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Case Report

INTUSSUSCEPTION AND OBSTRUCTIVE ILEUS ET CAUSA CAECAL TUMOR IN CHILDREN

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ABSTRACT

Introduction and importance: *Intussusception/invagination is a condition where the intestine is folded and infiltrates into other parts of the intestine, which can cause obstructive ileus. One of the causes of intussusception in children is a tumor or colorectal malignancy. Treatment should be started as soon as possible concurrently with fluid resuscitation management*. ***Presentation of cases:*** *A 9-month-old female patient complained of flatulence, inability to defecate, and often color vomiting since 4 days ago. The examination result of 3 three-position abdominal photos is a high obstruction ileus. Exploratory laparotomy, loop modification ileostomy, and to-side anastomosis of the ascending colon and ileum were performed. Histopathological examination of the caecum tissue is non-specific inflammation and lymph nodes with sinus histiocytosis.* ***Discussion:*** *9 months old is a risk factor for intussusception. The patient's condition is acute. Icteric sclerae or jaundice may occur with gastrointestinal lymphoma tumor types. Histopathological examination shows the process of histiocytosis in the lymph nodes and the activation of adaptive immune cells.* ***Conclusions:*** *Intussusception is the most common cause of obstructive ileus in children. One of the causes of intussusception in children is a tumor that requires operative management.*

1. INTRODUCTION

Intussusception or invagination is a condition where the intestine folds. It infiltrates other parts of the intestine, often occurring in the small intestine and rarely in the large intestine. Symptoms include intermittent abdominal pain, nausea, and bloody bowel movements. This condition can cause obstructive ileus. Other complications are peritonitis and intestinal perforation. The cause in children is usually unclear, and in adults, the most common cause is cancer. Intussusception in children is primarily idiopathic. It is more common in males than females and peaks at 6 to 18 months. The risk factors for intussusception in children are infection, cystic fibrosis, and intestinal polyps, while in adults, they are endometriosis, intestinal adhesions, and intestinal tumors. Radiological examination is beneficial in establishing the diagnosis. Ultrasonography (USG) is a radiological modality often used in pediatric patients, while in adult patients, it uses a computed tomography scan (CT scan). Intussusception requires immediate initial treatment. Enemas and surgery generally do the initial management of pediatric cases if that does not work. [1-6]

One of the causes of intussusception in children is a tumor or colorectal malignancy. Another cause is a viral infection that causes intestinal motility disorders due to neuropathy and hyperplasia of Peyer's patches. Treatment should be started as soon as possible after a suspected diagnosis of intussusception concurrent with fluid resuscitation management. Early fluid resuscitation is important for children with intussusception due to dehydration from vomiting, decreased intake, and displacement of fluid compartments. In conditions of intussusception caused by a tumor, operative management is an option, and there is no need to reduce it using enemas. A hemicolectomy is performed with excision of the mesentery and associated lymph nodes if a potential malignancy is suspected. [6-11]

Laboratory tests in caecal tumors include routine hematological examinations, electrolytes, and stool examinations. Routine hematological examinations monitor disease progression and assess morbidity, showing coexisting conditions such as anemia, thrombocytopenia, leukocytosis, and leukopenia. These provide clinical significance to the response to the therapy given. Anemia and hypokalemia result from light bleeding. Hidden bleeding can be seen on stool examination. [12-16]

Barium enema administration is used as a diagnostic and therapeutic tool. Images that can be found are cup-shaped, filling defects (in conditions where there is a mass as a pathology for the occurrence of abnormalities), and spiral or coil springs. The diagnostic accuracy of barium enema is about 41%. [9]

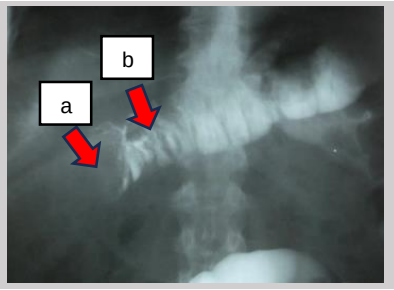

Fig. 1. The picture of the filling defect due to a tumor in the colon is accompanied by a picture of intussusception. a) Filling defects. (b) spiral or coil spring.

