

Appendiceal-sigmoid adhesion mimicking a colonic polypoid lesion: A case report

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Case Report

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Abstract

Background

Colonic polypoid lesions are frequently encountered during colonoscopy. While typically representing mucosal polyps or neoplasms, extrinsic pathologies may compress the colonic wall, masquerading as intraluminal lesions and posing diagnostic challenges.

Case presentation:

A 42-year-old woman presented with a four-year history of chronic abdominal discomfort and constipation. Colonoscopy identified a 20 mm sessile polypoid lesion in the sigmoid colon. A subsequent endoscopic mucosal resection (EMR) attempt was aborted upon encountering a positive non-lifting sign. Given her surgical history and suspected pelvic adhesions, exploratory laparotomy was performed, revealing that the tip of a retrocecal appendix was firmly adherent to the sigmoid serosa, resulting in extrinsic compression. Appendectomy and adhesiolysis led to complete symptom resolution. Histopathological examination confirmed chronic appendicitis with periappendiceal fibrosis.

Conclusions

Appendiceal-sigmoid adhesions can mimic intraluminal colonic polyps. A positive non-lifting sign should prompt suspicion of extra-luminal pathology and cessation of endoscopic resection to avoid perforation. A comprehensive clinical evaluation and surgical exploration are critical for resolving such diagnostic dilemmas.

Background

Colonic polypoid lesions are frequently encountered during colonoscopy. Although the majority represent benign hyperplastic polyps or adenomas, a distinct subset comprises premalignant or malignant neoplasms. However, not all structures with a polypoid appearance originate from the colonic mucosa. Rarely, extrinsic processes such as adhesions, congenital anomalies, or extensions from adjacent organs can mimic intraluminal polyps, thereby leading to diagnostic misinterpretation and suboptimal management strategies.

We report a rare case of an appendiceal-sigmoid adhesion presenting as an endoluminal polypoid lesion in a patient with a history of pelvic surgery. The lesion was refractory to standard endoscopic resection techniques, necessitating surgical exploration for a definitive diagnosis. This report aims to emphasize the importance of maintaining a broad differential diagnosis for atypical colonic lesions and underscores the necessity of integrating clinical history, endoscopic findings, and histopathology.

Case presentation

A 42-year-old woman presented to our institution with a four-year history of chronic abdominal discomfort and constipation. Symptoms included intermittent left lower quadrant cramping, exacerbated by dietary intake and partially relieved by defecation. Despite increased fiber intake, laxative use, and lifestyle modifications, the patient experienced progressive bloating and irregular bowel habits. She denied rectal bleeding, significant weight loss, fever, or vomiting.

Her past medical history included a laparoscopic salpingectomy (seven years prior) for a ruptured ectopic pregnancy and an open myomectomy (three years prior) for symptomatic uterine fibroids, both without recorded complications. There was no family history of colorectal cancer, inflammatory bowel disease, or polyposis syndromes.

Colonoscopy revealed a solitary, 20 mm sessile polypoid lesion in the sigmoid colon, approximately 18 cm from the anal verge (Fig. 1a). The lesion appeared smooth-surfaced and broad-based. The surrounding mucosa was unremarkable, with no evidence of inflammation, ulceration, or synchronous polyps. Multiple cold forceps biopsies were obtained; histopathological examination revealed hyperplastic colonic mucosa without dysplasia or malignancy. Given the lesion's size, a therapeutic endoscopic resection was planned.

During the procedure, submucosal injection of saline with indigo carmine was attempted. However, the lesion failed to demonstrate satisfactory lifting despite multiple injections into the surrounding submucosa (Fig. 1b). Recognizing the high risk of perforation and the potential for a transmural or extraluminal pathology, the resection attempt was aborted.

Cross-sectional imaging, including contrast-enhanced computed tomography (CT) and magnetic resonance enterography (MRE), was recommended; however, the patient declined due to personal reasons and concerns regarding cost and radiation exposure. Given the persistent symptoms and inconclusive endoscopic findings, exploratory laparotomy was performed for definitive diagnosis and treatment.

Intraoperatively, dense fibrotic adhesions were noted involving the uterus, small intestine, and sigmoid colon. The sigmoid colon was notably tethered to a retrocecal appendix; the appendiceal tip was firmly adherent to the colonic serosa, corresponding to the site of the endoscopically visualized lesion (Fig. 1c). This finding confirmed that the polypoid appearance was secondary to extrinsic compression rather than an intrinsic mucosal lesion.

