Received: 12 December 2022 | Revised: 24 March 2023 | Accepted: 12 April 2023

DOI: 10.1002/ccr3.7271

CASE REPORT

Clinical Case Reports Open Access WILEY

Trivial injury with devastating complication—A case of pediatric pancreatic pseudocyst

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Key Clinical Message

Pancreatic pseudocysts are rare in the pediatric population, commonly a result of trauma. Timely diagnosis and adequate management with a multidisciplinary approach are the key to avoid morbidity and mortality. Larger cysts often require surgical intervention.

Abstract

We report a case of a 4-year-old female child who presented with a massive pancreatic pseudocyst. Pseudocysts >10 cm are at an increased risk of rupture, hence require surgical intervention. Percutaneous external drainage via pigtail catheter was followed by cysto-gastrostomy due to continuous high output. The postoperative period was uneventful.

KEYWORDS

cysto-gastrostomy, external drainage of cyst, pancreatic pseudocyst

1 | INTRODUCTION

The first case of a pancreatic pseudocyst (PP) was diagnosed in 1922 by Drennen.[1] Although a rare medical entity, it is the fourth most common solid organ injury.[2] In children, it is often due to blunt trauma to the abdomen.[3] Literature shows that the occurrence of pseudocysts ranges from 0 to 69% following post-traumatic pancreatitis.[4] Clinically, patients present with abdominal pain, lump/mass, ascites, or pleural effusion.[3] The management of pancreatic pseudocyst varies widely from conservative management to surgical procedures, depending on the size and complications of the pseudocyst.[3,4] We present the case of a 4-year-old female child with pancreatic pseudocyst.

2 | CASE REPORT

A 4-year-old female child presented to the Department of Pediatrics, Dr. RKMP Civil Hospital Karachi, with fever and abdominal pain, on and off, for 1 month and an abdominal mass for the last 20 days. The child was in her usual state of health 1.5 months back, when she fell from

a small hillock. Initially, she had pain in the upper abdomen, which was managed conservatively with oral analgesics. Pain was relieved transiently, and she took the analgesic for 3 days. Later, she developed continuous low-grade fever and upper abdominal pain. The burning pain was localized to the epigastrium, mostly occurred after meals, and associated with vomiting. Vomitus mostly contained undigested food contents. For the last 20 days, the mother has noticed a swelling in the upper abdomen, gradually increasing in size. Fever, which was previously low-grade, now has become high grade, 2–3 times a day with chills.

On examination, she was a thin, lean child, conscious, and oriented, but in pain. She was febrile with a temperature of 38.9°C, tachycardic with a heart rate of 140/min, tachypneic with a respiratory rate of 38/min, and had severe pallor. Her blood pressure was at 50th centile. She was maintaining oxygen saturation at room air. On inspection of abdomen, the upper abdomen was grossly distended with visible veins. On palpation, there was a large cystic swelling, with a size of 10 × 12 cm in the upper abdominal region that was tender and nonreducible (Figure 1). There were no signs of free fluid on percussion, and Gut sounds were audible. Rest of the systemic examination was unremarkable.

We kept a provisional diagnosis of pancreatic pseudocyst considering the child's history of trauma and proceeded with the investigations. Complete blood count (CBC) revealed microcytic hypochromic anemia with a hemoglobin of 5 gm/dl, rest of the blood counts were normal. Serum Amylase was 570 IU/L and Serum Lipase was 43 IU/L. Prothrombin Time (PT) was 48 s (control 23 s) and INR was 4.7. Ultrasound of abdomen revealed a well-defined cystic lesion just above pancreas with tiny internal echoes most suggestive of pancreatic pseudocyst. CT scan of abdomen showed the collection in the head, neck, body, and tail of pancreas with extension into the peri-pancreatic region into the lesser sac, displacing the gut loops anteriorly. It measures 12.3 × 12.6 × 13.1 cm representing a pancreatic pseudocyst (Figure 2). Moderate ascites and multiple enlarged lymph nodes in the mesenteric region were noted, largest measuring 1.2 cm. Due to extensive pancreatic edema and peri-pancreatic changes, the integrity of the pancreatic duct is questionable. CT scan also reveals moderate pancreatitis consistent with lab findings of raised amylase and lipase and deranged PT/INR.

