Case report

Small bowel obstruction on a polyp associated with radiation enteritis: case report

Abstract :

With the expected increasing prevalence of radiation enteritis, it is becoming imperative to improve preventive and therapeutic measures to ensure a better quality of life for affected patients. At the same time, the occurrence of complications associated with small bowel polyps, such as haemorrhage, intestinal obstruction or intussusception, highlights the complexity of management and the importance of an integrated approach to optimise clinical outcomes.

Keywords: polype grelique; Inflammatory pseudopolyp; Radiation enteritis; diagnosis; Radiotherapy; conservative treatment; Small bowel; CT imaging; preventive measures.

Abbreviations: IPP: Inflammatory pseudopolyp, RT : radiation therapy; RE : radiation enteritis; POD : postoperative day

Introduction :

Radiation enteritis (RE), a known complication of pelvic radiotherapy, can cause a variety of gastrointestinal symptoms [1]. While benign small bowel polyps are uncommon, with an estimated prevalence of 0.1-4.4% in autopsy studies [2], the co-occurrence of these conditions presented a unique diagnostic and therapeutic challenge. We report a unique case of acute small bowel obstruction caused by a polyp in a patient with established radiation enteritis.

This case highlights the challenges associated with managing such a combined presentation.

Case Presentation:

An 81-year-old woman, with a history of radiotherapy for a gynecological tumor treated in 2001.presented to the emergency department with a 5-day history of occlusive syndrome. Symptoms included cessation of bowel movements and gas, vomiting that progressed to fecaloid vomiting on the day of admission, and weight loss over the past year. Physical examination revealed a stable patient with a mildly distended, mildly tender abdomen and an empty rectal ampulla

An abdominal CT scan with contrast demonstrated dilation of the jejunum and ileum with a transition zone suggestive of obstruction. Upstream bowel dilatation measured 42 mm with a fecal sign. The colon appeared collapsed, without evidence of progressive malignancy. Laboratory findings included elevated CRP (48 mg/L), normal electrolytes, white blood cell count of 5,000/µL, prothrombin time (PT) of 65%, and mild functional renal insufficiency.

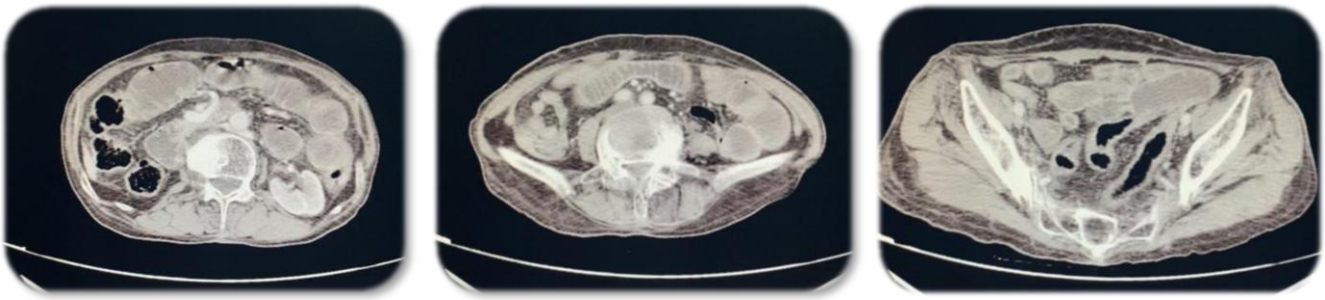

Figure 1: Abdomino-pelvic CT scan(cross-section): bowelocclusion

As an Initial management: The patient received appropriate fluid resuscitation and electrolyte correction.

Due to concerning clinical presentation, an emergent laparotomy was performed. Exploration revealed a small bowel obstruction secondary to a pedunculated inflammatory fibromyoma polyp located 110 cm proximal to the ileocecal valve. Additionally, there were strictures extending 50 cm distally from the polyp relation to radial enteritis, but the bowel lumen remained patent.

The surgical approach aimed to minimize bowel resection. The polyp was resected via enterotomy performed on a healthy segment of intestine. The enterotomy was closed in two layers with separate 3/0 Vicryl sutures, and a perileal drain was placed.

Figure 2 : Intraoperative image showing dilated and inflamed small bowel.

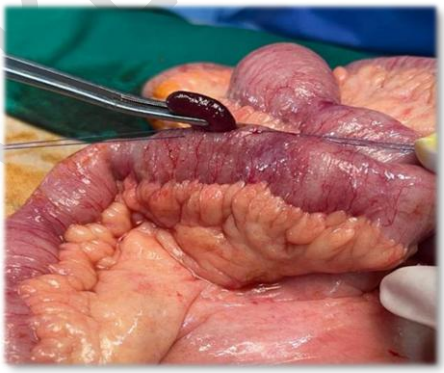

Figure 3 : Intraoperative image showing the polyp resected via enterotomy

Postoperative course:

The initial postoperative course was uneventful with hemodynamic and respiratory stability. Transit resumed on postoperative day 1 (POD 1). However, the patient developed persistent abdominal pain, progressive worsening by POD 8. Laboratory studies revealed persistent inflammatory markers with significant hypoalbuminemia (18 g/L). She received human albumin 20% at a dose of 2 vials daily for 3 days and parenteral nutrition via a peripheral vein. Oral feeding was restarted on POD 4.

