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CASE REPORT

Renal Cell Cancer Associated with Sarcoid-like Reaction

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An unusual granulomatous reaction within a conventional clear cell renal cancer in a 62 year-old woman is reported. Using immunohistochemical evaluation, cells of the granuloma were CD68 (Kp1), carboxypeptidase M and CD3 positive. No signs of sarcoidosis were found in other organs. According to the few publications that mention cancer associated sarcoid-like reaction, such lesions do not influence the prognosis. Our patient is still well for a 15 months follow-up. (Pathology Oncology Research Vol 10, No 3, 169–171)

Keywords: renal cancer, sarcoid-like granuloma, immunohistochemistry

Introduction

Granulomatous inflammation is a specific type of chronic tissue reaction, that is characterized by accumulation of epithelioid cells and multinucleated giant cells. Granuloma may develop in various organs due to several infectious and non-infectious agents. T-cell mediated immunity is necessary for the granuloma formation. Granulomas with unknown etiology and without secondary changes like necrosis, are designated as sarcoid-like forms. Such lesions have been described in association with lymphoma and other solid tumors.[1-3]

Here, we describe the case of a patient with conventional clear cell type renal cancer and prominent sarcoid-like granulomatous reaction. Despite of intensive search we have found only a few publications that mention the presence of granulomatous reaction in renal cell cancer.[1,4-7]

Case report

A 62 year-old female was admitted to the Department of Urology. Previous ultrasound examination and CT scan showed a tumor mass in her left kidney. Her past clinical history mentioned hypertension, bronchial asthma, ischemic heart disease and she had a breast tumor resection two years ago. Upon admission she was free of symptoms, physical examination, peripheral blood smear and urinalysis were negative. A radical left nephrectomy and periaortic lymphadenectomy were performed. The postoperative period was uneventful. She recovered well from surgery and is still presently alive and well.

Material and methods

Tissue specimens from both the tumor and kidney were fixed in 10% buffered formalin and embedded in paraffin. Sections were stained with hematoxylin and eosin and Ziehl-Nielsen.

Immunohistochemical studies on paraffin-embedded material were also performed (ABC method with LSAB Kit and Novostain Universal Quick Kit, Novocastra) using monoclonal antibodies against epithelial membran antigen (EMA), CD10, CD68, CD3 and carboxypeptidase M (CPM) (DAKO).

Pathology

Gross examination of the operative specimen revealed a moderately enlarged kidney measuring 200 g, with a smooth outer surface. On section, a 6 cm sized gray-yellow mass was observed with hemorrhage. This appeared to be demarcated from the parenchyma without pelvic infiltration.

Histology

The tumor mass was composed of polygonal cells with minimal pleomorphism and indistinct nucleoli. The cytoplasm was abundant and clear. The tumor was separated from the kidney tissue by a fibrous stroma heavily infil-

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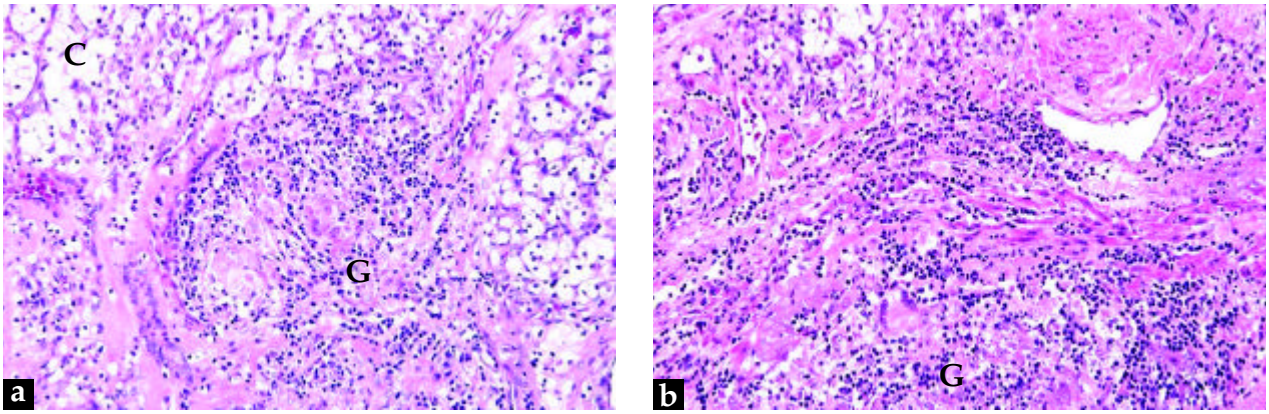

***Figure 1a**. Renal cell cancer (C) with intratumoral sarcoid-like granuloma (G). **b**. Granulomatous reaction within the marginal zone. HE staining.*

