

Retroperitoneal Abscess: A Rare Presentation of Duodenal Perforation.

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Abstract:

Introduction: Long standing duodenal perforation presenting as retroperitoneal abscess.

Case Report: We report a case of 60 year old female of sealed duodenal perforation presenting as retroperitoneal abscess. CECT abdomen revealed abscess in paraduodenal, paraaortic and paracolic gutter. On pus culture it came out to be E. Coli positive. Endoscopy revealed healing ulcer in posterior duodenal wall. Patient was treated conservatively using percutaneous drainage and IV antibiotics.

Conclusion: Any retroperitoneal abscess of unknown origin should include CECT and upper GI endoscopy to rule out duodenal perforation as its cause.

Keywords: duodenal perforation, retroperitoneal abscess.

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I. Introduction

The retroperitoneum is defined as the space between the posterior envelopment of the peritoneum and the posterior parietal wall of the abdominal cavity [1,2]. It extends laterally to the lateral margin of the quadratus lumborum muscles, superiorly to the diaphragm, and inferiorly to the pelvic brim [3,4]. The retroperitoneal area is divided into three spaces: the anterior, the posterior and the retrofascial. In the anterior space the second and third segments of the duodenum, the pancreas and the ascending and descending colon are located, whereas the posterior space is accommodating the kidneys, the adrenal glands, the aorta and the inferior vena cava. The retrofascial space, which extends between the transversalis fascia and posterior parietal wall, contains the vertebral column and paravertebral musculature [2-4]. Thus, infections and inflammatory processes of any of these structures can result in a retroperitoneal abscess [4].

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 [5].

Retroperitoneal abscesses are an infrequent condition with potentially lethal implications. Their insidious onset and difficult diagnosis delay treatment, considerably increasing the morbidity and mortality associated with this disease. Traditionally, this pathology is associated with staphylococcal infection and caused by hematogenous dissemination from a skin focus (6). However, the most frequently responsible pathogens are now gram-negative bacilli, and these abscesses are for the most part secondary to disease of the kidneys, other organs, or neighboring anatomic structures (duodenal, pancreas, colon and lumbar spine). In recent decades, the introduction of imaging techniques such as ultrasonography and computed tomography has substantially improved diagnostic performance and reduced the time to diagnosis (7). Likewise, the appearance of new, less aggressive forms of treatment, such as percutaneous drainage guided by CT or ultrasonography, offer an attractive alternative to traditional surgical drainage for some patients (7, 8).

II. Case Report

A 60 year old female presented to the outpatient department with complain of abdominal pain, distension, decreased appetite and generalised weakness for past 2 months. Pain was localised in epigastric, left hypochondrium and left lumbar region, intermittent, non-radiating, mild to moderate in intensity and was not associated with any vomiting or fever. No aggravating or relieving factors were reported by the patient. Patient had not taken any treatment regarding the pain and did self medication with pain killers. Relatives of patient reported slight decrease in weight over past 2 months. No past significant surgical history except that patient underwent tubectomy 18 years back.

On general examination, patient was non febrile with pulse rate of 96/min and blood pressure 130/84 mm Hg. On per-abdominal examination, abdomen was soft, distended and tenderness elicited on lower abdominal region. A large cystic tense mass lesion of approximately 10*15cm in size was noted in the left hypochondriac and lumbar region extending till umbilicus medially. However, the skin over the swelling was normal in colour and texture with no secondary changes like ulceration or discharge. No localised increase in temperature.

Routine investigation revealed Haemoglobin – 8.7 g%, WBC count 13,300 cells/cu cm.

USG revealed a large hypoechoic collection at left retroperitoneal region. Rest of the abdomen including solid organs were found to be normal.

CECT abdomen revealed ill defined peripherally enhanced collection with air loculi within the retroperitoneum in preaortic, peripancreatic and paraduodenal region and extending in the left perinephric space-likely retroperitoneal abscess possibly secondary to duodenal perforation. Another large ill defined subtle peripherally enhancing hypodense collection in the left paracolic gutter and in retroperitoneum, left lumbar region extending in the left pelvic region with few tiny air loculi within as described –likely abscess.

Patient was admitted and started on broad spectrum antibiotics and USG guided Pig tail catheter was inserted and approximately 3000 cc pus was drained which gradually decreased to nil over next 10 days. Pus was sent for culture sensitivity test which came out to be positive for *E.coli*. Antibiotics were modified accordingly.

To investigate the cause of the abscess, an abdominal CT scan with oral contrast material was performed. It showed no extravasation of oral contrast material [Figure 1&2]. The patient underwent upper digestive tract endoscopy, which revealed a 10 mm wide ulcer of the posterior wall of the duodenal bulb. Serum *Helicobacter pylori* antibody was negative. A diagnosis of retroperitoneal abscess secondary to a sealed posterior perforated duodenal ulcer was made.



