

# A Study of Risk Factors, Early Evaluation and Management of Duodenal Ulcer Perforation Peritonitis

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## ABSTRACT

**Background:** Duodenal perforation is not commonly seen, it's a complication of peptic ulcer perforation and duodenal ulcer occurs due to an imbalance between gastro-duodenal mucosal defense mechanism and the damaging forces, particularly gastric acid, pepsin related to predisposing & risk factors. Multiple treatments of choices available for perforation peritonitis like conservative, endoscopic, laparoscopic, and surgical management. The main goals of treatment are resuscitation, control of infection, nutritional support and restoration of gastrointestinal tract continuity.

### Objectives:

1. To assess the Risk factors of Duodenal perforation
2. To determine the mode of presentation (symptoms)
3. To assess the different modes of Management
4. To assess the outcome

**Methodology:** It is a prospective observational study carried out at a tertiary care center from January 2013 to January 2016, of three year duration. Total 58 cases were included who were presented with perforation peritonitis. Provisional diagnosis was made from history, clinical findings & radiological findings showing gas under diaphragm but confirmed only during intraoperative. All basic laboratory investigations carried out like complete blood count, renal function test, liver function test with serum protein, serum amylase, serum electrolyte and arterial blood gas measurement, urine routine and microscopy, blood culture and sensitivity.

**Procedure:** With midline incision, edges of perforation refreshed & biopsy taken if needed.

Primary closure of duodenal ulcer perforation done with 2-0 mersilk through and through, interrupted sutures 0.5 cm apart and 0.5 cm away from margin of perforation in single layer to approximate the defect wall and mobilization of vascularized long part of free omentum brought and placed over the closed perforation site and loosely tied knots and live omentopexy done.

**Results:** In our study out of 58 cases, maximum observed age group with duodenal ulcer perforation was 41-50 years. 19 cases (32.78%) and only 2 cases were of less than 20 years. Male: female ratio was 10.6:1. Pain in abdomen was the commonest presentation in all cases associated with nausea and vomiting in 49 cases (84.48%). Commonest risk factors observed were use of NSAID, alcohol consumption, smoking, and chronic stress. Duration of pain varies; maximum 29 patients (50%) get admitted in 6-12 hours. Routinely all patients planned for surgery but primary exploratory laparotomy done in 47 cases (81.03%) and primary closure of duodenal perforation with live omentopexy with feeding jejunostomy in 13 cases (22.41%). Commonly seen size of perforation was < 0.5 cm in 25 cases (43.12%) and edge biopsy done in 19 cases (32.75%) to rule out malignancy. Post-operative intra-abdominal drain placed bilaterally in 48 cases (82.76%). Commonest postoperative complications was respiratory tract infection and wound infection (SSI) 17 and 13 cases (29.31%), (22.41%) respectively. Generally postoperative Hospital stay was 6-10 days seen in 28 cases (48.28%).

**Conclusions:** More stress in different directions some predisposing factors, risk factors have a relatively high risk to develop the Acid peptic disease which complicate to peptic ulcer & then

perforation. Pragmatic early evaluation and surgical intervention for duodenal peptic ulcer perforation with live Omentopexy with or without feeding jejunostomy associated with broad spectrum antibiotics gives excellent post-operative result & outcome. But late presentation and late exploration have a high rate of complications.

**Key words:** duodenal perforation, laparotomy, ulcer, peritonitis.

## INTRODUCTION

Peptic ulcer perforation are not commonly seen, it occurs due to complication of peptic ulcer diseases, duodenal ulcer occurs due to an imbalance between gastro-duodenal mucosal defense mechanism and the damaging forces, particularly gastric acid and pepsin related to some predisposing and risk factors like overuse of NSAID and gastric cancer<sup>1-6</sup>; alcoholics and smokers are at a high risk<sup>7-8</sup> chronic stress, H. pylori infection & advanced age are some predisposing factors<sup>18-19</sup>. Helicobacter Pylori infection is the causative agent of peptic ulcer disease<sup>9</sup>. Its eradication can give the good prognosis<sup>10</sup> sometimes it needs emergency surgical intervention for peptic ulcer disease to avoid complications like GIT bleeding, perforation of the stomach, Duodenum or the site of ectopic acid production and gastric outlet obstruction. Duodenal ulcer perforation is potentially life threatening condition and mortality ranges from 8 to 25% in published studies.<sup>11, 12, 13</sup> The first description on a perforated duodenal ulcer was made in 1688 by Murutto and reported by Lenepneau.<sup>14</sup> Peptic ulcer perforation is a disease that only occurs in 2% to 10% of patients with peptic ulcer diseases.<sup>15</sup> Each year peptic ulcer disease affects 4 million people around the world<sup>16</sup> associated with life threatening complications including bleeding, perforation, penetration and obstruction. Perforation is the second most common complication after bleeding.<sup>10, 17</sup>

