Section: Surgery

Original Research Article

# A CLINICAL EVALUATION, ASSESMENT AND MANAGEMENT OF PERITONITIS SECONDARY TO HOLLOW VISCUS PERFORATION

**Praveen Kumar Gupta[1], Deepak Mandloi[2], Akshay Sharma[3], Vibha Khare[4], Tapan Pendro[5]**

[1]C.M.O. Department of Surgery, ESIC Model Hospital & ODC Nanda Nagar Indore
[2]Assistant Professor, Department of Surgery, Sevakunj hospital & LNCT medical College Indore
[3]Department of General Surgery, Consultant General and Colo rectal Surgery, Vishesh Jupiter hospital, Indore
[4]Senior Residence, Super Speciality, Hospital department of Biochemistry MGM Medical College Indore.
[5]Associate Professor, Department of Forensic Medicine, MGM Medical college Indore.

*Received* : 16/12/2023
*Received in revised form* : 26/01/2024
*Accepted* : 09/02/2024

*Keywords:*
*Peritonitis, hollow viscus perforation, ileal perforation, Duodenal ulcer perforation.*

Corresponding Author:
**Dr. Vibha Khare,**
Email: drvibhakhare@gmail.com

DOI: 10.47009/jamp.2024.6.1.230

Source of Support: Nil,
Conflict of Interest: None declared

*Int J Acad Med Pharm*
2024; 6 (1); 1159-1166

## Abstract

**Background:** 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. Peritonitis 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. **Materials and Methods:** This study was conducted prospectively in the Department of Surgery, Assam Medical College & Hospital, Dibrugarh on patients who were diagnosed clinically peritonitis were taken. All these 96 cases were admitted into the general surgical units of the Department of Surgery in Assam Medical College and Hospital, Dibrugarh during the periods from June 2016 to May 2017. Diagnosis is based on a thoroughly taken history and clinical examination with radiological investigation. **Result:** 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%). In this study, ileal perforation constituted 20.83% of the patients abdominal pain was present in all cases, vomiting was present in 14 cases, fever in 18 cases, bowel sounds was present in 5 cases and free fluid was present in 14 cases. Appendicular perforation was present in 14.58% of patients most of the patients were in the age group 21-30 years of age, and most presented with classical symptoms of abdominal pain, vomiting, and fever, rigidity was present in all cases and tenderness was localized to right iliac fossa. **Conclusion:** It has been seen from the study that Duodenum 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 perforation was the most common cause of perforation in perforative peritonitis due to hollow 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.

## INTRODUCTION

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. Peritonitis 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


ISSN (O): 2687-5365; ISSN (P): 2753-6556

where lower gastro-intestinal tract perforations predominate whereas in India upper gastro intestinal tract perforations constitute the majority of cases.[1]

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.[2]

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 occurrence in this country.

The first clinical description of perforated peptic ulcer was made by Crispin 1843. Smoking and use of non-steroidal anti inflammatory drugs are important risk factors for perforation.[3] The inadvertent use of NSAIDS and other analgesics forms one of the most common risk factors these days.[4] Emergency work load is more in perforation of the stomach, duodenum and small bowel than colonic perforation.[5,6] Perforation of the large intestine is a major surgical challenge to the clinician because the technical aspects of the operation is difficult and the situation is rapidly lethal.

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

**Aims and objectives**

**Aims**

The study was carried out to evaluate various etiological factors, mode of clinical presentation, morbidity and mortality pattern of different types of perforation peritonitis presented in our hospital.

**Objective**

To study the frequency of peritonitis secondary to hollow viscus perforation in relation to age, Sex, Anatomical location, Symptoms and signs, Reliability of investigations like X-Ray abdomen.

## MATERIALS AND METHODS

This study was conducted prospectively in the Department of Surgery, Assam Medical College & Hospital, Dibrugarh on patients who were diagnosed clinically peritonitis were taken. All these 96 cases were admitted into the general surgical units of the Department of Surgery in Assam Medical College and Hospital, Dibrugarh during the periods from June 2016 to May 2017. Diagnosis is based on a thoroughly taken history and clinical examination with radiological investigation.

