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Surgery

A CLINICAL STUDY AND MANAGEMENT OF SECONDARY PERITONITIS IN UPPER ASSAM DUE TO HOLLOW VISCUS PERFORATIONS

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ABSTRACT

INTRODUCTION : Peritonitis secondary to perforation of the gastro intestinal tract requires emergency surgical intervention and is associated with significant morbidity and mortality rates. It is a common occurence in this country.Almost all cases of perforation of gastrointestinal tract require surgery. Laperotomy is needed with closure of the perforation with omental patch. peritoneal toilet and putting drain were the common method of surgical management in peritonitis due to non traumatic/ non obstructed hollow viscus perforation.

MATERIALS AND METHODS: The present hospital based prospective interventional study was conducted in the Department of Surgery. All the cases were admitted into the general surgery units of the department of surgery in Assam Medical College and Hospital, Dibrugarh during the period of one year from June 2016 to May 2017, above the age of 12 years.Hollow viscus perforation due to trauma (penetrating and blunt) and perforations due to obstruction were excluded.

Diagnosis was made on the basis of clinical findings, history, laboratory investigations and radiological evidence. Special investigation was done only in selected cases. Culture and sensitivity tests of peritoneal exudate were done to check for the bacterial contamination and to guide antibiotic therapy.

Immediate Surgery was performed in all the patients with perforations of the gut after preliminary resuscitation. conservative treatment was given when it considered as a "sealed" perforation showing the signs of improvement , poor general conditions and the associated serious illness needed operative management.

RESULTS: In our study perforation was found more common in males (79) and as comparative to females (17) within our sample of study of 96 patients.

In this study most of patients with hollow viscus perforation were above the age of 50 years (36.5%) followed by the age group of 21-30 years (26%). The frequency of anatomical site of perforation, duodenal ulcer perforation (55.21%) was the commonest site involved, followed by ileal perforation (20.83%) and appendicular perforation (14.58%). In this study all the cases presented with pain, vomiting, fever and rigidity.

The most common procedure done ,omental patch closure (63.54%), appendicectomy was done (14.58%) of all cases and simple closure was done in 11.45 of cases. Resection and anastomis was done in 6.25% of cases and loop ileostomy was done in 4.17% of cases. All these cases was closed with peritoneal toilet and drain.

CONCLUSION: Almost all cases of perforation of gastrointestinal tract require surgery. Laperotomy with closure of the perforation with omental patch closure, peritoneal toilet and drain were the commonest method of surgical management in peritonitis due to hollow viscus perporation.History of early and contineus fever is one of the most useful clinical criteria to differentiate typhoid from other perforations. Simple repair of perforation in two layers is the treatment of choice for typhoid perforations. Lower respiratory tract infections is the most common complication observed.

KEYWORDS : Peritonitis, perityphilitis, pneumoeritonium, perforation, omental patch, peritoneal toileting.

INTRODUCTION = SECONDARY PERITONITIS

Peritonitis is defined as inflammation of the serosal membrane that lines the abdominal cavity and the organs contained therein due to hollow viscus perforation, is commonly encountered in surgical practice. Peritonities is often caused by introduction of an infection into the sterile peritoneal environment through perforation of bowel, chemically irritating material, such as gastric acid from a perforated ulcer. The different modes of presentation of cases may be misleading the diagnosis of its origin. The spectrum of etiology of perforation in tropical countries and western countries are different. In western countries, lower gastro-intestinal tract perforations were predominant whereas in India upper gastro-intestinal tract perforations constitute the majority of cases.

Mankind knows peritonitis as a disease from the days of Hippocrates. Hippocrates described Hippocrates facies in 400 BC. Earlier Rawlenson in the year 1727 was the first to give a clear description of the signs and symptoms of gastric ulcer and peritonitis.

Peritonitis secondary to perforation of the gastro intestinal tract requires emergency surgical intervention and is associated significant morbidity and mortality rates.It is the common occurrence in this country.

Non-operative management is required in patients who identified to have a spontaneously sealed perforation proved by water soluble contrast gastro-duodenogram. Operative management consist of time honoured practice of omental patch closure, but this can also be done by laparoscopic method.

In the tropical countries ileal perforation is a common surgical emergency. In abdominal emergencies it is reported to constitute the 5th commonest cause due to high incidence of enteric fever and tuberculosis in these countries.

In developing countries the mortality rate from ileal perforations remains high, despite improvement in critical care and timely surgical intervention. In present days every patients with ileal perforation should be recommended for surgery due to advanced anesthesia and tremendous improvement of resuscitative measures.

Appendicitis also known as “perityphilitis” was first described by McBurne in 1889. If appendicitis untreated, it progress to local peritonitis with formation of appendicular mass, gangrene of appendix, perforation and generalized peritonitis.