Multiple clinical features observed after perforation severity varies according to the duration of onset of pain, it was sudden

and acute, has been described as 3 stage process; early period (lasts 4-6 hours) with acute localized abdominal pain, tachycardia and peripheral body coldness. Intermediate period (upto 12 hours) & symptoms developed due to release of gastric contents into the peritoneal cavity causing chemical peritonitis can develop generalized abdominal pain, tachycardia & severe peripheral body coldness seen. Late period (after 12 hour) pain, fever, sign of hypervolemia and distension of abdomen, patient becomes hemodynamic ally unstable and death may occur<sup>20, 49</sup>. If left untreated develops intra-peritoneal abscess & sepsis due to continuous leakage<sup>21</sup>. Clinical features such as diffuse abdominal pain, muscular defense and progressive symptoms are unique feature of peptic ulcer perforation<sup>22</sup>.

Management is a challenging task for surgeons especially presented in late period, like septicemia, electrolyte imbalance, shock and systemic inflammatory response syndrome (SIRS) may develops<sup>23</sup>. In last three decades of advances in drug treatment of peptic ulcer diseases (PUD) has led to less need of elective surgery<sup>24</sup>. Multiple treatments of choices available for duodenal ulcer perforation like conservative, endoscopic, laparoscopic, and surgical management the main goal of treatment are resuscitation, control of infection, nutritional support, and restoration of gastrointestinal tract continuity. In 1894 Dean reported the first successful surgical closure of perforated duodenal ulcer<sup>25</sup>. Surgery is the treatment of choice with omental patch technique first described by Cellan- Jones in 1929<sup>26</sup> and that was modified by Graham in 1937<sup>27</sup>. Time of intervention is one of the known prognostic values known as Boey score. Boey et al stated that a delay of more than 24 hour in diagnosis and management greatly worsened predicted outcomes and highly increased postoperative complication<sup>28,29</sup> and prognosis is poor. Some studies reported before 1997 Indian

observation, mortality rate of peptic ulcer perforation was 12%<sup>30</sup>.

## METHODOLOGY

It was a prospective observational study carried out at a tertiary care center, in North Maharashtra, India, in the period of January 2013 to January 2016, of 3 year duration. Material: For the study comprised 58 cases who were presented with perforation peritonitis in the Emergency dept. at tertiary care center, provisional diagnosis was made from detailed history, clinical findings, radiological findings shows gas under diaphragm right or both side but confirmed only during intraoperative.

### Inclusion criteria:

1. All patient with suspected Duodenal ulcer perforation.
2. Age above 18 year.

### Exclusion criteria:

1. Age below 18 year.
2. Unfit for Anesthesia.
3. Other major illness.

After the hospitalization patient received Nil by mouth, IV Proton pump inhibitor, broad spectrum antibiotics, and IV fluid to stabilize hemodynamically in unstable patients. H pylori eradication treatment and timely monitoring of the vitals till the surgical intervention was carried out. All imaging study and laboratory studies carried out. If general condition was poor in septicemia, septic shock, acute renal failure and hemodynamically unstable conditions those patients can be managed with primary bilateral placement of intra-abdominal drains only (fig 8) under local anesthesia to drain intra-abdominal fluid or pus to be drained out & decreased the septicemia and septic shock. That was cardinal step to stabilize the patient, once the patient improved systemically planned for surgery. Some patient's hemodynamically stable on admission in early period can be treated with primary exploratory laparotomy. Procedure: Under regional or general anesthesia Upper midline incision was

