

# A Rare Metastatic Site for Pancreatic Adenocarcinoma: A Thyroidal Metastasis

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## Research Article

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# Abstract

## Background

The metastasis of pancreatic carcinoma into the thyroid gland is a rare occurrence.

## Case

A 43 years old female patient presented herself at the emergency department with abdominal pain and recurrent and migratory deep venous thrombosis. The abdominal computed tomography revealed intraabdominal multiple lymphadenopathy of different sizes and there was not seen ant lesion in the pancreas. CA 19.9 level was found very high (> 2016 u/ml ; reference 0–35).

EUS was performed with linear echoendoscope and 30 × 28 mm solid lesion was identified in the head of pancreas. EUS-FNA was done and cytopathology resut was reported adenocarcinoma. The complaint of the patient was pain infront of the neck after the admission of the hospital.

On the physical examination we detected tenderness and stiffness on the thyroid gland. The different sizes of multiple nodular formations were reported by thysoid US. A subsequent PET/CT scan was performed and it revealed hypodense pathological uptake on the thyroid gland.

A ultrasound guided fine needle aspiration biopsy was performed and cytopahological result reported metastasis.

## Conclusion

Newly developed goiter symptoms or thyroid nodules in patients with an underlying malignancy should be assessed and investigated in details. Metastasis should be ruled out by a fine needle biopsy.

## Introduction

Pancreatic adenocarcinoma makes up 85% of all pancreatic carcinomas and usually takes place in middle-advanced-aged people (1). The most common sites for metastases are the liver, abdomen and lungs. The histopathological diagnosis is determined by an aspiration biopsy obtained through an endoscopic ultrasonography (EUS) procedure. Migratory thrombophlebitis attacks are typical in adenocarcimatous type solid cancers. This finding though, is especially related with pancreatic adenocarcinoma(2).

Thyroid metastasis is not a common clinical presentation. While some studies place its incidence at 1.5%, other studies performed on autopsies. The most common source for thyroid metastases remain renal malignances, followed by colorectal, lung and breast cancer(3,4). There Dave been only 4 previous reported cases of pancreatic carcinoma with thyroid metastases (3,5-7 ).

## Case Report

A 43-year-old female patient presented herself at the emergency department with a 3-month-long history of abdominal pain and recurrent and migratory deep venous thrombosis. She was admitted to our ward upon a thorough examination. A venous Doppler ultrasonography of the right lower extremity revealed a deep venous thrombosis. The abdominal and pelvic computed tomography (CT) scan revealed multiple periportal, intraaorto-caval and paraaortic lymphadenopathy of different sizes, soft tissue on the fundus of the gallbladder and hypodense lesions on the left adrenal gland. There was not seen any lesion in the pancreas. Tumor markers levels were as follows: CA 19.9: >2016 u/ml (reference 0-35) and carcinoembryonic antigen (CEA): 3,47 u/ml (reference 0-3). An upper gastrointestinal track endoscopy and a colonoscopy revealed no signs of malignancy. EUS was performed with an Pentax linear echoendoscope after informed consent. A 30x20 mm solid hypoechoic lesion was identified in the head of pancreas and a EUS-FNA was performed. EUS-FNA with a 25-G needle (3 passes) and sent to cytopathology. There were no immediate or delayed post-procedure complications. The cytopathological examination revealed an adenocarcinoma of pancreas (figure-1).

The complaint of the patient was pain in front of the neck after the admission of the hospital. On the physical examination we detected tenderness and stiffness on the thyroid gland. The different sizes of multiple nodular formations were reported by thyroid US. A subsequent PET/CT scan was performed and it revealed hypodense pathological uptake on the thyroid gland (Figure-2). A ultrasound guided fine needle aspiration biopsy was performed and cytopathological result reported suspicious metastasis. The second FNA categorically excluded the possibility of a primary thyroid carcinoma and results were compatible with a pancreatic ductal adenocarcinoma metastasis. The patient was referred to oncology for further therapy.