By POD 10, the patient developed a new-onset infectious syndrome with worsening abdominal pain. An emergent CT scan revealed postoperative peritonitis. A second laparotomy identified dehiscence of the enterotomy closure, resulting in localized peritonitis. The surgical team performed peritoneal lavage, drainage, and an ileostomy creation approximately 130 cm proximal to the ileocecal valve (at the former site of the enterotomy). Histological and immunohistochemical analysis confirmed the final diagnosis of an inflammatory pseudopolyp.

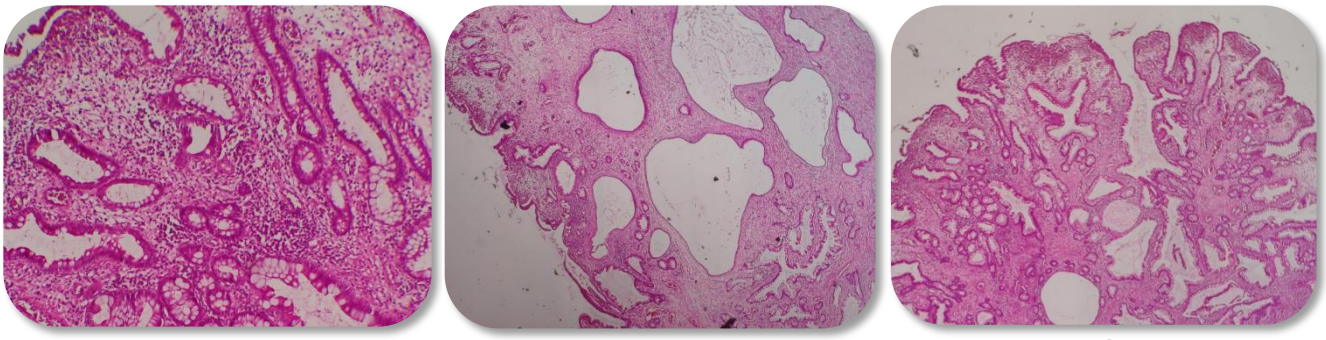

Figure 4 : Histopathological images of inflammatory pseudopolyp

Discussion :

Small bowel polyps are abnormal growths arising from the lining of the small intestine. Often asymptomatic and discovered incidentally during investigations for other conditions, they can cause a range of symptoms depending on their size, location, and type.

Clinical Presentation

Both small bowel polyps and *IPPs* can be asymptomatic, particularly those located in the stomach and colon. These are often discovered incidentally during endoscopy or surgery for other reasons [2].

However, when symptoms do occur, the clinical presentation can vary depending on the location and size of the growth:

-Abdominal Pain: This is the most common symptom, ranging from chronic, mild pain to severe, acute pain. In the small intestine, both polyps and *IPPs* can cause colicky abdominal pain due to partial obstruction or severe pain due to intussusception [1, 2, 3].

-Bleeding:

> *Small Bowel Polyps:* Larger polyps or those with a tendency to bleed can cause visible blood in the stool, which may appear dark or tarry. [6]
>
> *IPPs*: Less frequently, can also cause GI bleeding which may or may not be visible in the stool [1,2,3].

-Other Symptoms: Both polyps and *IPPs*, particularly those located in the small intestine, can cause additional symptoms like chronic diarrhea, vomiting, altered bowel habits, tenesmus, and weight loss, although these are less frequent [6,12].

-Iron Deficiency Anemia: Chronic, slow blood loss from either small bowel polyps or *IPPs* can lead to iron deficiency anemia, causing fatigue, weakness, and pale skin. [12]

Diagnosis of Small Bowel Polyps

Diagnosing small bowel polyps can be challenging due to their location and often non-specific symptoms. Traditional imaging techniques like X-rays or CT scans may be used initially, but they have limited sensitivity for detecting these growths. A multi-pronged approach is typically employed:

A thorough history and physical exam can help identify potential causes of the patient's symptoms.

Imaging Modalities: Various modalities can be used :

> X-ray: Often the initial test for suspected bowel obstruction, but rarely definitive for diagnosis [8, 11].
>
> Barium Enema: Previously the gold standard for diagnosing intussusception, but now rarely used due to its invasive nature [4].

Ultrasound: A non-invasive and readily available tool, particularly useful for diagnosing intussusception with high sensitivity and specificity. Ultrasound can also be used to assess for signs suggestive of a small bowel polyp or *IPP* [8,5].

