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TENSION PNEUMO PERITONEUM – A CASE SERIES

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ABSTRACT

Tension pneumo peritoneum is encountered as a complication of diagnostic and or therapeutic endoscopy is which large volume of intraperitoneal air under pressure cause changes in hemodynamic and respiratory compromise. It is usually iatrogenic. Like tension pneumothorax, it requires urgent surgical intervention. Immediate needle decompression followed by definitive surgical intervention is the ideal recommended plan of surgical treatment.

Key Words: Massive pneumo peritoneum, Perforation, Distension of abdomen, Exploratory laparotomy

INTRODUCTION

Tension pneumo peritoneum is synonymously known as valvular pneumo peritoneum or abdominal tamponade. The abdominal signs and symptoms seen in patients with a pneumo peritoneum are usually due to peritoneal irritation resulting from soiling by gastrointestinal tract contents (bile in our cases).

Tension pneumo peritoneum is a surgical emergency and fatal if there is delay in treatment or access to operative intervention. The most common causes are perforated gastric[1] or duodenal ulcers[6], or trauma. Iatrogenic causes are following Endoscopic retrograde cholangio-pancreatography (ERCP)[6] and Per-cutaneous endoscopic gastrostomy (PEG) [3] placements. This is common because of use of compressed air and over distension with gas during endoscopic procedures[2].

Perforation can present as a complication of upper gastrointestinal (UGI) endoscopy and or colonoscopy[7] even though the estimated percentage is less than 1%.

The most common clinical feature of perforation is visualization of an extra intestinal structure during endoscopy. Some patients complain of intense abdominal pain and tenderness during or immediately after endoscopy whereas some several hours after the procedure therapeuticordiagnostic[2].

In patients with acute distress, complaints of dyspnoea in addition to abdominal pain and fullness of abdomen, tension pneumo peritoneum should be suspected. However, some patients do report shoulder pain particularly left shoulder from referred diaphragmatic irritation as after any laparoscopic procedure.

On the contrary, hemodynamically stable patients, radiological investigations such as plain x-ray erect abdomen, ultrasonography and contrast enhanced computerized tomography will be required to establish diagnosis and probably pin point etiology and help plan corrective surgical treatment.

Once pneumo peritoneum has been diagnosed, therapy should be immediate. Exploratory laparotomy remains the standard surgical approach; simple closure is possible if the perforation is small and without significant soiling and or inflammation. Larger perforations necessitate resection and anastomosis. Laparoscopic repair can be attempted depending on the expertise of the surgeon.

MATERIAL AND METHODS

This study is a prospective analysis of 10 cases of pneumo peritoneum caused due toiatrogenic small bowel injury with perforation during upper gastro-intestinal endoscopy (UGI) procedures – Endoscopic retrograde cholangio-pancreatography (ERCP)[6] and dilatation of strictures.Tension pneumo peritoneum was diagnosed in patients with -

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a) History of endoscopy (UGI -upper gastro-intestinal endoscopy; ERCP- Endoscopic retrograde cholangio-pancreatography) in the last 24 hours before presentation.
b) Increasing pain abdomen and abdominal distension.
c) Dyspnea.
d) Hypotension and tachycardia.

With absolute aseptic precautions, percutaneous needle decompression was performed using 18G needle4. This was positioned 2cms below the umbilicus and pneumo peritoneum confirmed before subjecting the patient for definitive surgical intervention.

Upon confirming pneumo peritoneum, patients were operated upon mid-line laparotomy was performed under general anaesthesia. Patients who had under gone Endoscopic retrograde cholangio-pancreatography (ERCP) had perforation in the Duodenum 2-Duodenum 3 junction. Perforation closure was done and thorough peritoneal lavage given. All patients made uneventful recovery.

Of the 10 patients enrolled in our study, eight patients had been investigated for obstructive jaundice because of choledocholithiasis – ERCP was done, Duodenum2-Duodenum 3retro-duodenal perforation was identified, Kocherisation of the duodenum and closure of the perforation was done. All the patients made an uneventful recovery.

One patient had a stricture in the 2nd part of duodenum; upper gastro-intestinal endoscopy followed by pneumatic dilatation of the stricture was done. Patient developed features of peritonitis and were operated upon, perforation closure was done. Post-operative recovery was uneventful.

One patient who had undergone Gastro-Jejunostomy in the past for a cicatrized duodenal ulcer was referred for choledocholithiasis; Endoscopic retrograde cholangio-pancreatography (ERCP) was done, resulting in a large tear in the Gastro-Jejunostomy stoma. Patient required immediate exploration. A large perforation with bilious contamination was seen. Common bile duct exploration with Roux-en–Y Gastro-Jejunostomy was performed. Patient made an uneventful recovery.

RESULTS

Between January 2011 and March 2015, ten patients with iatrogenic bowel perforation were admitted/referred to the accident and emergency/surgery department. The patients mean age was 55-75 Years, range 35-75 years.

DISCUSSION

All the 10 patients mentioned in this study recovered well without any complications. They were referred by the Department of Gastro-enterology and were investigated appropriately and given the best of immediate surgical care.

CONCLUSION

Pneumo peritoneum is a life threatening complication. It requires immediate intervention and definitive surgical management. A high index of suspicion of perforation with peritonitis should be suspected for patients who have undergone Endoscopic retrograde cholangio-pancreatography (ERCP)[6] and dilatation of strictures. Urgent needle decompression followed by identification of the site of perforation and urgent surgical repair will prevent fatality. Laparotomy should be performed immediately and the primary cause dealt with. Laparoscopy in experienced hands should be considered as an option.

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Ethical clearance:

Ethical clearance was not required or sought as this study was a descriptive and not an analytical study.

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