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Clinical Features and Outcomes of Small and Very Small Pancreatic Neuroendocrine Tumors

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BACKGROUND

Pancreatic neuroendocrine tumors (PNETS) are being detected with increasing frequency. Incidental PNETS are often stage I lesions defined by a size less than 20mm. Data are limited regarding optimal diagnostic, surveillance, and treatment pathways, particularly for incidental lesions <10mm in size. The aim of this study is to describe the clinical features of patients who present with stage I PNETs and compare clinical features and outcomes of small (11-20mm) and very small (≤10mm) lesions.

METHODS

Patients with localized neuroendocrine tumors ≤2cm in size were retrospectively identified using ICD-O-3 topographical (C25.0-.4,C25.7-.9) and histology (8150-8153,8155,8240,8241,8246) codes from a single cancer center database from 1992 to 2022. Tumors were characterized as very small (≤10mm) and small (11-20mm). Univariate analysis was performed to compare lesion characteristics and clinical outcomes.

RESULTS

330 patients were identified including 116 (35.2%) ≤10mm and 214 (64.8%) 11 to 20mm in size with significant increase in incidence over the study period. There was no significant difference in Ki67 scores in very small (median 2.0%, IQR 1.2-3.5%) and small (median 2.0%, IQR 1.0-3.5%) lesions (p=0.674). The proportion of moderately to poorly differentiated lesions was significantly higher in lesions 11 to 20mm in size than 0 to 10mm (29.9% vs. 19.0%, p = 0.031). 5 (1.5%) poorly differentiated tumors were seen with clinical details highlighted in **Table 1.** 5-year survival was similar (93.1% small vs. 90.1% very small, p=0.335), however very small lesions were associated with a lower 10-year survival (90.3% vs 81.3%, p = 0.026). Of the 21 patients with very small lesions deceased by 10 years, only 1 (4.8%) was related to underlying PNET. Cause of death was related to non-index malignancy in 7(33.3%) patients and non-cancer related in 13(61.9%).

Table 1. Clinical features of poorly differentiated lesions ≤20mm in size

Size	Presentation	Imaging	Management	Status
10mm	Unknown	Unknown	Unknown	Alive
15mm	Unknown	Unknown	Unknown	Unknown
17mm	Hypoglycemia	Hyperenhancing mass	Surgery	Alive
17mm	MEN1 with multiple lesions	Multiple hyperenhancing mass lesions	Surgery	Alive
18mm	Pancreatitis	Hyperenhancing mass, Irregular Borders, PD obstruction	Surgery, Chemotherapy	Deceased at 1 year

CONCLUSIONS

Small and very small PNETs are being diagnosed with increasing frequency. Very small lesions are unlikely to harbor aggressive histology or impact survival, particularly in asymptomatic patients without hereditary disease.

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