

Hydrocele in recurrent acute pancreatitis caused by testicular venous obstruction

A case report of a rare complication (CARE-compliant)

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Abstract

Rationale: Scrotal swelling is a rare complication of acute pancreatitis. It had been explained by fluid accumulation in scrotum originated from abdomen. Here we demonstrated a case of recurrent pancreatitis with hydrocele caused by impaired testicular venous drainage.

Patient concerns: A 53-year-old man presented with sudden onset epigastric pain after an alcohol binge. Recurrent acute pancreatitis was confirmed by medical history, physical examination, elevated lipase level and abdominal computed tomography (CT) scan. Right scrotal swelling was noticed on the next day.

Diagnosis: The scrotal ultrasonography demonstrated fluid accumulation around the testis and varicocele consistent with scrotal hydrocele. CT scans of the abdomen and pelvis showed encasement of the right testicular vein by pancreatic phlegmon.

Interventions: The patient was subject to *Nulla per os*, hydration, and opioid analgesics for pancreatitis. No intervention was performed for scrotal swelling.

Outcomes: Hydrocele gradually resolved along with acute pancreatitis.

Lessons: Pancreatic phlegmon compromised testicular venous return which led to scrotal hydrocele and posed a threat to fertility. The study has provided a novel pathologic linkage. This complication should be taken into account.

Abbreviation: CT = computed tomography.

Keywords: acute pancreatitis, peripancreatic fluid, scrotal hydrocele, testicular venous obstruction

1. Introduction

Acute pancreatitis is associated with several local or systemic complications, which help classify the severity of acute

pancreatitis. Well-established complications range from local peripancreatic fluid collections, necrotic collections, pseudocyst formation, wall-off necrosis to systemic organ failure.^[1] Local fluid collections can also lead to ascites, pleural effusion, and acute respiratory distress syndrome.^[2,3] However, it is extremely rare for patients with acute pancreatitis developing scrotal hydrocele.^[4] Herein, we report a case of hydrocele caused by recurrent acute pancreatitis that developed scrotal swelling with rare etiology of right testicular vein compression.

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2. Case presentation

A 53-year-old man, with 5 episodes of acute alcoholic pancreatitis in recent 2 years, presented to the emergency department with intense epigastric pain radiating to back for 2 days. The pain was sharp in character, which he rated at 10 on a scale of 0 to 10 (with 10 indicating the most severe pain) and the patient had to sit in the knee-chest position in an effort to relieve the pain. He reported alcohol binge the night before onset of pain. No associated fever, vomiting, urinary or bowel symptoms, trauma or procedure history was noted. Initial workup revealed serum lipase level of 1375 IU/L corresponding with the diagnosis of acute pancreatitis. On the 2nd day after admission, the patient developed right scrotal swelling and pain without erythematous change. He recalled similar episodes of swollen right scrotum whenever pancreatitis occurred. Nevertheless, it resolved spontaneously in 1 week once acute pancreatitis subsided.

On examination, there was no tender testis, epididymis, or palpable mass at inguinal region. An ultrasonography of right

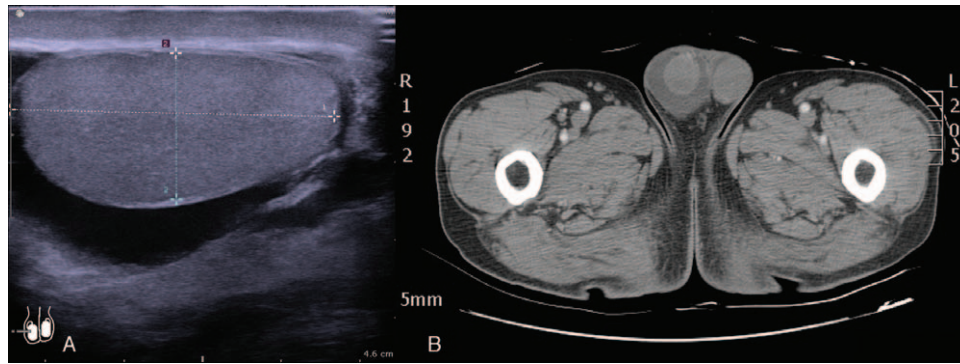


Figure 1. Scrotal imaging. (A) Ultrasonography showed a 41.3×18.7 mm egg-shaped testis with anechoic fluid accumulation in the right scrotum. (B) Computed tomography scan revealed enlarged right scrotum with homogeneous fluid collections around the testis without inflammatory, ischemic or necrotic change.

scrotum revealed marked, anechoic fluid accumulation around the normal testis and periorchium (Fig. 1A). Varicoceles were also noted. An abdominal and pelvic computed tomography (CT) scan demonstrated noncommunicating hydrocele on the right side (Fig. 1B). Instead of massive retroperitoneal fluid extending down through the pelvis, only a small amount of collections and fat stranding occluding the right testicular vein were identified (Fig. 2A, B). The patient received *Nulla per os*, hydration, and opioid analgesics over the following days. Four days later, the hydrocele gradually diminished. One month after discharge, the following CT confirmed that right testicular vein was free of compression (Supplemental Figure, <http://links.lww.com/MD/E100>).

