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Solitary Cecal Diverticulitis Mimicking Acute Appendicitis in A Child: Intraoperative Diagnosis

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ABSTRACT:

Solitary cecal diverticulitis mimicking acute appendicitis in a child: intraoperative diagnosis

Objective: The right colon or relatively rare cecal diverticulitis may mimic acute appendicitis. This is a rare situation in the pediatric age group. Herein such a case is reported to arouse awareness of emergency room residents and pediatric surgeons on the issue.

Case: A 14-year-old, 105-kilogram boy presented to the emergency department with symptoms mimicking acute appendicitis. He turned out to have a perforated solitary cecal diverticulitis during surgery.

Conclusion: Diverticulosis is a disease common in adulthood however, incidence is increasing in childhood. Therefore, emergency room residents and pediatric surgeons need to keep this diagnosis in mind in the differential diagnosis of acute appendicitis. Once the etiology is clarified, preventive measures can be defined. In the light of this information; a better planning of treatment strategy and more precise diagnostic studies can be achieved.

Keywords: Cecal diverticulitis, complicated diverticulosis, pediatric

ÖZET:

Çocukta akut apandisiti taklit eden soliter divertikülit olgusu: İntraoperatif tanı

Amaç: Sağ kolonik veya daha ender çekal divertikülit akut apandisiti taklit edebilir. Bu duruma çocukluk çağında pek rastlanmamaktadır. Burada sunulan vaka ile acil servis hekimlerinin ve çocuk cerrahlarının konuyla ilgili farkındalıklarını arttırmayı amaçladık.

Olgu: 14 yaşında, 105 kilo ağırlığında erkek hasta çocuk acil servise akut apandisite uyan semptomlarla başvurdu. Ancak cerrahi sırasında perfore olmuş soliter çekal divertikülüti olduğu görüldü.

Sonuçlar: Acil servis hekimleri ve çocuk cerrahları, akut apandisitin ayırıcı tanısında sağ kolonik ya da çekal divertikülüti de akıllarında tutmalıdırlar, çünkü önceden yetişkin çağda sıklıkla karşılaşılan bu hastalık artık çocukluk döneminde de görülmeye başlanmıştır. Hastalığın etiolojisi iyi bilinirse, koruyucu önlemler geliştirilebilir. Ve hastalık daha iyi tanınırsa, tanı ve tedavi net olarak planlanabilir

Anahtar kelimeler: Çekal divertikülit, komplike divertikülozis, çocuk

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INTRODUCTION

Colonic diverticulosis is a disease where either serosal and mucosal layers (pseudo-diverticulum) or all bowel layers (true diverticulum) form saccular protrusions from the vulnerable weak points of colonic wall. Low dietary fiber, obesity, constipation, decreased physical activity, corticosteroids, nonsteroidal anti-inflammatory drugs and smoking may all predispose to diverticulosis. Genetics, age, geography and ethnicity are also determinants. Most patients with diverticulosis are symptom-free while some have abdominal pain, bloating and constipation. Most are identified incidentally during colonoscopy. Stasis, obstruction and bacterial overgrowth may further cause diverticulitis- the most common complication of diverticular disease (1,2).

Herein we report a teenager who was initially diagnosed as acute appendicitis was found out to

Figure-1: Intraoperative image of the diverticulum (tip of the forseps pointing at the lumen).

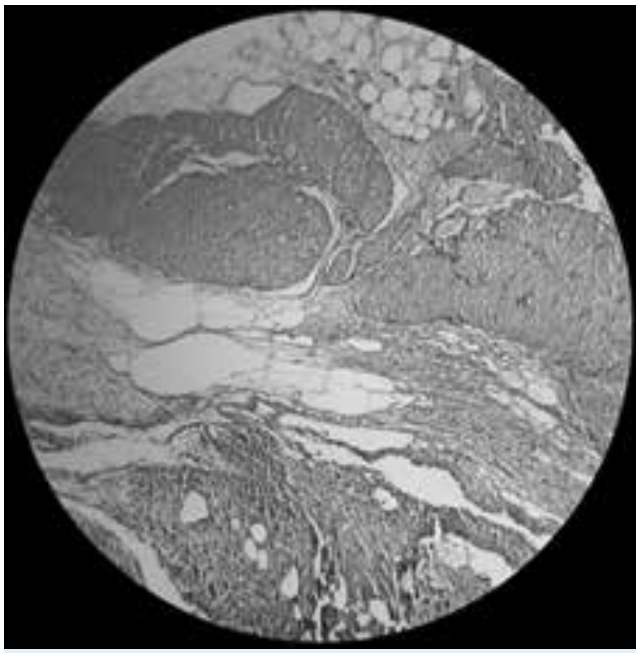

Figure-2: Histopathological appearance of the diverticulum with the serosa, muscular layer and mucosa from top to bottom (Hematoxylin and eosin stain, x10).

have a perforated diverticulitis during surgery. We aimed to arise awareness of emergency room residents and pediatric surgeons on diverticulitis of the cecum which can mimic acute appendicitis. With appropriate preoperative studies, diagnosis can be made easier.

