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GI/GU/Thoracic/Nonvascular Interventions *Case Report*

A rare case of recurrent cystic dilatation of the cisterna chyli treated via an interventional approach

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ABSTRACT

A 27-year-old man with a long history of intermittent, severe abdominal pain for approximately 10 years was evaluated by interventional radiology for a retrocrural cystic lesion found on magnetic resonance imaging (MRI). Prior to evaluation, he was extensively worked up by several gastrointestinal specialties and multiple surgeons without clear etiology of his abdominal pain. This retrocrural cystic lesion found on MRI was thought to be the source of his cyclic abdominal pain occurring every few months. Since the pain was aggravated by the consumption of fatty foods, the patient was advised to intake a large quantity of fatty foods and return for repeat serial computed tomography (CT) scans until this cystic lesion could be identified. Once identified, he was taken back to the procedural CT scanner for drainage and embolization with a mixture of N-butyl cyanoacrylate glue and lipiodol (1:3 ratio). 3 years post-intervention, this patient is now asymptomatic with complete resolution of his pain.

Keywords: Cisterna chyli, Cystic dilatation, Thoracic duct cyst, Embolization

INTRODUCTION

The cisterna chyli, normally located to the right of the aorta, may be an anatomic location for rare cystic dilation of the thoracic duct. Patients presenting with thoracic duct cysts are normally asymptomatic but, when symptomatic, may present with cough, dyspnea, dysphagia, and chest pain. This report presents a rare case of recurrent cisterna chyli cystic dilation causing chronic, intermittent abdominal pain. A formal institutional review board approval for this case was not required.

CASE REPORT

A 27-year-old Caucasian man presented with a long history of intermittent, severe abdominal pain for approximately 10 years without a history of thoracic or abdominal trauma. He was previously seen by three gastrointestinal specialists, multiple surgeons, and had undergone multiple gastrointestinal studies, procedures, and imaging including endoscopy, computer tomography (CT), magnetic resonance imaging (MRI), lymphangiogram, and nuclear medicine lymphoscintigraphy with no etiologic source for his abdominal pain. Due to the severity of his abdominal pain, this patient had been taking prescription opioids intermittently. On an MRI scan during previous workup, he was found to have free fluid and inflammatory changes throughout his abdomen and a retrocrural cystic lesion measuring approximately 1.8 cm ×

1.3 cm [Figure 1]. He noticed his pain was aggravated by fatty foods with a subsequent bulge in his mid-abdomen that would "burst" leading to a short-term increased abdominal pain with gradual resolution. This cyclic pain occurred every few weeks to a month. Due to the nature of his pain, the patient was advised to consume a large quantity of fatty foods over the weekend with repeat serial CT scans planned for the following week. The first CT scan on day 1 did not demonstrate the previously identified abnormality. On day 2, a repeat CT scan showed a retrocrural paraaortic lesion measuring approximately 2.1 cm × 1.5 cm cystic lesion (HU:8) along with free fluid in the abdomen [Figure 2]. Under CT guidance, a 21-gauge Chiba needle (Cook Medical, Bloomington Indiana) was inserted into the cystic structure with return of chylous fluid [Figure 3]. Once intralymphatic access was confirmed, the needle was injected with a mixture of N-butyl cyanoacrylate glue and lipiodol (1:3 ratio) under CT fluoroscopy. A total of 5 mL was injected based on the total volume output of chyle and intraprocedural CT scans showing filling of the decompressed with adjacent lymphatic channels starting to fill. Post-procedure CT scan was obtained immediately after glue embolization and removal of the access needle [Figure 4]. 3 years post-intervention, the patient is still asymptomatic with complete resolution of his severe abdominal pain.

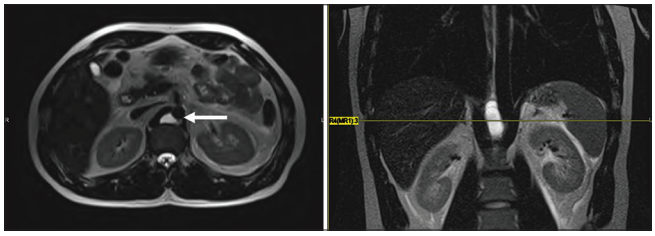

Figure 1: A 27-year-old man presented with intermittent abdominal pain for 10 years and was found to have a retrocrural cystic lesion (arrow). Axial and coronal T2 non-contrast magnetic resonance imaging demonstrates a hyperintense retrocrural paraaortic cystic lesion.

