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LETTER TO THE EDITOR

Concurrent presentation of Stage I teratoma and Stage I renal cell cancer

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To the Editor:

Case history

Both renal cell carcinoma and teratoma are relatively rare tumours. We report the concurrent diagnosis of a stage I teratoma and an early ipsilateral renal cell cancer in the same patient. Aged 37, he represents a comparatively late diagnosis for teratoma and early diagnosis for renal cell carcinoma.

A 37-year-old company director presented with a one-month history of right acute testicular pain. There was no history of gynaecomastia or systemic symptoms such as weight loss. He had no history of cryptorchidism and no family history of testicular or other cancers. He had a spontaneous pnuemothorax aged 18 years. Eighteen months prior to his current presentation had had been investigated for inflammatory bowel with disease with a colonoscopy; however, no pathology was discovered and he was receiving no treatment. Examination revealed no abnormality other than a 3-cm nodule at the lower pole of the left testis. He under went a testicular ultrasound, which showed a mass in the right testis suggestive of malignancy. His serum AFP was 72 KU/L; HCG was 3 IU and LDH 155.

A right inguinal orchidectomy and insertion of testicular prosthesis was performed. Histopathological examination showed a malignant teratoma undifferentiated (MTU) with a foci of yolk sac, with no definite evidence of vascular invasion (Figure 1). The distal end of the cord was free of tumour and there was no extension into the rete testis. Following the orchidectomy AFP and HCG fell to normal within four weeks. CT staging showed no abnormality other than a well-circumscribed right renal mass (Figure 2). A CT guided biopsy was performed. Histopathological examination showed malignant cells consistent with renal cell carcinoma with clear cytoplasm forming occasional acinar structures. There was no evidence of teratoma (Figure 3). He under went a right partial nephrectomy and had an uncomplicated postoperative recovery. Pathological examination showed a 4-cm multi-locular cystic renal cell carcinoma with no evidence of vascular invasion (T_1 grade 1).

He received no additional post-surgical therapy for either malignancy.

Discussion

The synchronous occurrence of two unconnected primary tumours is rare, especially when the common tumour types are excluded. Such cases raise questions regarding genetic susceptibility to tumours, the existence of common aetiological factors and also the causality of a proportion of assumed treatment-related second cancers [1]. Established risk factors for testicular cancer include cryptorchidism, mumps orchitis [2], and family history [3]. Risk factors for renal cell cancer are not clearly defined

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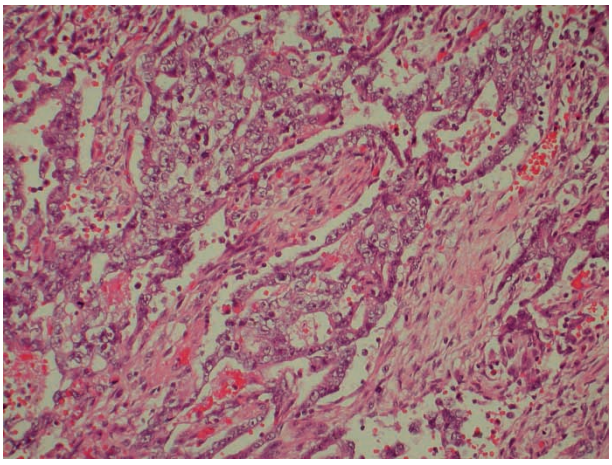

Figure 1. Histological section stained with H & E, showing malignant teratoma undifferentiated (MTU) with a foci of yolk-sac-like material.

except for inherited syndromes such as Von Hippel Lindau Disease [4].

The case we describe represents a relatively late age for diagnosis of teratoma (mostly 2nd to 3rd decade) and early for diagnosis of renal cell cancer (mostly 6th to 7th decade). The CT scanning of individuals as part of the staging of testicular cancer may detect renal cell cancers at an early stage; indeed the increasing use of CT scans for other reasons has been associated with an increased incidence of early-stage renal cell cancers [5].

