IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 3 Ser. 3 (March. 2026), PP 53-55
www.iosrjournals.org

Pulmonary Metastases From A Mucinous Pancreatic Adenocarcinoma: A Case Report

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Abstract:
Pulmonary metastases from pancreatic cancer are rare and may present with various radiologic patterns. We report the case of a 67-year-old female patient with no history of tobacco or alcohol use, with type 2 diabetes mellitus and hypertension under treatment for the past two years. She presented with epigastric pain, postprandial vomiting, chronic dry cough, subjective fever, and general health deterioration. Abdominal CT, MR cholangiopancreatography (MRCP), and endoscopic ultrasound (EUS) revealed a pancreatic body mass. Histopathological examination confirmed a well to moderately differentiated pancreatic ductal adenocarcinoma. Chest CT demonstrated diffuse ground-glass opacities with a "crazy paving" pattern; some areas showed consolidation with bilateral mixed-density nodules and micronodules. A percutaneous transthoracic needle biopsy confirmed pulmonary metastases from a well-differentiated mucinous tubular pancreatic adenocarcinoma.

Keywords: *Well-differentiated mucinous pancreatic adenocarcinoma, pulmonary metastases, consolidation, ground-glass opacities, crazy paving.*

Date of Submission: 08-03-2026 Date of Acceptance: 18-03-2026

I. Introduction

Pancreatic cancer is a malignancy frequently diagnosed at the metastatic stage and is associated with a poor prognosis. Secondary pulmonary lesions, which are often pleomorphic, may be present at the time of diagnosis.

II. Case Presentation

We report the case of a 67-year-old female patient with no history of tobacco or alcohol use, known to have type 2 diabetes mellitus managed with oral antidiabetic agents and hypertension treated with amlodipine for the past two years. The patient presented with a two-month history of epigastric pain (solar-type) and postprandial vomiting, accompanied by a chronic dry cough in the absence of other respiratory or extrapulmonary symptoms. These complaints evolved in the context of intermittent febrile sensations and a general decline in overall health.

On clinical examination at admission, the patient was in good general condition (Performance Status 0), hemodynamically and respiratorily stable. Pulmonary auscultation revealed signs consistent with a condensation syndrome in the lower two-thirds of the posterior-lateral lung fields bilaterally. Abdominal examination revealed tenderness on palpation of the epigastric region.

Abdominal CT imaging revealed a tumoral enlargement of the pancreatic tail, associated with peripancreatic fat stranding (Figure 1). MR cholangiopancreatography (MRCP) demonstrated an expansive pancreatic lesion with ductal dilatation and adjacent lymphadenopathy. Endoscopic ultrasound (EUS) of the pancreatobiliary tract showed a 25 mm mass located in the body of the pancreas. Histopathological examination confirmed a well to moderately differentiated pancreatic ductal adenocarcinoma with mild mucinous features.

Frontal chest radiography revealed multiple bilateral opacities (Figure 2). Chest computed tomography (CT) demonstrated diffuse bilateral ground-glass opacities, both central and subpleural, predominantly in the basal regions, with a "crazy paving" pattern. Some areas showed consolidation, along with bilateral mixed-density nodules and micronodules (Figure 3).

Flexible bronchoscopy revealed diffuse grade I inflammation of the bronchial tree, without other notable abnormalities. Histopathological examination of bronchial biopsies showed non-specific fibro-inflammatory changes, with no evidence of malignancy.

A percutaneous transthoracic needle biopsy confirmed a carcinomatous proliferation arranged in glandular structures lined by cylindrical cells with abundant mucinous cytoplasm and uniform, basally located round nuclei—features consistent with a well-differentiated mucinous adenocarcinoma compatible with pancreatic origin.

The final diagnosis was **pulmonary metastases from a well-differentiated mucinous tubular pancreatic adenocarcinoma**. This case is notable due to the rarity of synchronous pulmonary metastases from pancreatic adenocarcinoma and their atypical radiological presentation.

