CASE REPORT

Peripancreatic intranodal haemangioma mimicking pancreatic neuroendocrine tumour: imaging and pathological findings

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ABSTRACT. Haemangiomas are common benign tumours that are generally detected within the skin, mucosal surfaces and soft tissues. However, intranodal haemangiomas are extremely rare and are among the benign primary vascular abnormalities of the lymph nodes that include lymphangioma, haemangioendothelioma, angiomyomatous hamartoma and haemangiomas. In this case report, we present the imaging and pathological findings of an intranodal haemangioma in the pancreatic head simulating a pancreatic neuroendocrine tumour. To the best of our knowledge, this is the first report of an intranodal haemangioma in this location.

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Haemangiomas are common benign tumours that are generally detected within the skin, mucosal surfaces and soft tissues. However, intranodal haemangiomas are extremely rare [1] and are among the benign primary vascular abnormalities of the lymph nodes, which include lymphangioma, haemangioendothelioma, angiomyomatous hamartoma and haemangiomas [2].

We describe a case of an intranodal haemangioma of the peripancreatic lymph node simulating a pancreatic neuroendocrine tumour.

Case report

A 64-year-old female with no significant medical history presented with a 2-month history of vague, dull abdominal and back pain localised to the umbilicus that was not associated with meals.

Serum chemistry, including liver function tests and serum amylase, was normal. Abdominal examination was benign. Given the negative clinical and laboratory findings, a contrast-enhanced CT scan of the patient's abdomen and pelvis was obtained to rule out an intra-abdominal malignancy, in particular a pancreatic abnormality.

The CT scan revealed a 10-mm nodular mass in the uncinate process of the pancreas with no associated pancreatic duct dilatation or vascular involvement (Figure 1). The nodule showed heterogeneous dense peripheral contrast enhancement with central hypodensity. There was no evidence of peripancreatic

lymphadenopathy. The remaining intra-abdominal structures were unremarkable.

An MRI study of the pancreas confirmed the CT findings. The lesion was hyperintense on T_2 weighted imaging (Figure 2). On T_1 weighted imaging, the lesion was hypo-intense on pre-contrast images (Figure 3). On post-contrast dynamic imaging, the lesion demonstrated peripheral enhancement that progressed towards the centre of the lesion on delayed phases. (Figure 4).

Given the imaging findings, neuroendocrine tumour of the pancreas was considered to be the probable diagnosis.

The patient then underwent surgical resection for the presumptive diagnosis of pancreatic neuroendocrine tumour. At surgery, the lesion was described as a 1-cm, violaceous soft mass within the uncinate process and immediately adjacent to the superior mesenteric vein. The peripancreatic vessels were unremarkable and the lesion had well-defined borders. The frozen section revealed a lesion that was consistent with a low-grade epithelial neoplasia rather than a neuroendocrine tumour. The tumour was enucleated and the final pathological evaluation of the lesion revealed a vasoformative lesion with vascular channels that was positive for CD31 and CD34 and negative for CD68 and CD8 (Figure 5). This is a supportive immunophenotype for a haemangioma and the final diagnosis was consistent with an intranodal haemangioma.

The patient had an uneventful recovery and was symptom-free 4 months after surgery. It was unclear whether the presenting symptom of abdominal pain was related to the pancreatic lesion. However, given the absence of any lesion-associated abnormalities and its small size, this lesion was likely to be an incidental finding on the imaging that was unrelated to the presenting symptoms.

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(a)

(b)

Figure 1. (a) Axial and (b) coronal reformatted images of the lesion (arrows). There is continuous peripheral contrast enhancement in the lesion with a central hypodense area.

Discussion

Vascular proliferations occurring in the lymph nodes, either localised or pan-nodal, may be detected in various conditions including reactive post-capillary venules, vascular transformation of the lymph nodes and rare vasoformative lesions such as Kaposi's sarcoma [3]. However, with the exception of Kaposi's sarcoma, primary vascular tumours of the lymph nodes are extremely rare.

Only 16 intranodal haemangiomas have been reported to date [1, 3–6]. The affected lymph nodes were described in several areas including axillary, common iliac, supraclavicular, submental, inguinal, mesocolonic, submandibular, cervical chain and buccal mucosa [2]. To our knowledge, this is the first reported case of a pancreatic intranodal haemangioma.

The imaging findings of the intranodal haemangioma reported here are of a well-circumscribed enhancing lesion. The differential diagnosis of a hyperenhancing nodular lesion in the head of the pancreas is broad and consists of a neuroendocrine tumour, metastasis (most commonly from renal cell carcinoma) and islet cell tumours. Although adenocarcinomas of the pancreas are the most common primary malignant tumours of the pancreas, they are generally rich in fibrotic tissue and tend to be hypovascular. Another important finding in patients with pancreatic adenocarcinoma is ill-defined borders with early peripancreatic fatty plane infiltration due to a lack of pancreatic serosa. Peripancreatic vascular invasion and pancreatic duct dilatation are also classic findings in this patient group, especially for tumours arising from the pancreatic head and neck, which were all absent in the present case.

Figure 2. Axial T_2 weighted imaging shows a significantly hyperintense lesion at the head of the pancreas (arrow).

Figure 3. Pre-contrast axial in-phase T_1 weighted image shows the lesion is hypo-intense (arrow).

(a)

(b)

Figure 4. On early arterial phase dynamic spoiled gradient echo T_1 weighted imaging, the lesion shows (a) peripheral contrast uptake (arrow), while on delayed images it shows (b) almost complete filling with contrast (arrow).

Neuroendocrine tumours of the pancreas are not uncommon and the characteristic imaging finding in a benign neuroendocrine tumour is a well-rounded, arterially enhancing focal lesion. In contrast to their benign counterparts, malignant neuroendocrine tumours may be large at the time of the diagnosis and infiltrative, especially when they are hormonally inactive. Therefore, compared with hormonally active benign and malignant neuroendocrine tumours, hormonally inactive ones are, unfortunately, diagnosed at a later stage.

The contrast enhancement pattern is typically arterially enhancing in small neuroendocrine tumours (<3 cm). However, in larger tumours, heterogeneous enhancement with interspersed necrosis is also common. An interesting imaging finding in the present case is the presence of delayed filling of the lesion in the later phases of dynamic imaging, which is a typical finding of haemangiomas in other solid organs. However, given the rarity and the small size of the lesion, a confident diagnosis of an intranodal haemangioma was not considered in this case.

This article presents an extremely rare lymph node abnormality in a 64-year-old female. Although the pathological features of an intranodal haemangioma have been described before [1–6], to the best of our knowledge, the demonstration of contrast-enhanced CT and MRI characteristics of this entity have not been discussed before. Although imaging characteristics are highly non-specific, an arterially enhancing lesion with delayed phase contrast filling may be suggestive of an intranodal haemangioma, given the imaging characteristics of haemangiomas elsewhere in the abdomen. However, confident diagnosis is highly unlikely without pathological confirmation. Intra-abdominal haemangioma in the caecal mesocolon has been reported once as an incidental finding following right hemicolectomy [3].

From a pathological standpoint, the differentiation of intranodal haemangioma from primary Kaposi's sarcoma of the lymph node is important. However, the typical features of Kaposi's sarcoma, *i.e.* extravasated erythrocytes, vascular obstruction and proliferation of atypical spindle cells were absent in the histological analysis of this case [2]. In addition, supportive immunophenotyping

(a)

(b)

(c)

Figure 5. On pathological imaging, the lesion demonstrated (a) vascular channels with positive staining for (b) CD31 and (c) CD34.

with endothelial-lined vascular channels was consistent with a haemangioma.

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