Intussusception can be classified into entero-enteric, colonic, ileo-colonic and ileo-caecal. Patients with caecal tumors tend to be complicated by intussusception as the starting point of pathology, and this condition usually results in the ileo-caeco-colic type of intussusception. This occurs because the caecum and sigmoid colon can be considered mobile organs more susceptible to intussusception. This type is the second most common type after the ileocolic type. [9,17]

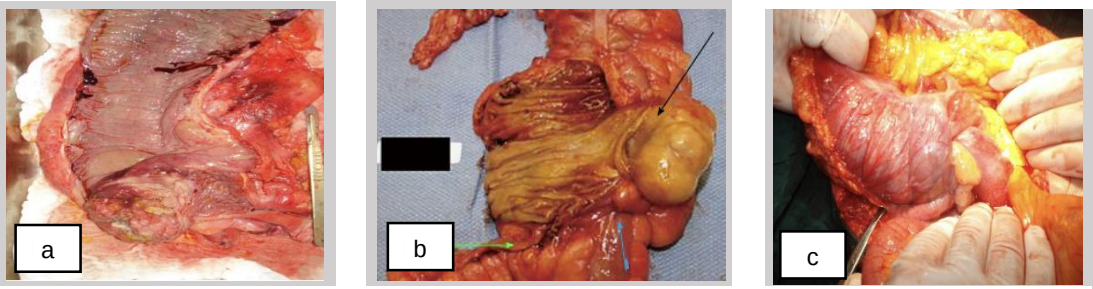

Figure 2. Caecum. a) Caecal tumor. (b) Caecal mass causing intussusception. (c) Intraoperative ileo-caeco-colic intussusception.

2. CASE PRESENTATION

A 9-month-old female patient was admitted to the Emergency Room with the main complaint of flatulence, experienced 7 hours before entering the hospital, accompanied by an inability to defecate, frequent vomiting (more than 5 times a day, greenish color) since 4 days ago. No fever. Direct history of defecation within the first 24 hours at birth. History of pregnancy: the mother routinely controls the practice midwife and checks regularly with the Gynecologist, and there is no history of taking medication during pregnancy. History of childbirth: history of normal birth assisted by a midwife, full term, birth weight 3100 grams, immediately crying.

Physical examination found anemic conjunctiva, icteric sclera, abdomen looked convex, no darm contour, no darm steifung, decreased peristaltic. Routine blood test results showed Hemoglobin 10.5 g/dL, *Red Blood Cell* 3,980,000 /µL, Leukocytes 2,400 /µL, Platelets 443,000 /µL, Hematocrit 32%, Prothrombin 11.7 seconds, Activated Partial Thromboplastin Time (APTT) 24.1 seconds, Glucose 100 mg/dL, Ureum 17 mg/dL, Creatinine 0.18 mg/dL, SGOT 27 U/L, SGPT 6 U/L, Sodium 133 mmol/L, Potassium 3.5 mmol/L, Chloride 96 mmol/L—examination results of 3 positions abdominal photo with the impression of a high obstruction ileus. The results of an ultrasound examination of the Whole Abdomen with the impression of dilated intestinal loops matched the obstructed ileus picture. They did not appear to have a target sign, but intussusception/invagination could not be ruled out.

Exploratory laparotomy, loop modification ileostomy, side to side anastomosis of ascending colon and ileum were performed. A histological examination was carried out on the caecum tissue, which resulted in non-specific inflammation and lymph nodes with sinus histiocytosis.