The appendix appeared elongated and thickened. No signs of acute inflammation, abscess, or purulent discharge were observed. An appendectomy and adhesiolysis were performed. Following separation, a shallow depression was observed on the colonic serosa, with no evidence of serosal breach, diverticula, or perforation (Fig. 1d).

Histopathological examination of the appendix confirmed chronic appendicitis, characterized by lymphocyte and plasma cell infiltration and significant periappendiceal fibrous tissue proliferation. No granulomatous inflammation or neoplasia was identified.

The patient recovered uneventfully and was discharged on postoperative day 6. At the 1-month follow-up, she reported complete resolution of symptoms and normalization of bowel habits.

Discussion

This case exhibited an uncommon presentation of an appendiceal-sigmoid adhesion masquerading as a polypoid colonic lesion.

The pathogenesis of the appendiceal-sigmoid adhesion in this case is likely multifactorial, rooted primarily in the patient's history of pelvic surgeries for an ectopic pregnancy and uterine fibroids. Postoperative intra-abdominal adhesion formation is a well-established complication of gynecological interventions, typically initiated by peritoneal mesothelial trauma and subsequent fibrotic repair [1]. In this clinical scenario, the dense adhesions involving the uterus, small bowel, and sigmoid colon most likely originated from these prior operations, establishing a tight mechanical tether between the appendix and the sigmoid colon by structurally binding adjacent organs in a manner that closely mimics congenital anomalies or true mass lesions [2].

Inflammatory or neoplastic processes are additional potential causes. Chronic diseases, including diverticulitis and Crohn's disease, may lead to fibrotic adhesions, while tumors can infiltrate adjacent structures [3–5]. However, our patient had no clinical, endoscopic, or histologic evidence of active inflammation or malignancy. Similarly, appendiceal-sigmoid fistulas, which are typically associated with diverticulitis or acute appendicitis [6, 7], were improbable given the absence of acute symptoms, such as fever or purulent discharge, and histologic evidence.

Congenital appendiceal anomalies should also be considered. Uncommon variations, such as bridge-like appendiceal malformations, have been reported, in which the appendix forms an abnormal connection between the cecum and other intestinal segments [8]. The tight adhesion observed during the operation resembled these congenital anomalies. Nevertheless, definitively distinguishing between a congenital malformation and an acquired lesion remains exceptionally challenging in the absence of longitudinal radiological records. In this case, we lacked both historical baseline imaging from the patient's earlier life to screen for a long-standing developmental variant and immediate pre-operative cross-sectional imaging due to her refusal of advanced examinations. This complete lack of chronological radiological evidence restricted our ability to determine the true anatomical origin of the adhesion before surgical exploration.

This case underscores the inherent limitations of relying solely on endoscopic visualization and superficial biopsy for complex lesions. The failure of submucosal lifting during the resection attempt serves as a critical red flag for non-polypoid or extra-luminal pathologies, necessitating immediate

procedural cessation to prevent iatrogenic perforation. Although preoperative cross-sectional imaging provides vital anatomical insights regarding spatial relationships with adjacent organs, definitive management often requires surgical exploration. Ultimately, integrating radiological mapping, endoscopic visualization, and histopathological analysis establishes a robust multimodal framework that optimizes clinical decision-making and ensures superior patient outcomes.

Conclusions

In conclusion, this case illustrates the profound diagnostic challenge posed by appendiceal-colonic adhesions masquerading as intraluminal colonic polypoid lesions. The patient's extensive surgical history, likely acting in synergy with subclinical chronic inflammation, drove the dense adhesion formation and emphasizes the critical need to consider extra-luminal etiologies when endoscopic resection fails to achieve satisfactory mucosal lifting. While a standard multimodal approach integrating clinical history, cross-sectional imaging, and histopathology remains optimal for an accurate diagnosis, clinicians must adapt to real-world limitations. In clinical scenarios where pre-operative advanced imaging is unavailable, a judicious surgical exploration provides a definitive and effective pathway to establish the diagnosis and achieve complete long-term therapeutic relief.

Declarations

Ethics approval and consent to participate: This case report was conducted in accordance with the ethical standards of the Declaration of Helsinki and was approved by the Ethics Committee of West China Tianfu Hospital of Sichuan University (Approval Number: 2025-025).

Consent for publication: Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Availability of data and materials: All data generated or analyzed during this study are included in this published article.

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Authors' contributions: YDC drafted the manuscript and prepared the figures. MMZ assisted in surgical details and data acquisition. HZ supervised the study, critically reviewed the manuscript, and approved the final version. All authors read and approved the final manuscript.