III. Discussion

Adenocarcinoma is the most common histological subtype of malignant pancreatic tumors and is located in the pancreatic head in 60–70% of cases. In approximately 80% of patients, the diagnosis is made at the metastatic stage, with the liver, peritoneum, lymph nodes, and lungs being the most frequent sites of dissemination (1).

Pulmonary metastases from pancreatic adenocarcinoma are rare, with an incidence ranging from 27% to 50% in autopsy series (2,3). However, the exact incidence of synchronous and metachronous pulmonary metastases remains unclear.

Patients with isolated pulmonary metastases appear to have a more favorable prognosis compared to those with hepatic metastases. This observation is supported by a study by Ilmer et al., which suggests that this may be due to the fact that most patients with pulmonary metastases have a well-differentiated tubular adenocarcinoma (4).

Pulmonary metastases typically result from hematogenous dissemination. On chest CT, their appearance is often characteristic, presenting as multiple solid, rounded nodules—regular or irregular in shape—with or without cavitation, and predominantly located in the lower lobes. This distribution is attributed to the higher perfusion of these regions. However, atypical alveolar patterns may also be observed, albeit rarely. These include ground-glass nodules, solid nodules with a surrounding ground-glass halo, centrilobular nodules, diffuse ground-glass opacities, and areas of consolidation. Such patterns may be explained by mucin production from the tumor cells (5,6,7,8). In a study by A. Heraudeau et al., two patients exhibited imaging features resembling diffuse interstitial lung disease (ILD), which ultimately led to the diagnosis of pulmonary metastases from pancreatic cancer (9).

IV. Conclusion

Pulmonary metastases from pancreatic adenocarcinomas are rare and may present with either typical or atypical features on thoracic imaging. In the presence of alveolar-pattern lesions, it is important to consider the possibility of metastatic disease and to initiate prompt, conclusive investigations to guide diagnosis and management.

Conflict of Interest: The authors declare no conflict of interest.

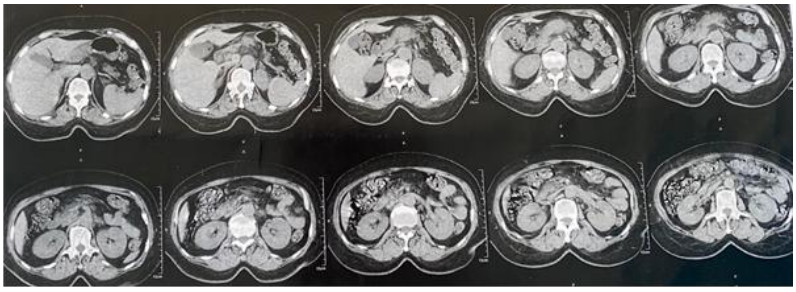

Figure 1: Abdominal CT scan showing tumoral enlargement of the pancreatic tail associated with infiltration of the peripancreatic fat.

Figure 2: Frontal chest radiograph showing multiple bilateral opacities.

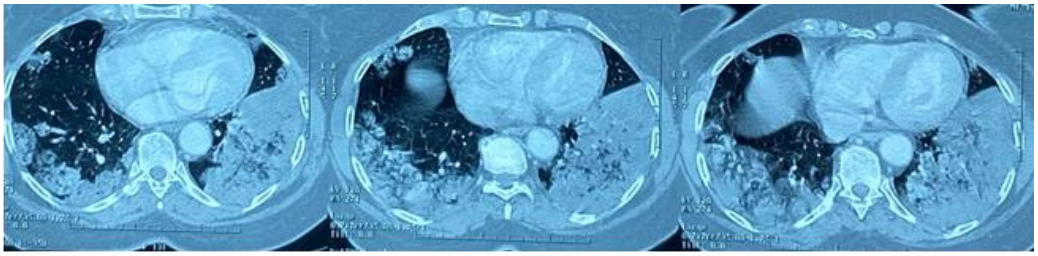

Figure 3: Chest CT scan showing diffuse bilateral central and subpleural ground-glass opacities predominantly in the basal regions with a "crazy paving" pattern. Some areas demonstrate consolidation along with bilateral mixed-density nodules and micronodules.

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