

# Pancreaticoduodenal Artery Aneurysm due to Median Arcuate Ligament Compression of the Celiac Artery

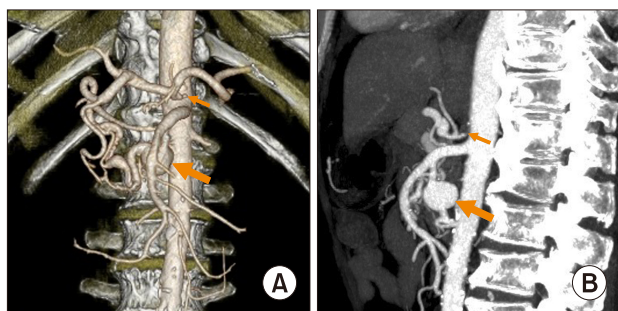
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A 63-year-old man who had been receiving hemodialysis was transferred to the emergency department following a road traffic accident. The patient had head, chest, and buttock pain, but did not exhibit any abdominal symptoms. A non-contrast whole-body computed tomography (CT) scan revealed a right-sided acute subdural hematoma and left 10th and 11th rib fractures. It also revealed a well-developed pancreaticoduodenal artery (PDA) arcade. Subsequent contrast-enhanced three-dimensional (3D) CT angiography showed a dilated and tortuous PDA arcade, a large-sized aneurysm of the inferior pancreaticoduodenal artery (IPDA), and severe stenosis of the celiac artery (CA) origin (Fig. 1). The median arcuate ligament (MAL) compressed the CA origin, suggesting a true aneurysm of the IPDA associated with MAL compression. Although laparoscopic surgery was initially considered the most suitable option due to the large size of the IPDA aneurysm and severe stenosis of the CA origin, the patient refused treatment. After two years of follow-up, he remained asymptomatic with no abdominal pain, and contrast-enhanced CT angiography revealed no interval change in the size of the IPDA aneurysm.

MAL is a fibrous arch that connects the two diaphragmatic crura on either side of the aortic hiatus. Clinical manifes-

tations of MAL syndrome include epigastric pain and weight loss, but the majority of affected patients do not experience any symptoms. The low-lying MAL compresses the CA at its origin, reducing its blood flow. This leads to compensatory increased blood flow of the PDA arcade, which increases the risk of aneurysm formation.<sup>1</sup> PDA aneurysms, accounting for 2% of all visceral artery aneurysms, are typically asymptomatic, but ruptured PDA aneurysms have high mortality rates. The risk of rupture is not correlated with aneurysm size. Three-dimensional CT angiography provides better visualization of the PDA aneurysm and celiac origin stenosis, and the sagittal reformatted CT images are best for visualizing MAL compression of the CA.<sup>2</sup> Regardless of the aneurysm size, endovascular or surgical treatment should be considered. Currently, endovascular embolization is the standard treatment for hemorrhagic syndromes related to ruptured PDA aneurysms.<sup>3</sup> Laparoscopic surgery has also been reported as a safe and effective treatment option for non-ruptured true PDA aneurysms with the advantages of reduced complications, faster recovery, and lower postoperative adhesion rates.<sup>1</sup> Treatment strategies for PDA aneurysms caused by MAL compression remain controversial, especially in patients without abdominal symptoms. Some reported cases have shown aneurysm regression or stability following CA trunk reconstruction with stent placement, MAL incision, or bypass placement for the CA perfusion area.<sup>4</sup> Furthermore, some other authors have reported no recurrences after successful treatment of the PDA aneurysm alone. Nevertheless, current recommendations emphasize the immediate treatment of celiac stenosis after addressing the aneurysm.<sup>5</sup>



**FIG. 1.** Three-dimensional CT angiography (A) and sagittal reformatted CT image (B) revealed an aneurysm of the inferior pancreaticoduodenal artery measuring 28 mm in diameter (large arrow) and severe stenosis of the celiac artery at the origin with the characteristic hooked appearance (small arrow).

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## CONFLICT OF INTEREST STATEMENT

None declared.

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