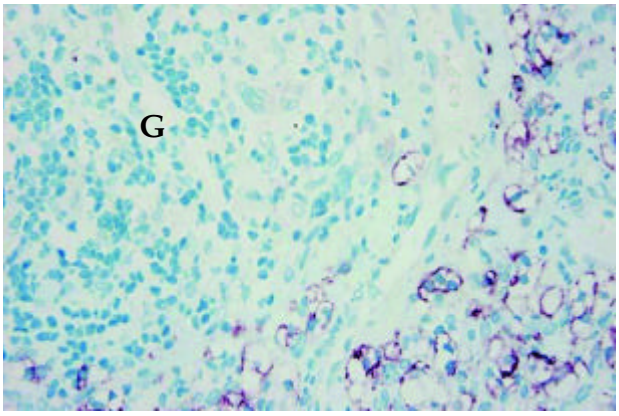

***Figure 2.** Tumor cells (C) of clear cell cancer are positively stained with EMA, while the granuloma (G) is negative.*

trated with lymphocytes. This zone also contained several non-necrotizing granulomas of various size. A few isolated granulomas were also seen within the tumor (*Figure 1*). The removed lymph nodes were free of metastasis and showed reactive histocytosis of the sinuses.

Immunohistochemistry

Immunohistochemistry of the tumor cells yielded positive results with EMA (epithelial membrane antigen) and CD10 (*Figure 2*). Epithelioid cells of the granuloma were negative with EMA (*Figure 2*), but they were strongly positive with CD68 and CPM (*Figure 3*). Positive CD3 immunreaction was observed in the adjacent lymphocytes. Ziehl-Nielsen staning was negative. The Ki-67 identified a moderate cell proliferation within the tumor cells.

Discussion

We presented a case with a conventional clear cell type renal cancer that was associated with an unusual non-necrotizing, sarcoid-like granulomatous reaction. To our knowledge the combination of these two entities has been previously described only in a few cases.[1,4-7] Non-caseating granulomas may be present in several processes including infection, chemical exposures and tumors. Association of sarcoid-like granuloma and neoplasm has been described in gastric cancer,[8] lung cancer,[9] breast cancer[10] and testicular cancer.[11]

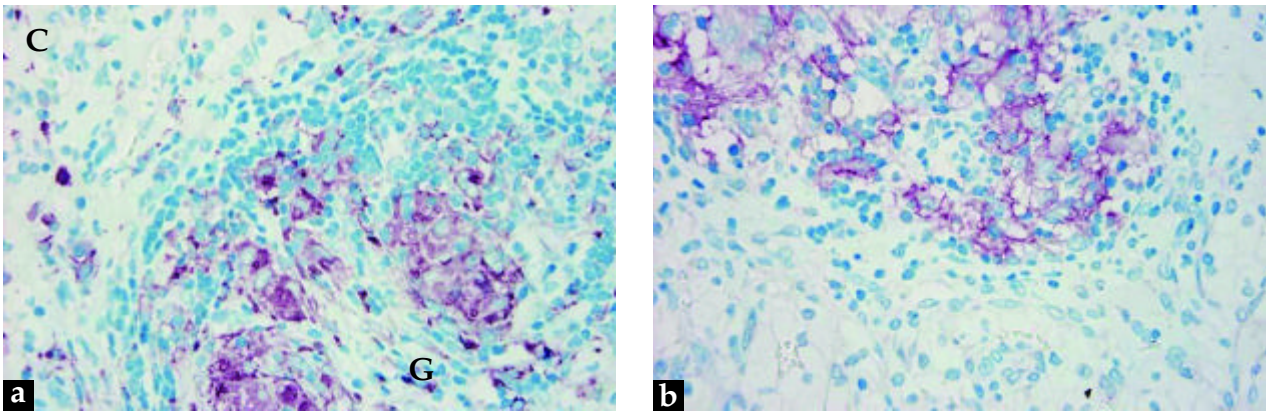

***Figure 3**. Immunohistochemical analysis of the sarcoid-like granuloma. **a**. Epithelioid cells are stained with CD68 antibody. **b**. Positive immunoreaction with CPM antibody.*

Tumor associated granulomas represent an immune response of the tumorous stroma to an antigen expression by the cancer, and is manifested as a local T-cell mediated reaction. Histopathological examination can often demonstrate the presence of a granulomatous reaction in the regional lymph node. Soluble tumor antigens reaching the lymphnode can trigger the formation of epitheliod cell granuloma. The abscence of metastasis in these organs indicates, that host-versus-tumor response inhibits local tumor growth.[10] The granulomas do not show a uniform pattern. Mature granulomas of sarcoidosis are frequently localized on the surface whereas cell-rich forms appear in the marginal zones and in the stroma of the cancer. In our case, the sarcoid-like granulomas were seen both in the marginal zone and within the clear cell cancer.

In some cases the granulomatous reaction is not related to the cancer but it is a primary process of the kidney, like xanthogranulomatous pyelonephritis, and we must note that cancer and true sarcoidosis may coexist. In our present case there was no sign of inflammation within the kidney specimen, pointing to the tumor associated origin of the granuloma. With careful application of clinical criteria, sarcoidosis of the skin and eyes was not identified.

However, it is still unclear, whether cancer with granulomatous reaction has a better outcome, Kamiyoshihara found no influence to the prognosis in lung cancer. Our patient is well for a 15 months follow-up.[9]

Acknowledgement

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