

Stage I Non-Functioning Neuroendocrine Tumors of the Pancreas: Surgery or Surveillance?

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Abstract:

Background: An increasing number of non-functioning, early-stage pancreatic neuroendocrine tumors are detected incidentally as patients undergo radiographic procedures for unrelated indications. Endoscopic ultrasonography with fine-needle-aspiration now enables non-operative biopsy of tumors smaller than 1cm in diameter. It is unclear whether the risks of partial pancreatectomy or enucleation exceed the risks of surveillance in patients with these neoplasms.

Methods: We performed a database search of patients with pancreatic neuroendocrine tumors treated at the Moffitt Cancer Center in order to evaluate outcomes of patients with stage I tumors who did not undergo surgical resection.

Results: Four patients were identified who elected to undergo surveillance of their stage I tumors instead of surgical resection. All had been diagnosed via endoscopic ultrasound-guided fine-needle aspiration. The tumor sizes were 7mm, 12mm, 23mm and 22mm at initial diagnosis. Three tumors were cystic and one was solid. Three were located in the body of the pancreas and one in the tail. In two patients, the Ki-67 index was measured and was <1%. With a median follow-up of two years, none of the patients experienced tumor growth. All three patients with cystic tumors experienced shrinkage of their tumors following the diagnostic needle aspiration and did not experience subsequent increase in size.

Conclusions: Surveillance may be an appropriate strategy for management of incidentally discovered, stage I pancreatic neuroendocrine tumors.

Introduction:

- An increasing number of patients present with incidentally detected, asymptomatic pancreatic tumors.
- Endoscopic ultrasonography with FNA enables non-operative diagnosis of tumors as small as 0.5cm in diameter.
- Pathologic analysis cannot distinguish “benign” vs. “malignant” pNETs.
- Surveillance (“watchful waiting”) has been advocated for other low-grade malignancies such as low-Gleason-score prostate cancer and early stage renal cell carcinomas.
- The risk/benefit ratio of pancreatic surgery vs. surveillance for early stage pancreatic neuroendocrine “incidentalomas” is unknown.

Methods:

- Out of a database of 425 pancreatic NETs treated at Moffitt Cancer Center, we identified patients with stage I tumors who chose not to undergo surgical resection of their tumors.
- The outcomes of those patients were analyzed.

Results:

- Four patients were identified who presented with incidentally detected, non-functioning pancreatic NETs and elected not to undergo surgical resection.
- Three of the tumors were cystic, one was solid.
- The three cystic tumors all decreased in size following their diagnostic FNA. The solid tumor remained stable.
- With a median two year follow-up, none of the tumors have increased in size (figure 1). All patients remain alive and asymptomatic.

Figure 1: Baseline scans compared to most recent scans

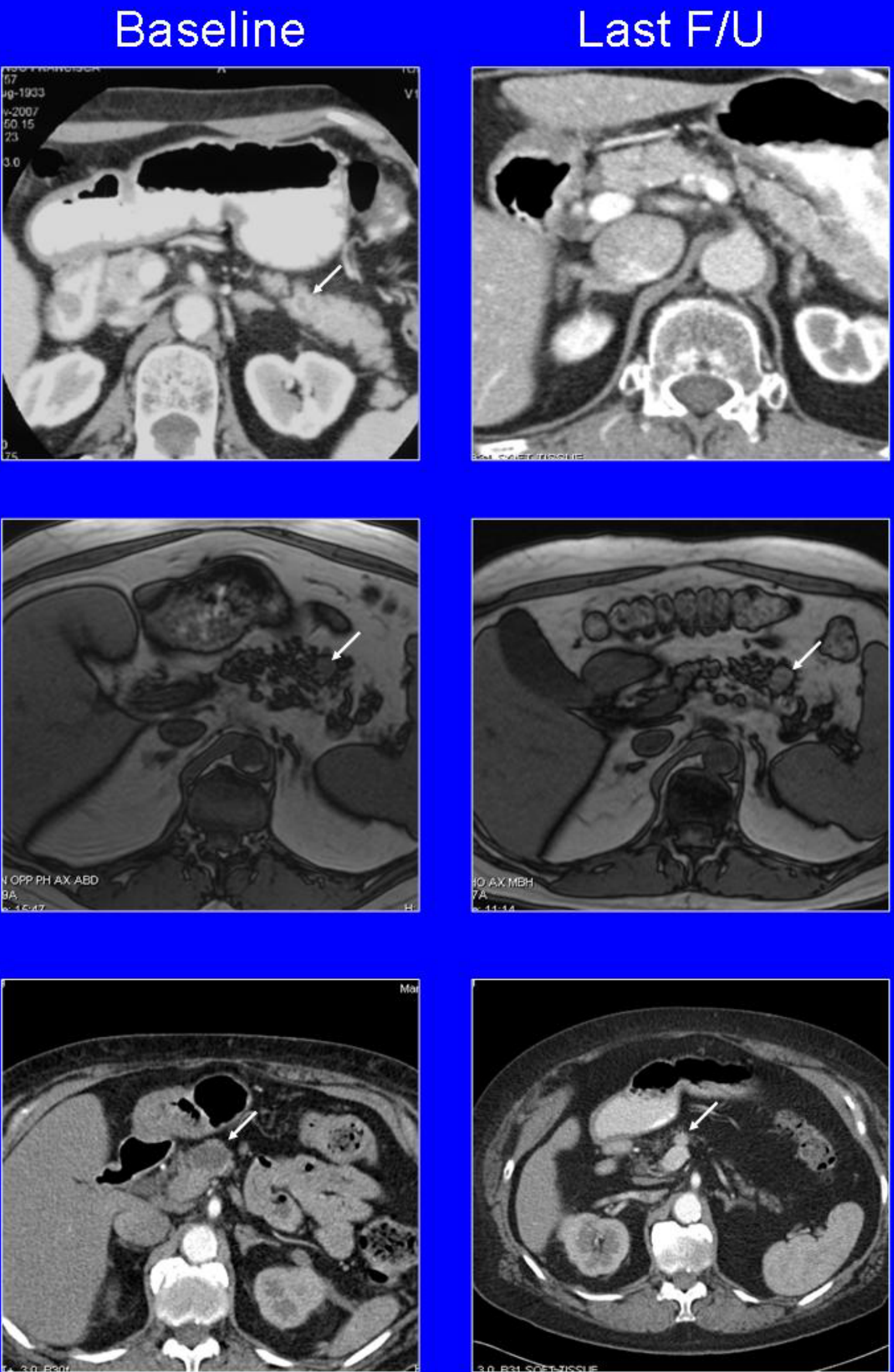


Table 1: Baseline tumor size vs. most recent tumor size (median f/u 2 years)

	Baseline Tumor Size	Current Tumor Size
Patient 1	7mm (cystic)	Undetectable
Patient 2	12mm (solid)	12mm
Patient 3	23mm (cystic)	15mm
Patient 4	22mm (cystic)	13mm

Conclusions:

- Surveillance may be an appropriate strategy for patients with asymptomatic, incidentally discovered, stage I pNETs.
- Larger series and longer follow-ups are needed to validate this strategy.

