CORRESPONDENCE

Poorly differentiated hepatocellular carcinoma with unusual tubular structures

The patient was a 70 year old woman. A tumour in liver segment 8 arose in a back-ground of cirrhotic liver with chronic hepatitis C and reached a size of 6.0 cm in six months. The patient’s serum concentration was raised (17101 ng/ml), and the tumour was suspected to be hepatocellular carcinoma (HCC) based on various image findings. An extended liver anterior segmentectomy was performed, and serum α fetoprotein returned to normal immediately after surgery.

Although the macroscopic findings were compatible with conventional HCC (fig 1A), the histology of the tumour was atypical—the tumour cells mainly formed irregular tubular structures filled with a bloody/serous or bloody fluid (fig 1B), and small tubular or acinar-like structures were also found (fig 1C). Solid structures were seen in a small portion of the tumour (fig 1D), and massive bleeding was also seen. The tumour cells had abundant eosinophilic granular cytoplasm and round nuclei with moderate variations in size and shape. The typical trabecular pattern was not seen, and no evidence of desmoplastic stroma, extracapsular proliferation, vascular invasion, or Alcian blue/periodic acid Schiff positive mucin was seen. In addition, a typical moderately differentiated HCC (measuring 1.0 cm) with trabecular pattern was also found.

Immunohistochemical examination revealed that the tumour cells showed diffuse and strong reactivity for vimentin and pan-keratin (AE1/3), focal reactivity for α fetoprotein and HepPar 1, and negativity for calretinin, Wilms’ tumour 1 protein, c-kit, CD34, cytokeratin 7, cytokeratin 19, cytokeratin 20, low molecular weight cytokeratin (CAM5.2), epithelial membrane antigen, chromogranin A, synaptophysin, neuron specific enolase, carcinoembryonic antigen, CA125, 2A2, 2G10, and 4C4. The tumour cells had a high proliferative activity, scoring 60% on the MIB-1 labelling index.

All candidate tumours with the exception of HCC (cholangiocellular carcinomas, metastatic adenocarcinomas, primary malignant mesotheliomas, carcinoid tumours, and germ cell tumours) were ruled out clinically and histologically. Pseudoglandular formation is a common histological manifestation of HCC, and peliod-type HCC shows large vascular lakes within the tumour, mimicking peliosis hepatitis. Therefore, we consider this tumour to resemble such types of HCC.

Recently, intermediate liver carcinomas and hepatic stem cell malignancies have been reported. However, an apparent stem cell component was not prominent in the present tumour, and the negativity for c-kit, the hypochromatic nuclei, and the absence of desmoplastic stroma were not compatible with these types of tumours. The reticular-like pattern suggested a yolk sac tumour, and an association between hepatitis C virus infection and yolk sac tumours has been suggested. However, specific features, such as Schiller-Duval bodies, a cystic pattern, and hyaline globules, were not detected. In addition, the tumour was immunohistochemically negative for 2A2, 2G10, and 4C4, which have been reported to be specific to yolk sac tumours. A strong reactivity for vimentin is associated with metastatic HCCs or sarcomatous HCCs, indicating a highly malignant form of HCC. Clinically, this tumour showed rapid growth and a high proliferative activity of 60% as assessed by the MIB-1 labelling index.

Considering the various findings described above, we finally diagnosed this tumour as an unusual type of HCC with poorly differentiated features presenting with a high degree of malignancy. Thirteen months after surgery, a new tumour was detected in liver segment 2 and percutaneous ethanol injection therapy was performed.

J Yamaguchi
Clinical Laboratory Division, National Cancer Centre Hospital, Tokyo, Japan
H Ojima, N Hiraoka
Pathology Division, National Cancer Centre Research Institute, Tokyo, Japan
T Hasegawa
Department of Clinical Pathology, Sapporo Medical University School of Medicine, Sapporo060-8543, Japan; hasegawa@sapmed.ac.jp

The patient gave informed consent for this letter to be published.

References

Metastasis of a caecal neuroendocrine carcinoma to the thyroid gland

Metastatic tumours to the thyroid have been reported to arise from several organs. We describe a unique case of caecal neuroendocrine carcinoma (NEC) metastatic to the thyroid gland, mimicking a primary medullary thyroid carcinoma (MTC).

A 56 year old woman was referred after complaining of dysphagia and hoarseness.

