



Renal cell carcinoma: Update on grading of chromophobe subtype

Background

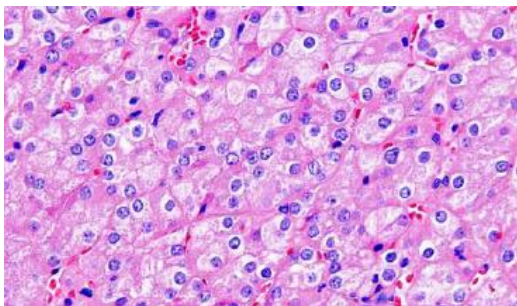
Chromophobe RCC typically has a favorable prognosis. The current Fuhrman nuclear grading system (FNG), which is based on nuclear characteristics, may not be applicable to the chromophobe subtype of RCC. A novel 3 tiered chromophobe tumor grade (CTG) system has been proposed by Paner et al. to better reflect the potential behavior of these tumors.

The “Old” Grading System:

The traditional Fuhrman nuclear grading system evaluates nuclear size, shape and nucleolar prominence to stratify RCCs into a 4 tier scheme. Its applicability to the chromophobe subtype of RCC is controversial, as chromophobe RCCs have pleomorphic nuclei and prominent nucleoli by definition. The grade of most chromophobe RCCs is likely overestimated.

The “New” Proposed Grading System:

Paner et al. have proposed a new grading scheme to better stratify chromophobe RCCs. This scheme utilizes nuclear crowding, nuclear anaplasia and sarcomatoid change to stratify chromophobe RCCs into a 3-tiered system. This grading system would apply only to chromophobe RCCs.



The image shows a chromophobe RCC that is a FNG 3 and the revised CTG 1

Impact of the new grading system on clinical outcome

Several studies have shown the lack of prognostic utility of Fuhrman nuclear grade in chromophobe RCCs. Some even advocate not grading chromophobe RCCs due to the inaccuracy of the current FNG system in this tumor subtype. In fact, approximately 80% of all chromophobe RCCs are graded as FNG 3 and 4 (74% FNG 3). With the proposed system, 74% of the same chromophobe RCCs are grade 1. The new proposed chromophobe tumor grade proved to be a better predictor of clinical outcomes and had better correlation with tumor stage.

Clinical Impact

In the era of personalized medicine, we should not take a “one size fits all” approach to tumors or their grading schemes. This new grading scheme has recently been proposed and not yet widely studied, but addresses a flaw in the current grading scheme. It may be of clinical importance and more widespread use in the near future. Given that more renal tumors are being biopsied and not resected, pathologists are evaluating more limited tissue samples. Not as much prognostic information is obtained, such as staging parameters, sinus/capsular invasion, sarcomatoid features, etc, to predict clinical outcomes. Thus tumor grade may become of increasing importance in predicting the behavior of these tumors.

References

1. Am J Surg Pathol. 2010;34:1233-1240 (image)
2. Am J Surg Pathol. 2012;36:851-8

For additional information, please call Danielle Westfall, MD, Director of Urologic Pathology at TOPA Diagnostics.