Acute colon diverticulitis in multiple myeloma patient: an unusual presentation of a colonic perforation. Case Report

Abstract

This case report describes an acute colonic diverticular perforation occurred in a multiple myeloma patient, taking corticosteroid and morphine therapy, revealed by a subcutaneous ephysema of upper chest and right abdomen as initial presentation.

Sigmoid diverticulitis with perforation and generalized peritonitis is a severe complication of the diverticular disease and it is due to diverticular microperforation. This condition occurs more frequently in patients with widespread diverticolosis and usually after 50 years of age, and the frequency of related complications increases with age (and with the use of corticosteroids).

Extraperitoneal air from the sigmoid-rectum perforation can escape diffusing superiorly through paravertebral retroperitoneal tissues and via the diaphragmatic iatus into the mediastinum, producing pneumomediastinum and it diffuses to yield superior thoracic emphysema.

This report suggests that the diagnosis of retroperitoneal perforation is usually difficult because of the lack of signs of peritoneal irritation and the paucity of symptoms, particularly in patients treated with corticosteroids.

Key words: Multiple myeloma, corticosteroid, diverticulitis, diverticular perforation, retropneumoperitoneum, pneumomediastinum, Hartmann’s procedure.

Introduction

The use of corticosteroids may be associated to different and at times grave complications involving the gastrointestinal tract (1, 2). Acute colonic diverticular 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 (3). An overwhelming problem is the frequent paucity of clinical signs or unusual presentation of bowel perforation among these patients.

A case of subcutaneous emphysema of upper chest and right abdomen was the initial presentation of bowel perforation in a patient treated with corticosteroids.

Case Report

A 63 year-old man with known Ig G/k multiple myeloma (M.M.) was admitted to the Department of Haematology because of a recent increase in serum paraprotein concentration and diffuse bone pain associated to low back pain and right sciatica.

Fifteen days before the patient had undergone neurosurgery for laminectomy in order to remove a protrusion of a lumbar intervertebral disk between fourth and fifth lumbar vertebrae detected by computed tomography scans (the lumbar disk syndrome began two and a half...
diverticolo del sigma-retto porta ad una diffusione dell’aria superiormente attraverso i tessuti paravertebrali retroperitoneali e tramite lo iatus diafragmatico nel mediastino, producendo un pneumomediastino ed infine un enfiema toracico sottocutaneo.

Questo caso suggere come la diagnosi di perforazione retroperitoneale possa risultare difficilissima per la ridotta presenza di sintomi e di segni di irritazione peritoneale in pazienti in trattamento con corticosteroidi.

Key words: Mieloma multiplo, corticosteroidi, diverticolite, perforazione diverticolare, retroperitoneonione, pneumomediastino, intervento sec. Hartmann.

mouth before and no histopathological analysis was made).

Physical examination revealed normal vital signs and temperature, lung auscultation did not reveal any pathological sound and the abdomen was soft and distended with mild epigastrical tenderness without guarding or signs of peritonitis. On neurological examination no stretch reflexes were evoked and Lasègue’s sign was positive at right lower limb.

The assessment of a complete blood cell count was: white blood cells 7900/mL with 72% neutrophils, 12% lymphocytes, 10% monocytes and 6% eosinophils, haemoglobin 12,1 g/dL and platelets 216000/mL. Routine laboratory tests were within normal range except for high levels of acute phase reactants (erithrocyte sedimentation rate was 71 mm/h, fibrinogen was 530 mg/dL, ferritin was 466 ng/mL, C-reactive protein was 1,30 mg/dL, LDH was 508 U/L) and an increase of paraprotein serum levels. There were no new bone lesions since the last x-rays. Pertinent past medical history included the diagnosis of multiple myeloma made five months before admission, followed by chemotherapeutic regimen with VAD (vincristine 1 mg/m², doxorubicin 50 mg/m², dexamethasone 20 mg/m² for 4 days) repeated once a month for four times (4), and a history of rectal bleeding due to the origin of a diverticulitis (5) with primary resection of sigmoid-rectum colon occurred in this patient.

A diverticular perforation in the posterior wall of the sigmoid-rectum colon occurred in this patient. Diverticulitis with perforation and generalized peritonitis is a severe complication of the diverticular disease (10, 11) and it is due to diverticular microperforation with bacterial invasion of mesenteric fatty tissue (12). This condition occurs more frequently in patients with widespread diverticolosis and usually after 50 years of age, and the frequency of related complications increases with age and with the use of corticosteroids (13).