Colonic perforation which carries high mortality risk is mainly due to diverticular perforation but perforations due to neoplasm, ischaemia are also seen

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Now-a-days peritonitis management consiste of simple closure of the perforation along with thorough peritoneal toileting and resection and anastomosis if needed especially in small bowel perforation. Ostomies

is usually not preferred by many surgeons.

In colon cancer resection of the pathological part with diversion procedure like Hartmann's procedure is considered due to gross contamination of peritoneum.

Perotonitis usually presents as an acute abdomen. Local findings include distension abdomen, abdominal tenderness, guarding, rigidity,decrease or absent bowel sounds. Systemic findings include fever, chills or rigor, tachycardia,sweating,restlessness, tachypnea,dehydration, oliguria, disorientation and ultimately shock.

The present study is an attempt to study the frequency of peritonitis secondary to hollow viscus perforations and complications of operative management in patients which was admitted in the surgical unites of Assam Medical College and Hospital, Dibrugarh within the study period.

MATERIALS AND METHODS

This study was conducted prospectively in the department of surgery, Assam Medical College & Hospital, Dibrugarh who were diagnosed clinically peritonitis. All these 96 cases were admitted into the general surgery units of the department of surgery in Assam Medical College & Hospital Dibrugarh, during the periods from June 2016 to May 2017 and are above the age of 12 years. Hollow viscus perforations due to trauma [penetrating and blunt] and perforation due to obstructed or strangulated hernia are excluded.

Diagnosis was based on a thoroughly taken history and clinical examination with radiological investigation.

INVESTIGATIONS:-

BLOOD TESTS:

Haematological investigations such as haemoglobin percentage, total cell count and differential count, bleeding and clotting profile were done to look for signs of infection and also know the amount of intra operative blood transfusion required.

BIOCHEMICAL INVESTIGATIONS

Biochemical parameters assessed are blood glucose, renal function tests, serum electrolytes like sodium, potassium, bicarbonate level, serum amylase and lipase levels were done and detail noted. Arterial blood gas analysis were done in selected patients where signs of multi organ failure was present.

RADIOLOGICAL INVESTIGATIONS

Chest x ray, x ray plain picture abdomen in erect posture to check for any free air under diaphragm.USG Whole abdomen was done to check for any intra abdominal mass,Pancreatitis, free fluid or other pathology associated.

MICROBIOLOGICAL

Culture and sensitivity of peritoneal exudate were done to check for bacterial contamination and to guide antibiotic therapy.

MANAGEMENT

RESUSCITATION

In the present series of 96 cases of peritonitis, secondary to hollow viscus perforation , pre operative management was started as soon as patient arrived at the out patient department or casualty department at the time of admission.

Majority of the patient require resuscitative measures prior to surgery.

The immediate measures included

i) Intravenous infusions and blood transfusions when reuired.
ii) Nasogastric aspiration
iii) Antibotics mainly third generation cephalosporins and gentamycin
iv) Recording of input output monitoring
v) Oxygen inhalation if required
vi) Assessment of the condition of the patient by monitoring pulse, respiration, temperature and blood gases.

SPECIFIC TREATMENT

Immediate surgery was performed in all patients with perforation of the gut after preliminary resuscitation. Conservative treatment was given when it considered as a “sealed” perforation showing signs of improvement with conservative treatment.

OPERATIVE MANAGEMENT

PRE OPERATIVE PREPARATION

It is done in the following ways

1. Shaving and antiseptic dressing
2. Ryles tube aspiration continued
3. Adequate resuscitation
4. Routine and special consent for operation from the patient/ party after proper explanation.

ANAESTHESIA

General aneasthesia with relaxant technique was used in all patients requiring laparotomy

PROCEDURE

Laparotomy was done and once the peritoneal cavity was opened the following points were noted

1. Fluid in the peritoneal cavity, its nature and extension to the flanks, lesser sac and to the pelvis.
2. Presence of free gas
3. Adhesions between bowel loops with other organs
4. Hollow viscus organ examination for any perforation
5. OF TYPES OPERATION PERFORMED
6. 1.Omental patch repair: Out of 96 cases ,61 cases treated with omental patch repair
7. 2. Appendicectomy: Out of 96 cases, in 14 cases appendicectomy was done.
8. 3. Simple closure: In 11 cases simple closure done
9. 4. Reseection and anastomosis: In 6 cases, resection with double layer anastomosis done.
10. 5. Loop Iliostomy: It is done onlu=y in 4 cases out of 96 cases
11. All gastro intestinal contents were rapidly evacuated with suction machine and swabbing of the peritoneal cavity with strerile cotton pad was done. Rapid gastro intestinal perforations were searched for, and then peritoneal irrigation was carried out with normal saline solution so that further work can be done in a relatively clean field.

