

Gossypiboma: Unusual Cause of Intestinal Obstruction

Case Report

Gossypiboma: Bağırsak Obstrüksiyonunun Nadir Sebebi

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ABSTRACT

Gossypiboma, an infrequent surgical complication, is a mass lesion due to a retained surgical sponge surrounded by foreign-body reaction. Although it is a rare condition, it is a frequent cause of surgical malpractice. *Gossypiboma* can be asymptomatic clinically or can result in a granulomatous reaction with intraabdominal abscess development, intestinal obstruction, or fistula formation. A 37 year old woman presented with symptoms of small bowel obstruction. She had history of cystocele repair with abdominal approach 4 months ago. Plain abdominal radiography and contrast enhanced abdominal computerized tomography revealed signs of small bowel obstruction and a soft-tissue mass with a dense, enhanced wall, containing internal hyperdense structures in pelvis. Exploratory laparotomy revealed a surgical sponge surrounded by granulation tissue. Postoperative course was uneventful and ileus relieved. On histologic examination, foreign material reaction and focal fibrosis consistent with *gossypiboma* was detected. Although *gossypiboma* is rarely seen in daily clinical practice, it should be considered in the differential diagnosis of acute mechanical intestinal obstruction in patients who underwent abdominal surgery previously.

Keywords: *Gossypiboma, Intestinal Obstruction, Computerized Tomography*

ÖZET

Gossipiboma, cerrahi sırasında vücutta unutulmuş spanç ve çevresinde gelişen yabancı cisim reaksiyonunu tanımlayan nadir bir cerrahi komplikasyondur. Az görülen bir durum olmasına karşın cerrahi malpraktisin sık sebeplerindedir. Klinik olarak asemptomatik olabildiği gibi granülatöz reaksiyona sonucu intraabdominal abse gelişimine, intestinal obstrüksiyon yada fistül formasyonuna yol açabilir. Olgumuzda 37 yaşında ince bağırsak obstrüksiyon semptomları ile hastaneye başvuran bayan hastanın 4 ay önce geçirilmiş abdominal cerrahi öyküsü bulunmaktadır. Yapılan radyolojik incelemelerde obstrüksiyon bulgularının yanısıra pelviste internal hiperdans yapılar içeren kitlesel lezyon tanımlandı. Eksploratif laparotomi ve histolojik değerlendirme sonucunda lezyon, çevresinde granülatöz reaksiyon ve fokal fibrozisin eşlik ettiği gossipiboma ile uyumlu bulundu. Gossipiboma klinik pratikte nadir görülmesine karşın, akut intestinal obstrüksiyon bulgularıyla gelen ve geçirilmiş cerrahi öyküsü olan hastada ayırıcı tanıda düşünülmelidir.

Anahtar Kelimeler: *Gossipiboma, Intestinal Obstrüksiyon, Bilgisayarlı Tomografi*

INTRODUCTION

Gossypiboma, an infrequent surgical complication, is a mass lesion due to a retained surgical sponge surrounded by foreign-body reaction. Although it is a rare condition, it is a frequent cause of surgical malpractice. *Gossypiboma* can be asymptomatic clinically or can result in a granulomatous reaction with intraabdominal abscess development, intestinal obstruction, or fistula formation.

CASE PRESENTATION

A 37 year old woman presented with the complaint of abdominal discomfort and distension. Other than subfebrile fever, all vital signs were in normal range. On physical examination, abdominal defence and rebound were the prominent findings. She had also history of cystocele repair with abdominal approach 4 months ago. All routine laboratory data were normal.

Abdominal radiography showed dilated jejunal and ileal loops which was measured as 33 mm in diameter. Also, air-fluid level was seen on caecum and descending colon indicating intestinal obstruction. Conglomerated linear opacities was seen on abdominal radiography (figure 1).

