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Surgical Management of Peritonitis Secondary to Hollow Viscus Perforation a Prospective Observational Study

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ABSTRACT
Peritonitis requires emergency surgical intervention and is associated with significant morbidity and mortality rates. The presence of pneumo bperitoneum on radiographs is confirmatory of viscus perforation. The definitive diagnosis should be arrived at the shortest period of time with available investigations. Cases of peritonitis secondary to hollow viscus perforation undergoing emergency laparotomy was assessed for the site of perforation, its pathological condition and the amount of peritoneal contamination. Depending on the site of perforation and pathological condition, appropriate procedure will be adopted for its management, that includes omental patch closure, simple closure, open appendectomy, resection anastomosis and loop ileostomy. Postoperatively patients was examined for the development of any complications. The procedure performed intraoperatively depended upon the operating surgeon and the site of perforation noted *in situ*. Study duration was between June 2022 to September 2023 , 50 patients who were older than 18 years with primary unilateral uncomplicated inguinal hernia, who presented for operation in the department of General surgery, Sree mookambika college of medical sciences Kulasekharam were considered eligible for the study. Each patient presenting with peritonitis was examine thoroughly after taking a detailed history. The diagnosis was confirmed by history, clinical features and erect abdominal X-ray. Cases of peritonitis secondary to hollow VISCUS perforation undergoing emergency laparotomy was assessed for the site of perforation, its pathological condition and the amount of peritoneal contamination. Whenever there was a suspicion of peritonitis or the radiograph was inconclusive, it was proceeded with computed tomography. It was done in 35% of the cases and the findings included the presence of free fluid in 27% cases, free air in 19% cases, fat stranding in 14% cases and air pockets in 5% cases. Free air was noted in 16% cases of duodenal perforation because the radiograph was inconclusive in these cases. All the cases diagnosed with fat stranding had appendicular perforation intraoperatively. All the cases of perforation were initially stabilized and proceeded with laparotomy, since most of the cases had duodenal perforation, omental patch repair was done in all these cases.

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Key Words
Ileal perforations, omental patch, peritonitis,

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INTRODUCTION

Perforated hollow viscus is characterized by loss of gastrointestinal wall integrity with subsequent leakage of enteric contents. Direct trauma or tissue ischemia and necrosis leads to full thickness disruption of gastrointestinal wall and perforation[1].

Peritonitis is defined as inflammation of Serosal membrane that lines the abdominal cavity and the organs contained therein and is commonly encountered in surgical practice. Bowel perforation, introduction of a chemically irritating material such as gastric acid from a perforated ulcer results in introduction of an infection into the otherwise sterile peritoneal environment causing peritonitis. The spectrum of etiology of perforation in tropical countries differ from that in western countries, where lower gastrointestinal perforation predominates as that to upper gastrointestinal perforation in tropics[2,3].

Peritonitis requires emergency surgical intervention and is associated with significant morbidity and mortality rates. The presence of pneumoperitoneum on radiographs is confirmatory of VISCUS perforation. The definitive diagnosis should be arrived at the shortest period of time with available investigations. Currently the operative approach is most favoured than the conservative approach with recent research and development approach[4]. A clear description of signs and symptoms of gastric ulcer and peritonitis was first given by Rawlenson in the year 1727[5].

In tropical countries ileal perforation is a common surgical emergency due to high incidence of enteric fever and tuberculosis. Despite improvement in critical care and timely surgical intervention mortality rates from ileal perforation remains high[6].

Operative management consists of simple patch closure using omentum, appendectomy, resection and anastomosis with thorough peritoneal lavage and ostomies if needed. Conservative management is sometimes successful in patients with spontaneously sealed perforation[7].

Aim and objectives of the study: The aim of this comparative study is to find out the role of prophylactic division of ilio inguinal nerve in reducing chronic post-operative pain following open hernia repair Lichenstein's mesh repair.

By electively dividing the iliinguinal nerve during lichenstein's mesh plasty repair, the post-operative outcome of chronic groin pain which is inguinodynia is reduced as per various studies.

This comparative study is conducted to test the effectiveness of ilioinguinal neurectomy in post-operative pain perception. We have also evaluated the groin numbness which is a possible outcome of this neurectomy. And to find out whether neurectomy is useful in reducing post-operative pain along with negligible groin numbness.