**Source of data:** Study Population- Patient with peritonitis secondary to hollow viscus perforation at the Department of General surgery, Assam Medical College and Hospital for a period of one year who were properly examined, investigated, treated and followed up for one month.

**Sample size:** All patients with peritonitis above the age of 12 years treated at Assam Medical College and Hospital, Dibrugarh, Assam.

**Study design:** A hospital based Prospective study.

**Study duration:** One year from June 2016 to May 2017.

**Inclusion criteria**

- Patients with clinical suspicious and investigation support for the diagnosis of peritonitis due to hollow viscus perforation who are later confirmed by intra operative finding.
- Patients above 12 years of age.

**Exclusion criteria**

- Hollow viscus perforation due to trauma [Penetrating and blunt].
- Perforation due to obstructed/strangulated hernia.

**Method of data collection:**

This study was conducted in the Department of General Surgery, Assam Medical College and Hospital, Dibrugarh after approval from the institutional ethics committee. Data was collected from all patients diagnosed of peritonitis secondary to hollow viscus perforation on the basis of clinical diagnosis and radiological confirmation fulfilling the inclusion and exclusion criteria. Written consent from each patient obtained after explaining the study procedure to them in their own local language. Detailed History taking thorough physical examination were done and recorded as per a structured pre-prepared proforma. Diagnosis was made on the basis of clinical findings, history, laboratory investigations and radiological evidence. Special investigation was done only in selected cases.

**Investigations:** Ancillary and diagnostic investigations were advised to the patients after examination and the reports noted down systematically in charts.

**Blood Test:** 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 parameters assessed are blood glucose; renal function test, serum electrolytes like sodium, potassium, bicarbonate level, serum amylase and lipase levels were done and detailed noted. Arterial blood gas analysis were done in selected patients were done where sign of multi organ failure was present. Blood cutures were done wherever post-operative sepsis was suspected

**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.

**Biochemical Investigation:** Culture and senstivity of peritoneal exudate were done to check for the bacterial contamination and to guide the antibiotic therapy.

**Management:** In the present series 96 cases of peritonitis secondary to hollow viscus perforation


ISSN (O): 2687-5365; ISSN (P): 2753-6556

Pre- operative management was stated as soon as the patient arrived at the out patients department or casuality department in the following ways:

**General:** Majority of the patients required resuscitative measures prior to surgery; the immediate measures included –

- Intravenous infusions and blood transfusion when required.
- Nasogastric Aspiration
- Antibiotics; mainly third generation cephalosporine (ceftriaxone) and gentamycin.
- Recording of input output chart.
- Assessment of the condition of the patient by regular recording of pulse, respiration, temperature and blood pressure.
- Oxygen inhalation in some cases.

**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, poor general conditions and associated serious illness needed operative management.

**Operative Management**

**Preoperative Preparation:** It is done in the following ways-

- Shaving and antiseptic dressing of the abdomen and perineum. Antiseptic dressing was done with savlon, spirit and povidone iodine solution.
- Ryle'stube aspiration continued.
- Intravenous fluids and indicated medications were maintained accordingly.
- Adequate resuscitation of the patient to be maintain, hemodynamic stability and to make the patient fit as far as possible to withstand surgery under anaesthesia.
- Routine and special consent for operation from the patient/party after proper explanation.

**Pre-Anaesthetic Medication:** These were given like any other emergency abdominal operation and as decided by the anaesthesiologist.

**Anaesthesia:** General anaesthesia with relaxant technique (oral endotracheal intubation) was used in all patients requiring laparotomy.

**Incision:** The following incisions were made:

- Midline(supraumblical/infraumblical/combined)
- Right paramedian(upper/lower)
- Left paramedian(upper/lower)
- Right, left or midline incision with transverse lateral extensions as and when necessary.

**Procedure:** Laparotomy was done and once the peritoneal cavity was opened the following points were noted-

- Fluid in the peritoneal cavity, its nature and extension to the flanks, lesser sac and to the pelvis.
- Presence of free gas.
- Adhesion between the bowel loops with the other organs.
- Hollow viscus organ examine for any perforation.

All gastrointestinal contents were rapidly evacuated with suction machine and swabbing of the peritoneal cavity with sterile cotton pad was done. Rapid gastrointestinal 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 as and when needed of corrugated PVC.