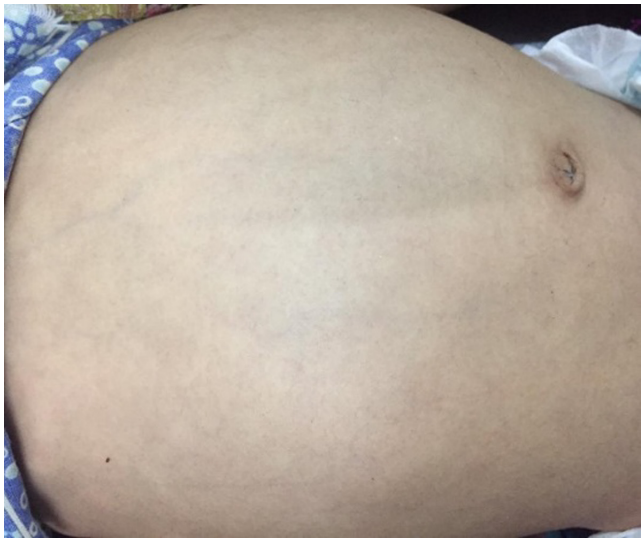

FIGURE 1 Gross abdominal distension with prominent veins at presentation.

We admitted the patient in a pediatric intensive care unit after initial resuscitation, replacement of pack RBCS, correction of INR, and U/S guided percutaneous pigtail catheter inserted to relieve abdominal distension (Figure 3). Initially, it drained 800 cc of serosanguinous fluid, as the daily drain output remained continuously high; greater than 500 mL/day. Moreover, the injection octreotide was started to reduce output. Initially, there was a good response with total tail drainage reduced to 200; however, with the commencement of nasojeujenal feeding, the output increased again to 500 mL/day. At this stage, we decided to perform an open cysto-gastrostomy. The operative procedure was straightforward, and cysto-gastrostomy was performed. The postoperative course was uneventful, and the child was discharged after the seventh postoperative day. She is asymptomatic at the 5-month follow-up, with good weight gain and no recurrence.

3 | DISCUSSION

In children, the majority of abdominal injuries stem from blunt trauma, which can result in acute pancreatitis, leading to a pseudocyst.[2,5] However, pancreatic pseudocysts (PPs) are quite rare in the pediatric population, and trauma is the most common etiology.[6] Etiology of PP significantly influences the strategy of intervention in some studies, with PP from nontraumatic etiology most likely needing surgical interventions and traumatic PP resolving from noninvasive procedures.[3] Our patient had PP of traumatic etiology, but due to the massive size of the cyst, surgical intervention was performed after initial external drainage.

Clinical presentation of PP may include emesis, upper abdominal pain, tenderness, and an epigastric mass.[7] Other symptoms may include loss of appetite, nausea, diarrhea, and fever.[4] Our patient also exhibited most of these classic symptoms including fever, emesis, upper abdominal pain and tenderness, and epigastric mass. Pareek

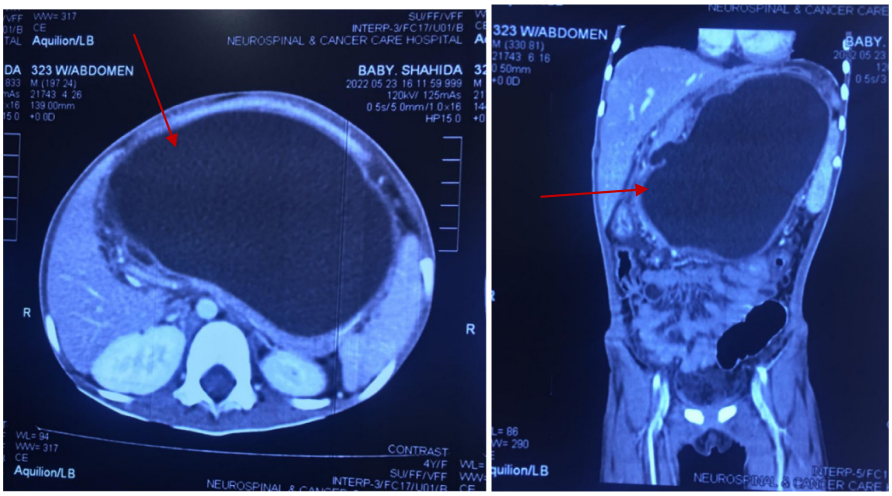

FIGURE 2 CT scan of abdomen showing collection in the head, neck, body, and tail of pancreas with extension into the peri-pancreatic region and lesser sac, displacing the gut loops anteriorly. It measures 12.3 × 12.6 × 13.1 cm representing pseudocyst.

