

## Sealed off Gastro Intestinal Perforation in Multiple Myeloma Patient: An Unusual Presentation

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### Abstract

This case report describes an acute gastro intestinal perforation occurred to a multiple myeloma patient, taking corticosteroid, revealed by acute abdomen with Free air intra-abdominal as initial presentation. No peritonitis in spite of huge amount of air intra-abdominal. Gastro intestinal perforation occurs more frequently in patients with multiple myeloma and usually the frequency of related complications increases with age and with the use of corticosteroids. This case report suggests that diagnosis of gastro intestinal perforation is usually not difficult but with sealed perforation and signs of peritoneal irritation in patients treated with corticosteroids, is very unusual.

**Keywords:** Gastro Intestinal Perforation; Multiple Myeloma

### Introduction

The use of corticosteroids is associated with complications involving the gastrointestinal tract. Acute gastro intestinal perforation has to be considered as a possible event in patients taking steroid therapy either as long term and low dose therapy or short high courses [1].

A case with acute peritonitis with the initial presentation of gastro intestinal perforation in a patient treated with corticosteroids is presented.

### Case Report

A 71 year-old gentleman with known Ig G/k multiple myeloma was admitted acutely to the Department of Surgery Bronglais General Hospital with sever diffuse abdominal pain associated with vomiting and distention with bleeding/rectum. Patient was on a high dose of oral corticosteroids and already had two sessions for multiple myeloma treatment.

Patient was admitted three months before under orthopaedic department with sever back pain and his CT showed T12 wedge fracture. Findings consistent with skeletal manifestations of multiple myeloma. Bilateral basal pneumonitis and pleural effusion noted as well. Followed by MRI spine "Multilevel compression stable fractures are noted with cord compression at the level of T5, T8, T12, L3 vertebral body diffuse bone marrow oedema noted In the vertebral bodies indicative of acute phenomena". The Bone marrow aspirate was performed and show "Myeloma panel flow cytometry a plasma cell clone is present in the sample, accounting for 7% of the cells in our lysed sample preparation. The plasma cells show a CD45-/CD19-/CD56+/kappa+ phenotype". His bone profile showed low Ca level and very high protein level.

A multiple myeloma was diagnosed and the haematology team was involved. Treatment with chemotherapy and corticosteroid therapy was started.

On this occasion his physical examination revealed sever distended abdomen with Left Iliac Fossa tenderness. His full blood count shows white blood cells 24.7/L with 17.4/L neutrophils, haemoglobin 121 g/L and platelets 215/L. Coagulation screen shows PT 12.2 APPT 30 and clause fibrinogen level 4.6. His Na 133, K 3.5, Urea 4.2, Creatinine 90, eGFR 72, Mg 0.93, Pho 1.59. Patient had normal liver function tests and C reactive protein 128.

His abdomen X-ray showed air under diaphragm. A follow up CT abdomen and pelvis was reported as "Above the diaphragm, compared with a previous three months CT scan thorax showed picture of recurrent bilateral lower lobe pneumonitis. Below the diaphragm, CT showed evidence of large pneumo-peritoneum. Long segment of ill-defined sigmoid colonic in keeping with acute diverticulitis and may represent possible site of perforation. No evidence of free peritoneal fluid. Diffuse thickening of the posterior urinary bladder wall needs cystoscopy correlation. Generalised osteoporosis with multi focal insufficiency compression fractures consistent with known multiple myeloma".

Patient clinical picture, laboratory results and reported CT suggesting a provisional diagnosis of server peritonitis due to perforated diverticular disease and sepsis protocol initiated. Patient consent obtained for laparotomy and proceed on the same day. Patient developed sever right side pneumothorax on induction of anaesthesia and chest drain was inserted. During exploration no definitive site of perforation, peritonitis and no free fluid confirming the CT scan report. Examination of the whole gastro intestinal tract from the lower oesophagus till the upper part of rectum showed no inflammatory sites and no perforation could be identified. A pelvic drain was left in and mass closure was done. Patient was admitted to ITU. After 24 hours he was extubated, 48 hours right side chest drain removed and discharged to the ward within 72 hrs. The patient had smooth post-operative period for 7 days before he was discharged home. Patient had the 3rd session of the multiple myeloma treatment on time prior to review in the out-patient department.

### Discussion and Conclusions

Pnemo-retroperitoneum may result from perforation of gastrointestinal tract, and gas-forming infections [2]. Sigmoid diverticulitis with complication such as diverticular micro-perforation with bacterial invasion of mesenteric fatty tissue is reported [3]. This presentation occurs more frequent with older age and with the use of corticosteroids [4].

Corticosteroid therapy is associated with severe complications involving gastro intestinal tract. It can produce diverticular perforation due to its immunosuppression and the inhibition of prostaglandin synthesis which may affect the cytoprotection effect. The risk of acute diverticulitis patients to perforate increases in neoplastic patients, either for being immunocompromised due to clinical condition, chemotherapy or corticosteroids. Multiple myeloma patients in a recent study showed that perforation and peritonitis rarely (less than 1%) occur as direct complication of the chemotherapy regiment [5].

As demonstrated in this case, CT-detected pneumoperitoneum with no free fluid did not lead to a conservative approach; observation in our case of pneumoperitoneum and patient sepsis should not be considered; negative laparotomy for sealed perforation was an aggressive approach that must be used with discretion. Causes and aetiological factors of pneumoperitoneum was mentioned by different groups but no mention to sealed GI tract perforation [6].

In another study an electronic search of Medline and Pubmed was undertaken; the terms "non-surgical pneumoperitoneum", "spontaneous pneumoperitoneum", and "misleading pneumoperitoneum" were used. With non-surgical pneumoperitoneum being a relatively rare entity, current knowledge of it is based only on case reports, small case-series and a few reviews.

A large amount of intra-peritoneal gas is typical for non-surgical causes of pneumoperitoneum. In cases of viscus perforation, enteric contamination of the peritoneal cavity develops rapidly, therefore only a small amount of air escapes the hollow organ before the patient is

thoroughly examined. In cases of nonsurgical pneumoperitoneum, no signs of peritonitis or sepsis are present, therefore more air enters the peritoneal cavity [7].

No studies have systematically addressed sealed gastro intestinal perforation as a cause for pneumoperitoneum. And as we mentioned before a diverticular microperforation could be the aetiological factor in our case. Until now no cases ever been reported with similar features and dealing with the association between multiple myeloma and gastro intestinal tract. In patients with multiple myeloma treated with chemotherapy and corticosteroid we are raising the alarm to suspect a serious complication such gastrointestinal sealed perforation with its uncertain clinical situation, diagnosis and prognosis that needed a very close attention.

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