given, after confirmation of duodenal ulcer perforation (fig 1) peritoneal lavage done with 2 to 3 liters of warm saline in all the quadrants supra-hepatic, right and left paracolic gutters and pelvic cavity. Edges of perforation refreshed, marginal Biopsy taken in advanced age group (>45 year). Then primary single layer closure of duodenal ulcers perforation with 2-0 mersilk, through and through interrupted sutures 0.5 cm apart and 0.5 cm away from margin of perforation Sutures are perpendicular to the path of the GI tract (fig 2) Individual Knots are tied in an attempt to approximate the defect wall and simple closure carried out without cutting the extra remained suture material (fig 3) Mobilization of vascularized long part of free omentum brought (fig 4) and placed over the closed perforation site (fig 5) and loosely tied knots upper and lower ends of suture line to avoid displacement, thus omentum remains sandwiched between two levels of secured knots. (Fig 6) Single layer closure with live omentopexy with or without feeding jejunostomy done. Bilateral Intra-abdominal drain placed and fixed Incision closed in layers dressing done (fig 7) Patient kept NBM for 4 to 5 days or till the bowel sound heard in 4 quadrants postoperatively.

Method: patients all records were reviewed for demography, duration of diseases, probable risk factors; type of surgery, its complication and data obtained was analyzed.

### Study type: Clinical Investigation

**Settings:** Physical, Emergency ward, IPD  
**Study design:** Eligible for participation → Prospective observational study (cohort) → Follow-Up → Data collection → Outcome/Analysis.

## RESULTS

In this study, maximum reporting age group for perforation peritonitis was 41-50 years which includes 19 cases (32.78%), followed by 17 cases (29.32%) in between 31-40 years. Next was 51-60 years 9 cases (15.51%), 7 cases (12.06%) in 21-30 years,

4 cases in (6.89%) > 60 years & lastly 2 cases (3.44 %) were seen < 20 years of age. Table 1.

This study constitutes both Male/female 53 cases (91.37%) were male and 5 cases (8.62%) were female. Hence, Male: Female ratio was 10.6:1 chart 1. Some risk factors commonly observed that was use of NSAID, alcohol consumption, smoking, and chronic stress. In this study all patients presented with multiple symptoms in account of perforation, pain was the commonest presentation in all cases associated with Nausea and vomiting in 49 cases (84.48%), next common symptom was distension of abdomen in 43 cases (74.13%), fever in 35 (60.34%), loose motion in 11 cases (18.96%). Constipation, oliguria, Cold clammy extremities also observed in few cases. (Table 2)

In this study, the duration of pain in the abdomen from its onset till the hospitalization it varies with different period 17 cases (29.32%) get admitted within 6 hour in early period, 29 (50.00%) cases get admitted in between 6 to 12 hour in intermediate period, while 12 cases (20.68%) admitted after 12hour in late period from the onset of pain in abdomen. So we also concluded that there was correlation between the duration of symptoms and post-operative outcome. Early the admission and surgery better was the post op outcome. (Table 3)

There was a different types of treatments carried out if morbidity increases, in serious conditions certainly Primary placement of bilateral intra-abdominal drains in 11 cases (18.96%) to drain intra-abdominal fluid and abscess under local anesthesia rest of the 47 patients (81.03%) treated with primary exploratory laparotomy with definitive surgical management under regional or general anesthesia. (Chart 2)

Finally all the cases underwent primary or secondary exploratory laparotomy with closure of duodenal ulcer perforation in single layer with live Omentopexy in 45cases (77.58%). But those

patients who have larger perforation needs additional procedure that was feeding Jejunostomy tube performed in 13cases (22.41%) it facilitate to decompression of intraluminal pressure and early feeding started hence it reduces the complications and better postoperative outcome.

Here we observed, the size of perforation ranging from 0.5-3 cm and commonly perforation size seen it was < 0.5 cm in 25 cases (43.10%) followed by 0.6-1.5 cm size in 23 cases (39.65%) then 1.6-2.5 cm size in 7 cases (12.06%) and only 3 cases (5.17%) were found > 2.5 cm size perforation. Table 4

Older patient's needs additional evaluation histopathologically, for that during surgery edge biopsy was taken in 19 cases (32.75%) from margin of perforation to rule out malignancy because advanced age is one of the predisposing factor of duodenal ulcer perforation.

