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Case Report

Stenosing and Fistulizing Radiation Proctitis: A Rare Observation

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Abstract

Stenosing and fistulizing radiation proctitis are serious complications of radiation enteropathy. It occurs in patients undergoing radiotherapy followed for rectal or gynecological cancer. Its management requires special attention to improve the survival of these patients. From a case having been operated on for cancer of the rectum and which presented post-radiation stenosing and fistulizing proctitis, we will describe the physiopathology of this rare entity and illustrate the value of endoscopic exploration and imaging in the management of this pathology.

Introduction

Radiation therapy is an important treatment modality for cancer of the rectum, cervix, bladder, prostate and testicles [1]. Fifty percent of patients receive radiotherapy during the treatment of major cancers [2]. The harmful effects of radiotherapy can occur early or late even after the resolution of the problem for which it was indicated. Chronic radiation proctitis occurs in 5-20% of patients following pelvic radiotherapy [3]. The post-radic rectal fistulizing and stenosis complications are not frequent. We report a case of radial stenosing and fistulising rectitis occurring after 4 years. Emphasis will be placed on the pathophysiology as well as on the role of imaging and endoscopy to confirm the diagnosis and eliminate the main differential diagnoses.

Clinical Case

This is a patient, aged 27 years, treated in 2018 for adenocarcinoma of the middle rectum classified as T3N1M0: she received twenty sessions of radiotherapy and neoadjuvant chemotherapy, surgery and then adjuvant chemotherapy. A colectomy with low colorectal anastomosis, and protective ileostomy, with the restoration of ileal continuity in November 2019. After 3 years, the patient was readmitted for moderate rectal discharge and moderate proctalgia with no stool rhythm and pus discharge through the anal margin and perianal fistula holes. Examination of the anal margin revealed a polyfistulous perineum (Figure 1).

Figure 1: *polyfistulous perineum with inflammatory closet*

Colonoscopy showed an irregular penetrable rectal stricture 15cm from the anal margin, without a bud, with fistulous orifices and a radial rectitis appearance (Figure 2). The rest of the mucosa of the colonic framework was unremarkable.

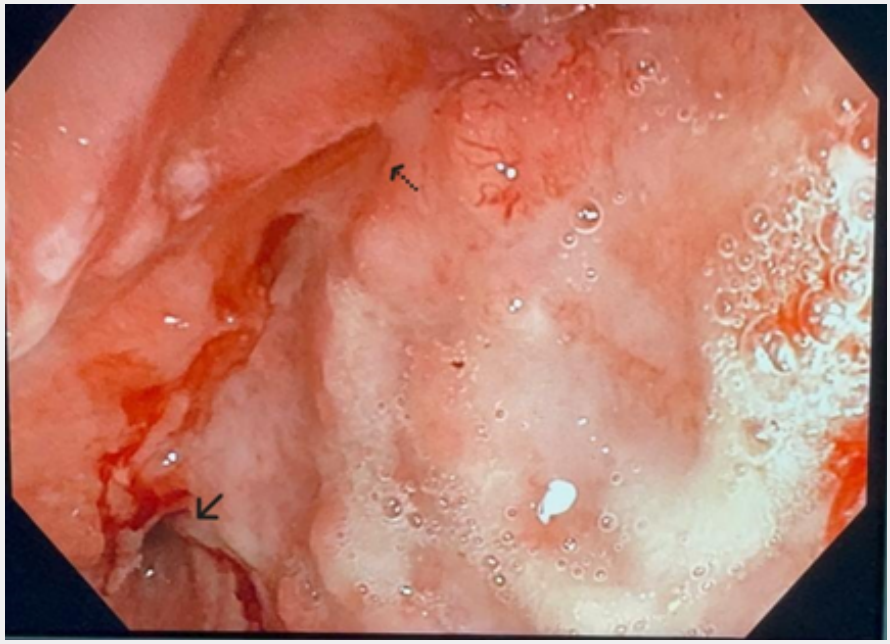

Figure 2: *Reversible regular stenosis (arrow) with multiple fistulous orifices (dotted arrow)*

Anatomopathological study of biopsies of the stenosis and adjacent rectal mucosa revealed ulcerated tissue on a polymorphic granulation background rich in neutrophils with the presence of neovessels and fleshy bud formation, with absence of granuloma and malignancy.

Tuberculosis was ruled out by a Polymerase Chain Reaction (PCR) on rectal biopsy which came back negative and by a Quantiferon test which was also negative.

Pelvic MRI showed several endo and exopelvic fistulised pre-sacral pelvic collections with communication to the mid-rectum with active complex ano-perineal fistulae (Figure 3).