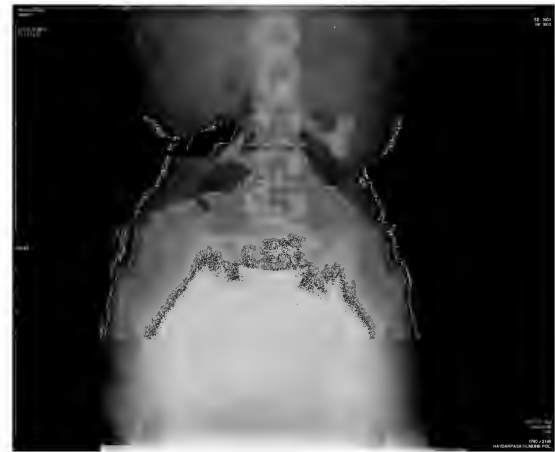


Figure1: Upright abdominal radiography shows multiple air- fluid levels.

Enhanced computed tomography (CT) scan showed in addition to the findings of ileus, a pelvic mass with the dimensions of 110x83x61 mm which had an enhanced rim and central linear densities. The lesion was in close contact with sigmoid colon and cecum. The radiologic diagnosis was granulation tissue secondary to retained surgical sponge with radiopaque marker (Figure 2-5).



Figure 2: Supine abdominal radiography; radioopaque marker of surgical sponge is visible in pelvis.

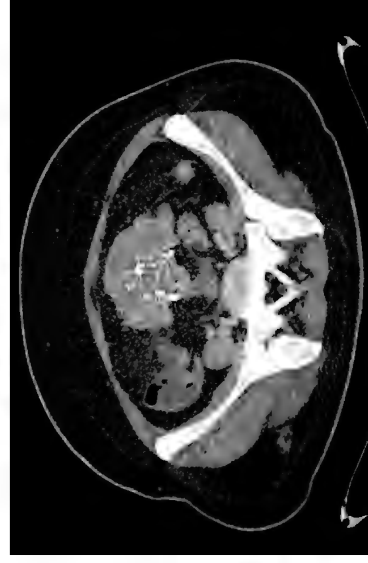


Figure 3: Axial CT image shows a pelvic mass with enhanced rim. Beam hardening artefacts is noted around the radioopaque markers.

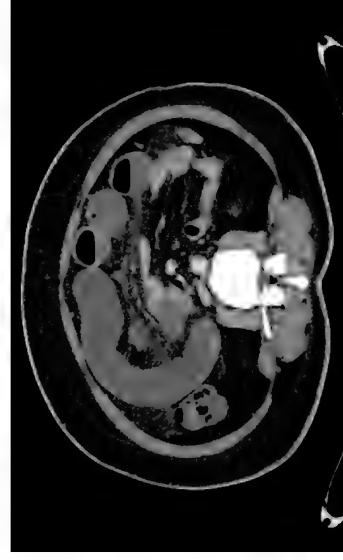


Figure 4: Axial CT scan through lower abdomen shows dilated loops of bowel.

Exploratory laparotomy was compatible with radiological findings and revealed a surgical sponge surrounded by granulation tissue. The sponge was removed and synechia between foreign material and

intestine was released. Postoperative course was uneventful and ileus relieved. On histologic examination, foreign material reaction and focal fibrosis showed gossypiboma.

DISCUSSION

Small bowel obstruction accounts for almost 20% of all surgical admissions in patients with acute abdominal conditions (1). Small bowel obstruction is caused by postoperative adhesions in 70% of cases. The main reasons of small bowel obstruction were classified as extrinsic lesions, intrinsic lesions, intussusceptions and intraluminal lesions (Table 1).

