

Colonoscopic Diagnosis of Appendiceal Intussusception : A Case Report

Intussusception of the appendix is an uncommon condition and the diagnosis is rarely made preoperatively. Intussusception of the appendix may mimic a neoplastic lesion. Colonoscopy is a valuable tool for diagnosis of the appendiceal intussusception. A 17-yr-old female admitted with repeated abdominal pain, nausea, vomiting and febrile sensation. We diagnosed as appendiceal intussusception by colonoscopy, which showed a polypoid tumor (about 1.5 cm) in the cecum. This sessile polypoid mass looks like foreskin or glans. We present colonoscopic finding of appendiceal intussusception and review the literature.

Key Words : *Intussusception; Appendix; Colonoscopy*

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Received : 24 December 2003
Accepted : 15 July 2004

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INTRODUCTION

Intussusception of the appendix is an uncommon type of intussusception with an incidence of 0.01% (1). Although it may clinically mimic more common acute and chronic abdominal conditions, it is an important entity to recognize since it could be discovered as cecal mass and mistaken for a neoplasm. Diagnosis is rarely made due to its variable preoperative symptoms. In Korea, two cases of intussusception of the appendix were reported; these were diagnosed by barium enema (2, 3). We report this rare condition of the appendix which was diagnosed with colonoscopy preoperatively.

CASE HISTORY

A 17-yr-old female admitted with repeated periumbilical pain, nausea, vomiting and febrile sensation. Fourteen years ago, she was operated for intestinal tuberculosis. Physical examination revealed mild periumbilical tenderness without rebound tenderness. In laboratory data, white blood cell count was 12,800/ μ L and the other findings were normal. Simple abdominal radiography and abdominal computerized tomography revealed no abnormality except mild paralytic ileus. The following day a colonoscopy was performed, which revealed a polypoid lesion in the cecum (Fig. 1). An exploratory laparotomy was performed and it was seen dimple at cecum, the appendix invaginated into the cecum and an appendectomy was performed. However, we could not find any other

pathologic lesions at the ileocecal region. The appendix was 2.5 cm in length, and it showed a chronic inflammation pathologically (Fig. 2).

DISCUSSION

Intussusception of the appendix is a rare entity that is difficult to diagnose preoperatively. In 1858 McKid (4) first described a complete invagination of the appendix into the cecum of a 7 yr-old boy. In 1890, the first operation for appendiceal intussusception in a 13-month-old child was reported (5). Wright, Renshaws, Pitts and McGraw reported successful operations for appendiceal intussusception (6). In 1964, Collins (1) concluded a 40-yr study on 71,000 appendices obtained from surgical and autopsy material and reported prevalence of 0.01% for intussusception of the appendix; the prevalence of the endometriosis and adenocarcinoma of the appendix were 0.05% and 0.08%, respectively.

Intussusception of the appendix may occur at any age, however, the majority of the reported cases reviewed in the earlier literature occurred in the pediatric aged group, with the average of 16 yr (5, 6, 8). The condition is more common four to five times in males than in females (9).

The signs and symptoms of the intussusception of the appendix are vague, recurrent, cramping abdominal pain, intermittent rectal bleeding and mucus in the stools (6, 9, 10). The condition assumes a greater importance in the differential diagnosis of right lower quadrant abnormalities,

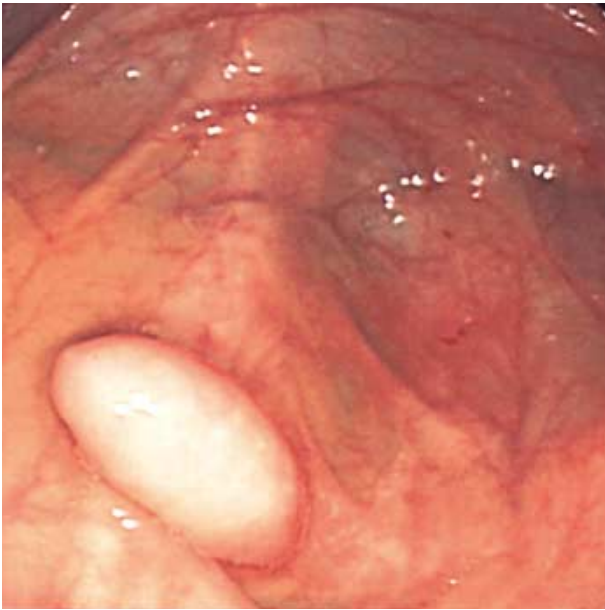


Fig. 1. Colonoscopic finding; A sessile polypoid mass shown in the cecum.

particularly if the symptoms are subacute or recurring (11). Casteels et al. (12) described five possible clinical features: 1) acute appendicitis, 2) intussusception, 3) recurrent right iliac fossa pain, 4) intermittent painless rectal bleeding, and 5) asymptomatic findings at laparotomy, barium enema, or colonoscopy.

