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Case Report

Colonic perforation presenting as retroperitoneal abscess: case report and brief review of literature

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ABSTRACT

Retroperitoneal colonic perforation is a rare cause of retroperitoneal abscess. It presents more frequently in frail elderly patients with heterogeneous signs and symptoms which make it difficult to diagnose clinically. Subcutaneous emphysema with pneumomediastinum and iliopsoas muscle abscess are unusual signs. Abscess formation occurs in 0.3 to 0.4% and is the second most common complication of perforated lesions. Acute appendicitis may also present with retroperitoneal abscess which is a life threatening complication.

Keywords: Retroperitoneal abscess, Colon perforation, Retrocecal appendix

INTRODUCTION

The retroperitoneal colonic perforations are rare causes of retroperitoneal abscess and are relatively frequent in frail elderly patients. These perforations have various etiologies and show up with heterogeneous signs and symptoms, so the clinical diagnosis could be very difficult. Two unusual signs associated with retroperitoneal colonic perforations are subcutaneous emphysema with pneumomediastinum and psoas muscle abscess. Rarely the colonic perforations may cause a pus collection in the iliopsoas muscle.[1]

Only about 2.6 to 10% of colorectal cancers present with symptoms of perforation, including cases of free perforation into the peritoneal cavity and those where the tumor has perforated locally resulting in abscess or fistula formation.[2] Intestinal perforation may occur either through the tumor site or in a proximal location as a complication of mechanical obstruction caused by the tumor (diastatic perforation).[4] Retroperitoneal abscess is recognized as a life-threatening condition because of its insidious clinical manifestations and diagnostic difficulty via congenital anatomical communications, the retroperitoneal abscess has the potential to spread rapidly to the perinephric space, the psoas muscle, the lateral abdominal wall, and the lower extremities. The retroperitoneal infections are associated with a mortality rate approximately 20%.

CASE REPORT

A 55 year old male patient came in OPD with complaint of pain abdomen. On examination patient had epigatsric tenderness. He was investigated by ultrasound and diagnosed as a case of cholelithiasis. He was managed conservatively. He came back again with the same complaints after one month and this time ultrasound report from the same centre suggestive of ileocecal tuberculosis. Patient was examined clinically which revealed mild to moderate tenderness in lower abdomen. He was managed by anti-tubercular drugs.

Patient came back with complaints of pain abdomen after 15 days, clinically patient had moderate tenderness in right iliac region. Computed tomography shows retroperitoneal abscess with ascending colon perforation on antimesentric side (Figure 2). Patient underwent exploratory laparotomy with findings of ascending colon perforation with

retroperitoneal abscess with intact appendix (Figure 1 and 2).

Retroperitoneal abscess drainage with right hemicolectomy with loop ileostomy, segment of ascending colon was sent for histopathology. Histopathology report was suggestive of ischemic colitis with acute appendicitis. Patient was managed in ICU in post-operative period and then discharged with satisfactory condition on post-operative day 7 (POD).

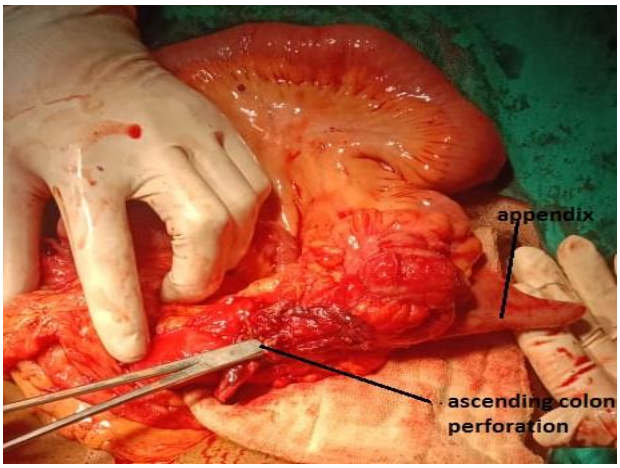

Figure 1: Ascending colon perforation and appendix.

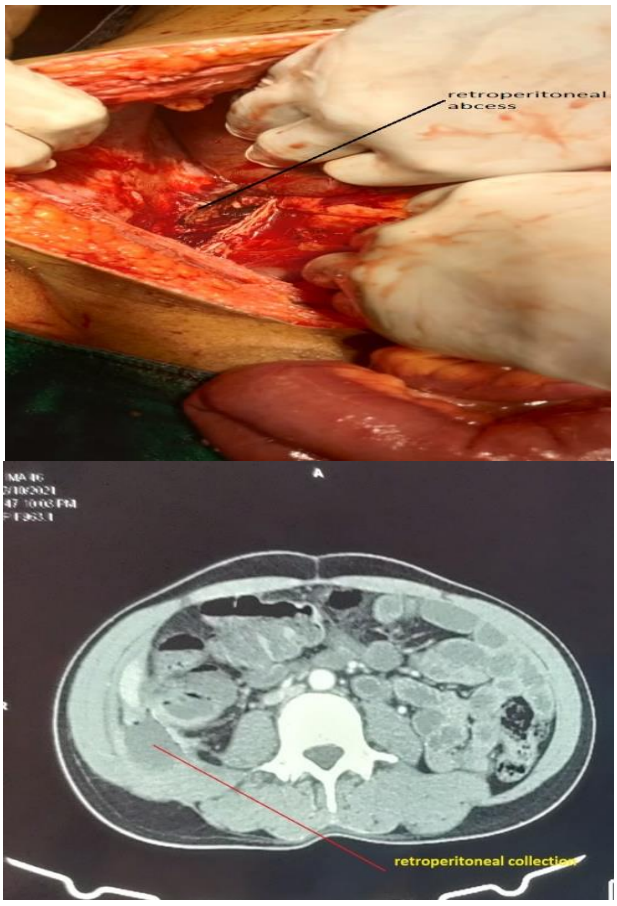

Figure 2: Retroperitoneal abscess.