3. Discussion

In this report, we demonstrated a rare case of recurrent acute pancreatitis with scrotal hydrocele caused by impaired testicular venous drainage instead of fluid tracking from abdomen. Pancreatic hydrocele is a rare complication of acute pancreatitis with 34 cases reported in the literature.^[5–14] Previous studies proposed that hydrocele is resulted from peripancreatic fluid in the retroperitoneum tracking through pelvic space, inguinal canal into the scrotum along processus vaginalis.^[5–14] Those patients had failure of closure of the processus vaginalis. Consequently, the fluid dissected between the visceral and parietal layers of the tunica vaginalis led to communicating hydrocele. We noted patients with pancreatic hydrocele were mostly alcohol-related among different etiologies of pancreatitis.^[4,7,10,11,15–25] Alcohol may increase the production of digestive and lysosomal enzymes, and result in more fluid collections.

In the present case, however, retroperitoneal fluid was scanty, which was different from common causes of pancreatic hydrocele. No strong evidence revealed a direct link between scrotal effusion and retroperitoneal fluid. Instead, blockage of right testicular vein was noted. Figure 1 shows fluid accumulation around the testis that was consistent with hydrocele and Figure 2 demonstrates occlusion of right testicular vein by local phlegmon of pancreas. Aswani and Hira reported a male presented with left varicocele caused by pancreatic pseudocyst compressing the testicular vein.^[26] Varicocele on scrotal ultrasonography indicated impaired blood flow by venous obstruction.^[27–29] Elevated intravenous pressure can increase the testicular vascular permeability and cause fluid formation.^[30] We suggest the effusion of hydrocele in our case mainly resulted from venous congestion due to high pressure. To our knowledge, this is the first case with pancreatic hydrocele that could be attributed to compromised testicular venous return by the pancreatic phlegmon.

Clinically, it is important to differentiate hydrocele from other testicular emergencies, such as testicular torsion, infarction, infection and Fournier gangrene that require prompt surgical intervention.^[31,32] Pancreatic hydrocele usually subsides spontaneously once pancreatitis resolves under conservative treatment.^[5,11,19,23] However, hydrocele may attribute to congestive varicose vein of testis that increases the risk of male infertility, so treating varicose vein is mandatory for severe cases.^[33,34] Although the image demonstrates pancreatic inflammation around right testicular vein, true relationship between pancreatic



Figure 2. Abdominal computed tomography scan. (A) An axial view showed retroperitoneal fat stranding and minimal fluid at the level below pancreas. Note right testicular vein (arrow) was closely surrounded by adjacent inflammatory tissue. (B) Coronal section demonstrated that the proximal part of right testicular vein (arrow) was obscured by retroperitoneal fluid and edematous tissue. It further led to scrotal hydrocele (arrowhead). There was no massive fluid extending from abdomen to the pelvis. Bilateral psoas muscles were visible.

hydrocele and occlusion of testicular venous flow remains unclear. More cases or studies are needed to clarify the mechanism.

In summary, we presented a case of recurrent pancreatic hydrocele with a novel mechanism. Different from other studies suggesting peripancreatic fluid extending down to the scrotum, our case showed impaired testicular venous flow. It is important to identify this group of pancreatic hydrocele because it is related to infertility. Therefore, pancreatic hydrocele should be carefully examined when evaluating local complications of acute pancreatitis.

