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Diagnosis and Management of Chronic Appendicitis in Children: A Case Report

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A B S T R A C T

Background: Abdominal pain was one of the most complaints in children. Chronic appendicitis was the common cause of recurrent abdominal pain. The incidence of this case was 1,5% of all appendicitis cases. The manifestation was not specific, and one of the treatment options was surgical with laparotomy or laparoscopy methods. **Case presentation:** A 10-year-old boy came to the outpatient clinic of gastroenterohepatology with a diagnosis of abdominal pain caused by chronic appendicitis differential diagnosis of chronic gastritis with abdominal pain, especially the pit of the stomach moving to the right waist since 3 months ago. Physical examination of the patient showed the general condition was moderate, conscious, and normal vital signs. Abdominal distension was absent, tenderness in the lower right abdomen was present, and the pain was present in the lower right abdomen. There was contralateral tenderness in the left lower abdomen. An appendicogram examination shows chronic appendicitis. The patient was consulted for pediatric surgery for appendectomy and later controlled to a surgical outpatient clinic after discharge. **Conclusion:** Chronic appendicitis usually shows unspecific manifestation and physical examination. Early diagnosis and surgical treatment are options to treat appendicitis in children.

1. Introduction

Abdominal pain is one of the most common complaints in children. The approach to diagnosing abdominal pain in children is still a problem because the diagnostic criteria used are not uniform, especially for non-organic abdominal pain.^{1,2} Recurrent abdominal pain in children is defined as repeated attacks of abdominal pain at least three times within a period of three months and resulting in disruption of daily activities.^{1,3,4}

Appendicitis is defined as inflammation of the inner lining of the appendix that spreads to other parts.^{4,5} Chronic appendicitis is one of the complaints of chronic abdominal pain that can occur in children.⁶ Appendicitis is the second highest non-communicable disease in Indonesia in hospitalization in 2009 and 2010.⁷ Study by Thomas et al. stated that the

incidence of appendicitis was 6% of 657 patients. Chronic appendicitis is less common than acute appendicitis. Symptoms experienced are not clear, and the progression is slow.⁸ This study aimed to describe the diagnosis and management of chronic appendicitis in children.

2. Case Presentation

A 10-year-old boy came to the outpatient clinic of gastroenterohepatology with a diagnosis of abdominal pain caused by chronic appendicitis differential diagnosis of chronic gastritis with abdominal pain, especially the pit of the stomach moving to the right waist since 3 months ago. The complaints fluctuated, and the pain was not being progressed.

The patient had abdominal pain 1 week ago, and

the pain was felt in the right abdomen and in the lower right abdomen when the left abdomen was pressed. The child could not point to the location of the pain with his fingers. The pain did not increase with a change in position. The pain did not increase with feeding. Nausea was present but not accompanied by complaints of vomiting. There were no abnormalities in defecation or micturition.

The patient had already been checked with a CT scan of the abdomen, and the interpretation was within normal limits. The serological examination of *Helicobacter pylori* was negative. The interpretation of the abdominal X-ray in 2 positions was within normal limits. The CT scan of the abdomen was within normal limits. The abdominal ultrasound was also within normal limits.

Physical examination of the patient showed the general condition was moderate, conscious, with a blood pressure of 90/60 mmHg, a pulse rate of 112 times/minute, respiratory rate of 22 times/minute, and body temperature of 37.3°C. The patient did not appear anemic, icteric, or cyanotic. His height (H) was 134 cm, his weight (W) was 32 kg, weight for age (W/A)

was 106.6%, height for age (H/A) was 98.5%, weight for height (W/H) was 100.4%, the impression was good nutritional status. Abdominal distension was absent, tenderness in the lower right abdomen was present, and the pain was present in the lower right abdomen. There was contralateral tenderness in the left lower abdomen. There was no heartburn nor suprapubic area tenderness. The liver and spleen were not palpably enlarged. Bowel sounds were within normal limits. There were no psoas signs nor obturator signs.

Based on laboratory examination, hemoglobin level was 12.5 g/dl, leukocytes 6840/mm³, hematocrit 41%, platelets 369,000/mm³. The impression was within normal limits. The urinalysis results were within normal limits. The patient was given a soft food intake of 1800 Kcal and was given ranitidine 2x150 mg, paracetamol 3x500 mg (T>38,5°C), and omeprazole 1x20 mg orally. During the treatment, the patient underwent an appendicogram examination with results suggestive of chronic appendicitis (Figure 1). The patient was consulted for pediatric surgery for appendectomy and later controlled to a surgical outpatient clinic after discharge.