CASE

A 14-year-old, 105-kilogram boy presented to the emergency department with abdominal pain and nausea that started one day earlier. He reported subjective fevers at home but no vomiting or change in the bowel habits. He also mentioned similar but lighter symptoms (pain at the right iliac fossa, nausea and fever) during the week before.

He had tenderness, defense and rebound at all quadrants of the abdomen. He had an elevated white blood cell count of 15,390/uL with 77.3% neutrophils. C-reactive protein was 0.83 mg/dL. The remainder of his laboratory values were within normal limits. Direct abdominal X-ray was usual. On abdominal ultrasound there was a blind ending tubular structure, 9.5-mm in diameter, alongside cecum which was thought to be inflamed appendix but the proximal site was not clearly visualized. There was no free fluid.

The initial diagnosis was acute appendicitis. Surgery was planned and intravenous hydration and antibiotic therapy was started. The abdomen was accessed via right lower quadrant transverse incision. The omentum wrapping the cecum and the proximal ascending colon was gently removed. The retro cecally lying appendix looked slightly inflamed but cecum wall was markedly thickened on palpation. And there was a serosal defect at the anterior cecum wall where a fecaloma could be seen inside. Further dissection revealed that it was a perforated diverticulum. The diverticulum was excised and the cecal wall was repaired. Following appendectomy, a pericecal drainage catheter was placed and the abdomen was closed.

The histopathological examination showed a perforated diverticulitis lined by necrotized mucosa with underlying muscularis mucosa, muscular layer and serosa (true diverticulum). Appendiceal slides also showed oedema, fibrosis and much inflammatory

cell infiltration and reported as catarrhal appendicitis. (Figure-1, Figure-2)

Nasogastric tube was withdrawn on postoperative day 1 when the patient spontaneously passed flatus. Clear diet was initiated subsequently. There was no discharge from the drain so it was withdrawn on postoperative day 3. The patient tolerated the clear diet so he was given liquid and solid food in the subsequent days. Intravenous antibiotics was cessated and he was discharged on day 5 with per oral medication.

The patient had an uneventful recovery but a subcutaneous fat necrosis, which resolved within a week.

The patient and his custodians both gave informed consent for the case report to be published.

DISCUSSION

Complications of colonic diverticulosis include bleeding, inflammation (diverticulitis) and perforation. Symptoms depend on the localization of the diverticuli. Differential diagnosis includes colon cancer, Crohn's disease, ischemic colitis, pseudomembranous enterocolitis, pelvic inflammatory disease.

The right colon or relatively rare cecal diverticulitis may mimic acute appendicitis (3-7).

Uncomplicated right colon diverticulitis can be managed by antibiotic therapy and bowel rest. Computed tomography (CT) or magnetic resonance imaging (MRI) can help to diagnose complicated diverticuli (8,9) but diagnosis is generally made during surgery. Still there are cases where abscess and bowel necrosis blur the picture and definitive diagnosis cannot be made even intraoperatively.

Herein, an obese teen with cecal diverticulitis mimicking acute appendicitis is reported. There are very few similar cases in pediatric age group reported in the literature up to now. Furthermore, cecal diverticuli are often found as solitary lesions, therefore thought to be congenital in origin. The former pediatric cecal diverticuli cases reported are false diverticuli while the patient reported in this case had a true diverticulum.

Certain syndromes have been reported to have increased incidence for diverticular disease such as Ehlers-Danlos syndrome, Williams syndrome, hyper-IgE syndrome. This patient did not match any syndromes (10-14).

Since the physical examination was obviously complying acute appendicitis and the ultrasound was pointing to appendiceal inflammation, it was not studied further with CT. In fact, a CT can help to distinguish between diverticulitis and appendicitis especially in an obese patient where ultrasound fails to produce an accurate result.

As well as being rough to diagnose preoperatively, intraoperative diagnosis can be another challenge for complicated diverticulosis. It is generally diagnosed at the time of surgery. And surgical preference may either be simple diverticulectomy or hemicolectomy according to the site of the lesions and degree of inflammation or change when the diagnosis is doubtful or malignancy cannot be excluded (15-17). There is a consensus on conservative approach that a minimum extent of bowel resection should be done for complicated diverticulitis. In this case the patient was treated with simple diverticulectomy because there was no visible necrosis at the nearby tissues and no abscess formation. He had an uneventful course.

Performing a concurrent appendectomy is another issue. It could avoid misdiagnosis in any future episodes of acute abdomen (18). Since our prior clinical diagnosis was acute appendicitis and we prepared the patient directly for surgery, we performed appendectomy. If the patient had a long history of fixed right lower quadrant pain, the diagnosis was suspected, the necessary diagnostic studies were planned and solitary cecal diverticulum was diagnosed previously, he could be treated conservatively.

Diverticulosis is a disease popular in adulthood but this report aims to attract attention to increasing incidence in childhood. Emergency room residents and pediatric surgeons need to keep this diagnosis in mind in the differential diagnosis of acute appendicitis in order to better understand the etiology and define preventive measures.

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