After definitive treatment before closure of abdominal incision there were intra-abdominal drains placed according to the requirement commonly bilateral drains were placed in 48 cases (82.76%) while single drain in 8 cases (13.79%) to avoid post-operative intra-abdominal fluid and pus collection. And there was no need of drain in 2 cases (3.45%) seen, for good post-operative outcome of patients. (Chart 3)

There was minimal to fatal complications observed in this study commonest was Respiratory infection found in 17 cases (29.31%) followed by Wound infection in 13 cases (22.41%) then electrolyte imbalance in 12 cases (20.68%) wound gape in 8 cases (13.79%), and fatal complications like Acute renal failure and re-leak observed in 3 & 1 cases (5.17%), (1.72%) respectively but there were no any mortality seen. Post-operative complications like wound gape patients managed with secondary Re suturing whereas other complications managed conservatively. 1 patient with re-leakage managed by multidirectional ways, conservatively it takes almost a month and leakage stops spontaneously. Hence it shows all

complications were treated successfully. (Table 5)

**OBSERVATION:**

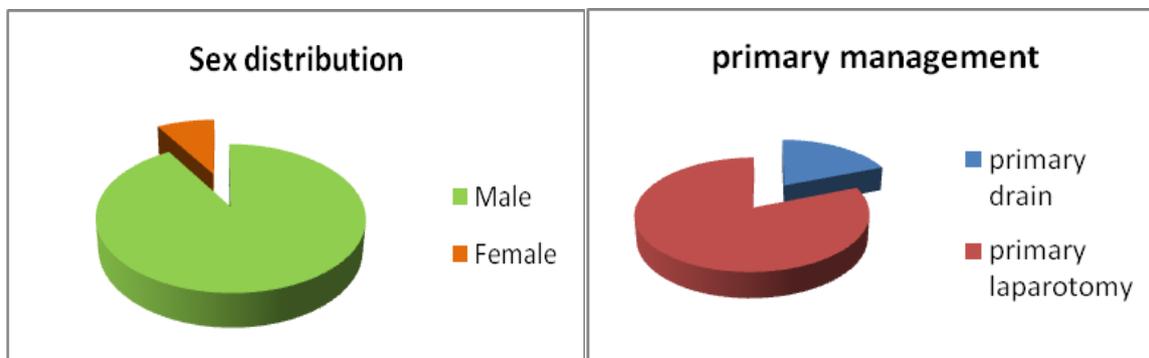


Chart 1: Sex distribution

Chart 2: Primary management

**Table 1. Age wise distribution**

Sr No.	Age	patient	%
1	<20	2	3.44%
2	21-30	7	12.06%
3	31-40	17	29.32%
4	41-50	19	32.78%
5	51-60	9	15.51%
6	>60	4	6.89%

**Table 2. Symptoms:**

no.	Symptoms	patient	%
1	Pain of abdomen	58	100%
2	Vomiting / Nausea	49	84.48%
3	Distension of abdomen	43	74.13%
4	Fever	35	60.34%
5	Loose motion	11	18.96%
6	Constipation	9	15.51%
7	Oliguria	7	12.06%
8	Cold clammy extremities	8	13.79%

**Table 3. Duration of onset of pain:**

Sr No	Length of period	Patient	Duration of pain	%
1.	Early Period	17	< 6	29.32%
2.	Intermediate period	29	6 – 12	50.00%
3.	Late Period	12	> 12	20.68%

**Table 4: Size of perforation**

no.	Size	patient	%
1	<0.5	25	43.12%
2	0.6-1.5	23	39.65%
3	1.6-2.5	7	12.06%
4	>2.6	3	5.17%

**Table 5: post op complication**

No	Complication	patient	%
1	Respiratory infection	17	29.31%
2	Wound infection	13	22.41%
3	Electrolyte imbalance	12	20.68%
4	Wound gape	08	13.79%
5	Renal failure ( ARF)	03	5.17%
6	Re-leak	01	1.72%

