CASE REPORT

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Abdominal Cocoon Syndrome After Caustic Ingestion: A Rare Case Report

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Abdominal cocoon syndrome is a rare condition as etiology of intestinal bowel obstruction. It is a benign cause of small bowel obstruction, and it is termed also encapsulated peritoneal sclerosis (EPS). It can be idiopathic pathology as well as there are many secondary factors like tuberculosis, sarcoidosis, malignancy, drugs, peritoneal dialysis. A 22 years old male without any disease of history, applied to emergency department after caustic ingestion. Direct abdominal radiography, abdomen Ultrasonography (US) and contrast enhanced abdominal Computed Tomography (CT) were performed for patient. The radiography and US were compatible with ileus. The small bowel dilatation with air-fluid leveling, clumping of dilated bowel and peritoneal thickening were seen at abdominal CT. Abdominal cocoon syndrome was thought with this radiologic finding. Eventually surgery proved that this condition with histopathologic examinations. Abdominal cocoon syndrome diagnosis confirmed surgically. We want to share this rare complication of caustic ingestion case with the radiological findings.

Key Words: *Abdominal cocoon, caustic ingestion, intestinal obstruction, computed tomography*

Kostik Madde İçimi Sonrası Abdominal Koza Sendromu: Nadir Olgu Sunumu

Abdominal koza sendromu, intestinal barsak obstrüksiyonuna neden olan, nadir görülen bir durumdur. İnce barsak obstrüksiyonunun benign bir nedenidir ve enkapsüler peritoneal skleroz (EPS) olarak da adlandırılır. İdiyopatik nedenlere bağlı olabileceği gibi tüberküloz, sarkoidoz, malignite, ilaçlar, periton diyalizi gibi birçok sekonder faktörler de etyolojide bulunmaktadır. 22 yaşında herhangi bir hastalığı olmayan erkek hasta kostik alımı sonrası acil servise başvurdu. Hastaya direkt karın grafisi, batın Ultrasonografisi (US) ve kontrastlı karın Bilgisayarlı Tomografisi (BT) tetkikleri yapıldı. Radyografi ve US sonucu ileus ile uyumlu olarak değerlendirildi. Abdominal BT' de hava-sıvı seviyeleri gösteren ince barsak dilatasyonu, dilate barsak anslarında kümeleşme ve çevresel peritoneal kalınlaşma görüldü. Bu radyolojik bulgular ile abdominal koza sendromu düşünüldü. Cerrahi işlem ve histopatolojik incelemelerle tanı doğrulandı. Biz bu yazıda kostik madde alımı sonrası gelişen nadir bir komplikasyon olan abdominal koza olgusunu radyolojik bulgularla birlikte paylaştık.

Anahtar Kelimeler: *Abdominal koza, kostik alımı, intestinal obstrüksiyon, bilgisayarli tomografi*

Introduction

Alkali product's caustic ingestion frequently causes upper digestive tract injuries like esophagitis (1). Lower digestive tract complaints are seen rarely because of alkali neutralizing in the stomach. Sclerotic stenosis in the digestive system can occur as a late complication (2). Alkali substances are tasteless, and drunk for suicide or accidentally (3).

Encapsulated peritoneal sclerosis (EPS) is life threatened serious condition that has variety of multifactorial etiologic causes. Although EPS previously known as sclerosing peritonitis, peritoneal inflammation is not always present. Patient complaints like abdominal pain and, vomiting are not different from other causes of intestinal obstruction. Abdominal contrast enhanced computer tomography (CT) is the preferred imaging modality to show abnormal thickened peritoneal membrane and clumped dilated bowel loops (4). Our aim in this article is to present a patient with abdominal EPS after caustic digestion that a rare cause of EPS.

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Case Report

A 22 years old man applied to our emergency department of the hospital with complaints of abdominal pain and vomiting. He had not any history of chronic disease or abdominal surgery but it was learned that he accidentally drank liquid detergent about two days before coming to the hospital. He had abdominal pain that was irresponsive to analgesic drugs and there was leukocytosis in laboratory findings. The erect abdominal radiograph showed air-fluid leveling bowel loops. Abdomen US has revealed dilated intestinal loops. On suspicion of bowel obstruction, abdominal enhanced CT was obtained. Clustered, dilated intestinal loops and peritoneal thickening were seen in abdominal CT (Figure 1a, b). These radiological findings were thought EPS. The patient consulted to general surgeon and, he was operated. Distended intestinal bowel loops surrounded with thickened fibrotic mesenteric tissue as closed loop were seen in operation. The histopathologic examination of peritoneal material observed

inflammatory changes. All of the findings were compatible with EPS. It was not seen any complication or sign of intestinal obstruction after surgery. Following a week of staying in the hospital, the patient was discharged.