3. DISCUSSION

Nine months old infant patients are one of the risk factors for intussusception. The patient came with the main complaint of acute flatulence. These symptoms are accompanied by an inability to defecate, which indicates an acute abdominal condition

due to obstruction. Another symptom experienced by the patient is green vomiting more than five times. Bilous vomiting occurs in 48% of patients with intussusception younger than 12 months. This is what the patient experienced. In addition, patients also experience pale conjunctiva and icteric sclerae. Icteric scleral conditions or jaundice can occur in gastrointestinal lymphoma tumor types. The histopathological picture shows the process of histiocytosis in the lymph nodes and the activation of adaptive immune cells. The possible type of tumor the patient has is gastrointestinal lymphoma. This makes this case unique because the cause of intussusception in this pediatric patient is rare, namely gastrointestinal lymphoma, as shown by the histopathological examination results. The difficulty in diagnosing the type of tumor in this case is the symptoms felt by the patient are not typical and non-specific, which often causes errors in diagnosis and requires histopathological examination to confirm. Histopathological examination facilities are not necessarily available.[2,11]

In the radiological picture of the patient, it was found that dilated intestinal loops formed a herringbone appearance and multiple air flood levels. Dilatation is found in the small intestine, called high-lying obstructive ileus. This is consistent with the radiological picture of the plain photo and ultrasound of the whole abdomen due to ileocecal intussusception. This occurs because the caecum tumor acts as a pathological starting point in this condition. Even though there is no target sign for ultrasound examination, this cannot rule out the diagnosis of intussusception because, in the early phase, an air-filled cavity between the intestinal lumen has not yet been formed, and the pathological process of passage disturbance has not occurred. It is essential to continue to make the diagnosis using preoperative modalities, namely CT scans, which can provide a better picture of the condition of intussusception. In addition, in cases suspected of being caused by a mass, it is advisable to use a CT-scan modality with contrast because it provides an overview of the pathology of the mass that causes intussusception. [11,18,19]

The patient's condition is acute, so immediate management is needed, from fluid resuscitation to operative reduction. Operative management also plays a diagnostic role in pinpointing the etiology from the starting point of pathology to intussusception, causing obstructive ileus with a total high position in the patient. [11]

The operative procedure performed on the patient was an exploratory laparotomy procedure followed by tumor resection with ileostomy and ileal anastomosis with ascending colon. Resection aims to eliminate the etiology that causes intussusception, namely a caecum tumor with hemicolectomy. Tumor resection with ileostomy and ileal anastomosis with ascending colon procedure involves removing a diseased or damaged part of the intestine, joining the remaining ends of the intestine together, and creating an opening on the abdomen: removing the diseased or damaged part of the intestine, joining the remaining ends of the intestine together using stitches or staples, creating an opening on the abdomen and attaches one end of the ileum to it, and joining the ileum to the ascending colon. Post-operative follow-up typically involves several key components: monitoring vital signs, wound care, ileostomy care, nutritional assessment, pain management, and bowel functioning monitoring.[11]

The prognosis for this patient is good because this patient has been treated immediately from the acute condition, namely fluid resuscitation to operative reduction, to eliminate the etiology that caused the intussusception so that the intussusception can be adequately resolved.

4. CONCLUSION

Intussusception or invagination is a condition where the intestine folds. It infiltrates other parts of the intestine, often occurring in the small intestine and rarely in the large intestine. One of the causes of intussusception in children is a tumor or colorectal malignancy. Other causes are viral infections that cause intestinal motility disorders due to neuropathy and Peyer's patch hyperplasia. Intussusception is the most common cause of obstructive ileus in children.

Abdominal ultrasound is the primary diagnostic tool in intussusception because of its high specificity and sensitivity. In conditions of intussusception caused by a tumor, operative management is an option, and there is no need to reduce it using enemas. Operative measures should be performed if intestinal perforation or necrosis is found. Resection is performed in organic cases such as tumors, cancer, and polyps.

CONSENT FOR PUBLICATION

For all the points of acceptance, all contributing authors are asked to provide consent to publication to confirm that they have approved this manuscript's final version and made all required statements.

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Conflict of Interest Statement:

The author declares that the case report was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.