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Charaf Tilfine, Jawad Tadili, Amine Benkabbou, Salwa Bouklata, Nabil Moatassim Billah

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Case Report: We present a case of a large post-traumatic pancreatic pseudocyst in a 17-year-old adolescent, complicated by an intracystic hemorrhage that was successfully treated by selective arterial embolization.

Conclusion: A technical refinement both in diagnostic angiography and in transcatheter arterial embolization has strengthened the management of acute pancreatic pseudocyst hemorrhage. The embolization is an effective therapeutic alternative to surgery. A high index of suspicion should be maintained in any patient with a pseudocyst or a history of pancreatic trauma or chronic pancreatitis who presents with the abdominal pain, or falling hemoglobin level.

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CASE REPORT

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Introduction: Hemorrhage from a pancreatic pseudocyst is a rare and often fatal complication of pancreatic trauma and pancreatitis. The pancreatic enzymes can erode into adjacent vessels, resulting intracystic hemorrhage or bleeding into the peritoneal cavity, pancreatic duct, stomach, duodenum, colon, or retroperitoneum. **Case Report:** We present a case of a large post-traumatic pancreatic pseudocyst in a 17-year-old adolescent, complicated by an intracystic hemorrhage that was successfully treated by selective arterial embolization. **Conclusion:** A technical refinement both in diagnostic angiography and in transcatheter arterial embolization has strengthened the management of acute pancreatic pseudocyst hemorrhage. The embolization is an effective therapeutic alternative to surgery. A high index of suspicion should be maintained in any patient with a pseudocyst or a history of pancreatic trauma or chronic pancreatitis who presents with the abdominal pain, or falling hemoglobin level.

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INTRODUCTION

The pancreatic pseudocyst is a fluid collection held in intrapancreatic or extrapancreatic position. It contains pure pancreatic enzyme or mixed with necrosis or blood. It is devoid of epithelium and is limited by a fibrous and grainy wall [1]. This is a rare complication in children as opposed to adults in whom the pancreatic pseudocyst usually complicates ethyl chronic pancreatitis [1]. The most common causes of pancreatic pseudocyst in children are traumatic or medical acute pancreatitis [2]. A pancreatic pseudocyst frequency in the aftermath after a trauma ranges from 0–69% depending on the series [1]. Hemorrhage from a pancreatic pseudocyst is a rare and often fatal complication of pancreatic trauma and pancreatitis. We present a case of a large post-traumatic pancreatic pseudocyst in a 17-year-old adolescent complicated by an intracystic hemorrhage that was successfully treated by selective arterial embolization. The purpose of this observation is to show the importance

of embolization as a first treatment of the bleeding pancreatic pseudocyst avoiding a surgical intervention.

CASE REPORT

A 17-year-old adolescent, with no particular history, admitted in emergency department with a severe abdominal pain and vomiting, after five days of direct abdominal trauma by fall from a height. Clinical examination revealed a thin, eupnoeic child weighing 45 kg, with a significant abdominal swelling, associated with diffuse pain centered especially in the epigastric area. Laboratory tests showed an increase in serum lipase (400 IU) with normal hemoglobin (13 g/dl).

Computed tomography scan performed in emergency (Figure 1) showed a large intraperitoneal and peripancreatic cystic mass which was homogeneous, with regular and thin wall measuring 20.4x11.4x15.2 cm. It was associated with a discrete hypodense lesion in the tail of the pancreas and peritoneal effusion of average abundance. The diagnosis of a voluminous pancreatic pseudocyst was taken.

The patient was hospitalized in the ICU for setting condition. After 15 days, he presented an acute abdominal pain with decreased blood pressure 90/40 mmHg. A CT control (Figure 2A–B) has objectified a significant intracystic bleeding in account of a hemorrhagic complication of pancreatic pseudocyst. It is in intimate contact with the splenic artery. It compresses the spleno-mesenteric trunk, delivers the celiac trunk and superior mesenteric artery back and stomach forward. Arteriography was performed showing a vascular blush at a branch of the dorsal pancreatic artery which was embolized successfully by a microspheres 500 μ (Figure 3A–D).

Figure 1: Homogeneous large pancreatic pseudocyst associated with a hypodense lesion of the tail of the pancreas on computed tomography scan.

Figure 2: (A, B): Computed tomography scan showing hemorrhagic pancreatic pseudocyst and intimate contact with coeliomesenteric vessels. (A) TC: celiac trunk, ART SP: splenic artery, ART HEP: hepatic artery. (B) AMS: superior mesenteric artery.

