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Mini Case Study

Intrapancreatic Accessory Spleen Masquerading as a Neuroendocrine Tumor

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Abstract

Intrapancreatic accessory spleens (IPAS), a rare congenital anomaly that can often be misdiagnosed as pancreatic tumors. IPAS are usually asymptomatic and incidentally discovered, but can present as well-defined hyperechoic lesions on endoscopic ultrasound imaging (EUS), leading to misdiagnosis. Accurate diagnosis of IPAS is crucial to avoid unnecessary surgeries and associated risks. This article reviews the imaging modalities used to differentiate IPAS from pancreatic tumors, including EUS, CT, MRI, and nuclear medicine. The study concludes that the use of DWI and ADC maps in conjunction with conventional MRI sequences before and after injection of gadolinium can improve the accuracy of IPAS diagnosis. Nuclear medicine, including 99Tcm-SC and 99Tcm-HDRBC scintigraphy, can also be used to distinguish IPAS from other tumors. A multidisciplinary approach, combining CT, MRI, and nuclear medicine, is essential to avoid unnecessary surgeries and associated risks.

Keywords: *IPAS; NET; MRI; Differential Diagnosis*

Case Presentation

A 52-year-old male presented with a history of choledocholithiasis and was referred for EUS to evaluate possible pancreatic masses. EUS revealed an 8 mm hyperechoic lesion in the pancreatic tail, that was highly suggestive of a neuroendocrine tumor (NET). The patient was scheduled for surgery, but prior to that, an MRI was performed, which showed a well-circumscribed mass in the pancreatic tail with intermediate T2WI signal intensity similar to the spleen, and conserved the same signal in T2 fat saturation sequences. Gadolinium injection with acquisition in arterial and portal time demonstrated an enhancement that followed the kinetics of the spleen (Figure A and B). Then, DWI sequence with ADC maps showed the exact same signal and ADC value as the spleen (Figure C and D), consistent with an intrapancreatic accessory spleen (IPAS).

Discussion

IPAS are rare congenital anomalies in which there is failure of fusion between a portion of the splenic tissue and the main body of the spleen during embryologic splenic development [1]. They are usually asymptomatic and incidentally discovered. However, they can often be misdiagnosed as pancreatic tumors, including neuroendocrine tumors. The differential diagnosis of an intrapancreatic mass includes

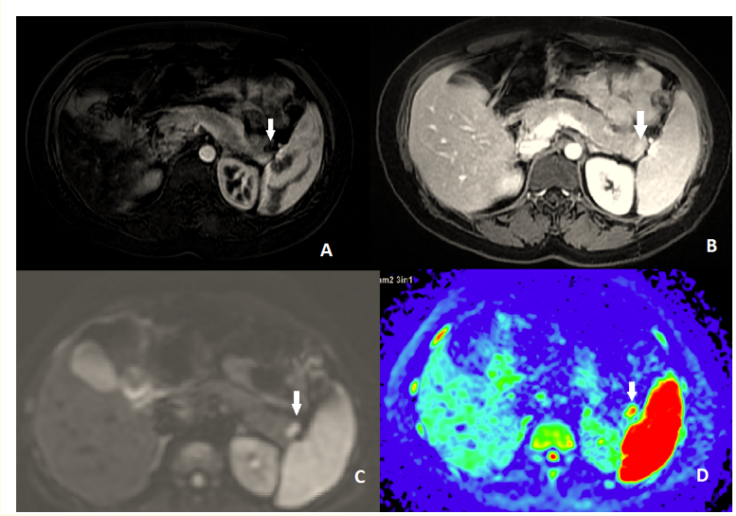

Figure: *MRI in axial section with gadolinium injection in arterial and portal time (A, B), demonstrates an enhancement that followed the kinetics of the spleen. Axial diffusion with ADC maps (C, D), shows exact same signal and ADC value as the spleen.*

a wide range of benign and malignant neoplasms, such as pancreatic adenocarcinoma, NETs, lymphoma, and metastases from other primary malignancies, such as lung, breast, gastrointestinal and renal lesions, melanoma, lymphoma and osteosarcoma [2]. Several imaging modalities can be used to differentiate IPAS from pancreatic tumors, including EUS, CT, and MRI. On EUS, IPAS appears as a well-defined hyperechoic lesion with smooth margins [1].

On MRI, it appears as a well-circumscribed lesion with homogeneous signal intensity, while pancreatic tumors are often irregular and have heterogeneous signal intensity. Imaging features that favour metastatic disease include multiplicity, hypervascularity, features consistent with the primary tumour and an enlarging mass on follow-up imaging. Moreover, DWI and apparent diffusion coefficient maps can provide additional information to differentiate IPAS from pancreatic tumors. It typically has higher ADC values than pancreatic tumors. Therefore, the use of DWI and ADC maps in conjunction with conventional MRI sequences before and after injection of gadolinium can improve the accuracy of IPAS diagnosis [2,3].

Nuclear medicine, including 99Tcm-SC and 99Tcm-HDRBC scintigraphy, can sometimes be used to distinguish IPAS from other tumors. Splenic tissue traps up to 90% of the injected HDRBC, making 99Tcm-HDRBC scintigraphy a very sensitive and specific test [2]. However, this test is more time-consuming than 99Tcm-SC scintigraphy and requires direct handling of blood products. Therefore, accurate diagnosis of IPAS by combining CT, MRI, and nuclear medicine is vital to avoid unnecessary surgeries and associated risks.

Conclusion

In conclusion, IPAS are rare congenital anomalies that can mimic pancreatic tumors on imaging studies. EUS, CT, MRI, and nuclear medicine can be used to differentiate IPAS from its differential diagnosis. DWI and apparent diffusion coefficient maps can provide additional information to improve the accuracy of IPAS diagnosis. Clinicians should be aware of this rare entity to avoid misdiagnosis and ensure appropriate management.

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Conflict of Interest

All authors declare no conflict of interest relevant to this article.

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