CT Scan: Considered the most sensitive method for diagnosing intussusception and can also help identify the underlying cause, including the possibility of a small bowel polyp or *IPPs* [8, 11].

MRI: While not routinely used, MRI can be helpful in certain situations, offering high accuracy for diagnosing bowel obstruction and its cause. MRI may also be used in some cases to evaluate for *IPPs* [7, 12].

Endoscopy: can offer a direct visualization of the GI tract and can be used for both diagnosis and treatment:

Endoscopy for Stomach and Colon: can be used to diagnose and remove polyps located in the stomach and colon.

Endoscopy for Small Bowel: Newer techniques like capsule endoscopy (VCE) and double-balloon endoscopy can be helpful in visualizing polyps in the small intestine, although limitations exist [9, 10, 12].

Management of Small Bowel Polyps (IPPs)

The management approach for small bowel polyps depends on several factors, including the size, type, location, and presence of symptoms.

Endoscopic Removal: When feasible, endoscopic removal is the preferred approach polyps. This minimally invasive technique allows for visualization and removal of the growth.

Techniques: depending on the location and size of the polyp. For instance, established procedures like endoscopic submucosal dissection can be used to remove gastric and colonic polyps. Snare polypectomy or endoscopic mucosal resection may be suitable for some small bowel polyps accessible through enteroscopy [9, 10, 12].

Surgery: Is necessary in cases where endoscopic removal is not possible for large polyps or those causing complications like obstruction or bleeding. This often involves removing the affected segment of the small intestine (segmental resection) to eliminate the polyp and resolve the blockage [12].

Prognosis and Importance of Complete Removal:

Polyps are generally considered benign and rarely recur or metastasize after complete removal. However, there have been rare reports of polyps showing invasive behavior, highlighting the importance of complete surgical excision and careful pathological examination [10, 12].

Management Strategies and Decision-Making for Small Bowel Polyps in Radiation Enteritis

Managing small bowel polyps, particularly in the setting of radiation enteritis, requires a nuanced approach that balances complete polyp removal with preserving bowel function and minimizing complications. This section discusses the initial management approach, postoperative course, and alternative options considered in a specific case.

1. Initial Approach: Balancing Resection and Preservation

Several factors influence the choice between endoscopic and surgical management of small bowel polyps in patients with radiation enteritis:

Polyp size and location: Smaller polyps (<1 cm) and those located proximally (easily reachable) are generally preferred for endoscopic removal. Larger polyps (>1 cm) and distally located polyps (often discovered during surgery or due to complications) typically require surgical intervention [10, 12].

Challenges in Radiation Enteritis:

In this specific case, the presence of radiation enteritis presented a significant challenge. The decision to perform an enterotomy (surgical opening in the small intestine) was based on two *key considerations:*

Nutritional status: Preoperative nutritional assessment was not performed. A less extensive enterotomy aimed to minimize potential impact on the patient's nutritional status.

Affected segment length: The affected small bowel segment spanned approximately 50 cm. A conservative approach, removing only the polyp segment, was chosen to minimize post-surgical complications and long-term absorption issues.

Therefore, the initial enterotomy aimed for a balance between achieving complete polyp removal with minimal invasiveness and preserving maximum bowel function.

Unfortunately, the postoperative course was complicated by peritonitis (abdominal inflammation) due to suture breakdown at the enterotomy site. This complication necessitated an emergency ileostomy (creation of an opening in the ileum for waste elimination) at the previous enterotomy location.

2. Considering Alternative Options

During the initial decision-making process, other alternative surgical approaches were considered:

Segmental resection, which involves removing the affected portion of the small bowel containing the polyp, is not considered feasible due to radiation enteritis near the resection site. This inflammation makes it difficult or impossible to create a successful connection (anastomosis) between the healthy ends of the bowel. [12,13]

Small bowel bypass: This approach would have bypassed the radiation-affected segment but would have been more invasive, potentially increasing postoperative complications and compromising nutrient absorption.

Extended resection with ileostomy, while removing the entire radiation-affected segment of the small bowel, is a more invasive procedure that could lead to long-term complications like malnutrition due to reduced nutrient absorption. However, it offers the advantage of avoiding the acute complications associated with anastomosis in the other option. [12,13]

Conclusion

This case highlights the complexities of managing small bowel polyps in patients with radiation enteritis. The co-occurrence of these conditions necessitates a delicate balancing act between achieving complete polyp removal, minimizing surgical intervention, and preserving bowel function to prevent long term complications.

The initial surgical approach prioritized a less-invasive enterotomy to remove the polyp while minimizing the impact on the patient's nutritional status and avoiding extensive bowel resection due to radiation enteritis. However, postoperative complications necessitated adapting the surgical strategy.

This case emphasizes the importance of individualized decision-making and a nuanced surgical strategy when managing small bowel polyps in patients with radiation enteritis. It underscores the need for careful consideration of factors like polyp size, location, nutritional status, and the potential risks and benefits of various surgical procedures.

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