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Figure 1 (A) Macroscopically, the nodular S8 tumour has a fibrous capsule. The cut surface of the tumour is well circumscribed, expanded, and yellow/white to dark red in colour. (B) The tumour cells have abundant eosinophilic granular cytoplasm and round nuclei with moderate variations in size and shape. The irregular trabecular structures are filled with a bloody/serous or bloody fluid without mucin production and desmoplastic tissue. The typical trabecular pattern was not seen. (Haematoxylin and eosin (H&E) stain, original magnification, ×200). (C) Small tubular or acinar-like patterns are also visible (H&E stain; original magnification, ×200). (D) Solid structures are seen in a small portion of the tumour (H&E stain; original magnification, ×200).
Fifteen months before, she underwent surgery because of a well-differentiated caecal NEC, low grade malignant, with metastases to the left ovary, the omentum, and the abdominal lymph nodes (World Health Organisation classification). The tumour was composed of spindle shaped cells, exhibiting scanty eosinophilic cytoplasm, salt and pepper nuclei, and inconspicuous nuclei (fig 1). Neoplastic cells showed intense reactivity with antibodies against CAM 5.2, AE1/AE3, cytokeratin 7, cdx-2, chromogranin A, synaptophysin, serotonin, and neurone specific enolase; there was weak reactivity for calcitonin and carcinoid type antigen. In contrast, no immunoreactivity was detected for thyroid transcription factor 1 or vimentin.

On examination, a firm nodule was felt in the left lobe of the patient's thyroid gland; attempts at fine needle aspiration biopsy did not yield adequate material for a cytological diagnosis. The patient underwent thyroidectomy, and histological examination disclosed a tumour in the left thyroid lobe, with the same pathological and immunohistochemical features as the previously excised caecal lesion (fig 2). Nonetheless, it was negative for Congo red, S-100 protein, and thyroglobulin stain; again, cdx-2 staining was positive, further confirming the caecal origin of this tumour (fig 3). Twenty one months after surgery, the patient proceeded to excisional biopsy. This revealed a 1 cm slightly irregular mass with a white cut surface and yellow surrounding tissue, the process was not apparent on NCB and, in contrast, thyroid epithelium was negative for this marker. Cdx-2 staining; original magnification, ×10.

Liesegang rings in inflammatory breast lesions

We present two examples of Liesegang rings occurring in association with duct ectasia. Liesegang rings are a phenomenon usually found in association with cystic or inflammatory lesions, and may be mistaken for parasites.

The first patient, a 52 year old woman, had a radiological code 4 mass lesion on screening mammography. Needle core biopsy (NCB) showed breast tissue infiltrated by sheets of single cells, with abundant foamy cytoplasm and slightly eccentric nuclei. Cytological atypia was minimal and there was no significant mitotic activity. The cells were admixed with lymphocytes, plasma cells, and neutrophil polymorphs. Immunohistochemical studies showed that the lesional cells were strongly CD68 positive and cytokeratin negative, confirming the haematoxylin and eosin impression of an inflammatory process, and excluding histiocytoid carcinoma. The aetiology of the inflammatory process was not apparent on NCB and, in view of the radiological suspicion of malignancy, the patient proceeded to excisional biopsy. This revealed a 1 cm slightly irregular lesion with a white cut surface and yellow foci centrally, bordered by fatty breast tissue. Microscopically, the lesion was composed of an irregular dense aggregate of histiocytes, lymphocytes, plasma cells, and neutrophil polymorphs, as seen on NCB. Within the aggregate of inflammatory cells, foreign body type giant cells were identified, some of which were associated with round acellular structures. These structures typically comprised a double layered outer wall containing evenly spaced radial cross striations, surrounding dense amorphous non-refractile orange pigment material, interpreted as Liesegang rings (fig 1). There was evidence of fat necrosis and fibrous duct ectasia in the immediate vicinity. The overall histological appearances were thought to represent a predominantly histiocytic inflammatory process incorporating Liesegang rings, secondary to a ruptured ectatic duct. There was no evidence of malignancy.

The second patient, a 54 year old woman, had a radiological code 5 mass lesion in the upper inner quadrant of her right breast on

References


Another type of pathological process. Cystic or inflammatory process, and decreases described above. Accurate identification of characteristic histological configuration, as may be mistaken for psammoma bodies or Liesegang rings were related to duct ectasia. The ring has developed within an area of chronic inflammation and is associated with a foreign body giant cell reaction.