Author contributions

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References

- [1] Banks PA, Bollen TL, Dervenis C, et al. Classification of acute pancreatitis—2012: revision of the Atlanta classification and definitions by international consensus. *Gut* 2013;62:102–11.
- [2] Browne G-W, Pitchumoni CS. Pathophysiology of pulmonary complications of acute pancreatitis. *World J Gastroenterol* 2006;12:7087–96.
- [3] Dupuis CS, Baptista V, Whalen G, et al. Diagnosis and management of acute pancreatitis and its complications. *Gastrointest Interv* 2013;2:36–46.
- [4] Delamarre J, Descombes P, Grillot G, et al. Hydrocele of pancreatic origin. X-ray computed tomographic study of an intrascrotal collection in an acute outbreak of chronic pancreatitis [in French]. *J Radiol* 1988;69:689–90.
- [5] Skouras C, Skouras T, Pai M, et al. Inguinoscrotal extension of a pancreatic collection: a rare complication of pancreatitis—case report and review of the literature. *Updates Surg* 2013;65:153–9.
- [6] Chen W, Wang X, Zhang J. Left scrotal swelling caused by severe acute pancreatitis in a 38-year-old Chinese male. *Int J Clin Exp Med* 2015;8:8194–6.
- [7] Malayala SV, Sa'ati A, Raza A. Pancreatic hydrocele: a case report and review of literature. *Pancreas* 2015;44:1164–5.
- [8] Winkel A, Jakschik J, Kusche D. Scrotal mass as a rare initial manifestation of necrotizing pancreatitis [in German]. *Aktuelle Urol* 2015;46:309–10.
- [9] Gaffney RR. Pancreatitis gone nuts: scrotal hydrocele as a complication of severe acute pancreatitis. *Clin Med Image Library* 2016;2:
- [10] Kalia S, Gupta R, Shenvi SD, et al. Inguinoscrotal region as an unusual site of extra-pancreatic collections in infected pancreatic necrosis. *Gastroenterol Rep* 2016;4:246–50.
- [11] Moens L, Yengue Yengue P, Assenmacher C. Intrascrotal collection in an acute pancreatitis: a case report and review of the literature. *Case Rep Urol* 2016;2016:7534781.
- [12] Zafar W, Chaucer B, Davalos F, et al. Scrotal swelling and normal lipase, a rare presentation of acute pancreatitis. *Am J Emerg Med* 2016;34:763.e765–6.
- [13] Mirhashemi S, Soori M, Faghhih G, et al. Scrotal abscess: a rare presentation of complicated necrotizing pancreatitis. *Arch Iran Med* 2017;20:124–7.
- [14] Sood A, Cole D, Alanee S. Acute scrotum in setting of acute pancreatitis. *BMJ Case Rep* 2018;2018.
- [15] Isgar B, Blunt RJ, Wolinski AP. Pancreatitis presenting with unilateral scrotal pain and swelling. *Br J Surg* 1994;81:101.
- [16] Lin YL, Lin MT, Huang GT, et al. Acute pancreatitis masquerading as testicular torsion. *Am J Emerg Med* 1996;14:654–5.
- [17] Erzurum VZ, Obermeyer R, Chung D. Pancreatic pseudocyst masquerading as an incarcerated inguinal hernia. *South Med J* 2000;93:221–2.
- [18] Lee AD, Abraham DT, Agarwal S, et al. The scrotum in pancreatitis: a case report and literature review. *JOP* 2004;5:357–9.
- [19] Liu KL, Lee TC, Wang HP. A tender scrotum and inguinal mass caused by pancreatitis. *Clin Gastroenterol Hepatol* 2006;4:xxvi.
- [20] Nazari MA, D'Souza FR, Ray A, et al. Unusual presentation of acute pancreatitis: an irreducible inguinoscrotal swelling mimicking a strangulated hernia. *Abdom Imaging* 2007;32:116–8.
- [21] Atiq M, Budhani I, Snyder R, et al. Pancreatic hydrocele: an unusual manifestation of severe acute pancreatitis. *Gastrointest Endosc* 2008;68:393–5.
- [22] Tajima Y, Mishima T, Kuroki T, et al. Huge pancreatic pseudocyst migrating to the psoas muscle and inguinal region. *Surgery* 2009;145:341–2.
- [23] Kim SB, Je BK, Lee SH, et al. Scrotal swelling caused by acute necrotizing pancreatitis: CT diagnosis. *Abdom Imaging* 2011;36:218–21.
- [24] Dennison AR, Royle GT. Acute pancreatitis—presentation as a discoloured lump in the groin. *Postgrad Med J* 1984;60:374–5.
- [25] Gibbons CP. Pancreatitis and inguinal swelling. *Postgrad Med J* 1984;60:711.
- [26] Aswani Y, Hira P. Secondary varicocele caused by pancreatic pseudocyst obstructing testicular venous drainage. *JOP* 2013;14:674–5.
- [27] Shafik A, Bedeir GAM. Venous tension patterns in cord veins. I. In normal and varicocele individuals. *J Urol* 1980;123:383–5.
- [28] Pauraso S, Di Leo N, Fulle I, et al. Varicocele: ultrasonographic assessment in daily clinical practice. *J Ultrasound* 2011;14:199–204.
- [29] Clavijo RI, Carrasquillo R, Ramasamy R. Varicoceles: prevalence and pathogenesis in adult men. *Fertil Steril* 2017;108:364–9.
- [30] Salama N, Bergh A, Damber JE. The changes in testicular vascular permeability during progression of the experimental varicocele. *Eur Urol* 2003;43:84–91.
- [31] Davis JE, Silverman M. Scrotal emergencies. *Emergency medicine clinics of North America* 2011;29:469–84.
- [32] Lorenzo L, Rogel R, Sanchez-Gonzalez JV, et al. Evaluation of adult acute scrotum in the emergency room: clinical characteristics, diagnosis, management, and costs. *Urology* 2016;94:36–41.
- [33] Damsgaard J, Joensen UN, Carlsen E, et al. Varicocele is associated with impaired semen quality and reproductive hormone levels: a study of 7035 healthy young men from six European countries. *Eur Urol* 2016;70:1019–29.
- [34] Ur Rehman K, Qureshi AB, Numan A, et al. Pressure flow pattern of varicocele veins and its correlation with testicular blood flow and semen parameters. *Andrologia* 2018;50.