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Left-sided appendicitis with situs inversus totalis: an unusual cause of acute left lower quadrant abdominal pain

To the Editor,

The most common cause of abdominal pain which requires surgery is appendicitis (1). Although acute lower quadrant abdominal pain has various causes related to gynecological, genitourinary and gastrointestinal systems, appendicitis is usually suspected in patients presenting with right lower quadrant pain. Appendicitis may present with extraordinary signs and localization, though rarely. It may cause complications which may lead to death because of delayed diagnosis especially in children (2). Therefore, rare clinical conditions of appendicitis should be known well especially by physicians who work in pediatric emergency departments. In this article, a case with situs inversus totalis (SIT) and appendicitis is presented and clinical and radiologic findings and treatment approaches are discussed in appendicitis with an atypical localization.

An 11-year-old male patient presented to our emergency department with complaints including left lower quadrant pain, nausea, vomiting and loss of appetite lasting for the last 4 days. Treatment for urinary tract infection was arranged in an external center and the patient's complaints did not recover in the follow-up. On physical examination, "defence", "rebound" and tenderness were found in the left lower quadrant. In addition, the apical heart beat was found to be localized in the right side. Laboratory findings were as follows: WBC:20,800/mm^3 (N:4800-10800), serum C-reactive protein (CRP): 2.97 mg/dL (N:0-0.8), neutrophil percentage: 90.2% (N:43-65%). Left shift was present. The cardiac apex was observed to be in the right side on antero-porterior chest graphy and gastric fundus air shadow was observed to be in the right side on direct abdominal radiography in the standing position. This finding was confirmed with dextrocardia found on echocardiography. Abdominal ultrasonography showed that the liver was localized in the left and the spleen was localized in the right side. A diagnosis of situs inversus totalis was made. Findings compatible with incompressible appendicitis were present in the left lower quadrant; the caecum and surrounding tissues were edematous. Pericecal fluid was present. Laparotomy was performed by left Mc-Burney incision. It was observed that the appendix was perforated in the tip. Appendectomy and drenaige were performed. The patient was discharged on the 5th day after the operation without any problem.

Abdominal pain constitutes 6.5% of all presentations to the emergency department (3). A diagnosis can not be made in 21% of these patients (3). In children, the diagnosis of appendicitis is generally more difficult compared to adults and a wrong diagnosis is made in 15% of the patients with appendicitis in the childhood age group (4,5). Therefore, all frequent and rare causes should be considered in the evaluation of children presenting with abdominal pain.

Abnormalities including intestinal malrotation, mobile cecum and SIT may result in left-sided appendicitis (1,6,7). In situs inversus totalis, all intrathoracic and abdominal organs are localized completely in the opposite side. Kartagener syndrome which is characterized by bronchiectasia, paranasal sinuzitis and SIT observed in 15% of the patients with SIT was excluded in our patient (8). While the appendix is localized in the left lower quadrant in patients with situs inversus totalis, it can be localized in any quadrant in patients with malrotation and mobile cecum. Collins et al.(7) reported the prevalence of left-sided appendicitis to be 0.04% and the prevelance of association of SIT and left-sided appendicitis to be 0.016%. Less than 100 cases have been reported in the literature (6).

The diagnosis of left-sided appendicitis is based on physical examination. Antero-posterior chest graphy and

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echocardiography are helpful radiologic investigations in the diagnosis of SIT. Direct abdominal radiography in the standing position, abdominal ultrasonography and computarized tomography are helpful radiologic investigations in the diagnosis of both SIT and appendicitis (1). Laporoscopy which has started to be used frequently in recent years is important both in the diagnosis and surgical treatment of cases of appendicitis accompanied by SIT (1,6).

Appendicitis is a pathology which has a high morbidity and mortality rate especially in children when the diagnosis is delayed. Therefore, appendicitis with a different localization should be considered when extraordinary clinical findings are present in patients presenting to pediatric emergency departments with abdominal pain.

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