Rare disease

Mixed ductal-endocrine carcinoma of pancreas

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Summary

Mixed ductal-endocrine carcinomas of the pancreas are extremely rare and show morphologically separate ductal adenocarcinoma and endocrine components. Prognostically, they are more aggressive than pure endocrine neoplasms. These are true 'mixed' neoplasms and are distinct from ductal adenocarcinomas with scattered endocrine cells (in which the endocrine component is non-neoplastic). A mixed ductal endocrine carcinoma in a 73-year-old male is reported.

BACKGROUND

True mixed ductal-endocrine carcinomas of the pancreas are rare tumours¹ and show significant, morphologically separate ductal adenocarcinoma and endocrine components, and endocrine component makes up one-third to one-half of the tumour. The exocrine and endocrine components have the histologic and immunohistochemical features corresponding to the specific component.² Combinations of acinar-ductal and acinar-endocrine ductal have also been reported.^{3–5} We report a case of mixed ductal-endocrine carcinoma of the pancreas occurring in a 73-year-old male.

CASE PRESENTATION

A 73-year-old gentleman from Quetta presented to a gastroenterologist with a 3-month history of epigastric pain and weight loss. On examination, a mass was palpable in the epigastric region. Ultrasound and CT scan showed a mass in the body of the pancreas measuring 8.0×3.5×3.0 cm.

The patient was referred to a surgeon in Quetta who performed surgery with the aim of resection. However, resection could not be achieved.

INVESTIGATIONS

Histopathology

We received the specimen coded as 'tissue from the body of pancreas'. It comprised of two firm, nodular pieces of tissue. The larger piece measured 6.0×3.5×2.5 cm, while the smaller piece measured 3.5×3.0×3.0 cm. Cut surface of both pieces showed grey white tumours with scattered cystic areas filled with mucinous fluid. No normal pancreatic tissue was seen. Multiple representative sections were submitted from both pieces for histologic examination. Microscopic examination revealed an infiltrating neoplastic lesion with morphologically distinct and separate components of ductal adenocarcinoma and pancreatic endocrine neoplasm (figure 1). The ductal components

were composed of ducts and acini lined by neoplastic cells with abundant, focally mucinous cytoplasm and round to oval nuclei with variability in size and shape (figure 2). Perineural invasion was noted focally. The neoplastic acini and ducts were separated by dense fibrous stroma. Scattered in between the cancerous ducts were numerous nests of small to intermediate sized cells with scanty eosinophilic cytoplasm, and mildly pleomorphic, round to oval nuclei with finely stippled chromatin pattern (figure 3). On immunohistochemistry, cytokeratins 7 and 20 were positive in the ductal component and negative in the endocrine component (figure 4); while chromogranin A and synaptophysin were positive in the endocrine component and negative in the ductal component (figure 5). Both the ductal and the endocrine component comprised approximately 50% of the tumour. A diagnosis of mixed ductal-endocrine carcinoma was given.

OUTCOME AND FOLLOW-UP

The patient underwent surgery and was healthy on 6 monthly follow-up.

DISCUSSION

Mixed pancreatic ductal endocrine neoplasms are extremely rare and may have a more aggressive prognosis compared to pure endocrine neoplasms due to the presence of a significant component of ductal adenocarcinoma.^{6,7} It must be remembered that mixed acinar-endocrine carcinomas also sometimes occur in the pancreas which are arbitrarily defined as those tumours showing at least 25% of each component.^{3,4} Mixed acinar-ductal and very rarely, even mixed acinar-endocrine-ductal carcinomas have also been reported.^{5,8} In our case, no acinar component was identified. Acinar ductal carcinomas are highly aggressive.⁸ Scattered endocrine cells are often seen in many ductal adenocarcinomas, however, these cells probably constitute a tumour associated but non-neoplastic cell population. This is in contrast to true mixed ductal-endocrine

Figure 1 Microscopic photograph showing distinct and separate ductal and endocrine components. H&E×10.

Figure 2 Microscopic photograph showing ducts lined by neoplastic cells with mucinous cytoplasm. H&E×20.

carcinomas, in which the endocrine cells are an integral component of the neoplasm.⁹ Nonomura *et al*¹⁰ reported a case of a duct-islet cell tumour in which the presence of two distinct cell populations was confirmed both immunohistochemically and by electron microscopy. They

suggested that the simultaneous presence of duct and islet cell components in a single pancreatic tumour indicates a close histogenetic relationship between the duct and islet cells. The same authors reported two other cases both of which were mixed ductal-acinar-islet cell tumours, in

Figure 3 Microscopic photograph showing nests of small to intermediate sized cells with round to oval nuclei. H&E×20.

Figure 4 Microscopic photograph showing positivity of ductal component for cytokeratin 7 immunohistochemical stain.

which the islet cell component was predominant. In both cases, they confirmed the presence of all three components by both immunohistochemistry and electron microscopy.¹¹ In our case, the presence of two distinct and separate components morphologically was confirmed by immunohistochemistry which highlighted the specific components.

Learning points

- We present a rare case showing two distinct entities confirmed by histology and immunohistochemically.

Figure 5 Microscopic photograph showing positivity of endocrine component for chromogranin immunohistochemical stain.

Competing interests None.

Patient consent Obtained.

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