**Closure of the Abdomen:** The abdomen was closed in layers. The wound were closed in two layers in mid line incisions and three or four layers in cases of paramedian incisions. Post operative wound inspection was done on 3rd -5th day and manages accordingly. Skin stitches were removed between 8 and 10 day of operation.

**Type of Operation Performed:**

- Omental patch repair: Out of 96 cases 61 cases treated with omental patch repair.
- Appendicectomy: Out of 96 cases in 14 cases appendicectomy was done.
- Simple closure: In 11 cases simple closure done.
- Resection and Anastmosis: In 6 cases resection with double layer anastmosis done.
- Loop Ileostomy: It is done only 4 cases out of 96 cases.

**Post Operative Management:** The post operative management was carried out in the following ways.

- Intravenous Fluid: Fluid in the form of 5% dextrose, dextrose saline and ringer lactate was infused. Blood transfusions were given according to need.
- Antibiotics: These were continued post–operatively and adjusted according to the severity of the injury and response of the patient. Metronidazole or tinidazole infusions were given in all patients.
- Anti-ulcer prophylaxis with ranitidine injections was given.

Multivitamin injections were given in the intravenous fluids daily.

- Vitamin K injections given in case of coagulopathies.
- Analgesics and sedatives were given parenterally as and when needed.
- Nasogastric aspirations were done in selected patients and are continue till bowel sounds returned.
- Diet: With the return of bowel movements, Ryle's tube was removed and oral liquids allowed and then gradually semi-solid and solid food was allowed.
- Drainage tube was removed after 48-72 hrs in usual cases and 5 days in cases requiring bowel repair or resection.


ISSN (O): 2687-5365; ISSN (P): 2753-6556

- Urinary catheter was used when needed.
- Stitches were removed on 8th-10th day in most cases.
- Enemas were prescribed in some cases based on specific indications.

**Complications:** During the post-operative period, patients were constantly monitored by regular record of pulse, blood pressure and temperature. Chest and abdomen were regularly examined for lower respiratory tract infection, acute respiratory distress syndrome, wound infection, intra-abdominal abscess, fistula and any abnormality, if present, was noted and manages accordingly. Input – output chart was maintained strictly. In cases where death occurred, the cause, date, and time of death were noted.

**Evaluation of Patients At The Time Of Discharge:** All the patients were thoroughly examined before discharge and following points were noted: General condition, Condition of the wound, Abdominal examination of hernia, fistula and others.

**Follow-up:** It was done at SOPD, with the advice at discharge to attend SOPD at 10 days and one month. The cases were then grouped under Symptom free, Mild symptoms, Recurrence, Expired. Abbreviations were used frequently in the case records.

**Statistical Analysis:** Data was presented in terms of using percentage, tables and graphs whenever necessary. Data from the entire study was collected and analyzed on Microsoft Excel Spreadsheet 2007.

## RESULTS

The present study comprised of a detailed clinical study of 96 cases of peritonitis secondary to hollow viscus perforation admitted in surgery department of Assam Medical College and Hospital, Dibrugarh, Assam from June 2016 to May 2017.

**Distribution by sex:** Perforation was found more common in males as comparative to the females, presenting in 79 patients within our sample of study of 96 patients.

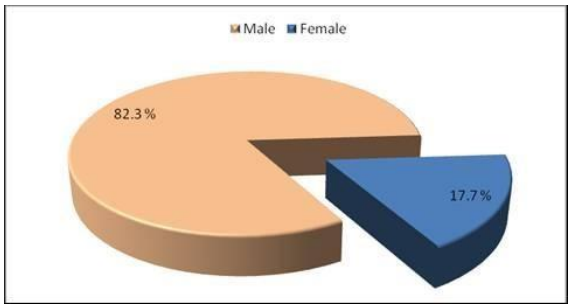


**Figure 1: Pie Diagram Showing Distribution of sex**

Distribution of sample by age: 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 and the oldest patient are 75 years with duodenal ulcer perforation. In this study duodenal ulcer perforation was more common in the age group of above 50 years constituting 23 cases out of 35 cases of hollow viscus perforation.