MATERIALS AND METHODS

Taking prevalence to be 10% and precision to be 6% and applying the formula 4 pq/l2, sample size is 100. Informed, written consent was taken from the participants in the Tamil and Malayalam. Study duration was between June 2022 to September 2023, 50 patients who were older than 18 years with primary unilateral uncomplicated inguinal hernia, who presented for operation in the department of General surgery, Sree Mookambika college of medical sciences Kulasekharam were considered eligible for the study. Each patient presenting with peritonitis was examine thoroughly after taking a detailed history. The diagnosis was confirmed by history, clinical features and erect abdominal X-ray. Cases of peritonitis secondary to hollow VISCUS perforation undergoing emergency laparotomy was assessed for the site of perforation, its pathological condition and the amount of peritoneal contamination. Depending on the site of perforation and pathological condition, appropriate procedure will be adopted for its management, that includes omental patch closure, simple closure, open appendectomy, resection anastomosis and loop ileostomy. Postoperatively patients was examined for the development of any complications.

Inclusion criteria: Patients admitted to hospital, who was diagnosed with peritonitis secondary to hollow viscus perforation and undergoing exploratory laparotomy.

Exclusion criteria:

- Peritonitis secondary to esophageal perforation.
- Peritonitis secondary to reproductive tract perforation, blunt trauma
- Patients not willing to give consent for the study

Statistical analysis: Statistical analysis was done using the Statistical Package for Social Sciences (SPSS). Different statistical methods were used as appropriate. Mean±SD was determined for quantitative data and frequency for categorical variables. The independent t-test was performed on all continuous variables. The normal distribution data was checked before any t-test. The Chi-Square test was used to analyze group difference for categorical variables A $p<0.05$ was considered significant.

RESULTS AND DISCUSSION

In patients with inconclusive x ray findings, CT was done and showed the following findings. It was done in

Table 1: Frequency of site of perforation with sex distribution

Site	Male	Female	Total
Gastric	1	0	1
Duodenal	67	4	71
Appendix	14	2	16
Ileal	5	2	7
Colonic	5	0	5

Table 2: Frequency of Computed Tomography Findings

Sign	Frequency	Percentage
Free fluid	27	77.10
Free air	19	54.28
Fat stranding	14	40.00
Air pockets	5	14.28

Table 3: Operative procedures performed

Operative procedure	Frequency
Omental patch repair	72
Simple closure	3
Right hemicolectomy	3
Resection and anastomosis	4
Appendicectomy	16
Ileostomy	2

35 off the total 100 cases with majority of findings being free fluid and free air in around 77 and 54% patients who had CT done, respectively (Table 1).

Surgical site infection was the most common post-operative complication and was noted in 44% of the cases undergoing surgery followed by respiratory complications in 11% of patients (Table 2).

The procedure performed intraoperatively depended upon the operating surgeon and the site of perforation noted insitu. For all the cases with duodenal and gastric perforation omental patch repair was done. Simple closure and resection of the bowel was done for ileal perforations. Resection and anastomosis was also done in a case of ileal diverticulitis with perforation. Our study had 5 subjects with perforation secondary to colonic malignancy of which three of them were operated for right hemicolectomy and two proceeded with ileostomy (Table 3).

Whenever there was a suspicion of peritonitis or the radiograph was inconclusive, it was proceeded with computed tomography. It was done in 35% of the cases and the findings included the presence of free fluid in 27% cases, free air in 19% cases, fat stranding in 14% cases and air pockets in 5% cases. Free air was noted in 16% cases of duodenal perforation because the radiograph was inconclusive in these cases. All the cases diagnosed with fat stranding had appendicular perforation intraoperatively (14%).

Duodenal perforation being the most common site, it was proceeded with omental patch repair in 71% cases and a singular case of gastric perforation. Simple primary closure of the perforation was done 3% cases for terminal ileal perforation. Resection and anastomosis was done in 4% cases of the rest of cases of ileal perforation, one of which included Meckel's diverticulitis with perforation. Out of total 5 cases in our study with colonic perforation secondary to malignancy, 2 were proceeded with loop ileostomy and the rest with right hemicolectomy[8,9].

CONCLUSION

All the cases of perforation were initially stabilized and proceeded with laparotomy, since most of the cases had duodenal perforation, omental patch repair was done in all these cases.

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