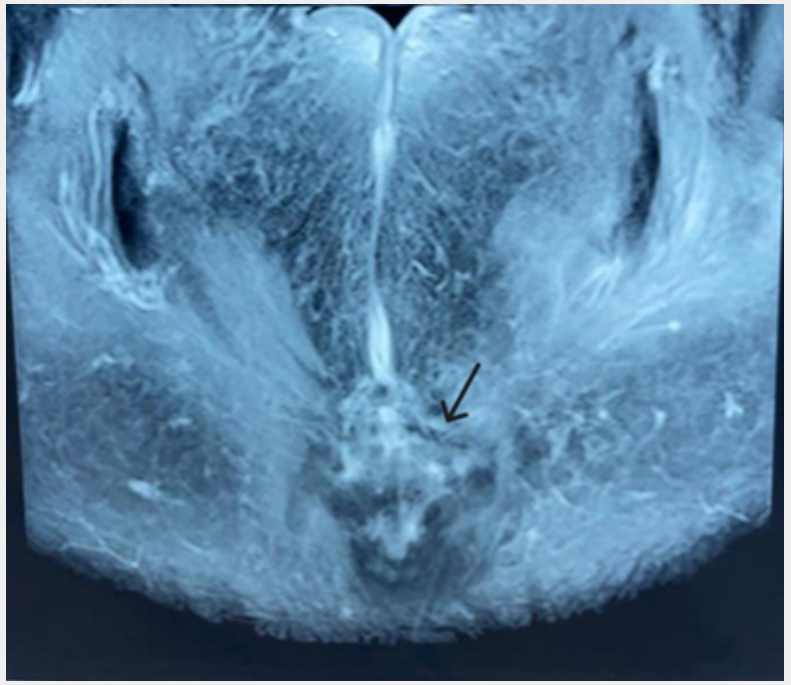

Figure 3: *several presacreae fistulized pelvic collections in endo and exopelvic*

Enteroscan showed a presacral collection measuring 45x33mm and extending to 86mm with fistulous tracts and a sacral bone reaction.

The diagnosis of stenosing and fistulising radiation rectitis was made. The patient had a clean colostomy and surgical drainage of the fistulae with good clinical outcomes.

Discussion

Radiation rectitis is defined as chronic damage to the mucosa and submucosa of the rectum secondary to ionising radiation that occurs during or after radiotherapy to the abdomen, pelvis or rectum [4]. Radiation-induced stenotic and fistulising lesions account for between 0.6 and 15% [5,6]. Its complex etiopathogeny is not only dependent on overdose or technique used but can occur at any time postoperatively in the surgical patient undergoing neoadjuvant radiotherapy [5,6].

Pathophysiology

Acute toxicity starts after a few days to 4 weeks of radiotherapy, while chronic toxicity is observed between 6 and 24 months, sometimes much later after radiotherapy [6]. Irradiation generates free radicals that are responsible for single or double strand DNA damage, cytoplasmic membrane damage and apoptosis [7]. After inflammation, radiotherapy will induce fibrosis responsible for the obstruction. Irradiation induces

ulceration, stenosis, bleeding or fistula later on [7,8]. Post-radiation fistula and stenosis is a severe forms of the complications of radiation rectitis [4]. Our case had rectal and perianal involvement (Figures 1 and 2).

Diagnosis

The symptomatology includes a rectal syndrome and rectal discharge [5]. Proctological and endoscopic examination and pelvic MRI are essential to confirm the diagnosis and to exclude differential diagnoses [8]. Tumor recurrence must always be ruled out by histology after endoscopic biopsy.

Recto sigmoidoscopy is essential, particularly to eliminate certain differential diagnoses, and can reveal typical colonic involvement showing pale, friable mucosa with telangiectasia, a stenotic appearance and recto-vaginal or recto-vesical fistulisation.

CT scan in the case of radiotherapy in a patient operated on for digestive cancer does not allow a decision to be made between tumor recurrence, a second radiation-induced cancer or radiation toxicity.

Magnetic resonance imaging (MRI): confirms the diagnosis and helps to eliminate differential diagnoses [8].

Differential Diagnosis

Imaging and endoscopic examination with pathological study helps to eliminate the main differential diagnoses which are tumor recurrence or radiation-induced second cancer, postoperative sclerosis or fibrosis and fistulising and stenosing crohn's disease [9,10].

Processing

Chronic radiation rectitis complicated by fistulas or anastomotic strictures often require surgical intervention [11]. Surgery remains the last resort for patients with chronic bleeding rectitis [12].