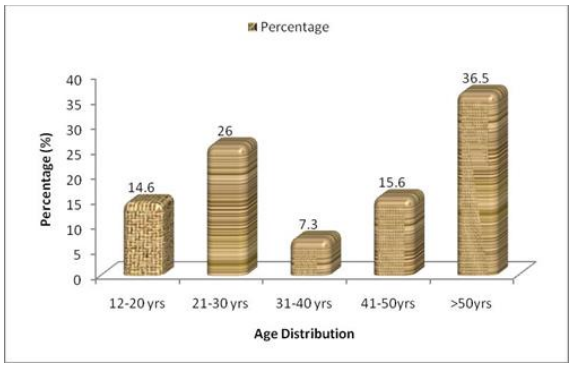


**Figure 2: Bar Diagram Showing Age Distribution**

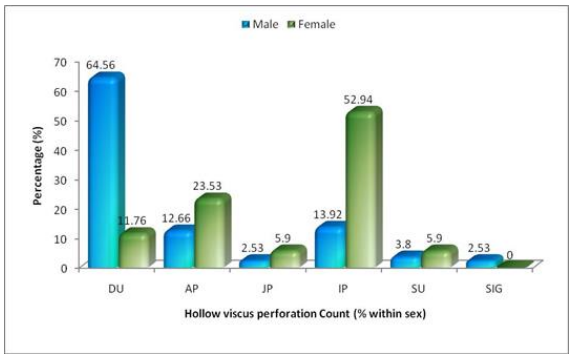


**Figure 3: Bar Diagram Showing Distribution of Different type of perforation peritonitis**

**The 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%).

In this study, ileal perforation constituted 20.83% of the patients abdominal pain was present in all cases, vomiting was present in 14 cases, fever in 18 cases, bowel sounds was present in 5 cases and free fluid was present in 14 cases.

Appendicular perforation was present in 14.58% of patients most of the patients were in the age group 21-30 years of age, and most presented with classical symptoms of abdominal pain, vomiting, and fever, rigidity was present in all cases and tenderness was localized to right iliac fossa.

Four gastric ulcer perforation cases were presents in this study. Three patients were male patients and one is female patient, two patient having diffuse pain and two patient having pain confined to epigastric region, no past history of pain was elicited, guarding and rigidity was present in all cases and liver dullness was also obliterated in all cases.

Jejunal perforation present only in three cases in this study. Two patients were male and one was female.

Sigmoid colon perforation present only in two cases in this study. Both patients were male.

All patients of jejuna and sigmoid perforation having diffused pain and also site of tenderness diffuse.


ISSN (O): 2687-5365; ISSN (P): 2753-6556

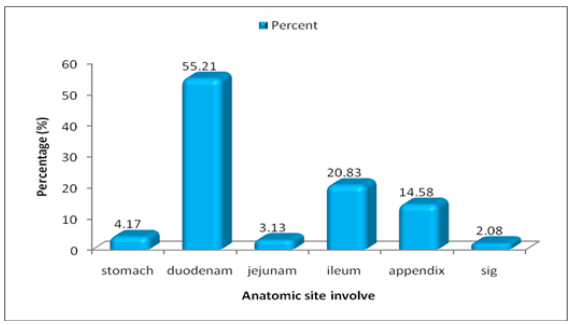


**Figure 4: Bar Diagram Showing Anatomical Site of perforation**

Patients presenting with perforation had varied sites of pain abdomen. Most common being diffuse all over abdomen showing in 59 patients out of our sample of 96 cases, standing for 61.45% of the cases, secondly followed by pain in the epigastric region in 21 cases, standing about 21.87% of the cases.

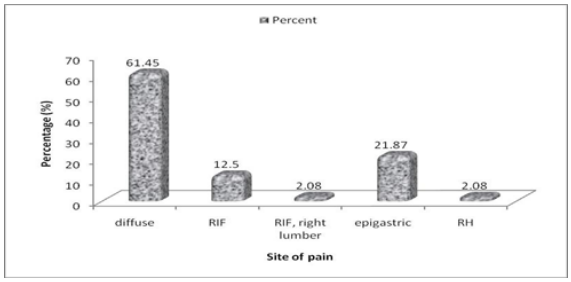


**Figure 5: Bar Diagram Showing Distribution of Site of Pain**

**Distribution of Symptoms:**
Vomiting is present in 80 cases and it is most commonly observed in patient presenting more than 2 days after the onset of symptoms whereas in the appendicular perforation vomiting was present in most of the patients even from the first symptomatic day in most of the patients with the duodenal ulcer perforation the patient had previous history of abdominal pain suggestive of peptic ulcer disease.