At the end of intra abdominal procedure, thorough examination of hollow viscus organ done in systemic fashion before closure followed by the irrigation of the peritoneal cavity with saline solution to remove particulate debris and lower the bacterial count till the effluent is clean. Drains were put with corrugated PVC. The abdomen was closed in layers. Drainage tubes were removed after 48-72 hours.

RESULTS AND OBSERVATIONS

DISTRIBUTION BY SEX

Perforation was found more common in males as compared to females, presenting in 79 males and 17 females with our study sample of study of 96 patients.

AGE DISTRIBUTION

In this study most of the patients with hollow viscus perforation were above the age of 50 years followed by the age group of 21-30 years group. The youngest patient in this study was 14 years who was having appendicular perforation. The oldest patient was 75 years with duodenal ulcer perforation.

FREQUENCY OF ANATOMICAL SITE OF PERFORATION

The commonest site involved in hollow viscus perforation in this study was duodenal ulcer perforation (55.21%) followed by ileal perforation (20.83%) and appendicular perforation (14.58%).

Showing Anatomical Site of Perforation:

Anatomic site involve	Frequency	Percent
Stomach	4	4.17
Duodenam	53	55.21
Jejunam	3	3.13
Ileum	20	20.83
Appendix	14	14.58
Sigmoid colon	2	2.08

FREQUENCY OF SITE OF PAIN WITH PERFORATION

It is as follows Most common being diffuse all over abdomen showing in 59 patients out of sample of 96 cases(61.45%).

Pain in the epigastric region in 21 cases (21.87%).

Showing Distribution of site of Pain:

Site of pain	frequency	Percent
diffuse	59	61.45
Right iliac fossa (RIF)	12	12.50
Right iliac fossa, right Lumber (RIF,RL)	2	2.08
Epigastric (E)	21	21.87
Right hypochondrium (RH)	2	2.08
Total	96	99.98

DISTRIBUTION OF SIGNS

Most common sign present in almost all cases were guarding and rigidity which was present in 91 cases accounting for about 94.79%, followed by obliteration of liver dullness which was evident in 73 cases. (76.04%). This was followed by dehydration in 66 cases(68.75%) and presence of free fluid in peritoneal cavity in 58 cases(60.43%).

DISTRIBUTION OF PNEUMOPERITONEUM IN X RAY ABDOMEN IN ERECT POSTURE

Gas under diaphragm was seen in 72 cases within (75%) irrescpective of site of perforation. Widal tests was positive in 13 cases of ileal perforation.

DISTRIBUTION OF TYPES OF OPERATION

The most common procedure was done is omental patch closure (63.54%). Appendicectomy was done in 14.58% of cases and simple closure was done in 11.46% cases. Resection and anastomosis was done in 6.25 % of cases n loop iliost**omy was done in 4.17 % cases.**

Showing Distribution of type of operation:

Type of operation	Frequency	Percent
Omental Patch Repair	61	63.54
Appendicectomy	14	14.58
Simple Closure	11	11.46
Resection &Anastmosis	6	6.25
Loop Ileostomy	4	4.17
Total	96	100

DISTRIBUTION OF SAMPLES BY POST OPERATIVE COMPLICATIONS

In this study the most common post operative complication was lower respiratory tract infection (LRTI). The LRTI patients presented with fever, cough with expectoration and the chest x ray showed consolidation changes. The next most common complications observed was wound infection which was present in 12.5 cases and the patients manisfested with pain at the wound site and discharge. The pus was drained and sensitive antibiotics administered.

1 male and 1 female patient who were having gastric perforation and duodenal ulcer perforation developed acute respiratory distress syndrome (ARDS). 1 male patient with ileal perforation presenting 7 days after onset of symptoms and has undergone resection and anastomosis developed septicemia, lower respiratory tract infection and expired.

Showing Distribution of samples by Postoperative complication:

Postoperative	Frequency	Percent
Absent	38	39.58
Intra Abdominal Abscess (IAA)	2	2.08
Lower Respiratory Tract Infection, Wound Infection (LRTI,WI)	10	10.42
Wound Infection (WI)	12	12.50
Wound Infection(WI), Fistula	2	2.08
Lower Respiratory Tract Infection (LRTI)	22	22.92
Intra Abdominal Abscess, Lower Respiratory Tract Infection, Wound Infection (IAA,LRTI,WI)	4	4.17
Fistula	2	2.08
Acute Respiratory Distress Syndrome (ARDS)	2	2.08
Septicemia, Lower Respiratory Tract Infection (LRTI)	2	2.08
TOTAL	96	99.99

DISCUSSION

The age distribution

The highest number of patients encountered in this series was in the age group above 50 years followed by the age group of 21-30 years. In this present study duodenal ulcer perforation and peritonitis was more common. The mean age group in this study was 39.44 years.

This is comparable with the study by DR. Rajendra Singh Jhobta in 2006 who studied 504 cases of perforation peritonitis in which the mean age group was 36.8 years.