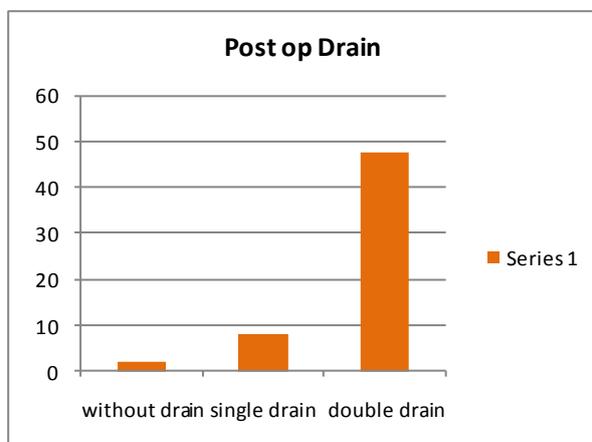


Chart 3: Post-operative drain

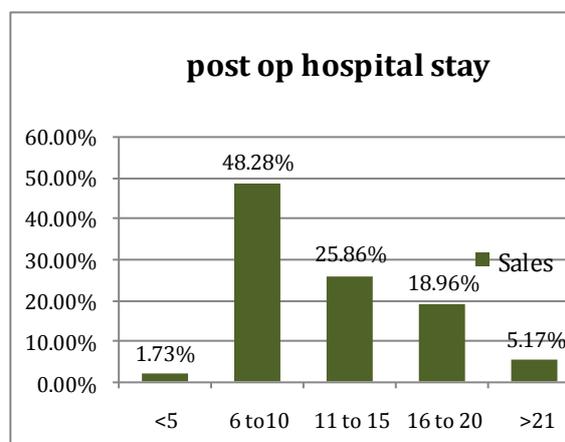


Chart 4: Post -op Hospital stay

In our study, all patients managed with proper postoperative care and were discharged from the hospital with different period according to the general condition of the patient. Maximum patients 28 (48.28%) were discharged in 6-10 days, 15 patients (25.86%) discharged in between 11-15 days and 11 patients (18.89%) in 16-20 days. Only 3 patients (5.17%) required long hospital stay >21 days. In good general condition, patient can be discharged within 5 days observed in 1 patient (1.73%). (Chart 4)

Proper treatment was advised on discharge like Proton pump inhibitor, helicobacter pylori eradication treatment, some antacids and dietary habits with feeding jejunostomy tube care. Post-operative follow-up on 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> week, then 3<sup>rd</sup> and 6<sup>th</sup> month. 13 patients were discharged along with the feeding jejunostomy tube. On follow up 3 patient's jejunostomy tube removed in 6<sup>th</sup> week and 10 patients in the 8<sup>th</sup> week. There were no major complications seen in the follow up period overall.



Fig:1 Duodenal perforation

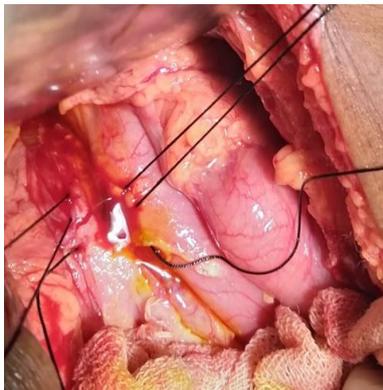


Fig:2 Single layer 3 stitch



Fig:3 Single layer closure



Fig:4 Mobilization of omentum



Fig:5 Omentum placed over suture



Fig:6 Omentum fixed over suture



Fig:7 Post-op closure with bilateral drain



Fig:8 Primary bilateral intra-abdominal drain

## DISCUSSIONS

**Age:** In our study maximum reporting age group for perforation peritonitis was 41-50 years seen in 19 cases (32.78%) followed by 17 cases (29.32%) in between 31-40 years. Next was 51-60 years 9 cases (15.51%) seen, 7 cases (12.06%) in 21-30 years, 4 cases reported (6.89%) > 60 years & 2 cases (3.44%) were < 20 years of age. Like to our study, Girish S and et al also observed among 60 patients the highest incidence was found in 40-49 years of age (25%) followed by 20-29 years (21.67%), 30-39 years (20%) and 50-59 years at (15%) only (3.44%) of incidence was found in less than 19 years of age.<sup>48</sup>

**Sex:** We included both Male/female in our study 53 cases (91.37%) were male and 5 cases (8.62%) were female. Hence Male: Female ratio was 10.6:1. Like to our study Mani Charan Satapathy and et al observed, out of 122 cases 112 were Male and 10 female with M:F ratio as 11.2:1<sup>31</sup>. Dislike to our study Girish S and et al observed, study subjects constituted male and female, males constituted (95%) and females (5%) hence M:F ratio was 19:1.<sup>48</sup>

