

Peritonitis caused by Radiotherapy induced Rectal Cancer Perforation

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Abstract

Rectal cancer perforation is a rare complication that may be associated to chemoradiotherapy due to tumor necrosis. It is life-threatening to the patient due to recurrency rate and mortality. We report the case of a 76 years old female patient getting treated by chemoradiotherapy for rectal cancer, admitted for acute abdominal pain, to which an abdominal CT scan showed important pneumoperitoneum associated with peritonitis secondary to rectal tumor perforation, confirmed after immediate surgical exploration.

Keywords: Rectal; Cancer treatment; Perforation; Imaging

Introduction

Chemoradiotherapy in rectal cancer is a treatment of choice added to surgery for better life expectancy and low recurrence rate. Although it is beneficial, complications may occur including rectal tumor perforation that is considered fatal, requiring an immediate surgery exploration.

This complication is unfortunate because it may cause cancer recurrence or mortality. We report the case of a 76 years old female patient getting treated by chemoradiotherapy for rectal cancer, admitted for acute abdominal pain, to which an abdominal CT scan showed important pneumoperitoneum associated with peritonitis secondary to rectal tumor perforation, confirmed after immediate surgical exploration.

Aim of the Study

A 76 years old female patient, with a history of rectal adenocarcinoma getting treated by concomitant neoadjuvant chemoradiotherapy, was admitted for severe acute abdominal pain and constipation evolving for 3 days.

Clinical exam showed involuntary abdominal guarding. Biological tests showed (White Blood Cells) WBC=17000/mm³ with a C-reactive protein=543 mg/dL.

An abdominal CT scan performed without contrast and enhanced at arterial and portal phase, revealed a rectal tumor seen as an irregular wall thickening of the rectum associated with important pneumoperitoneum and air bubbles adjacent to the rectum, peritoneal fluid and thickening of peritoneal reflections that were enhanced in favor of peritonitis or peritoneal carcinomatosis. The patient underwent immediate laparotomy that confirmed peritonitis

due to rectal tumor perforation. Exploration also showed peritoneal carcinomatosis. The patient underwent a peritoneal lavage, and colostomy. She was discharged 2 weeks after surgery and referred for palliative chemotherapy.

Discussion

Rectal adenocarcinomas with clinical stage other than T1 require neoadjuvant chemoradiotherapy and surgery that are considered the best approach for treating it.^[1] Association of chemoradiotherapy and surgery has shown great medical response with increase of survival rate and low recurrence rate.^[1,2] Colorectal cancer may itself cause complications such as obstruction, massive bleeding or tumor perforation. The ladder is rare with a 1.6%-3.7% incidence, usually due to tumor necrosis, causing tumor cells to spill into peritoneum leading to higher rates of recurrence locally or in the peritoneum.^[3] The other causes of perforation include fecal impaction, enema, or chemoradiotherapy.^[1]

Neoadjuvant chemoradiotherapy in locally advanced cancer is considered as a safe first line treatment leading to tumor downsizing, before surgery treatment, thus it allows lower recurrence rate. Although chemoradiotherapy has shown great efficiency in locally advanced cancer, its side effects cannot be neglected, as they can be acute and severe, surpassing its benefit,^[4] such as rectal tumor perforation.

Perforation has a predominance is patients with an advanced stage.^[5] In a study of Chiarugi et al. on 499 patients who had surgery for colorectal cancer, 6% of the patient's surgery was due to perforation and 3.43% of the patients had the perforation localized in the rectum.^[6]

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A study of Fujisaki et al. showed higher perforation prevalence in sigmoid and rectum cancers, while a study by Ghazi et al. showed no significant difference in the prevalence of this complication based on tumor location. ^[7,8] 5 types of perforation have been described: incomplete, through canal anal, into peritoneum, transmural or directly into peritoneal cavity. ^[2] The type and site of perforation determines prognosis and management of the patients going from simple observation, collection drainage to immediate surgical exploration. ^[2] Radiotherapy's role is to cause apoptosis of the tumor cells; however, it may also cause some healthy nearby cells apoptosis, that may also be the cause of perforation. ^[1] When tumor perforation occurs, it is usually of bad prognosis, with a higher recurrence rate and a mortality rate estimated from 6%-15%. ^[5] Surgical treatment should be immediate to prevent sepsis and shock. ^[5] It usually associates peritoneal lavage, perforation suture and prophylactic colostomy. ^[4]

Conclusion

Treatment of choice of rectal cancer resides in chemoradiotherapy associated with surgery. It prevents recurrence and expands survival rate. Although this treatment has shown efficiency, complications can't be neglected. Tumor perforation is a rare but severe complication. Patients present with acute symptoms and immediate surgery is required, and unfortunately this complication has shown high recurrence and mortality rate.

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