Case Report

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Congenital appendiceal inversion - a rare finding on colonoscopy. A case report and literature review

Abstract

Appendiceal inversion (AI) is a rare finding on colonoscopy. Only a few congenital cases without previous appendectomy and appendiceal intussusception have been reported in the literature. We report a case of congenital appendiceal inversion in an asymptomatic 50year old female without intussusception nor any previous history of intra-abdominal surgery. It is important to recognise this rare entity to avoid unnecessary interventions. Congenital AI in asymptomatic patients should be managed conservatively.

Keywords: appendiceal inversion, intussusception, endoscopy, colonoscopy

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Introduction

Appendiceal inversion (AI) refers to the presence of an appendix, or its remnant post appendectomy, into the lumen of the caecum. It is a rare finding on colonoscopy, with an incidence of about 0.01.[1] It is found predominantly in females, in their fourth decades of life.[2] AI has been reported in patients with appendiceal intussusception or in those who had a previous history of open appendectomy.[3] However, only a few congenital AI have been reported in the literature.[4-6]

Although appendiceal inversion is often an incidental finding in asymptomatic patients, its significance lies in the fact that it can mimic other pathological conditions in the caecum on colonoscopy. It can lead to unnecessary investigations and cause potential harm. It is therefore important to recognise this rare entity when evaluating lesions in the caecum.

We report a case of congenital appendiceal inversion in a 50year old female without intussusception nor any previous history of intra-abdominal surgery. The current literature will also be reviewed.

Case

A 50year old female was referred to our clinic for a colonoscopy for a positive result on the faecal occult blood test. She was otherwise asymptomatic, not anaemic and has no previous history of intra-abdominal surgery. She was a non-smoker and has no family history of bowel cancer. Her abdomen was soft and non-tender on examination. No obvious blood was detected on the digital rectal exam.

The colonoscopy was inserted to the terminal ileum. An inverted appendix measuring 30mm was visualised in the caecum (Figures 1&2). No obvious lesion was seen on the mucosal surface of the appendix. No signs of small bowel or colonic intussusception was evident. The colonoscopy was otherwise unremarkable, except for some small second degree haemorrhoids (Figure 3) No biopsy was taken. Patient was well post colonoscopy.

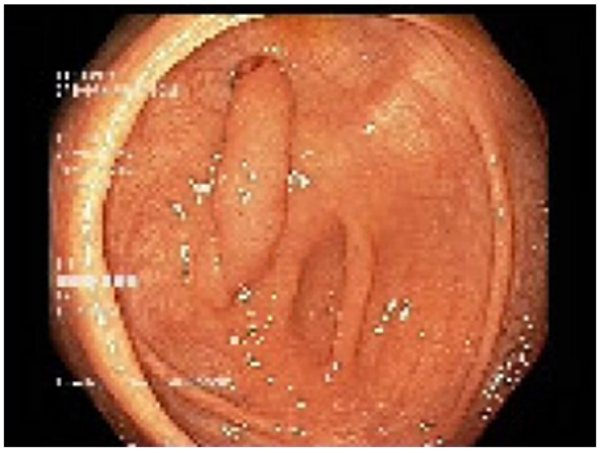

Figure 1 An inverted appendix in the caecum.

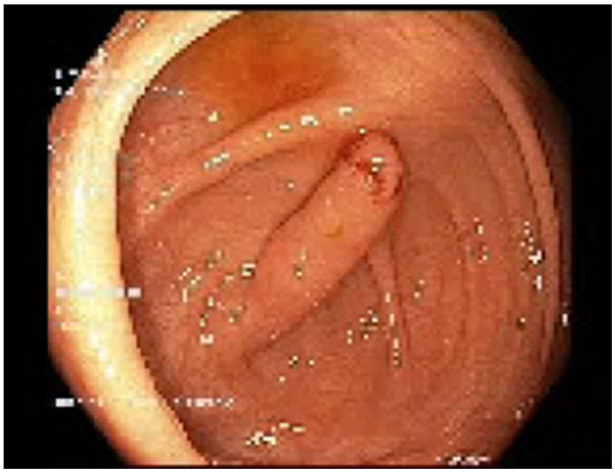

Figure 2 An inverted appendix with the triradiate caecal fold.