**Symptoms:** Pain was the commonest symptom in all cases associated with Nausea and vomiting in 49 patients (84.48%) next was distension of abdomen in 43 patients (74.13%), fever in 35 patient (60.34%), loose motion in 11 patients (18.96%). Constipation, oliguria, Cold clammy extremities also observed in few cases. Like to our study Donovan AJ, Berne TV and et al, also observed similar symptoms and if left untreated develops intra-peritoneal abscess & sepsis due to continuous leakage<sup>21</sup>. Malfertheiner Pand et al also described the importance of clinical features such as diffuse abdominal pain, muscular defense and progressive symptoms are unique feature of peptic ulcer perforation<sup>22</sup>. Like to our study Constance W. Lee and et al also observed the similar symptoms<sup>49</sup>

**Duration of pain:** In our study we observed the duration of pain in the abdomen varies with different period 17 (29.32%) patients admitted within 6 hours in early period and

29 (50.00%) patients in between 6-12 hour in intermediate period, while 12 patients (20.68%) admitted after 12 hour in late period so we also concluded that there was correlation between the duration of symptoms and post-operative outcome. Early the admission and surgery better was the post op outcome. In contrast, Mutlu Unver et al found that there is no correlation between duration of symptoms and outcome of patients<sup>32</sup>. Like to our study Lau JY et al, Cirocchi R et al, & Moller MH et al stated in their study that, main prognostic factor is duration of onset of pain till the surgery performed, mortality increased when there is a delay of surgery, more than 24 hour<sup>33,34,35</sup>. Like to our study Girish S and et al stated the time of admission and surgery was defined as urgent if it is < 4 hour between admission and surgery, same day (4-24 hour) and delayed at a later time during the same admission.<sup>48</sup> Boey et al stated that a delay of > 24 hour in diagnosis and management greatly worsened predicted outcomes and highly increased postoperative complication<sup>28,29</sup>. Like to our study Constance W. Lee and et al also stated about early (2-4) period, Intermediate (2-12 hour), And Late period (>12 hour) presentation and delayed the diagnosis worsen the prognosis observed<sup>49</sup>

**Primary treatment modality:** Primary treatment differs in serious conditions and associated

co-morbidities. Primary placement of bilateral intra-abdominal drains in 11 cases (18.96%) to drain out intra-abdominal fluid & abscess under local anesthesia. Rest of the 47 patients (81.03%) treated with primary exploratory laparotomy with definitive surgical management. Mutlu Unver et al observed that, Co commodities are found to be important prognostic factors<sup>32</sup>.

Finally all the cases underwent primary or secondary exploratory laparotomy with closure of duodenal ulcer perforation in single layer with live Omentopexy in 45cases (77.58%). But those

patients who have larger perforation needs additional procedure it was feeding Jejunostomy tube performed in 13 cases (22.41%) it facilitates to decompression of intraluminal pressure and early feeding started hence it reduces the complications and better postop outcome. Kumar K and et al observed, Ulcer perforation size is greater than 5 mm are also independent risk factor for Re-leak, when a simple closure of perforation with omental patch alone surgery is performed<sup>36</sup>. Like to our study Mutlu Unver et al also performed feeding jejunostomy or pyloric exclusion with simple closure in large ulcer perforation. (May be this policy we were not found perforation size associated with mortality or morbidity)<sup>32</sup>. Unlike to our study, Crofts TJ et al, & Songne B et al said that, Approximately 50 to 70% of patients with perforated peptic ulcers responds to conservative management without any surgery<sup>37-38</sup>. Paspatis GA & et al, & Jung Y et al describe the another method, through-the-scope clips (TTSC) can be used for the endoscopic closure of small duodenal ulcer perforation less than 1 cm.<sup>39-40</sup>

Wei JJ, Xie XP also described another technique (OTSC) Over-the-scope clips, in this procedure a full thickness closure of the duodenal wall and tissue at perforation site. This technique can be used for perforations ranging from 1-3 cm with minimal complications.<sup>41</sup> Paspatis GA & et al, & Jung Y & Bergstrom M, et al again describe another technique self-expandable metal stents (SEMS) are alternative endoscopic treatment option for duodenal perforation<sup>39,40,42</sup>. Surgery depends on the size of perforation, localization, viability of duodenal edges of perforation and surrounding tissue, degree of intra-abdominal contamination and underlined etiology, primary closure of peptic ulcer perforation in addition of an omental patch, pedicle omental flap first described by (Cellan-Jones repair)<sup>26</sup> or free omental plug by (Graham patch)<sup>27</sup> can be sutured into the perforation. Lau WY, Leung KL, & et al describe Suture less technique also can

developed using gelatin sponge and fibrin glue to seal off the perforation.<sup>43</sup> Like to our study Malhotra A, described for a large duodenal perforations, a duodeno-duodenostomy may be necessary<sup>46</sup> like to our study Constance W. Lee and et al also describe the omental patch repair.<sup>49</sup>

