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PANCREATIC PSEUDOCYST IN CHILDHOOD: A CASE REPORT AND LITERATURE REVIEW

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Abstract
Pancreatic pseudocyst is a common complication of acute or chronic pancreatitis. After the resolution of pancreatitis persistent abdominal pain is the most common presentation of pancreatic pseudocyst. The prevalence of pancreatic pseudocyst is 6-18% in acute pancreatitis and 20-40% in chronic pancreatitis. They may be multiple in 10-15 %and vary in size from 2-30cm.pseudocysts measuring more than 10cm are termed as giant pseudocyst and are rare[1].Large pseudocysts which are symptomatic require intervention in the form of percutaneous drainage under radiological guidance, laparoscopic drainage or open surgical approaches.
Pancreatic pseudocyst in children is a rare entity and is primarily the result of traumatic abdominal injury. We describe a case of 10 years old boy with giant pancreatic pseudocyst followed by blunt abdominal trauma in which succesful percutaneous cystogastrostomy was done under ultrasound guidance without any complications or the need for re.intervention.

INTRODUCTION

A pancreatic pseudocyst is a localized fluid collection, which is rich in amylase and other pancreatic enzymes, contains no solid material and is surrounded by a well defined wall of fibrous tissue lacking an epithelial lining[2].The incidence of pancreatic pseudocyst following post traumatic pancreatic injury varies from 0% -69%, according to different studies, and this reflects the diversity of the severity of pancreatic injury[3].
According to Atlanta classification pancreatic pseudocyst are classified into acute and chronic pancreatic pseudocyst on the basis of the nature underlying diseases. Acute pancreatic psrudocysts arises as a consequence of acute pancreatitis or pancreatic trauma whears a chronic pancreatic pseudocyst arises as a consequence of chronic pancreatitis[4].
Pancreatic pseudocyst in childhood is a rare entity and is primarily a consequence of traumatic abdominal injury. overall 76% of pancreatic injuries are managed non-operatively. An estimated 30% -80% of patients with a pancreatic ductal injury develop a pseudocyst and about 35% of them will undergo an intervention to drain collection[5].

Contrast enhanced CT (CECT) is the standard imaging for diagnoses of pancreatic pseudocyst. In mild cases CECT may show homogenous organ enhancement, and inflammatory changes of peripancreatic fat or fluid surrounding the pancreas, while in severe cases may show heterogenous organ enhancement and necrosis[6].

The imaging follow up by CECT examination of pancreatic pseudocyst showed that 40% of them with a diameter of less than 6cm spontaneously regress if there is no communication with the pancreatic duct. Indications for interventions include increasing pseudocyst size or persistence over 4-6 weeks[7].

The management depends on the size, localization, presence or absence of infection and age of the pseudocyst. Usually the size is a good predictor of spontaneous resolution. Cysts smaller than 4 cm resolve in 90% of cases, whereas cysts larger than 6cm have only a 20% chance of resolving[8].In cases where pseudocyst size exceeds 5 cm the conservative management is ineffective. The modern therapeutic attitude pays more attention to the surgical procedures that preserve the pancreas, and one of these is percutaneous drainage guided by imaging[2].

CASE

A 10 years old boy presented to Brig. Shafiq trust hospital on 30/6/2023 with the history of trauma to anterior abdominal wall two weeks back. He was complaining of constant abdominal pain that was not responding to usual treatments. On examination he was mildly tender in left upper quadrant and epigastrium and swelling occupying left upper quadrant. He was dull to percussion over the swelling. CECT abdomen done in a private setup showed a well defined hypodence cystic collection with internal septations measuring about 7.5*5.5 cm seen in lesser sac just behind the posterior gastric wall and adjacent to pancreatic tail region that was pseudocyst pancreas. MRI was done to exclude any ductal communication. We admitted him for conservative management but no improvement. On 18 Jul, 23 repeat abdominal CECT was done that showed the cyst size was almost double 12.7×8.4 cm with characteristic well defined fluid collection with thick walls in the lesser sac anterior to pancreas. Serum Amylase was 546u/l while the other base line investigations were normal. He was scheduled to undergo drainage under ultrasound guidance. A nelaton tube of 12Fr was inserted. In the first week daily output was more than 300ml/day, later on it decreased day by day. He was discharged with the catheter and was instructed to record the daily output. In a span of 3 weeks the output gradually decreased to nil. A follow up CECT done on 5/8/23 it showed decrease in size till 3 cm. MRI done on 4/8/23 was suggestive of mildly swollen and edematous pancreas with a normal pancreatic duct and a collapsed cyst seen in peripancreatic region 4×2×8cm.serum amylase dropped to 181U/L. The little chap Presented to OPD in a stable condition with empty drain since 2 days and a soft non tender abdomen so the catheter was removed.

