



Radio-Diagnosis

MORPHOLOGICAL VARIATION OF BODY AND TAIL OF PANCREAS
DIAGNOSED ON CT SCAN: A CASE SERIES

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ABSTRACT The pancreas is a retroperitoneal organ with dual endocrine and exocrine functions. It is anatomically divided into the head, neck, body and tail. Anatomical and morphological variants of the pancreas are increasingly being identified with advances in imaging technologies. Despite the importance of anatomical variation of body & tail, most literature has traditionally focused on variants of the pancreatic head and the main pancreatic duct system. In this case series, we are going to present 5 cases of morphological variation of pancreatic tail.

KEYWORDS : Anterior protrusion, CT scan, Morphological variation, pancreas

INTRODUCTION

The pancreas is a retroperitoneal organ with dual endocrine and exocrine functions, playing a crucial role in digestion and metabolic regulation. It is anatomically divided into the head, neck, body and tail, each with distinct embryological and vascular characteristics. While the pancreatic head is often the focus of surgical and radiological assessments due to its relationship with the biliary system and duodenum, the body and tail remain comparatively understudied despite their clinical relevance in various pathological conditions including neoplasms and inflammatory diseases [1, 2].

Anatomical and morphological variants of the pancreas are increasingly being identified with advances in imaging technologies such as computed tomography (CT), magnetic resonance imaging (MRI) and endoscopic ultrasound (EUS).

Despite their importance, most literature has traditionally focused on variants of the pancreatic head and the main pancreatic duct system, leaving a relative knowledge gap regarding the body and tail regions [3, 4]. Given the increasing detection of these anomalies and their relevance in clinical practice, it is essential to recognize and understand their presentation, classification, and potential implications.

In this case series, we are going to present 5 cases of morphological variation of pancreatic body & tail.

Case-1



Fig- 1: Axial CECT of abdomen at the level of pancreas showing globular tail

A 49 years old male was reported with complaint of blood coming out while coughing. He advised CECT of chest. During scanning an irregularly margined heterogeneously enhancing lung mass was detected in left lower lobe along with multiple mediastinal enlarged lymph nodes, among them few were necrotic also. His neck & abdomen was also scanned for detection of metastatic lesion. No suspicious neck node was identified. No suspicious lesion or lymph node was also seen in abdomen. But the tail of pancreas was unusual in appearance- it was globular in shape [see fig-1]. No inflammatory changes seen in adjacent part.

Case-2

A 75 years old male patient reported for follow up CECT of neck, chest & abdomen, after initial treatment. He is a diagnosed case of carcinoma of thoracic esophagus. In his initial CECT of neck & abdomen were normal. In the present CECT, residual lesion seen in thoracic esophagus. Similar to previous to initial study, no lesion was identified in neck & abdomen. On careful examination, pancreatic tail was seen lobulated in appearance [see fig-2].

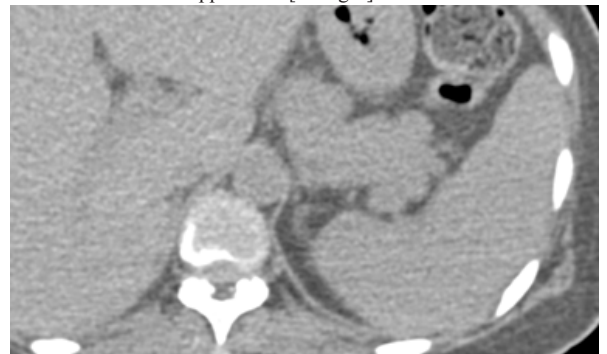


Fig-2: Axial T Scan shows- lobulated tail of pancreas

Case-3

A 58 years old male has recently been diagnosed as carcinoma of right PFS. He has undergone CECT of abdomen for detection of any secondary deposit. He has good physical health. He does not have any symptom regarding abdominal cavity. On CECT scan, there were neither any soft tissue deposit nor any suspicious lymph node. Liver, spleen, kidneys, retroperitoneum, bowels were unremarkable. The tail of pancreas was seen gradually narrowed which is generally not seen [See fig-3].

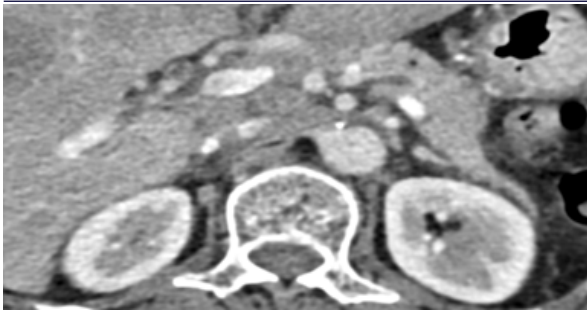


Fig-3: Axial CECT showing tapered tail of pancreas

Case-4

A 65 years old female patient, who is a follow up case of carcinoma of tongue. He reported for follow up CECT of abdomen along with CECT of neck & chest. Patient does not have any chest or abdomen related complaint. On CECT of neck- there were no residual or recurrent primary disease. There were no metastatic lesion in chest or abdomen. On careful examination pancreatic tail was seen bifurcated [see fig 4].



Fig-4: Axial CECT showing bifid/ fish tail Pancreas

Case-5:

A 44 years old male patient with history of right lower quadrant abdominal pain has been advised CECT abdomen following an abdominal ultrasound which showed no significant abnormality. On CECT, appendix, caecum, ileocecal junction & right hemicolon were normal. Apart from mild hepatomegaly, no other abnormality was detected in CT scan. Two small portion of pancreatic tissue was seen protruded anteriorly near tail, larger one measuring approx. 1.15 cm [see fig-5].

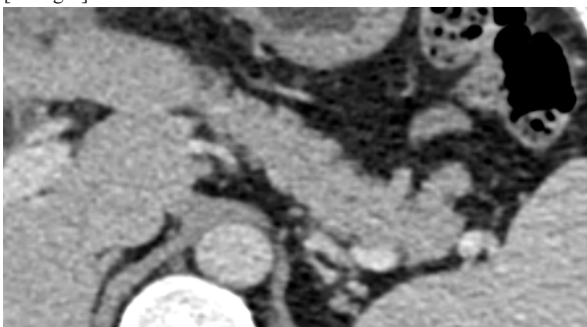


Fig-5: Axial CECT showing – two small portion of protruded pancreatic tissue protruded anteriorly near tail

DISCUSSION:

As per their proposal by Ross et al.[5] and Omeri et al.[6], Body–tail contour variations is classified into type I & II.

Type I Variants include anterior (Ia) and posterior (Ib) protrusions of pancreatic tissue beyond the normal contour, where the maximum diameter of protruded parenchyma is > 1 cm in both subtypes. Type II Variants encompass more complex shapes of pancreatic tail and further subdivided into II (a) globular tail, (IIb), lobulated tail, (IIc) tapering tail & (IId) bifid configurations of the tail.

Importantly, these anatomical variants can have significant clinical implications. Misinterpretation on imaging can lead to unnecessary biopsies or surgical interventions, while unrecognized variants may complicate surgeries such as distal pancreatectomy or procedures involving adjacent vascular structures [7]. Additionally, certain variants may predispose individuals to conditions such as pancreatitis due to altered ductal drainage or compression effects [8].

Understanding these variations is crucial for clinicians and radiologists to avoid misinterpretation of normal anatomical structures as pathological lesions.

CONCLUSION

The body and tail of the pancreas exhibit a range of morphological variations that are generally benign but hold significant clinical relevance. Familiarity with these variants enhances the accuracy of imaging interpretations and the safety of patient's management.

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