Figure 1 a. Abdominal enhanced CT showed that clustered, dilated intestinal loops and peritoneal thickening.in axial image

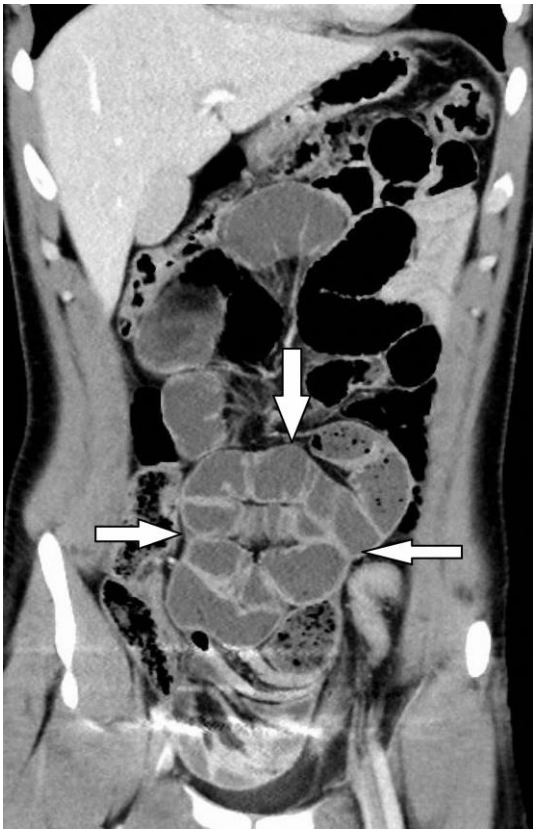

Figure 1 a-b. Abdominal enhanced CT showed that clustered, dilated intestinal loops and peritoneal thickening in coronal image (arrows)

Discussion

EPS is an uncommon cause of intestinal obstruction. It is better known as is related the formation of inflamed, thickened fibrous peritoneal tissue that covered intestinal loops. It is thought to be a result of the fibro inflammatory process constricting and enveloping the small intestinal loops in the form of a cocoon (5). In advanced cases, inflammation occasionally may not present and because of this peritonitis is not preferred to describe this condition (6). It is seen equal both gender and can happen from childhood to senility. İt is not depending on age.

EPS can appear idiopathic or secondary to abdominal disorders and other etiologic factors. The major factors related to abdominal cocoon include peritoneal dialysis, ventriculoperitoneal shunts, tuberculosis, renal or liver transplantation, use of practolol, and malignancies.

The clinical presentation is not specific. The initial symptoms like abdominal pain, nausea and vomiting is associated with altered gut motility and peritoneal permeability (4).

Kitchen liquid detergents are caustic household products that are classified as alkalis. Alkali substances transit the oropharyngeal mucosa and esophagus slowly. They have high viscosity and can cause liquefactive necrosis. Esophagus stenosis can occur later with sclerosis (2). Although alkali ingestion causes upper gastrointestinal tract injury generally, these products can injury lower tract injury rarely (7). Household products contain strong alkali substances and low digestive injury can occur after drinking liquid detergents. In one experiment household alkali bleaches injected in rats intraperitoneal to start peritonitis, later rat's blood was injected into the peritoneum. The chemical irritant caused peritonitis and injected blood clot was responsible for bringing visceral surfaces together with intestinal loops form of the cocoon. This experiment appears that fibrosis, inflammation and, coagulation is a primary reason for cocoon formation after chemical irritant exposure (8).

Abdominal X-rays, US, contrast enhanced CT and magnetic resonance imaging (MRI) can use to diagnose EPS. The radiograph can show dilated intestinal loops with air- fluid levels but this imaging has low sensitivity (9). CT has high sensitivity to detect clumping dilated small bowels with thickened peritoneum (10). CT also can show ascites, lymphadenopathy, and peritoneal calcifications.

EPS differential diagnosis includes congenital peritoneal encapsulation is a benign condition characterized by a thin accessory peritoneal membrane surrounding the small bowel. This condition is, however, asymptomatic and is usually diagnosed during unrelated surgery or radiologic examinations. Peritoneal carcinomatosis can demonstrate thickening and abnormal enhancement of the peritoneum, findings mimicking EPS. However, it is generally easy to differentiate the two conditions, because the thickening

in peritoneal carcinomatosis is nodular with associated nodules in the omentum, the pouch of Douglas, and the serosal surfaces, with or without lymphadenopathy. Internal hernias may demonstrate abnormal clustering of bowel loops that may mimic the centrally displaced bowel loop pattern of EPS. However, it is usually possible to differentiate the two conditions at CT because of the absence of the soft-tissue mantle in internal hernias as well as the relatively fixed anatomic regions in which they occur.

Surgery or conservative medical therapy are two options to treat encapsulated peritoneal sclerosis. Traditionally surgery is the preferred way to both detect and treated EPS. Although CT scan helps to detect an intestinal obstruction, peritoneal thickening and loculated fluid collections, these findings are seen at the advanced stages of the disease. Early changes in disease can be observed with laparoscopy. The surgical procedure is the resection of the peritoneal membrane and adhesive bands (11). Medical therapy can be used for patients without any sign of intestinal obstruction or inflammation. Immunosuppressants (corticosteroids) and renin-angiotensin-aldosterone system inhibitors may be effective.

In conclusion, although EPS is a benign process of intestinal obstruction, this condition is known as life threatening with a high fatality rate. EPS has various of causes and caustic ingestion is one of these. Radiological findings are important to diagnose this clinical entity.

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