DISCUSSION

In children pancreatic pseudocyst may develop after high grade pancreatic injuries following blunt abdominal trauma.Overall, 76% of pancreatic injuries are managed non operatively[8]. Most pediatric pancreatic injuries do not involve a ductal injury and are managed non operatively. An estimated 30 -80% of patients with a pancreatic ductal injury develop a pseudocyst and about 35% of them will undergo an intervention to drain the collection[4].

Persistent abdominal pain, nausea, fever and abdominal mass are the most common presentation of pancreatic pseudocyst. Tan et all in their review about pancreatic pseudocyst stated that the most frequent symptom is abdominal pain (76-94%), nausea and vomiting (50%) and weight loss (20-51%). Occasionally, patients present with jaundice, fever and pleural effusion from complications of the pseudocysts or even sepsis from an infected pseudocyst[10].

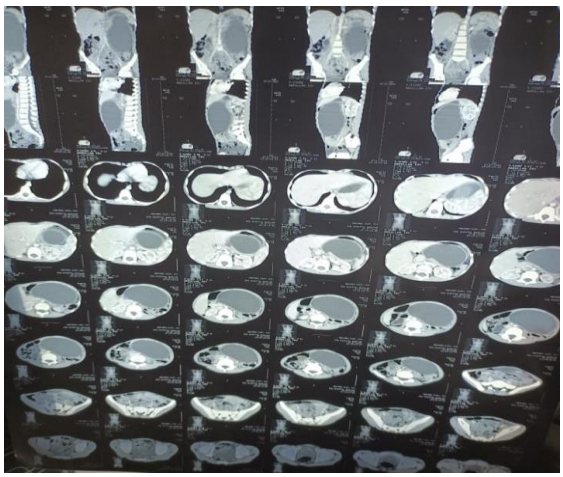
Abdominal USG and CECT are helpful in the diagnosis measurement of size and to look for the relationship of cyst with adjacent structures. However MRI delineates the ductal anatomy of the pancreas and its connection with the cyst more accurately. In our patient all the three modalities were used. Keeping in view the exceptionally large size of the cystic fluid collection on imaging, mucinous or cystic neoplasms of the pancreas were kept as differentials however as this little chap was having an antecedent history of hospitalization for blunt abdominal trauma with raised serum Amylase and Lipase substantiated the diagnoses of pseudocyst of pancreas.

Management of pseudocyst of pancreas comprises of conservative medical treatment and surgical intervention. Selection of treatment is always tailored according to each patient profile. Patients having small size, asymptomatic and short lasting will suffice for wait and watch approach under the cover of conservative management. A five-year prospective study by Vitas and Sarr followed 114 patients having pancreatic pseudocyst, 68 of them were managed conservatively, and the rest were surgically operated. More than half of the conservatively-managed patients (57%) had their pseudocysts resolved within a period of six-months follow-up period[9].

Patients having large sised, long lasting or complicated pseudocysts necessitates some sort of intervention. Drainage of the pseudocyst into the posterior wall of stomach by cyst gastrostomy through open surgical approach is the most commonly performed procedure. For those pseudocysts in the head of pancreas that are adherent to duodenum, cystoduodenostomy is performed, and for those that are not adherent to duodenum Roux cystojejunostomy is the alternative. In most series the success rate is 85% - 90%, with a complication rate of 24% - 35%, recurrence rate of 5% - 10%, and mortality of 3% - 9%[1]. Farr BJ et all concluded from their study conducted on traumatic pancreatic pseudocysts in children that endoscopic cyst gastrostomy appears to be safe and effective in the management of symptomatic pancreatic pseudocysts in children following pancreatic trauma[4]. Another method that has advantage of fast track recovery is laparoscopic drainage of pancreatic pseudocyst, where after incising the anterior wall of stomach pseudocyst is localized by USG and cystogastrostomy is made through a small incision in the posterior wall of stomach using a stapling device[11].One of the most popular minimally invasive technique nowadays is percutaneous drainage under radiological guidance (echo-CT guided).Mihai Faur et all found in their study conducted recently in 2022 that the modern therapeutic attitude pays more attention to the surgical procedures that preserve the pancreas, and one of these is the percutaneous drainage guided by imaging[2].
In our case the child was having giant pseudocyst of 12.7 × 8.4 cm, that was picked by Abdominal CECT underwent ultrasound guided drainage according to the available fascilities, we used nelaton tube 12 Fr for drainage through a 5mm trocar under ultrasound guidance. The size of cyst reduced in a time of 2 weeks without any complications or the need for re.intervention.

CONCLUSION

To our knowledge pancreatic pseudocyst in childhood is a rare entity. This case highlights several key points. When a child presents with blunt abdominal trauma and complains of vague abdominal pain for a long time specially that is not responding to the usual treatments should raise the suspicion of pancreatic injury. Early radiological investigation will help to pick up such rare cases. Furthermore drainage under radiological guidance prove to be a safe and reliable method of non operative management of pancreatic pseudocyst with promising results



Pre-Operative Abdominal CT Scan Showing Pancreatic Pseudocyst

Post-Operative (12th Day) Same Patient

Post Catheter Removal

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