Figure 3: Arteriography and embolization. (A) Opacification of the common hepatic artery (CHA), the gastroduodenal artery (GDA) and hepatic artery proper (HAP), (B) Opacification of the splenic artery (SA) and dorsal pancreatic artery (DPA), (C) Selective catheterism of the dorsal pancreatic artery (DPA), and opacification of a vascular blush responsible for intracystic bleeding, and (D) Disappearance of vascular blush after embolization.

Figure 4: Computed tomography scan control after two months: Reduction of the volume of the pancreatic pseudocyst 5 (white arrow).

A CT control after two months showed a very reduction of the volume of the pancreatic pseudocyst measuring less than 4 cm of diameter (Figure 4).

DISCUSSION

Pancreatic trauma is relatively uncommon, but it has a high morbidity rate. Pseudocyst is one of the common major complications. Hemorrhage from a pancreatic pseudocyst is a rare and often fatal complication of pancreatic trauma and pancreatitis.

Many authors report a prevalence of acute hemorrhage associated with pancreatic pseudocysts estimated between 8% and 31% [3]. The consequence can be an intracystic hemorrhage or bleeding into the peritoneal cavity, pancreatic duct, retroperitoneum, or digestive tract.

Many arteries are involved in pseudoaneurysm formation. The most common are the splenic artery in 45–50%, the gastroduodenal artery in 15%, and the pancreaticoduodenal arteries in 15% [4]. They bleed in 78% of cases. The incidence of bleeding from the splenic artery is approximately half of the cases. Other articles have reported aneurysms of celiac, superior mesenteric, the hepatic and gastric arteries. Rarely, bleeding occurs from the renal artery, aorta, the splenic vein and visceral veins [5].

Bleeding can occur into the gastrointestinal tract, the duodenum being the most common site. Other sites include the stomach, jejunum, and colon. It can present as massive bleeding into the gastrointestinal tract with shock or as chronic gastrointestinal blood loss. Patients may present in some cases without gross gastrointestinal bleeding. If the pseudocyst does not communicate with the pancreatic duct, blood may be confined to the pseudocyst, manifested by rapid pseudocyst enlargement, pain, and a falling hemoglobin level. This is the case of our patient.

Every patient with ultrasound or CT findings suggesting an intracystic bleeding should benefit from a visceral angiography. It identifies the vascular anatomy and the site of bleeding. Many authors required that routine CT angiography should be performed to all patients with pancreatic pseudocysts to identify pseudoaneurysm and to anticipate hemorrhage [6].

In literature, surgery and embolization are the most treatments used. The tissues are often inflamed making the surgery difficult with risk of heightening hemorrhage. Mortality can reach 90% if bleeding was managed conservatively, and 29% in surgical intervention.

In several recent reports, embolization is advocated as the sole therapy for the treatment of pancreatitis associated pseudoaneurysms with high technical success rates (75–100%) and low morbidity (14–25%) and death rates (0–14%) [7].

Embolization was first described in 1972 by Rosch et al. who used autologous blood clot [8]. It may be used

as a temporary procedure to stop or slow bleeding, or as the definitive form of treatment. It is recommended as the initial treatment for hemodynamically stable patients. Situations that justified an operation are: failed embolization, actively bleeding, unstable patients with hemodynamic failure, and complications such as infection and extrinsic compression [9].

Endovascular treatment has several advantages over open surgical repair, and carries a lower risk of major complications than open surgical repair. The radiologic management allows precise localization of the vascular blush responsible for intracystic bleeding and the nutrient artery, it is much less invasive than surgery.

The development of new micro-catheters, has improved the superselective embolization, and increase by consequent the success rate of this technique. In practice, many agents are used for embolization including muscle, cellulose, gelfoam, Ivalon, fat, tissue adhesives, steel coils, cotton, wool, and plastic and metallic spheres as the case of our patient [9]. The complications of embolization are scarce, it may be splenic infarction or intestinal necrosis.

CONCLUSION

A technical refinement both in diagnostic angiography and in transcatheter arterial embolization has strengthened this therapy for the emergency management of acute pancreatic pseudocyst hemorrhage. A high index of suspicion should be maintained in any patient with a pseudocyst or a history of pancreatic trauma or chronic pancreatitis who presents with the abdominal pain, or falling hemoglobin level.