**Distribution of signs:**
Most common signs present in almost all cases were guarding and rigidity (G& R), which was present in 91 cases accounting for about 94.79%, followed by obliteration of liver dullness (OLD) which was evident in 73 cases (76.04%). This was followed by Dehydration (DEHY) 66 cases accounting for 68.75% and Presence of free fluid (FF) peritoneal cavity 58 cases, accounting for 60.42% of cases.

**Distribution of Pneumoperitoneum in X-Ray Abdomen:** Gas under diaphragm was seen in 72 cases (75%) irrespective ofthe site of perforation. Widal test was positive in 13 cases of ileal perforation.

**Distribution Type of Operation:** The most common procedure done was omental patch closure (63.54%). Appendicectomy was done in 14.58% of cases and simple closure was done in 11.46% of cases. Resection and anastomosis was done in 6.25% of cases and loop ileostomy was done in 4.17% of cases.

**Distribution of Samples by Post operative Complication:** In this study the most common post operative complication was lower respiratory tract infection (LRTI) and the LRTI patients presented with fever, cough with expectoration and the chest X-ray showing consolidation changes.

The next most common complication observed was wound infection which was present in 12.5% of cases and the patients manifested with pain at wound site and discharge. The pus was drained and antibiotics administered.

Two patient who was operated for ileal perforation with ischemic ileum developed enterocutaneous fistula after resection and anastomosis.

**Distribution of Sample by Outcome:** In this study the overall mortality rate was 8.33% irrespective of site and pathology of perforation. Out of 96 cases, 8 cases expired, four from duodenal perforation and one from ileal, one from gastric, one from appendicular, one from jejunal perforation.

**Table 1: Showing Sex Distribution**

| Sex | No. of cases | Percentage |
|---|---|---|
| Male | 79 | 82.3 |
| Female | 17 | 17.7 |
| Total | 96 | 100 |

**Table 2: Showing Age Distribution**

| AGE | No. of cases | Percentage |
|---|---|---|
| 12-20yrs | 14 | 14.6 |
| 21-30yrs | 25 | 26 |
| 31-40yrs | 7 | 7.3 |
| 41-50yrs | 15 | 15.6 |
| >50yrs | 35 | 36.5 |

**Table 3: Showing Different type of perforation peritonitis**

| Hollow viscus perforation | | Sex | | Total |
|---|---|---|---|---|
| | | Male | Female | |
| Duodenal ulcer perforation(DU) | Count (%within sex) | 51(64.56) | 2(11.76) | 53(55.20) |
| Appendicular perforation(AP) | Count (%within sex) | 10(12.66) | 4(23.53) | 14(14.58) |
| Jejunal perforation (JP) | Count (%within sex) | 2(2.53) | 1(5.90) | 3(3.13) |
| Ileal perforation (IP) | Count (%within sex) | 11(13.92) | 9(52.94) | 20(20.83) |
| Stomach ulcer perforation(SU) | Count (%within sex) | 3(3.80) | 1(5.90) | 4(4.17) |


ISSN (O): 2687-5365; ISSN (P): 2753-6556

| | | | | |
|---|---|---|---|---|
| Sigmoid colon perforation(SIG) | Count (%within sex) | 2(2.53) | 0(0) | 2(2.08) |
| Total | | 79 | 17 | 96 |
| | | 100.0% | 100.03% | 99.99% |

**Table 4: 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 |

**Table 5: 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 |

**Table 6: Showing Distribution of Symptoms**

| Symptom | Frequency | Percent |
|---|---|---|
| Vomiting | 80 | 83.33 |
| Fever | 56 | 58.33 |
| Pasth/o pain | 35 | 36.46 |