There are a number of other case reports of germ cell tumours associated with renal cell cancers, reviewed in [6], many in non-English language journals including a case of extra-gonadal germ cell tumour and a renal cell cancer [7]. All but one of the cases in Dieckmann's [6] series were seminomatous germ cell tumours occurring in older patients. This case represents the rarely reported concurrent presentation of stage 1 renal cell cancer and teratoma. A synchronous presentation of a stage I mixed embryonal carcinoma and choriocarcinoma associated with a stage I renal cell cancer has also been reported [8]. The differential diagnosis for a testicular mass in patients with renal cell cancer should include a testicular metastasis although this represents a rare pattern of metastatic spread [9]. Similarly, despite its good blood supply which may favour this process, the kidney is not a frequent site of metastasis as assessed at autopsy [10].

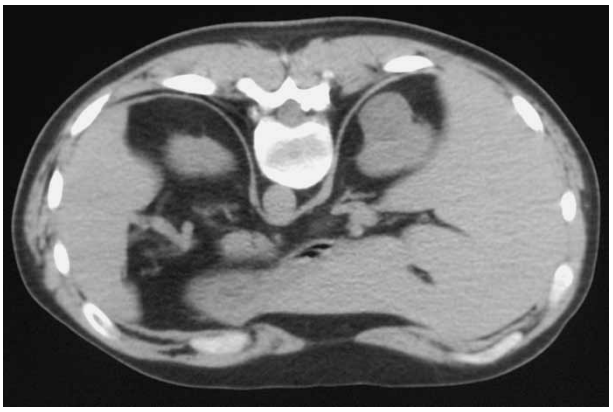

Figure 2. A CT of the abdomen showing an isolated abnormality of a well-circumscribed right renal mass.

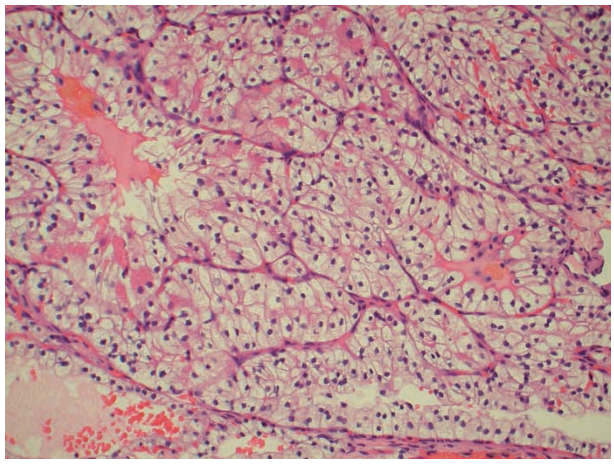

Figure 3. Histological section stained with H & E, showing renal cell carcinoma with cells with clear cytoplasm forming acinar-like structures and completely different from the histology seen in Figure 1.

The existence of two primaries in the uro-gential tract could be related to abnormal embryonic/foetal development or exposure to in utero toxin. Whilst the case we report represented typical histology of both primaries there is a case report of a specific germ line mutations associated with atypical CNS teratomas and rhabdoid renal cell cancers in an infant [11]. There are reports of primary teratoma of the kidney occurring in children and these tend to be more mature teratomas [12,13]. However in the former case, Otani et al. describe a mature intra-renal teratoma in a child associated with renal dysplasia suggesting the teratoma may produce growth factors that act in a paracrine manner and are mitogenic to renal epithelium [12]. Such a hypothesis is supported by a further case report describing a renal teratoma that has been associated with malignant neuro-epithelial tumour of the adrenal gland [14].

This case reports suggest there may be genetic influences at play in the development of uro-genital tumours. This is further supported by chromosomal studies; loss of heterozygosity (LOH) at 1p is reported in 30% of renal cell cancers and 37% of testicular cancers [15]. Iso-chromosome abnormalities of chromosome one are a known feature of testicular cancers [16]. Moreover, early onset renal cell cancer is associated with increased frequency of

expression of HLA-DR8 and HLA-Bw44 [17] and specific HLA types have been noted in familial testicular cancer [18].

This case highlights the need for biopsy and histological diagnosis of presumed isolated metastases in managing teratoma, especially when the site of metastasis is an unusual one. The presence of metastatic disease in the absence of raised tumour markers is rare.

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