Surgical treatment should be limited to patients for whom less invasive catheter-based embolization is not technically feasible, for patients who have undergone a failed embolization, or for recurrent actively bleeding after successful embolization.

Author Contributions

Charaf Tilfine – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Jawad Tadili – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Amine Benkabbou – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Salwa Bouklata – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Nabil Moatassim Billah – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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REFERENCES

1. Bai HX, Lowe ME, Husain SZ. What have we learned about acute pancreatitis in children? *J Pediatr Gastroenterol Nutr* 2011 Mar;52(3):262–70.
2. Teh SH, Pham TH, Lee A, Stavlo PL, Hanna AM, Moir C. Pancreatic pseudocyst in children: the impact of management strategies on outcome. *J Pediatr Surg* 2006 Nov;41(11):1889–93.
3. Pitkäranta P, Haapiainen R, Kivisaari L, Schröder T. Diagnostic evaluation and aggressive surgical approach in bleeding pseudoaneurysms associated with pancreatic pseudocysts. *Scand J Gastroenterol* 1991 Jan;26(1):58–64.
4. Sams JS, Nostrant TT, Agha FP, Williams DM. Gastroduodenal artery aneurysm presenting as chronic gastrointestinal blood loss. *Am J Gastroenterol* 1986 Jan;81(1):29–32.
5. Bender JS, Levison MA. Massive hemorrhage associated with pancreatic pseudocyst: successful treatment by pancreaticoduodenectomy. *Am Surg* 1991 Oct;57(10):653–5.
6. Kelly SB, Gauhar T, Pollard R. Massive intraperitoneal hemorrhage from a pancreatic pseudocyst. *Am J Gastroenterol* 1999 Dec;94(12):3638–41.
7. Gambiez LP, Ernst OJ, Merlier OA, Porte HL, Chambon JP, Quandalle PA. Arterial embolization for bleeding pseudocysts complicating chronic pancreatitis. *Arch Surg* 1997 Sep;132(9):1016–21.
8. Rösch J, Dotter CT, Brown MJ. Selective arterial embolization. A new method for control of acute gastrointestinal bleeding. *Radiology* 1972 Feb;102(2):303–6.
9. Carr JA, Cho JS, Shepard AD, Nypaver TJ, Reddy DJ. Visceral pseudoaneurysms due to pancreatic pseudocysts: rare but lethal complications of pancreatitis. *J Vasc Surg* 2000 Oct;32(4):722–30.

SUGGESTED READING

- Falchetti D, Ubertazzi M, Torri F, et al. Endoscopic cure of pancreatic pseudocyst in a child. *J Pediatr Gastroenterol Nutr* 1998;27:446–8.
- Teh SH, Pham TH, Lee A, et al. Pancreatic pseudocyst in children: the impact of management strategies on outcome. *J Pediatr Surg* 2006; 41:1889–2193.
- Benifla M, Weizman Z. Acute pancreatitis in childhood: analysis of literature data. *J Clin Gastroenterol* 2003;37:169–72.
- Sondenaa K, Soreide JA. Pancreatic pseudocyst causing spontaneous gastric haemorrhage. *Eur J Surg* 1992;158:257–60.
- Steckman ML, Dooley MC, Jaques PF, et al. Major gastrointestinal haemorrhage from peripancreatic blood vessels in pancreatitis. Treatment by embolotherapy. *Dig Dis Sci* 1984; 29: 486–97.
- Santos JCM Jr, Feres O, Rocha JJR, et al. Massive lower gastrointestinal hemorrhage caused by pseudocyst of the pancreas ruptured into the colon. *Dis Colon Rectum* 1992;35: 75–7.
- Stanley JC, Frey CF, Miller TA, et al. Major arterial hemorrhage. A complication of pancreatic pseudocysts and chronic pancreatitis. *Arch Surg* 1976; 111:435–40.
- Canakkalelioglu L, Gurkan A. The management of bleeding from a pancreatic pseudocyst: A case report. *Hepato-gastroenterol* 1996; 43:278–81.
- Bresler L, Boissel P, Grosdidier J. Major hemorrhage from pseudocysts and pseudoaneurysms caused by chronic pancreatitis: Surgical therapy. *World J Surg* 1991; 15:649–53.
- Sand JA, Seppanen SK, Nordback IH. Intracystic haemorrhage in pancreatic pseudocysts: Initial experiences of a treatment protocol. *Pancreas* 1997; 14:187–91.

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