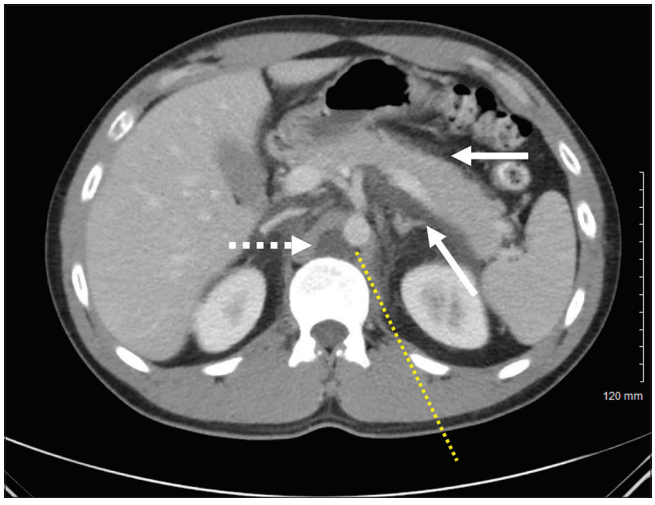

Figure 2: A 27-year-old man presented with intermittent abdominal pain for 10 years and was found to have a retrocrural cystic lesion. Contrast enhanced computed tomography on day 2 after he was instructed to consume a large quantity of fatty foods reveals the previously noted cystic lesion (dotted arrow) along with free fluid in the mesenteric soft tissues (solid arrows). In addition, the planned trajectory for needle access is demonstrated via a left paraspinal approach (yellow dotted line).

DISCUSSION

Thoracic duct cysts are thought to occur due to congenital or

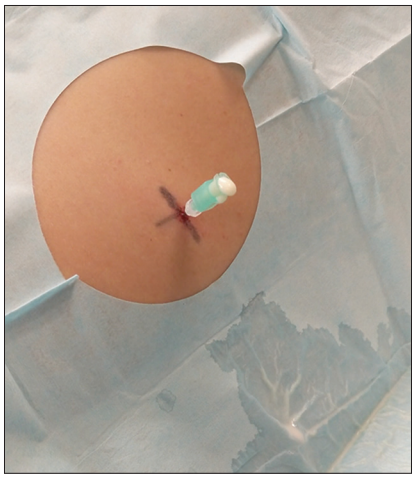

Figure 3: A 27-year-old man presented with intermittent abdominal pain for 10 years and was found to have a retrocrural cystic lesion. A needle was introduced into the cystic lesion and this image shows intraoperative findings of lymphatic fluid return confirming our needle location.

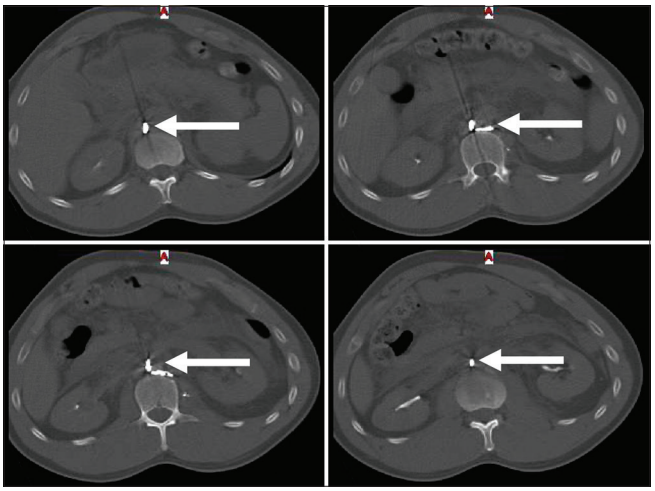

Figure 4: A 27-year-old man presented with intermittent abdominal pain for 10 years and was found to have a retrocrural cystic lesion (arrows). Post glue embolization computer tomography sequential axial 5 mm images demonstrate filling of the decompressed cystic structure and adjacent lymphatic channels.

degenerative weakness in the thoracic duct leading to poor flow or lymphatic obstruction.[1] Two other case reports have reported symptomatic thoracic duct cysts causing abdominal pain. One patient had a two-month history of worsening abdominal pain related to eating and standing for long periods of time treated with exploratory thoracotomy and ligation.[2] The second patient presented with abdominal pain, dyspnea, and orthopnea following rupture of a thoracic duct cyst. This patient required drainage of several liters of chyle from the pleural cavity prior to surgical ligation by thoracic surgery.[3] As of 2015, there have been a total of 62 reports of thoracic duct cysts reported (30 mediastinal, 31 cervical, and 1 abdominal).[2] Given the rarity of thoracic duct cysts and the intermittent nature of the cystic dilation, these cysts are difficult to identify and could be missed as etiology for patients' symptoms.

CONCLUSION

Although uncommon and rarely symptomatic, thoracic duct cysts should remain on the differential for patients presenting with chronic, intermittent abdominal pain with unknown etiology. In addition, clinicians and radiologists should be aware of the symptoms associated with thoracic duct cysts and the utility of interventional radiology for the repair of thoracic duct cysts.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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