

Solitary metastasis to the pancreas from colorectal cancer– A case report and literature review

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Introduction

Majority of pancreatic tumours are of primary pancreatic origin. Nevertheless a multitude of extra pancreatic cancers can metastasize to the pancreas and may present a diagnostic and management dilemma. Our case demonstrates such a problem in a patient with a pancreatic lesion.

Case report

A 82 year old man was referred to our hospital with computed tomogram (CT) scan showing a hypodense lesion in the pancreas. He had an anterior resection done 5 years prior for a Duke's B (pT3N0M0) colon cancer. He did not receive any post-operative chemotherapy or radiotherapy. Carcinoembryonic antigen (CEA) levels was normal. He underwent an MRI scan (Figure 1) of his abdomen which reported a 2.8cm ring enhancing lesion in the tail of pancreas. At endoscopic ultrasound (EUS) a 2 x 2 cm well circumscribed mass was demonstrated in the tail of the pancreas close to the splenic artery but, not involving the vessel.

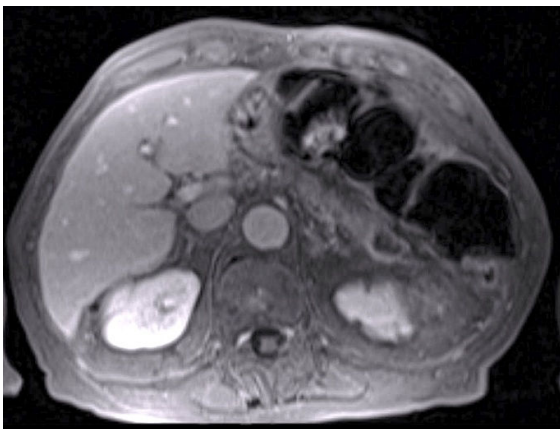


Figure 1: MRI after gadolinium showing a ring-enhancing lesion in the tail of pancreas.

Fine needle aspiration (FNA) of the lesion demonstrated a poorly differentiated mucin secreting adenocarcinoma. Immuno-histochemical staining was strongly positive for CK 20 but, CK 7 was only weak focally positive (Figure 2) thus,

suggesting metastasis to the pancreas from a colonic primary as opposed to a primary pancreatic malignancy.

The patient was given an option to undergo subtotal pancreatectomy or consider palliative chemotherapy. The patient chose neither and was discharged home with input from the Macmillan team.

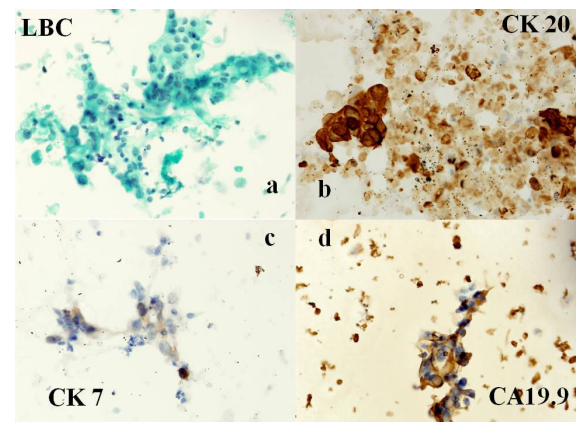


Figure 2: (a) Fine needle aspirate on liquid based cytology (x 400) shows irregular distribution of cells with nuclear palisading and pleomorphism. Immunocytochemistry performed on cytology smear shows (b) strong positivity for CK 20(c) negative for CK7 and (d) focal positivity for CA19.9.

Discussion:

The pancreas is an uncommon site of metastasis from other primary cancers.¹ Most of the space occupying lesions seen in the pancreas on imaging are of primary pancreatic origin.^{1, 2} Adsay, et al² performed analyses on surgical and autopsy database in 2004 and found that amongst a total of 4955 adult autopsies and 973 pancreatic specimens at surgery; the prevalence of different metastatic tumours to the pancreas was only 1.6% of all examined autopsy cases and 3.9% of pancreatic resections.

A study from Japan found that the commonest primary malignancies to metastasize to the pancreas were from the stomach, lung and bile duct in that order.³ Other primary

tumours that have been reported to metastasize to the pancreas include renal cell carcinoma, lung, breast, small bowel, colon, rectum and melanoma.^{4,5} Several mechanisms for development of pancreatic metastases (particularly from colorectal cancer) have been described: transfer via the lymphatic system, metastases from peritoneal carcinomatosis, and/or transfer via the haematogenous system.⁶ Direct invasion of the pancreas by the primary tumour was also noted to be a method of spread from bile duct and gastric malignancies.³

CT scan is often unhelpful in differentiating primary from secondary pancreatic lesions. Pancreatic metastasis can present as solid or cystic structures, hypodense or hyper dense lesions.⁷ A series by Klein, et al in which the CT features of pancreatic tumours are described suggested that multiplicity of tumours and/or hypervascularity were characteristic of secondary pancreatic tumours.⁹ A recent study has suggested that Positron Emission Tomogram (PET) is a more sensitive investigative tool than CT in detecting metastatic colorectal cancer.¹⁰ Most patients (as in our unit) usually have EUS guided FNA or biopsy to arrive at a diagnosis.

The differential diagnosis of primary pancreatic cancer versus metastasis from other carcinomas may be difficult using common histopathological techniques.¹¹ Immunohistochemical staining is often helpful in differentiating primary from secondary pancreatic tumours. Sometimes staining by a combination of different antibodies helps to reach a diagnosis. In a survey of 435 cases, the expression of CK 7 was positive in 92% of pancreatic cancers but in only 5% of colon cancers. On the other hand CK 20 was positive in 100% of colon cancers and in only 62% of pancreatic cancers.¹² Furthermore, CD X2 is frequently expressed in colorectal carcinoma but, rarely in pancreatic ductal adenocarcinoma.¹³

The choice between conservative chemotherapy and resection for solitary pancreatic metastasis from colorectal cancer is still undecided. The natural history of untreated patients with pancreatic metastasis from cancer of the colon or rectum is unknown and thus it is impossible to compare the survival rate of resected and unresected patients treated with chemotherapy.¹⁴ Researchers from John Hopkins have reported only 4 colon metastasis to the pancreas (0.6%) among 650 pancreaticoduodenectomy procedures performed in their institution from 1990 to 1996.¹⁵ Experience from an Italian centre¹⁴ published that metastasis to the pancreas was the indication for surgery in a total of 18 out of 546 pancreatic resections (3.2%) performed over 27 years and colorectal cancer was the primary tumour in 50% of those cases. The median survival time was 16.5 months (range 8 – 105 months) with no peri-operative mortality being reported. In another study, all symptomatic (pain or jaundice) patients experienced complete relief of symptoms after surgery and no one experienced obstructive jaundice or abdominal pain until tumour recurrence.¹⁶

Oncologists may argue that chemotherapy can offer the same results as pancreatic resection but with less morbidity. Unfortunately, there is paucity of data in medical literature on comparisons of outcomes associated with surgical and chemotherapeutic treatment. We agree with Sperti et al¹⁴ that resection of pancreatic metastasis from colorectal cancer is a palliative procedure with long-term survival being an exceptional event.

Conclusion:

Our case demonstrates that differential diagnoses for pancreatic masses should always include metastasis to the pancreas from other tumours particularly, when there is a history of previous or concurrent non-pancreatic malignancy. When disseminated malignancy is not present an aggressive surgical approach may offer successful palliation of symptoms and have a role in the multidisciplinary management of metastatic malignancy.

Competing Interests

None declared

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