Gossypiboma is a term used for retained surgical sponge in the body (2,3). It is most commonly forgotten foreign material in the body during surgery (2,4). Retained surgical sponge can cause an inflammatory response in the body. Pathologically, there are two types of foreign body reaction. Adhesions, encapsulation, and granulation are the components of aseptic (sterile) fibrous response. Secondly, exudative reaction results in cysts and abscess formation (5,6). Fibrinous response is generally silent and palpable mass can be only presenting symptom. But, fever and pain are the early clinical symptoms of the exudative form. Gossypiboma can extrude from peritoneal cavity to gastrointestinal system and bladder. Also it may cause to fistula formation to skin and bowel which results in hemorrhagia, bowel obstruction and perforation (2,4). Additionally, ileus due to bowel synechia and granulomatous reaction can occur as in our case.

Radiologic studies in gossypiboma is important to determine existence of obstruction as well as location, severity, and possibility of strangulation (1,7). However, radiographic findings are not enough to define mechanic bowel obstruction in 1/3 of the cases (1).

Table 1. Causes of Intestinal Obstruction

Extrinsic lesions	• Abscess	
	• Adhesions	
	• External hernias	
	• Extrinsic tumors	
	• Internal hernias	
	• Hematoma	
	• Endometriosis	
2- Intrinsic lesions	• Tumors	Adenocarcinoma
		Carcinoid tumors
		Lymphoma
		Gastrointestinal stromal tumors
	• Inflammatory lesions	Eosinophylic gastroenteritis
		Tuberculosis
		Crohn's disease
	• Vascular lesions	Ischemia
		Radiation enteropathy
	• Hematoma	Thrombocytopenia
		Anticoagulants
		Trauma
3- Intussuceptions	• Tumors	
	• Adhesions	
4- Intraluminal lesions	• Foreign bodies	
	• Gall stones	
	• Bezoar	

It has been shown that radiographs are sensitive for high-grade obstruction but not low- grade obstruction. The signs of obstruction on radiographs are dilated bowel loops greater than 3 cm, collapsed colon, different air-fluid levels, and thickened bowel wall. Additionally, string-of-pearls sign may be identified. Even if radiographs are normal, additional radiologic studies should be done in case of high suspicion for intestinal obstruction. Although there are some limitations, conventional radiography is still initial radiologic study in detection of intestinal obstruction because of its cost-

effectiveness, wide availability and high sensitivity in high grade obstruction (8).

Gossypiboma can be asymptomatic and diagnosed incidentally. Familiarity to characteristic radiologic findings is necessary for correct diagnosis. Sponge with barium sulphate marker can easily be detected on plain film (3,5,9). But, radiographs should be carefully examined for periferally located opacities. On the other hand, a surgical sponge may be lack of radiopaque marker. In this case, calcification may be helpful in diagnosis. In addition, air within the fibers of sponge

can lead to typical "whirl-like" appearance (5).

The role of CT is increased in the diagnosis of intestinal obstruction with the development in CT technology in recent years. CT shows any pathology of bowel wall, its mesentery and mesenteric fatty tissue with its vascularity, and peritoneal cavity. CT can detect existency of bowel obstruction as well as level, grade and etiology of obstruction which are the most important obstruction parameters. Determination of dilated proximal and collapsed distal bowel segment is diagnostic on CT. The feces sign in small bowel loop is another important finding. Sensitivity of CT in small bowel obstruction ranges from 78% to 100%. But, in case of incomplete obstruction, the diagnostic value of CT is limited. In this case, the best method is enteroclysis (10).

Retained surgical sponge and related tissue reactions can be seen in different forms on CT. The most characteristic CT sign of gossypiboma is spongy appearance due to the entrapment of air within the fibers. This spongy appearance is equivalent to "whirl-like" appearance on plain film (4,6). However, it is only seen in small portion of the cases. Another CT finding is a low density mass lesion with enhanced thin capsule after intravenous contrast administration. The capsule can be thick in some cases which can be confused with abscess and hematoma formation (9,11). As a rare finding, calcification may be seen.

Finally, the possibility of gossypiboma should be in differential diagnosis of any postoperative patient who presents with pain, infection or palpable mass. In addition one should be familiar to the radiologic findings of complications like obstruction.

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