Castleman’s disease is a rare lymphoproliferative disorder of unknown etiology and has three pathologic variants: hyaline-vascular (HV), plasma cell (PC), and mixed type [1]. Two clinically relevant subtypes exist, the unicentric and multicentric variants. Unicentric pancreatic Castleman’s disease is very rare with only 13 reported cases [2–14]. We report on the endosono-
graphic features of pancreatic Castleman’s disease and its preoperative diagnosis by endoscopic ultrasound-guided fine needle aspiration (EUS-FNA).

A 27-year-old woman had a 4.2 × 4.3 cm, exophytic, hypervascular mass on arterial phase computed tomography (CT) (● Fig. 1), which washed out on the venous phase images.

EUS revealed a hypoechoic and hypervas-
ular peripancreatic mass with a punctate calcification (● Fig. 2).

EUS-FNA was carried out and cytologic exami-
nation with flow cytometric analysis revealed polymorphous lymphocytes with a predominance of B lymphocytes, comprising a mixture of κ- and λ-bearing cells. Occasional morphologic features on cytologic smears (presence of variably sized and partially intact lymphoid follicles with traversing capillary vessels) and on cell block section (numerous lymphoid follicles with characteristic concentric rimming of lymphocytes) were compatible with a diagnosis of Castleman’s disease (● Fig. 3).

Laparotomy with excision of pancreatic mass was carried out without the need for pancreatic resection. Pathologic exami-
nation was consistent with an enlarged lymph node. The overall nodal architecture was preserved and there were numerous small follicles. Many of the follicles were atretic, and some contained two or more germinal centers. There was prominent concentric layering of peripheral lymphocytes around the follicles, creating an onion-skin pattern (● Fig. 4). Hyaline deposits were present in many of the follicles. Interfollicular vascular prolifera-
tion was present, with some of the vessels penetrating the follicles, creating “lollipop” lesions. These characteristic pathologic features were consistent with

A rare case of peripancreatic Castleman’s disease diagnosed preoperatively by endoscopic ultrasound-guided fine needle aspiration

![Fig. 1](image1.png) Dual-phase computed tomography (CT) angiogram with three-dimensional (3D) mapping demonstrating a hypervascular mass arising from near the neck/body of the pancreas with increased vascularity: a maximum intensity projection and b volume rendered arterial phase images. The focus of calcification was also defined.

![Fig. 2](image2.png) Endoscopic ultrasound (EUS) showing a 41.6 × 25.1 mm, hypoechoic, homogeneous, and round peripancreatic mass with sharp borders. a The mass had a punctate calcification (arrow) with posterior shadowing.

![Fig. 3](image3.png)

![Fig. 4](image4.png)
a diagnosis of unicentric peripancreatic Castleman’s disease, HV variant. In all but one of the reported pancreatic Castleman’s disease cases (Table 1), the diagnosis was established after histopathologic examination of surgically resected specimens. Rhee et al. described preoperative diagnosis of pancreatic Castleman’s disease using EUS-guided trucut biopsy (TCB) [12]. However, EUS-TCB can be technically challenging, especially in the case of pancreatic head lesions, due to the stiffness of the needle. Two other reports described nondiagnostic preoperative EUS-FNA [9, 10]. The current report is the first study to suggest a positive yield of EUS-FNA for the preoperative diagnosis of Castleman’s disease. Preoperative diagnosis of Castleman’s disease is important for patient reassurance, avoidance of unnecessary neoadjuvant therapy, and appropriate surgical planning. Castleman’s disease should be considered in the differential diagnosis of pancreatic/peripancreatic masses. Radiographic and endosonographic characteristics of Castleman’s disease are not specific and cases may display central calcifications. EUS-FNA may be a valuable tool in establishing a preoperative diagnosis.

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Competing interests: None


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References
Table 1  Summary of reported pancreatic/peripancreatic Castleman’s disease cases.

<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Symptoms</th>
<th>Subtype</th>
<th>Treatment</th>
<th>EUS features</th>
<th>Preoperative impression/diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lepke et al. (1982) [2]</td>
<td>BOP</td>
<td>None</td>
<td>HV</td>
<td>DP</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Brossard et al. (1992) [4]</td>
<td>TOP</td>
<td>Systemic</td>
<td>PC</td>
<td>DP</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Corbisier et al. (1993) [6]</td>
<td>Peripancreatic</td>
<td>Abdominal pain</td>
<td>HV</td>
<td>Excision</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Bailoukas et al. (1994) [5]</td>
<td>Peripancreatic</td>
<td>None</td>
<td>HV</td>
<td>Excision</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Le Borgne et al. (1999) [7]</td>
<td>Uncinate</td>
<td>Systemic</td>
<td>PC</td>
<td>Whipple</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Erkan et al. (2004) [8]</td>
<td>Peripancreatic</td>
<td>Abdominal pain</td>
<td>PC</td>
<td>Enucleation</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Goetze et al. (2005) [9]</td>
<td>TOP</td>
<td>None</td>
<td>HV</td>
<td>DP</td>
<td>Hypoechoic, well circumscribed, calcified (non-diagnostic EUS-FNA)</td>
<td>None</td>
</tr>
<tr>
<td>Wang et al. (2007) [10]</td>
<td>HOP</td>
<td>None</td>
<td>HV</td>
<td>Whipple</td>
<td>Not reported (non-diagnostic EUS-FNA)</td>
<td>None</td>
</tr>
<tr>
<td>Tunru-Dinh et al. (2007) [14]</td>
<td>TOP</td>
<td>Abdominal pain</td>
<td>HV</td>
<td>DP</td>
<td>NA</td>
<td>None</td>
</tr>
<tr>
<td>Rhee et al. (2008) [12]</td>
<td>Peripancreatic</td>
<td>None</td>
<td>HV</td>
<td>Excision</td>
<td>Hypoechoic, homogeneous, well-delineated, hypervascular, Castleman’s disease (by EUS-trucut biopsy)</td>
<td>None</td>
</tr>
<tr>
<td>Charalabopoulos et al. (2010) [13]</td>
<td>BOP</td>
<td>Abdominal pain</td>
<td>PC</td>
<td>DP</td>
<td>NA</td>
<td>None</td>
</tr>
</tbody>
</table>

BOP: body of pancreas; TOP: tail of pancreas; HV, hyaline-vascular type; PC, plasma cell type; DP, distal pancreatectomy; EUS-FNA, endoscopic ultrasound fine needle aspiration; NA, not applicable; PNET, pancreatic neuroectodermal tumor.

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Bibliography
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