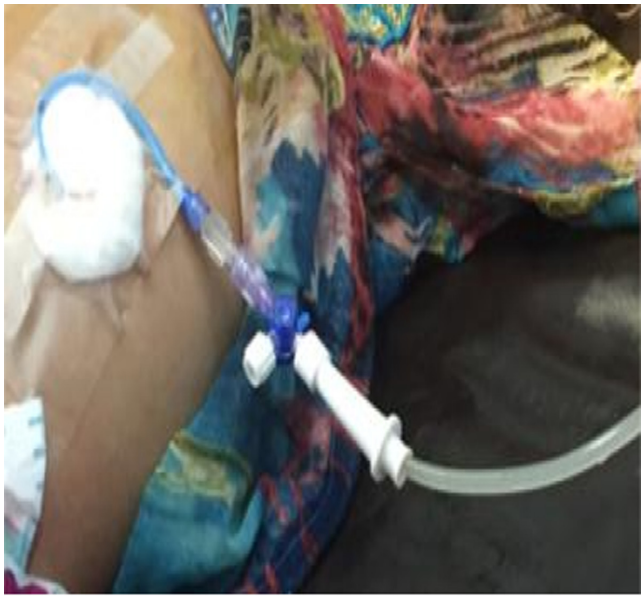

FIGURE 3 Percutaneous external drainage of pancreatic pseudocyst with pigtail catheter.

and Agrawal presented a similar case report exhibiting a pediatric PP patient with the clinical manifestations of vomiting and abdominal distension after a road traffic accident.[4] Their patient also had epigastric pain after the insult.[4] Alonso et al. described a 13-year-old patient with diffuse abdominal pain following trauma from a bicycle handlebar, who subsequently developed progressive distension.[8] Ateş et al. presented an 11-year-old obese patient with vomiting and abdominal pain for 2 months, which was found to have a PP[9]. Chaudhari et al. described a 3-year-old patient with fever, vomiting, and abdominal pain without trauma.[10] Ravindranath et al. performed a study that examined 36 children with pancreatic trauma, and the most common presenting features were abdominal pain, lump, and ascites.[3]

Generally, the size of PP varies; when the size is less than 5 cm, spontaneous regression has been noticed using only conservative management, as seen with the patient of Pareek and Agrawal.[4] However, PPs larger than 10 cm have an increased risk of rupture, which is why we performed external drainage on our patient whose PP measured 12.3 × 12.6 × 13.1 cm prior to surgery. Similarly, Alonso et al. dealt with a 170 × 86 × 180 mm PP that subsequently began bleeding, and was managed by radiological embolization followed by laparotomy.[8] Chaudhari et al. managed a 7.4 × 6.7 cm PP with cysto-gastrostomy.[10]

Nonsurgical treatment includes monitoring, endoscopic drainage, or external drainage if PP is large with an increased risk of rupture or if infected.[11] If management is not possible without surgical intervention, three surgical strategies can be used to drain the PP, including cysto-gastrostomy, cysto-jejunostomy, or cysto-duodenostomy.[11] Ateş et al. managed a patient with a 7 × 6 cm PP initially with ultrasonography-guided percutaneous aspiration; however, due to the recurrence of the PP, endoscopic drainage and cysto-duodenostomy were planned.[9] Similarly in our patient, we did a nonsurgical management (external drainage) first, followed by Cysto-gastrostomy.

Complications of PP may include rupture, obstruction, infection, or hemorrhage, which is why adequate diagnosis and treatment of PP are imminent to avoid dangerous consequences.[11] In addition, another complication of external drainage of a PP is pancreatic fistula formation, illustrated by Radojkovic et al.[12] Morbidity and recurrence rates of PP drainage are 33%–80%, and internal drainage with a cysto-gastrostomy or a cysto-duodenostomy has a success rate of 71%.[8] Ravindranath et al. explored the management of 39 children with pancreatic trauma and found nonoperative management as the most effective strategy for 94% of the patients, with radiologic or endoscopic intervention required for 75% of the patients.[3] Of the 32 children in follow-up, 59.3% recovered and 40.6%

developed chronic pancreatitis, half were asymptomatic with recurrent pain, and 5.5% died due to sepsis.[3] Our patient completely recovered with surgical management and is on follow-up with no recurrence.

4 | CONCLUSION

Pancreatic pseudocysts are an uncommon result of trauma in the pediatric population. Timely diagnosis and adequate management with a multidisciplinary approach are the key to avoid morbidity and mortality.

AUTHOR CONTRIBUTIONS

Iqra Rehman Shaikh: Conceptualization; data curation; investigation; methodology; supervision; validation. **Zainab Rahmat:** Writing – original draft; writing – review and editing. **zarmina islam:** Writing – original draft; writing – review and editing. **Mohammad Arif Mateen khan:** Supervision; validation. **Syed Waqas Ali:** Supervision; validation. **Sharmeen Nasir:** Supervision; validation. **Sayed Hamid Mousavi:** Validation.

ACKNOWLEDGMENTS

None.

FUNDING INFORMATION

None.

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

Data are available upon request due to privacy/ethical restrictions. The data that support the findings of this study are available upon request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

CONSENT

Written informed consent was obtained from the patient's guardian to publish this report in accordance with the journal's patient consent policy.

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How to cite this article: Shaikh IR, Rahmat ZS, Islam Z, et al. Trivial injury with devastating complication—A case of pediatric pancreatic pseudocyst. *Clin Case Rep*. 2023;11:e7271. doi:10.1002/ccr3.7271