Liesegang rings are laminated spherical ring-like structures that develop usually in relation to cystic or inflammatory lesions. The rings are typically composed of a mixture of calcium, iron, silicon, and sulfur and form by periodic precipitation from a supersaturated colloidal solution. Liesegang rings are rare and have been described primarily in the setting of renal cysts, breast cysts, endometriotic lesions, and cysts of the mediastinum. The ring lateral to the tumour showed features of duct ectasia. Liesegang rings were present in the lumen of one of the cystic ducts and in the adjacent tissue with an associated foreign body giant cell reaction.

Liesegang rings are characterized by a setting of renal cysts, rare and have been described primarily in the breast, endometriotic lesions, and cysts of the mediastinum. In the above two cases, the Liesegang rings were related to duct ectasia and in the first case were an integral part of the mammographic lesion. Liesegang rings may be mistaken for psammoma bodies or parasites. Liesegang rings lack the internal organs of true parasites and have a characteristic histological configuration, as described above. Accurate identification of Liesegang rings supports the diagnosis of a cystic or inflammatory process, and decreases the possibility of erroneous misdiagnosis as another type of pathological process.

K Gavin, N Banville, D Gibbons, C M Quinn
Department of Histopathology, St Vincent’s University Hospital, Elm Park, Dublin 4, Ireland; c.quinn@st-vincents.ie

Full consent was given for the publication of these cases.

References


Congenital bronchogenic cyst in the gastric mucosa

We read with interest the letter by Rubio et al., “Congenital bronchogenic cyst in the gastric mucosa” in the March 2005 issue. In their report, the cyst they discovered contained pseudostratified ciliated epithelium with a lymphocytic follicle. No cartilage was noted and no respiratory seromucous glands were mentioned. Although all bronchogenic cysts must have ciliated epithelium (pseudostratified ciliated columnar or cuboidal epithelium), they may also have cartilage or bronchial mucous glands.1–4

Foget cysts include bronchogenic, oesophageal, gastroenteric, and pericardial types. The most common location for these cysts is in the mediastinum; however, cutaneous, cervical, diaphragmatic, abdominal, retroperitoneal, and gastric locations have all been described. Although gastroenteric and pericardial cysts are straightforward to differentiate, the distinction between oesophageal and bronchogenic cysts can be difficult because of their similar histological features, as a result of their close embryological development. All bronchogenic cysts must have ciliated epithelium (pseudostratified ciliated columnar or cuboidal epithelium). They also must have cartilage or bronchial mucous glands. Oesophageal cysts can have ciliated or non-ciliated epithelium of columnar, squamous, or mixed types. This epithelium sits on two well-developed layers of smooth muscle with no cartilage or respiratory glands. When a cyst is only lined by ciliated columnar epithelium with none of the above mentioned distinguishing features, a foregut cyst is the appropriate description.1–3

K Liang
Bellevue Hospital, Department of Surgery, 27th Street and 1st Ave, 1555, New York City, New York 10016, USA
J L Marks
Well-Cornell Medical Center, Department of Surgery, New York City, New York 10021, USA

References


Expression of HIF-1α in human tumours

In their recent letter, van Diest and colleagues make a valid point that the expression of molecular markers in the literature is often discordant because investigators do not use standard methodologies. The use of tissue microarrays or whole tissue sections is one example of this, and van Diest and colleagues correctly point out that the core redundancy in tissue microarrays may necessitate an accurate reflection of hypoxia inducible factor α (HIF-1α) expression. We have determined in a prospective fashion. Nevertheless, our evaluation of HIF-1α staining was carefully controlled; we stained all tissues with a single antibody, at the same time, and used positive internal cell line standards for comparison. The assumption that the analysis of HIF-1α expression in whole sections is prognostically superior to tissue microarrays is unfounded at this time. Indeed, a report by Torhorst and colleagues suggests that the assessment of biomarker status in arrayed tissue cores may carry greater prognostic value than assessment in whole sections.3

The objective of our analysis was to demonstrate that vascular endothelial growth factor (VEGF) is upregulated independently of activated HIF-1α in most human tumours. This may imply constitutive overexpression or, more likely, reactive upregulation in response to other factors in the tumour microenvironment. The validity of this observation is not affected by the choice of tissue microarrays or whole sections. Indeed, a report by Mizukami and colleagues suggests that certain human cancers may exploit an HIF-1α independent mechanism to upregulate VEGF in response to hypoxia.4

In summary, we strongly support any move that would help to standardise the reporting of the expression of molecular markers in tissues. However, we stand by our observations that the upregulation of VEGF in human tumours is largely independent of HIF-1α activation.

A Jubb, K Hillian
Department of Pathology, Genentech Inc, 1 DNA Way, South San Francisco, CA 94080, USA; adrianjubb@gmail.com

References


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