Figure 1- Coronal section revealed no extravasation of contrast material

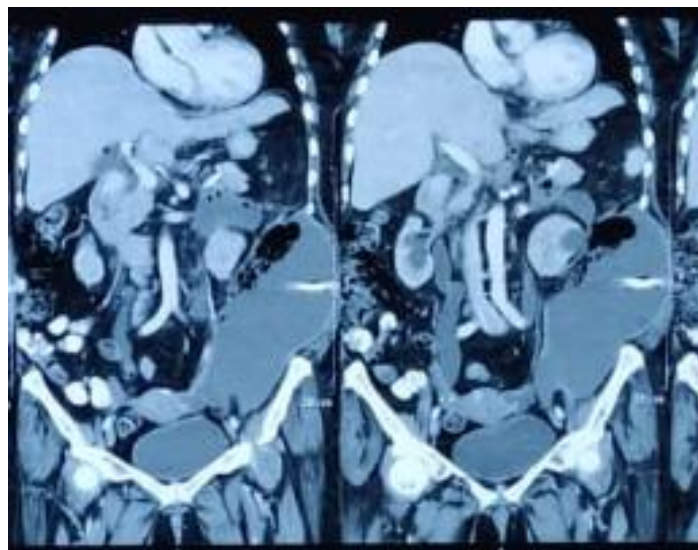


Figure 2- Axial section revealed no extravasation of contrast material

The clinical course was favorable, the abdominal pain disappeared, and her condition improved rapidly with a decreased level of white blood cells and C-reactive protein. Three weeks later, a repeat CT scan showed a thin linear residual fluid collection around paracolic gutter which were managed conservatively.

III. Discussion

Posterior perforations of peptic duodenal ulcer are rare [9]. Its clinical onset may be atypical or can be masqueraded by concurrent therapies (methadone), causing a delay of diagnosis [10]. A posterior perforated ulcer can extravasate and track in the retroperitoneal space or the lesser sac. Local inflammation reaction and fibrosis of the surrounding adherent retroperitoneal tissue tend to seal off these perforations. The spillage and the inflammation remain confined to an abscess cavity [11]. Generally, these inflammatory phenomena result in the compartmentalization of the outpoured content into the retroperitoneum in the form of retroperitoneal collections.

Abdominal CT scan and sonography has been established as the most valuable imaging technique to identify a retroperitoneal abscess, the presence, site and cause of gastrointestinal tract perforation [12, 13]. Perforation is usually not completely sealed at the moment of the diagnosis and water-soluble contrast imaging study show extra-luminal leakage. Its complete seal (self-healing) is exceptional [11]. Biochemical analysis of drainage material become crucial to investigate the cause of the abscess. Indeed, the presence of a healing ulcer in posterior duodenal wall on endoscopy is suggestive of peptic ulcer perforation, in the absence of CT scan signs and laboratory testing. The present case is being reported because of this particularity. The search for posterior perforation of peptic ulcer must firstly be made by water-soluble contrast imaging study, showing contrast leaking through the perforated duodenum. The absence of contrast leakage suggests that the perforation was sealed. A careful upper digestive tract endoscopy must be then performed to show the duodenal ulcer.

Isolation of more than one microorganism, especially mixed gram negative and anaerobic microorganisms, would suggest the intra-abdominal origin of the abscess formation. On the contrary, the isolation of only one microorganism, as in the present case, may rather suggest that the infection was of haematogenous origin [14]. The culture of drainage fluid was not contributive with our patient. The amoxicillin/clavulanic-acid therapy our patient was taking to self-treat herself was probably the source of the microbial sterilization of the drainage fluid.

Initial management of a retroperitoneal abscess includes an early percutaneous drainage and empiric broad-spectrum intravenous antibiotics. This should be given until culture and sensitivity data are obtained. Once these data are obtained, a therapy with appropriate coverage that is likely to work in the abscess environment should be chosen [15]. Percutaneous drainage should be the treatment of choice because it is less invasive and more cost effective than surgically made [16].

The management of sealed perforated duodenal ulcer is medical. This non-operative treatment strategy should include intravenous antibiotics, nil per mouth and a nasogastric tube, anti-secretory and antacid medication (proton pump inhibitors) [17]. An eradication treatment of *Helicobacter pylori* is associated to reduce the recurrence risk of ulcer, any time that there is the proof of its infection [18].