## Discussion

The thyroid gland is not a favorite address for metastases. The reason for this has been put forward in two hypotheses: high arterial flow inhibits the adhesion of malignant cells and high oxygen saturation combined with high iodine concentration inhibits malignant cell development(8). The most frequent thyroidal metastasis is that of renal carcinoma, followed by pulmonary, breast and colorectal carcinomas and by sarcomas. When performed on thyroid nodules, the fine needle aspiration biopsy (FNA) is of crucial importance in distinguishing benign from malignant or thyroid-related from metastasis. It should also not be forgotten that according to a latest study, repetitive FNA-s leads to a better diagnosis in 73% of the cases(9). In our case the first FNA resulted in an inconclusive result partially supporting papillary thyroid carcinoma, while it was the immunohistochemical staining of the second FNA that led to the right diagnosis.

This clearly points to the importance of repetitive FNA-s in cases of inconclusive clinical results. This also shows the importance of contacting and providing with clinical information the Pathology department in case a metastasis is suspected and asking for an immunohistochemical staining to differentiate in-

between. Thyroidal gland metastasis tends to be associated with normal thyroid function test results and very rarely do they present themselves as hyperthyroidism(7). The thyroid function test results of our patient were normal.

Even though thyroid gland metastases are not very frequent, they are not a rarely observed clinical presentation. But the thyroidal metastasis of pancreatic adenocarcinoma is a very rare entity. There are only 4 cases in the literature so far, reported by Eriksson et al(7), Hsiao et al(8), Kelly et al(9) and Delitala et al(3). This case is the 5th report of a thyroidal metastasis of a pancreatic adenocarcinoma. This 5 case summarized at table 1.

In conclusion, a newly developed painful goiter in patients with a history of cancer should be approached carefully and FNA biopsy on the newly formed nodular structures might be needed to exclude metastasis.

## Declarations

**Informed Consent:** Case report

**Conflict of interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study received no financial support.

Written consent was obtained from the patient for the use of clinical information and publication.

**Authors' contributions:**

Concept: F.K., M.B., Design: F.K., M.B., Data Collection or Processing: F.K., Analysis or Interpretation: F.K., M.B., Literature Search: F.K., M.B., Writing: F.K., M.B.

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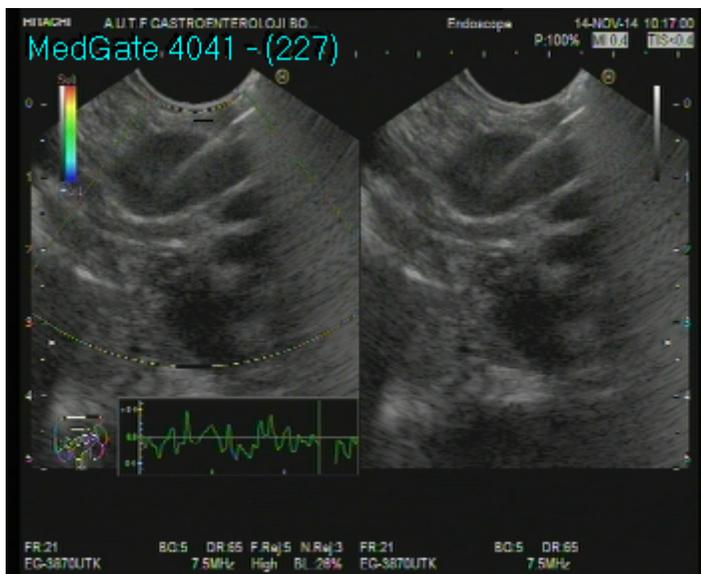
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## Table

**Table-1: Literature summary of thyroid metastasis of pancreatic cancer**

Year	Pancreatic Diagnosis Procedure	Pancreatic Histopatology	Thyroid metastasis Diagnosis Procedure	Thyroid Function
1977	?	Adenocarcinom	Autopsy	Hyperthyroidism
2000	CT	Intraductal Papillary-Mucinous Carcinoma	Thyroidectomy	?
2011	ERCP	Adenocarcinom	Thyroidectomy	?
2014	CT / Liver Biopsy	Adenocarcinom	US-guided FNA	Normal
2020	EUS/FNA	Adenocarcinom	US-guided FNA	Normal

## Figures



**Figure 1**

The cytopathological examination revealed an adenocarcinoma of pancreas



**Figure 2**

A subsequent PET/CT scan was performed and it revealed hypodense pathological uptake on the thyroid gland