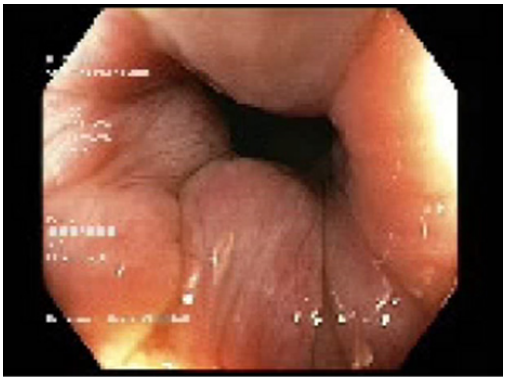

Figure 3 Second degree haemorrhoids.

Discussion

Appendiceal inversion is a rare finding on colonoscopy. AI is most commonly found in patients who had a previous open appendectomy and in whom the base of the appendix is inverted into the caecum to reduce the risk of peritoneal contamination.[7] Intussusception is another cause for appendiceal inversion. Similar to intussusception in the rest of the gastrointestinal tract, it is thought to be caused by abnormal peristaltic movement secondary to local irritation, with or without a lead point.[8] Neoplasm and, rarely, submucosal endometriotic deposits of an appendix have been reported in the literature as the cause of intussusception.[9] Patients with intussusception often experience intermittent symptoms such as abdominal pain, diarrhea and per rectum bleeding.

On the other hand, appendiceal inversion is seldomly noted in patients without evidence of intussusception nor a history of previous appendectomy. These patients are often asymptomatic. Anatomical predispositions such as an abnormally mobile mesoappendix and a large appendiceal orifice has been implicated in this congenital form of AI.[10]

No definite guidelines exist in the literature regarding its workup and management. The diagnosis replies on the findings of the colonoscopy, clinical information and imagings available and experience of the colonoscopist. A history of previous open appendectomy, for instance, would support the diagnosis of iatrogenic AI. A congenital inverted appendix can often be differentiated from other pathological conditions i.e. neoplasm by an experienced colonoscopist. It is crucial to recognise this anomaly in the caecal region to avoid unnecessary, and potentially harmful, interventions. Perforation and peritonitis have been reported after biopsy and colonoscopic removal.[11-13] Patients with iatrogenic and congenital AI on routine colonoscopy who are asymptomatic should be managed conservatively.

In cases when neoplasm cannot be confidently ruled out, biopsy, or endoscopic removal, should be carefully performed whenever possible. An appendiceal mucinous neoplasm has been reported in a caecal lesion that was thought to be an inverted appendix.[14] Complete resection of polypoid lesions near the inverted appendiceal orifice can be difficult endoscopically, with an increased risk of caecal perforation. CT abdomen and pelvis with oral and intravenous contrast is useful to assess for primary malignancy such as an appendiceal mucinous adenocarcinoma, as well as the extent of intra-abdominal involvement.[15] Occasionally, an inverted appendix can also be seen as an intraluminal lesion on CT scan.

Conclusion

Appendiceal inversion is a rare finding on colonoscopy. It can be of iatrogenic, intussusceptive, and congenital nature. It is important to recognise this rare anomaly to avoid unnecessary interventions. Congenital AI in asymptomatic patients should be managed conservatively.

Acknowledgments

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Statement of ethics

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

Conflicts of interest statement

The authors have no conflicts of interest to disclose.

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Author contributions

Collection and review of the literature: King Tung Cheung and Janindu Goonawardena. Manuscript composition: King Tung Cheung and Janindu Goonawardena. Critical revision and editing: King Tung Cheung, Janindu Goonawardena and Vinna An.

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