IV. Conclusion

Any retroperitoneal abscess of unknown origin must lead to systematic biochemical and bacterial analysis of drainage fluid. The presence of healing duodenal ulcer on endoscopy suggests a gastrointestinal tract perforation in absence of acute and severe pancreatitis symptoms, a call for water-soluble contrast imaging study looking for contrast leaking through the perforated duodenum. The absence of contrast leakage suggests that the perforation is sealed and requires a careful upper digestive tract endoscopy to confirm it. The treatment of retroperitoneal abscess is that of any intra-abdominal abscesses. The treatment of sealed perforated ulcer is non operative.

References

- [1]. Bell RL, Seymour NE. Abdominal wall, omentum, mesentery, and retroperitoneum. Brunicaudi FC, Andersen DK, Billiar TR, Dunn DL, Hunter JG, Pollock RE, editors. In Schwartz's Manual of Surgery. 8thed. The McGraw-Hill Companies; 2006. p. 897-905.
- [2]. Turnage RH, Li BDL, McDonald JC. Abdominal Wall, Umbilicus, Peritoneum, Mesenteries, Omentum, and Retroperitoneum. In Townsend JR CM, Beauchamp RD, Evers BM, Mattox KL, editors. Sabiston Textbook of Surgery. 17th ed. Philadelphia: Elsevier Saunders; 2004. p. 1171-1198.
- [3]. Harris LF, Sparks JE. Retroperitoneal abscess. Case report and review of the literature. Dig Dis Sci. 1980 May;25(5):392-5.
- [4]. Tunuguntla A, Raza R, Hudgins L. Diagnostic and therapeutic difficulties in retroperitoneal abscess. South Med J. 2004 Nov;97(11):1107-9.
- [5]. La Greca G, Racalbutto A, Greco L, Aronica G, Fraggetta F, Di Cataldo A, Licata A. Retroperitoneal abscesses- -rare causes and atypical manifestations: report of two cases. Surg Today. 1995;25(11):965-9
- [6]. Lopez E, Arlandis S, Monserrat JJ, Fuster A and Jimenez F. Abscesosrenales y perirrenales. ActasUrolEsp 1999; 23: 153-139.
- [7]. Edelstein H and McCabe. Perinephric abscesses. Modern diagnosis and treatment in 47 cases. Medicine 1988; 67: 118-131.
- [8]. Fowler J and Perkins T. Presentation, diagnosis and treatment of renal abscesses: 1972-1988. J Urol 1994; 151: 847-851.

- [9]. Wong CH, Chow PK, Ong HS, Chan WH, Khin LW, et al. (2004) Posterior perforation of pepticulcers: presentation and outcome of an uncommon surgical emergency. *Surgery*135: 321-325.
- [10]. Shen Y, Ong P, Gandhi N, Degirolamo A (2011) Subphrenic abscess from a perforated duodenal ulcer. *Cleve Clin J Med* 78: 377-378.
- [11]. Camera L, Calabrese M, Romeo V, Scordino F, Mainenti PP, et al. (2013) Perforated duodenal ulcer presenting with a subphrenic abscess revealed by plain abdominal X-ray films and confirmed by multi-detector computed tomography: a case report. *J Med Case Rep*7: 257.
- [12]. Oguro S, Funabiki T, Hosoda K, Inoue Y, Yamane T, et al. (2010) 64-Slice multidetector computed tomography evaluation of gastrointestinal tract perforation site: detectability of direct findings in upper and lower GI tract. *Eur Radiol*20: 1396-403.
- [13]. Fujii Y, Asato M, Taniguchi N, Shigeta K, Omoto K, et al. (2003) Sonographic diagnosis and successful nonoperative management of sealed perforated duodenal ulcer. *J Clin Ultrasound*31: 55-58.
- [14]. Caravaca F, Burguera V, Fernández-Lucas M, Teruel JL, Quereda C (2014) Subphrenic abscess as a complication of hemodialysis catheter-related infection. *Case Rep Nephrol*2014: 502019.
- [15]. Sirinek KR (2000) Diagnosis and treatment of intra-abdominal abscesses. *Surg Infect (Larchmt)*1: 31-38
- [16]. Levin DC, Eschelman D, Parker L, Rao VM (2015) Trends in Use of Percutaneous Versus Open Surgical Drainage of Abdominal Abscesses. *J Am Coll Radiol*12: 1247-1250.
- [17]. Søreide K, Thorsen K, Harrison EM, Bingener J, Møller MH, et al. (2015) Perforated peptic ulcer. *Lancet* 386: 1288-1298.
- [18]. Ramakrishnan K, Salinas RC (2007) Peptic ulcer disease. *Am Fam Physician*76: 1005-1012.

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