**Table 7: Showing Distribution of signs**

| Signs | Frequency | Percentage |
|---|---|---|
| Distension Abdomen(DA) | 58 | 60.42 |
| Dehydration(DEHY) | 66 | 68.75 |
| Guarding and Rigidity(G &R) | 91 | 94.79 |
| Obliterated Liver Dullness(OLD) | 73 | 76.04 |
| Free Fluid(FF) | 58 | 60.42 |
| Bowel Sound(BS) | 45 | 46.88 |

**Table 8: Showing Distribution of Pneumoperitoneum in X-Ray Abdomen:**

| Pneumoperitoneum | Frequency | Percent |
|---|---|---|
| Present | 72 | 75 |
| Absent | 24 | 25 |
| Total | 96 | 100 |

**Table 9: 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 |

**Table 10: Showing Distribution of samples by Post operative 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 |


ISSN (O): 2687-5365; ISSN (P): 2753-6556

**Table 11: Showing Distribution of sample by outcome**

| Outcome | Frequency | Percentage |
|---|---|---|
| Discharged | 88 | 91.67 |
| Expired | 8 | 8.33 |
| Total | 96 | 100 |

## DISCUSSION

This study was conducted in Department of General Surgery, Assam Medical College and Hospital, Dibrugarh. A total of 96 patients with peritonitis secondary to hollow viscus perforation with particular criteria fixed during the study period will be taken up for study.

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 was more common in the age group of above 50 years. The mean age group in this study was 39.44 years. The ratio of men to women with all types of perforation irrespective of site and pathological condition was 4.65:1 in the present study.

**In pepticulcer perforation-**

Past history of pain abdomen suggestive of pepticulcer disease was present in 23 (40.35%) of patients. Mishra SB et al (1991) in their study of 53 cases ulcer history present in 30 (60%) of patients. In the review of 50 cases of Ramesh C Bharati et al (1996) in their study of 50 cases past history of pain was present in 78% of the patients.[6]

In Ileal perforation: Enteric perforation usually occurs in the second and third week of fever. In the present series the maximum incidence of perforation was in the second week of fever followed by those in the first week. Purohit reported the majority of perforations in the first week of fever while Eggleston and Santoshi reported 33% in the second week of fever.

Absence of liver dullness was present in all the cases of ileal perforation. Nair SK et al in their study of 19 (95%) cases out of 20 cases demonstrated absence of liver dullness. Most of the patients presented with right iliac fossa pain and then spreading diffusely fever and vomiting were the other symptoms.

In appendicular perforation: Pain either burning colicky or stabbing in nature present all over the abdomen or right lower quadrant Ochsner et al, (1945), Avent et al, (1950). Pain is normally associated with repeated vomiting and constipation was present in 50% of the cases in Shendarkars series (1961).[7]

In our study tenderness were present in right iliac fossa 85.71% cases and epigastrium and right iliac fossa in 14.29% cases. In our study guarding and rigidity present in all cases.

Ochsner et al (1945), shown that tenderness was present in 80% of cases in a series and the point of maximum tenderness was in the right lower quadrant in 91% of the patient. Poddar et al in 1982 had shown tenderness in 100% of the cases.[8]

Investigation: Peritonitis is a life threatening complication of hollow viscus perforation. Diagnosed is made clinically and confirmed by the presence of pneumoperitoneum on radiographs (X-Ray erect Abdomen).[9]

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 (63.54%) 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 loopileostomy 4 (4.17%).[10]

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

**Follow-up:** Out of 96 patients only20 patients come for stitch removal after 10 days. Out of 20 patients only 4 patients develop wound infection. Out of 20 patients 16 patients are symptoms free. Most of the patients did not turn up after one month in the study. So long term outcome of procedure could not be made out. Our study was limited by time period and more study need to be done involving large sample size and longer duration of study to arrived at more definitive conclusion.

## CONCLUSION

It has been seen from the study that Duodenum 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 perforation was the most common cause of perforation in perforative peritonitis due to hollow 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.

Almost all cases of perforation of gastrointestinal tract require surgery. Laparotomy with closure 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 typhoid from other perforations. Simple repair of perforation in two layers is the treatment of


ISSN (O): 2687-5365; ISSN (P): 2753-6556

choice for typhoid 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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ISSN (O): 2687-5365; ISSN (P): 2753-6556