**Size of perforation:** This study observed, the size of perforation ranging from 0.5-3 cm it indicates to need of additional procedure to reduce complication. Commonly found the size of perforation was < 0.5 cm seen in 25 cases (43.10%) followed by 0.6-1.5 cm size in 23 cases (39.65%) then 1.6-2.5 cm size seen in 7 cases (12.06%) and only 3 cases (5.17%) seen with > 2.5 cm size perforation. Paspatis GA & et al, & Jung Y et al describes different treatment techniques according to the size of duodenal perforation.<sup>39-40</sup>

**Biopsy:** During Surgery edge biopsy was taken in 19 cases (32.75%) from margin of perforation to rule out malignancy because of advanced age is one of the predisposing factor. In our study all the histopathological report was negative. According to Schwartz et al, only 483 well documented cases of primary carcinoma of the Duodenum were reported in the literature up to 1951.<sup>47</sup>

**Post op drain:** In our study all patients underwent exploratory laparotomy with intra-abdominal drains placement mostly bilateral drains placed in 48 cases (82.76%) while single drain in 8 cases (13.79%) to avoid post-operative intra-abdominal fluid and pus collection, and no drain in 2 cases (3.45%) for better outcome. Dislike our study Pai D, Sharma A, and et al says there is no any benefits of placing intra-abdominal drains in preventing postoperative fluid collections or abscess formation.<sup>45</sup>

**Complications:** There was minimal to fatal complications observed in this study commonest were respiratory infection found in 17 cases (29.31%), followed by Wound infection in 13 cases (22.41%) next was electrolyte imbalance in 12 cases (20.68%), wound gape in 8 cases (13.79%), and fatal complications like Acute renal failure and

re-leak observed in 3 & 1 cases (5.17%), (1.72%) respectively but there was no any mortality seen. Post-operative complications like wound gape patients managed with secondary Re suturing whereas other complications managed conservatively. 1 patient with re-leakage managed by multidirectional ways, conservatively it takes almost a month and leakage stops spontaneously. Hence it shows all complications were treated successfully. Like to ours study Mutlu Unver et al also found complication like respiratory infection 24(33.3%), wound infection 9(12.5%), Sepsis 13(18 %), cardiovascular complications 7(9.7%), leakage 6(8.3), wound dehiscence 6(8.3%), associate with renal failure, intra-abdominal abscess, Hepatic failure, neurologic complications.<sup>32</sup>

In our study with proper postoperative care patient discharged in different period. Maximum patients 28 (48. 28%) were discharged in 6-10 days, 15 patients (25. 86%) discharged in between 11-15 days and 11 patients (18.8 96%) in 16-20days. Only 3 patients (5.17%) required long hospital stay >21 days. In good general condition patient can be discharged within 5 days observed in 1 patient (1.73%). Quah GS, Eslick GD et al observed laparoscopic closure of duodenal ulcer perforation significantly reduced the postoperative complication and Hospital stay.<sup>44</sup> Like to our study Mutlu Unver et also said we were not found perforation size associated with mortality or morbidity hence it was reduced the length of post-op period.<sup>32</sup> Like to our study Constance W. Lee and et al also stated that early intervention gives good outcome and ultimately early recovery of patient and discharged in specific period.<sup>49</sup>

## CONCLUSION

Some risk factors like stressful lifestyle, alcohol consumption, smoking and predisposing factors like advanced age, comorbidities, and higher ASA grade have increased risk to develop the acid peptic disease which complicate to peptic ulcer & then perforation. Pragmatic surgical

intervention which shorten the operative time for duodenal peptic ulcer perforation with live Omentopexy with or without feeding jejunostomy along with broad spectrum antibiotics. We observed early evaluation and exploration definitively gives excellent post-operative result and outcome in management of peptic ulcer perforation, But late presentation with delayed intervention of peptic ulcer perforation have a high rate of complications.

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