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## Chronic radiation enteritis

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[Conflicts d'intérêts : Aucun.](#)

### Abstract

Radiation enteritis is an iatrogenic disease of the intestines caused by radiation therapy. Two entities, chronic and acute radiation enteritis, are described. The acute symptoms (abdominal pain, loss of appetite, diarrhea) develop within the first hours or days after radiation therapy and can be treated medically. Chronic radiation enteritis leads to a chronic sub-obstructive and/or malabsorption syndrome developing at least two months after the end of radiation therapy. Cases occurring 30 post-radiation are reported. Treatment is surgical with extended resection of all involved elements of the digestive tract and ileocolonic anastomosis in healthy zones. The diagnosis is confirmed by the anatomopathology report of fibrous intestinal lesions associated with obliterating arterial lesions.

Key words: radiation enteritis; chronic radiation enteritis

A 56-year-old female presented chronic abdominal pain associated with nausea and vomiting. Her medical history included radiation of the pelvis 24 years earlier (70 Gy on the cervix, 57.5 Gy on the left parametrium, 56 on the right parametrium, 50 Gy on the pelvis and 45 Gy on the lumboaortic region, upper limit L1-L2). The morphology work-up, including magnetic resonance enterography, revealed a chronic obstruction of the small bowel with dilatation of the proximal jejunal loops facing a long stenosis distally compatible with radiation enteritis (Fig. 1). After digestive aspiration and renutrition, open surgery was performed via a midline laparotomy. The sausage-like aspect of the ulcerated stenotic ileon was pathognomonic for radiation enteritis (Fig. 2). Extensive enterectomy removed the stenosis followed by an ileo-colonic anastomosis fashioned in healthy zones. The anatomopathology report confirmed the diagnosis revealing radiation-induced lesions: extensive transmural intestinal fibrosis with a partially abraded atrophic epithelial surface and collagen deposits associated with obliterating endarteritis.

Two clinical entities of radiation-induced enteritis are described:

**Acute radiation enteritis** is the direct consequence of abdominal or pelvic radiation. The main symptoms are nausea, vomiting, loss of appetite, diarrhea, abdominal pain and distension. Symptomatic treatment is proposed and symptoms regress within weeks following the end of radiation therapy.

**Chronic radiation enteritis (CRE)** may develop two months to 30 years after the end of radiation therapy. There are two main classes of symptoms: *a*) malabsorption syndrome with chronic diarrhea; and *b*) chronic sub-obstructive syndrome. Surgery is indicated for chronic forms with signs of intestinal obstruction. The surgical goal is to remove all radiation-induced lesions by resection of all involved digestive elements and avoiding internal derivations (2). There is an important risk of morbidity after CRE surgery, especially short bowel syndrome (3). Fashioning anastomoses in healthy tissue limits the risk of postoperative morbidity-mortality and also reduces the risk of recurrence (3). Certain authors propose resection of the cecum even if it is healthy to ensure ileocolonic anastomosis in healthy tissue (3).

Prevention remains the best treatment. Recent advances in radiotherapy (low-dose radiation, limited tissue volume irradiated) and precise indications (favoring the preoperative period for digestive tract cancers) have

reduced the risk of CRE (4). Preoperative radiation therapy of the pelvis generally leads to urinary and sexual functional disorders while postoperative radiation therapy is the main cause of radiation-induced intestinal injury (4).

In conclusion, the main goal is to prevent the development of late sequelae, mainly by reducing the radiation dose and the volume of healthy tissue irradiated by limiting the indications for postoperative radiation therapy.

**Conflict of interest:** The authors declare they have no conflict of interest.

Fig.1. Coronal magnetic resonance enterography showing chronic obstruction of the small bowel and dilated proximal jejunal loops (blue arrow A) upstream to a long distal intestinal stenosis (red arrow B) compatible with radiation enteritis.

Fig. 2. Intraoperative view of the radiated bowel with stenosis and ulceration of a sausage-like ileon (red arrow B) and dilated proximal jejunal loops (blue arrow A).