Figure 1. Appendicogram examination.

3. Discussion

A 10-year-old boy has been reported with recurrent abdominal pain with suspicion of chronic appendicitis with a differential diagnosis of chronic gastritis. Chronic appendicitis is one of the causes of recurrent abdominal pain in children.^{1,3} In a study conducted in the United Kingdom (UK), 10-14% of school-age

children were diagnosed with recurrent abdominal pain, and 5-10% of these were due to organic causes.^{9,10}

The diagnosis of chronic appendicitis is based on history taking, physical examination, and laboratory tests. From the history, the child has complained of recurrent abdominal pain since 3 months before

admission. The pain started in the pit of the stomach and then moved to the lower right abdomen. The pain fluctuated. It was not like being stabbed. The child could not localize the pain. The pain was felt again in the lower right abdomen 1 week before admission to the hospital. There was no fever. There was no nausea or vomiting. There was no abnormality in defecation and urination. On physical examination, the child's temperature was 37.6, and there was right lower abdominal pain (Mc Burney), right lower abdominal pain (Blumberg sign), and right lower abdominal pain when pressing the left abdomen (Rovsing sign). These findings were in accordance with the literature,¹¹ where chronic appendicitis complains of abdominal pain that is not so severe but lasts for months. Chronic appendicitis was also defined by clinical symptoms and histopathological findings in the form of chronic inflammation or fibrosis of the appendix, while clinical symptoms could be intermittent abdominal pain or abdominal pain lasting more than 48 hours.¹² Clinical symptoms of chronic appendicitis can resemble those of acute appendicitis but with a longer duration of pain. In uncomplicated appendicitis, the fever is usually not high (37.5-38.5°C).¹³

On physical examination, the patient showed pain and tenderness of the abdomen in the lower right region. Positive rebound pain is due to peritoneal stimulation. Rebound tenderness is a severe pain in the lower right abdomen when the pressure is suddenly released after previously applying slow and deep pressure at Mc Burney's point. There was contralateral tenderness felt by the patient. This can occur because the peritoneal stimulation is not specific to the left lower abdominal pressure.¹⁴ There were no psoas sign, nor obturator sign. The psoas sign occurs due to stimulation of the psoas muscle by inflammation of the appendix. The obturator sign indicates inflammation of the appendix located in the obturator area. This can occur when the position of inflammation of the appendix is not in the retrocecal or pelvic area.⁴

The laboratory results showed no leukocytosis. In chronic appendicitis, laboratory results could be

within normal and not a diagnostic reference.¹⁵ On urinalysis, the results were within normal limits. This examination is done to rule out the differential diagnosis of urinary tract infection because about 10% of patients with abdominal pain have urinary tract disease. Although the inflammatory process of acute appendicitis can cause pyuria, hematuria, or bacteriuria in up to 40% of patients.¹⁵

Appendicogram examination is performed to establish the diagnosis of appendicitis.^{15,16} Plain radiographs of the abdomen may not help establish the diagnosis of appendicitis but can help rule out other causes of recurrent abdominal pain, such as suspicion of urinary tract stones. Ultrasound is also performed to rule out possible causes from the urological department.¹⁶

The management of this patient was appendectomy, i.e., the removal of the appendix. Several surgical procedures that can be performed on this patient are laparotomy or laparoscopy.¹⁷ In a study by Charles et al. on patients who had surgery, there were no macroscopic abnormalities during surgery, and on histopathological examination did not show signs of chronic appendicitis but experienced clinical improvement and a significant reduction in abdominal pain complaints.¹⁸ In Another study conducted by Roumen et al., there were two groups, i.e., the group that performed laparoscopic appendectomy and the group that only performed diagnostic laparoscopic. Then the results of the appendix tissue were carried out for histopathological examination. In the group that underwent laparoscopic appendectomy, clinical improvement and complaints of abdominal pain were significantly reduced compared to the group that only performed diagnostic laparoscopy. This illustrates that patients with suspected chronic appendicitis can be treated with elective appendectomy, and there is no significant association with histopathological findings of the appendicitis.¹⁹

The patient went home after the 5th postoperative day. The surgical scars were dry, and the pain had

lessened. The patient was advised to go to the pediatric polyclinic for evaluation of the surgical wound.

4. Conclusion

It can be easily treated appendicitis with common manifestation, but sometimes chronic appendicitis shows unspecific manifestation and physical examination. One option that can be given to treat the complaint is surgical.

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