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Figures

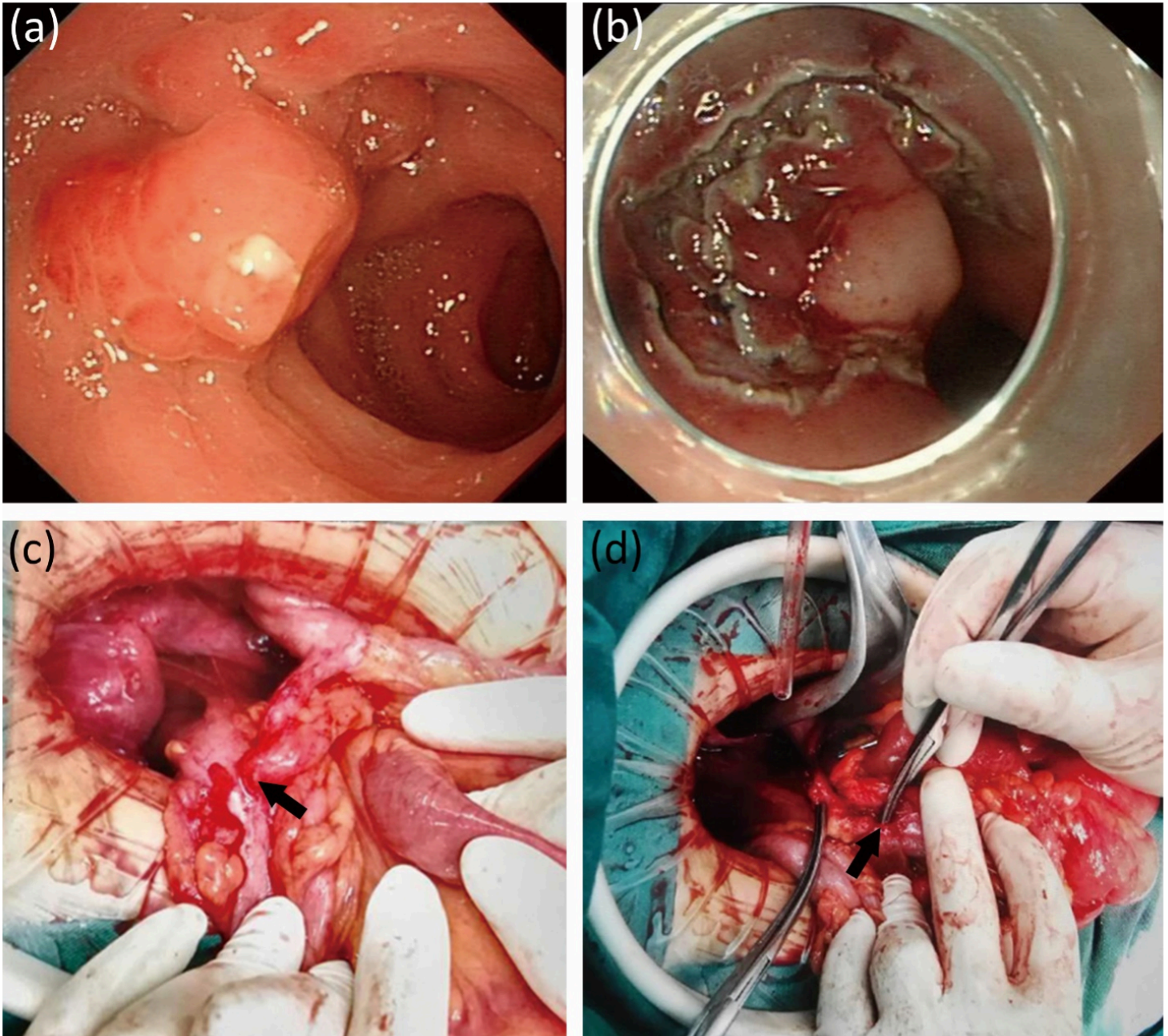


Figure 1

Endoscopic and intraoperative findings. (a) The colonoscopic image demonstrated a polypoid lesion located 18 cm from the anal verge. (b) The lesion failed to lift with submucosal saline injection, raising suspicion of deep tissue involvement. (c) During laparotomy, the appendix (black arrow) was found to be tightly adherent to the sigmoid colon, mimicking an intraluminal mass. (d) A shallow depression (black arrow) was also noted on the outer surface of the sigmoid colon at the site of adhesion, corresponding to the endoscopic protrusion.