Intussusception of the appendix probably occurs by the same mechanism and pathogenesis as intussusception elsewhere and has been reviewed extensively (5, 7, 13). Many pathological conditions have been considered responsible for its presentation, including abnormal appendiceal peristalsis, irritation of the appendix secondary to fecalith, foreign body, polyp, parasites, and lymphoid hyperplasia, but the appendix may be normal (6, 9). Other causes such as mucocele, appendiceal adenocarcinoma, carcinoid tumor and endometrial implants have not been reported in the pediatric age group. However, intussusception may occur in an appendix even without an underlying abnormality (6).

Anatomically, various types of the appendiceal intussusception have been reported (5). In 1941, McSwain (8) modified the original classification of the appendiceal intussusception by Moschowitz (5), which in turn was simplified by Langsam et al. (6) in 1958. Type 1 begins at the appendix. The tip of the appendix is the intussusceptum and its more proximal portion is the intussusciens. Type 2 begins at the base of the appendix. The base is the intussusceptum and cecum is the intussusciens. In type 3, the proximal portion of the appendix forms the intussusceptum and is received into the distal portion. In type 4, there is a complete inversion of the appendix into the cecum from progression of types 1 and 2. Either type 1 or type 2 can result in a complete inversion of the appendix

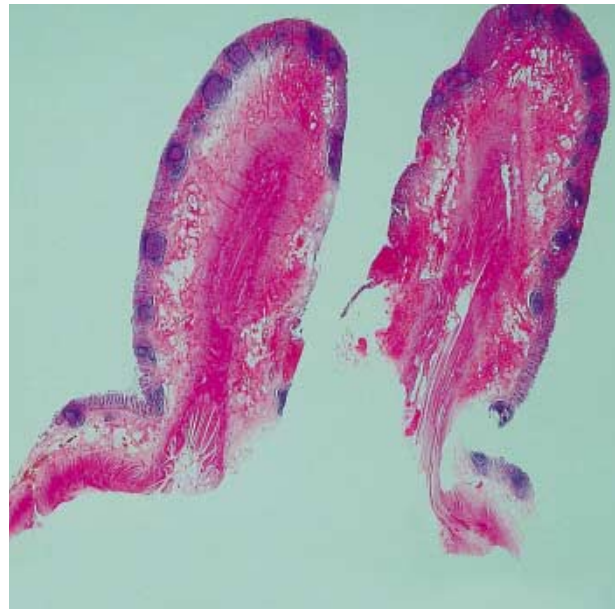


Fig. 2. Mucosa of the appendix (blue) is noted in the outer surface. The red core is corresponding to the fibromuscular wall of the appendix (H&E, $\times 40$).

into the cecum thereby resulting in the inside-out appendix as demonstrated in 2 cases (14).

Intussusception of the appendix has been noted during barium enema, sometimes in asymptomatic patients, and the intussusception has been reduced during the study (15, 16). Levin et al. (15) reported 11 cases with the characteristic coiled-spring sign in the cecum and nonfilling of the appendix on double-contrast barium enemas. Therefore, this finding defect has to be differentiated from other causes such as polyps, carcinoma, and lymphoma by colonoscopy (12).

Radiological findings may be: 1) no abnormality seen in cecal region without any mention of the appendix; 2) oval or round bosselated intraluminal filling defects, usually in the medial wall of the cecum, with no visualization of the appendix; 3) intraluminal finger-like filling defects within the cecum, usually arising from the medial wall of the cecum; or 4) reduction of the filling defect out of the cecum during fluoroscopy (16, 17).

Sonogram has a proven sensitivity for the diagnosis of intussusception, and the typical sonographic appearances are well documented (6, 11). It enables a physician to identify a lead point within a complex target sign, but there are few publications about the sonographic pattern of intussusception of the appendix (6, 18). Axial sonogram, intussusception of the appendix may present with a permanent multiple concentric sign. Longitudinal sonograms demonstrate the inverted appendix protruding into the cecal lumen. Intussusception of the appendix may produce a target like appearance or concentric ring sign on ultrasound examination (19).

Colonoscopic view of the appendiceal intussusception has

often been misdiagnosed as a cecal polyp or a neoplasm (20, 21). It is important for the endoscopist to remember that the appendiceal intussusception may mimic a cecal polyp, especially if the appendiceal lumen is not identified. Therefore, it is important to make an accurate preoperative diagnosis in order to avoid endoscopic removal and the potential hazards. If such a lesion is removed endoscopically, peritonitis may develop (22).

Pathologically intussusception of the appendix has the following characteristics: 1) lesions of the wall-fecaliths, foreign bodies, and peristalsis; 2) lesions of the wall-hypertrophic lymphoid follicles and adenovirus infections affecting the younger age groups; mucosal polyps, mucocoeles, adenocarcinoma, carcinoid, endometriosis, and tuberculosis (8, 9, 23).

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