In the study performed by Vinayak N. Tukka et al (2016) whose study on 52 cases of perforative peritonitis in which mean was 45.72 years.

The ratio of men to women with all types of perforation irrespective of site and pathological condition was found M : F
Ratio of 4.65 : 1 in the present study.
MacKay and MacKay reported M : F ratio of 19 : 1.
Mishra SB et al (1991) found M : F ratio of 49 : 1.
Ramesh c Bharati et al (1996) reported M : F ratio of 24 : 1
Mathikere lingaiah ramchandra et al (2006) found M : F ratio of 9 : 1.

The commonest site involved in this study was duodenal ulcer perforation53(55.21%) followed by ileal perforation 20(20.83%) and appendicular perforation 14(14.58%).

A. Sai Dutta et al (2015) In his study of 100 cases of perforation, peritonitis found in most common type of perforation was perforated duodenal ulcer (56 cases) followed by appendicular (16) cases, ileal (12) cases, colonic (6) cases, gastric (4) cases, jejunal (2) cases, gall bladder (2) cases, anastomotic ulcers (2) cases were reported.

Varun Raju Thirumala et al (2017) in his study of 50 cases Duodenum (52%) is the most common site of perforation followed by ileal perforation (26%) , appendicular (14%) and colonic perforation (4%).

The frequency of site of pain in patients with perforation

The commonest site of pain in this study was diffuse in 59 cases (61.45%) followed by epigastric 21 cases (21.87%) and right iliac fossa 12 cases (12.50%).

Varun raja Thirumalagiri et al 2017 in his study of 50 cases site of pain diffuse 33 cases(66%), epigastrium 10 cases (20%), in right iliac fossa 5 cases (10%), in right hypochondrium 1 case (2%) and in right iliac fossa 1 case (2%).

OPERATIVE MANAGEMENT

All patients of perforative peritonitis were treated as a surgical emergency.

In the present study, laparotomy with closure of the perforation with omental patch repair 61(61.54%) is the commonest operative management for perforated peptic ulcer followed by appendicectomy 14(14.58%), simple closure 11 (11.46%), resection and anastomosis 6 (6.25%) and loop ileostomy 4 (4.17%).

Vinayak N. Tukka et al 2016 reported in a study of 300 cases that omental patch repair in 136 (45.33%) , primary repair of site of perforation 72 (24%), appendicectomy 56(18.67%), resection and anastomosis 26(8.67%), hemicolectomy 4 (1.33%), gastrojejunal anastomosis 4(1.33%) and colostomy 2 (0.67%).

Varun Raju Thirumalagir et al (2017) in his study of 50 cases laparotomy with closure of the perforation with omental patch (64%) is the commonest operative management for perforated peptic ulcer followed by simple closure, resection and anastomosis, and loop iliostomy

POST OPERATIVE COMPLICATIONS

In the present study the postoperative morbidity was towards higher side because of late presentation to the hoapital, poor build amd malnourishment, associated anaemia and dehydration at presentation. Most common complication developed by patients was lower respiratory tract infection.

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The next most commonly postoperative complication was wound infection which may be sustained by the fact that surgical incision site

gets contaminated and most of the patients are malnourished and anaemic.

Two patient developed septicemia and was expired.

Rajender Singh Jhobta 2006 in his study of 504 cases of perforation peritonitis found most common postoperative complications were respiratory complications (28%) eg pneumonia, atelectasis, pleural effusion or ARDS, wound infection, septicemia (18%) and dyselectrolaemia (17%).

CONCLUSION

It has been seen from the study that duodenukm was the most common site of perforation in perforative peritonitis due to hollow viscus perforation. The highest number of patients was seen in the age group above 50 years , irrespective of the pathological conditions followed by 21-30 year age group. Most of the patients presented 48 hours after onset of the clinical symptoms. Duodenal ulcer perdoration was the most common cause of perforation in perforative peritonitis due to holloe viscus perforation, next commonest was ileal perforation followed by appendicular perforation. Gastric and colonic perforations are rare. Duodenal ulcer perforation was more common in the above 50 year age group.

In most of the caes diagnosis of peritonitis secondary to hollow viscus perforation was made by clinical evaluation and confirmed by radiological imaging like X ray plain picture abdomen and ultrasonography.

Almost all cases of perforation of gastrointestinal tract require surgery. Laparotomy with clodure of the perforation with omental patch closure is the commonest method of surgical management in peritonitis due to hollow viscus perforation. History of fever is one of the most useful clinical criteria to differentiate thyphoid from other perforations. Simple repair of perforation in two layers is the treatment of choice for thphoid perforations. Lower respiratory tract infection is the most common complication observed.

Finally it could be concluded that peritonitis secondary to hollow viscus perforation can be treated by timely surgical intervention.

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