Refractory bleeding, perforation, stricture, and fistula are some of the indications for surgery in patients with chronic radiation rectitis.

Approximately 10% to 25% of patients with chronic bleeding rectitis will require surgery [12].

In the literature, the frequency of radiation lesions complicated by fistula and stenosis requiring surgery varies from 2% to 17%.

Fistulas with adjacent strictures will require resection or resection with reconstruction and a bypass stoma [13]. Studies report poor outcomes with complication rates ranging from 15% to 80% and mortality from 3% to 9% [14,15].

Monitoring with imaging of these patients and correction of nutritional disorders is a prerequisite to prevent these severe complications [7].

Conclusion

Radiation-induced stenosis and fistulising rectitis are rare complications. Treatment choice requires careful assessment of the degree and type of damage to the patient's anatomy and sphincter function. Most patients with severe radiation rectitis and distal strictures will require a permanent diversion. Endoscopic exploration with anapathology and MRI plays a major role in confirming the diagnosis and ruling out a malignant cause.

Conflicts of Interest

The authors do not declare any conflict of interest.

Bibliography

1. Rupam, G., Balaji, O., Sereen, R. T. & Patil, N. (2017). Radiation therapy-induced subacute intestinal obstruction. *Asian J Pharm Clin Res., 10*(7), 7-8.

2. Martínez Hernández Magro, P. (2015). Bowel obstruction secondary to radiation enteritis: a case report. *Revisita de Gastroenterologia de México., 80*(1), 111-113.

3. Hiroshi Mashimo (2011). Gastroenterology Section 111, VA Boston Healthcare System, Brigham and Women's Hospital, Harvard Medical School, 150 South Huntington Ave., Boston, MA 02130, United States. Rustagi T, Mashimo H. Endoscopic management of chronic radiation proctitis. *World J Gastroenterol 2011, 17*(41), 4554-4562.

4. James Nguyen, Amani Jambhekar, Ziyad Nasrawi & Prasad Gudavalli (2019). Recurrent intestinal obstruction after radiation therapy: a case report and review of the literature. *Hindawi Case Reports in Surgery, 2019*(5198958).

5. Theis, V. S., Sripadam, R., Ramani, V. S. Lal z. Chronic Radiation Enteritis.

6. Brian Kavanagh, Charlie Pan, Laura Dawson, Shiva Das, Allen Li, Randall Ten Haken, *et al.* (2010). Radiation dose-volume effects in the stomach and small bowel. *Int J Radiation Oncology Biol Phys., 76*(3sup), S101-S107.

7. Lloyd, E. P., Schuffler, D. M., Sunder, J. M. & Gregory, T. E. (1986). Radiation-induced intestinal pseudo-obstruction. *Gastroenterology, 91*(4), 994-998.

8. Ilangovan, R., Burling, D., George, A., Gupta, A., Marshall, M. & Taylor, S. A. (2012). CT enterography: review of technique and practical tips. *The British Journal of Radiology, 85*(1015), 876-886.

9. Jingyu Lu, Ziling Zhou, John Morelli, Hao Yu, Yan Luo, Xuemei Hu, *et al.* (2019). Systematic review of technical parameters for MR of the small bowel in non-IBD conditions over the last ten years. *Scientific Reports., 9*(1), 14100.

10. Reijasse, D., Gendre, J. P. & Cosnes, J. (2002). Traitement médical de l´entérite radique chronique. *Gastroenterol Clin Biol., 26*(8-9), 686-695.

11. Matthias Turina, Aaron Mulhall, M., Suhal Mahid, S., Catheryn Yashar & Susan Galandiuk (2008). Frequency and Surgical Management of Chronic Complications Related to Pelvic Radiation. *Arch Surg., 143*(1), 46-52.

12. Jao, S. W., Beart, R. W. & Gunderson, L. L. (1986). Surgical treatment of radiation injuries of the colon and rectum. *Am J Surg., 151*(2), 272-277.

13. Nelamangala Ramakrishnaiah, V. P. & Krishnamachari, S. (2016). Chronic haemorrhagic radiation proctitis: A review. *World J Gastrointest Surg., 8*(7), 483-491.

14. Ayerdi, J., Moinuddeen, K., Loving, A., Wiseman, J. & Deshmukh, N. (2001). Diverting loop colostomy for the treatment of refractory gastrointestinal bleeding secondary to radiation proctitis. *Mil Med., 166*(12), 1091-1093.

15. Lucarotti, M. E., Mountford, R. A. & Bartolo, D. C. (1991). Surgical management of intestinal radiation injury. Dis Colon Rectum., 34(10), 865-869.