

Solid Tumour Section

Short Communication

Kidney: Chromophobe renal cell carcinoma

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Classification

Chromophobe renal cell carcinoma (ChRCC) is a distinct subtype of renal cell carcinoma, possibly originating from the intercalated cells of the collecting tubules, as oncocytoma.

Clinics and pathology

Epidemiology

It comprises approximately 5% of all renal tumors.

Pathology

Large polygonal cells with pale, flocculent cytoplasm and very distinct plasmalemmal outlines. The cells are arranged in solid nests or tubules. Ultrastructurally, the flocculence of the cytoplasm has been found to be due to large numbers of minute vesicles. Hale's colloid iron histochemical characteristically colors the cytoplasm diffusely blue. Although two histological variants are recognized, a typical and an eosinophilic one (increased numbers of mitochondria), both cell types may occur in the same tumor.

Rare example of composite oncocytoma /chromophobe RCC tumors have been described leading to the hypothesis that the two types of tumors may be related. Recently, immunohistochemical staining for the RCC antigen and CD10 has been proposed as a possibly useful adjunct in the differential diagnoses of chromophobe RCC vs clear cell type RCC and chromophobe RCC vs oncocytoma. There is evidence that chromophobe RCCs are less likely to behave aggressively than otherwise similar clear cell type RCCs.

Cytogenetics

Cytogenetics Morphological

Chromophobe RCCs generally have a tendency to grow very slowly in vitro in comparison to all other type of renal tumors. This may be a reason why cytogenetic reports are scarce and usually few metaphases of poor quality were available for investigation. A low chromosome number ranging between 32-39, without discernable structural changes was the most frequent cytogenetic finding. Chromosomes 1, 2, 6, 10, 13, 17 and 21 were most frequently lost. Additional structural aberrations have been described. Endoreduplication of the cells with hypodiploid karyotype has been observed. It is of interest, the presence of an hypodiploid clone can be disclosed by a DNA index of 0.86. The low chromosome number has been confirmed by other techniques such as flow cytometry, comparative genomic hybridization (CGH), restriction fragment length polymorphism (RFLP) analysis, and polymorphic microsatellite markers.

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