work, group b s simple closure of perforation with ileo-transverse anastomosis showed less mortality and morbidity, in addition to that those patient had less complication rate and they were discharged earlier, showing speedy recovery, that chance of fecal fistula was less, mainly due to the decompressive and bypass effect of ileo-transverse anastomosis, another advantage of this procedure is, it is a single sitting procedure with better prognosis and outcome.

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