The way followed by the air to get to the retroperitoneal space is passing from diverticular sigmoid-rectum perforation through the lesser resistance of this tissues, then pressure gradient between bowel lumen and retroperitoneal space. Finally extraperitoneal air from the sigmoid-rectum perforation can escape diffusing superiorly through paravertebral retroperitoneal tissues and via the diaphragmatic iatus into the mediastinum, producing pneumomediastinum and afterwards through either Grodinsky’s space (bounded by the skull, diaphragm, and anterior and posterior cervical fascia) or the retropharyngeal space it diffuses to yield superior thoracic emphysema. The diagnosis of retroperitoneal perforation is usually

Conclusions

Pneumo-retro-peritoneum and pneumomediastinum may result from perforation of gastrointestinal tract, broncho-pulmonary disruption and gas-forming infections (9). A diverticular perforation in the posterior wall of the sigmoid-rectum colon occurred in this patient. Diverticulitis with perforation and generalized peritonitis is a severe complication of the diverticular disease (10, 11) and it is due to diverticular microperforation with bacterial invasion of mesenteric fatty tissue (12). This condition occurs more frequently in patients with widespread diverticolosis and usually after 50 years of age, and the frequency of related complications increases with age and with the use of corticosteroids (13).
Acute colon diverticulitis in multiple myeloma patient: an unusual presentation of a colonic perforation. Case Report

difficult because of the lack of signs of peritoneal irritation and the paucity of symptoms particularly in patients treated with corticosteroids and morphine. Eventually, corticosteroid therapy, already known for gastric lesivity (14), may be associated with severe complications involving even large intestine (3). Glucocorticoids can produce ulceration and perforation of colonic diverticula and peritoneal infection either interfering with normal mechanisms of bowel repair or by direct injury. As a matter of fact diverticular perforation may be facilitated from the inhibition of the synthesis of prostaglandins, that lose their beneficial property of cytoprotection, and from the immunosuppressive action of glucocorticoids that can favour the diffusion of peritoneal infection (3). Furthermore, it has to be considered the possible role of glucocorticoids in masking leukocytosis, a laboratory sign of bacterial infection, instead of an effective shift of neutrophil distribution (15).

It is moreover necessary to consider the role of morphine with regard to this case. Morphine increases wall tone and number of contractile events in the colon: however these are repetitive, rhythmic and non-propagating contractions that are particularly stimulated (16). The feature of these events being non-propulsive may lead to slow down the movements of contents and so to increase the pressure in some segments of colon, eventually inducing diverticular perforation. Although morphine increases basal tone in colon, it doesn’t increase its activity to relax ahead of peristaltic contractions.

Acute diverticulitis in the immunocompromised patient is a complicated clinical matter for his greater risk of free perforation and need for surgery than in the non-immunocompromised patient (17). In particular neoplastic patients, either for the severe clinical condition or for chemotherapy, should be considered at risk. Concerning M.M., a large study involving 341 treated patients showed that perforation and peritonitis rarely (less than 1%) occur as direct complication of the chemotherapy regiment (18) Further, rarely M.M. may present with an isolated colon localization such as polypoid mass or consticting lesions (19) and it is more frequent as a consequence of a spread diffusion of malignant plasmacells, typical of the terminal phase of the disease.

In this case, although the patient was in progression, the presence of sigmoid localization was excluded by histopathological analysis. Curiously until now only a case has been reported with similar features and dealing with the association between M.M. and colonic perforation: even in this circumstance steroid therapy had been accomplished with an unclear clinical situation and an uncertain diagnosis (20, 21). Thus, despite the low prevalence of colon involvement or colon perforation in M.M. patients, anytime a steroid therapy is introduced (as ever it happens) for M.M. treatment we should pay attention. Patients presenting with unclear abdominal discomfort, unexplained fever and leukocytosis have to be carefully monitored and studied in the attempt to exclude this rare and terrible complication (22).

References
18) Riccardi A., Mora O., Brugnatelli S., et al.: For the cooperative group of study and treatment of multiple myeloma. Relevance of

age on survival of 341 patients with multiple myeloma treated with
conventional chemotherapy: updated results of the MM 87 prospective