DISCUSSION

A retroperitoneal abscess may be of multifactorial origin, and it manifests usually secondary to infections of the gastrointestinal or genitourinary tract. If no definite etiology can be discovered, it is characterized as primary, important predisposing factors are considered to be diabetes mellitus, muscle trauma, and individuals tested positive for HIV. The most common causes of retroperitoneal abscesses are infections of the duodenum, pancreas, terminal ileum, appendix, and ascending and descending colon. Retroperitoneal abscesses may also result from microbial agents such as tuberculosis, *Staphlococus aureus*, *E. coli*, bacteroides species, or other rare bacteria, such as the actinomyces species.[4]

Retroperitoneal abscess from colonic perforation is an unusual event with severe complication with overall mortality rate about 17%. The most common cause of colonic retroperitoneal perforation is diverticular disease. The incidence of perforated colon cancer ranges from 3% to 10%. Thus, an infrequent presentation is the abscess of the psoas muscle caused by perforation of a colon cancer with an incidence estimated between 0.3% and 0.4%. The presence of air or pus in the soft tissues of the body represents a particular sign of retroperitoneal colonic perforation. Choi et al reported the mechanism of the spread of abscess, gas, and necrosis along the retroperitoneum and mediastinum through the anatomic connection between regions.[5] The anatomical site of perforation could determine the route of spread of the pus and air in the retroperitoneum. In the case of necrotizing fasciitis, there is a rapid spread of the infection and gas in the tissues. In such cases, the causes of the infection are often both aerobic and anaerobic bacteria. Retroperitoneal colonic perforation can be associated both with the diffusion of gases and pus into soft tissues.

Subcutaneous emphysema, pneumomediastinum, and pneumoretroperitoneum can be manifestations of various diseases, rarely they can originate from an intra-abdominal pathology. There are few reported cases of pneumomediastinum and subcutaneous emphysema resulting from gastrointestinal tract and are usually caused by surgical procedures. Intra-abdominal causes of subcutaneous emphysema can be trauma, iatrogenic causes (upper and lower GI endoscopy). In the past, the most frequent retroperitoneal abscesses were the 'cold' ones in tuberculosis, whereas today the 'hot' ones are secondary to Crohn disease, pyelonephritis, and diverticulitis prevailed. Retroperitoneal abscess results in necrotising fasciitis of the abdominal wall. Necrotising fasciitis is a life threatening complication. Colorectal cancer, perforation retrocecal appendicitis, chemotherapy (bevacijumab) if diagnosed not early then all these diseases will present as necrotising fasciitis.[1]

Although a frequently encountered disease, the diagnosis of appendicitis may be missed. Retrocecal appendicitis will present with retroperitoneal abscess. Infection and air

can extend to communicating compartments, resulting in emphysema and abscesses in unexpected anatomical sites.[6]

Most of the reported cases of perforated colonic carcinoma presenting as an abscess did not have an accurate diagnosis pre-operatively. Cross-sectional imaging techniques, such as ultrasound images and abdominal computed tomography, have become the most common techniques for diagnosing intra-abdominal abscesses. Abdominal computed tomography is very useful to identify and accurately determine the location of an intra-abdominal abscess before surgery.[2] The computed tomography diagnosed accuracy rate of retroperitoneal abscess is approximately 100%. This feature is consistent with our case in which computed tomography scan was used as the diagnostic tool of choice.

However, it should be noted that even though computed tomography can show a retroperitoneal abscess clearly, it is still problematic to identify the correct diagnosis of colonic perforation or perforated appendix. This is probably because the severe inflammatory process made the colon or appendix necrotic and indistinguishable from abscess on the computed tomography scan. Computed tomography scan was done only if there was a clinical suspicion or indication, we think that the delayed diagnosis was simply because of the absence of remarkable abdominal symptoms or the presence of misleading symptoms in this group of patients. Thus computed tomography scan does not decrease the duration between the onset of symptoms and diagnosis of the retroperitoneal abscess.[3]

A right hemicolectomy and an ileostomy without intra-peritoneal anastomosis are usually warranted (in the case of ascending colon perforation), as the anastomotic leak rate is very high in generalized peritonitis. In patients with not hemodynamically stable, the perforation may be exteriorized as a colostomy, providing thus source control and obviating the need for a major procedure.[4]

CONCLUSION

Retroperitoneal abscess is the rare complication of the colorectal perforation or cancer or retroperitoneal appendix, many times diagnosis is missed. Retroperitoneal abscess and necrotising fascitis will result in life threatening complication. CT scan will diagnose retroperitoneal abscess accurately but etiology of abscess cannot be made. Early diagnosis and exploratory laparotomy is the treatment of choice.

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