Size, grade, stage and histopathological correlation with multifocality in cancer of the kidney

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ABSTRACT

Objective: To determine if there was a size, grade, stage or histopathological correlation with multifocality in cancer of the kidney.

Materials and methods: Histopathological results of urology service patients that underwent radical nephrectomy between November 1 and October 31, 2008, were reviewed. Pathology stage, tumor grade, histological subtype and tumor size were evaluated and findings were correlated with multifocality in kidney cancer.

Results: Mean kidney tumor size was 6.93 cm. In relation to histological subtype, 41 patients presented with clear cells (93.1%), 2 patients with papillary cells (4.54%) and 1 patient with chromophobe cells (2.27%). With respect to grade, 3 patients had Fuhrman 1 (6.81%), 22 patients had Fuhrman 2 (50%), 10 patients had Fuhrman 3 (22.72%) and 9 patients had Fuhrman 4 (20.45%). In relation to stage, 6 patients presented with T1a (13.63%), 22 patients with T1b (40.90%), 17 patients with T2 (38.63%), 1 patient with T3a (2.27%), 1 patient with T3b (2.27%) and 1 patient with T4 (2.27%). Multifocality was observed in 15 specimens (34%).

RESUMEN

Objetivo: Determinar si existe correlación entre los hallazgos histopatológicos, el tamaño, el grado o el estadio con la multifocalidad con el cáncer renal.

Material y métodos: Se revisaron los resultados histopatológicos de los pacientes sometidos a nefrectomía radical realizada por el Servicio de Urología entre el 1 de noviembre del 2007 y el 31 de octubre del 2008, se valoraron el estadío patológico, el grado tumoral, el subtipo histológico y el tamaño del tumor y se correlacionaron dichos hallazgos con la multifocalidad en el cáncer de riñón.

Resultados: El tamaño promedio del tumor renal fue de 6.93 cm y el subtipo histológico de células claras se presentó en 41 pacientes (93.1%), el papilar en dos pacientes (4.54%) y el cromófobo en un paciente (2.27%). Se encontró un grado de Fuhrman 1 en tres pacientes (6.81%), Fuhrman 2 en 22 (50%), Fuhrman 3 en 10 (22.72%) y Fuhrman 4 en nueve (20.45%), un estadio T1a en seis pacientes (13.63%), T1b en 18 (40.90%), T2 en 17 (38.63%), T3a en uno (2.27%), T3b en uno (2.27%) y T4 en uno más (2.27%). Se observó multifocalidad en 15 piezas (34%). Se aplicó un índice de correlación de Pearson a la multifocalidad con las otras variables y se encontró que...
Pearson correlation was applied to multifocality and the other variables resulting in a Pearson value of 0.04, 0.18, 0.10 and 0.12 for histological subtype, Fuhrman grade, size and TNM stage, respectively.

**Conclusions:** There was no correlation between histological subtype, Fuhrman grade, size and TNM stage with multifocality in cancer of the kidney.

**Key words:** nephrectomy, radical, carcinoma, renal, tumor, kidney, multifocal, Mexico.

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**INTRODUCTION**

Conservative nephron surgery has been carried out more frequently in patients with renal cell carcinoma (RCC) and healthy contralateral kidney. The main consideration is the probability of small RCC satellite lesions. The reported incidence of multifocality in RCC is 6.5-25%. On the other hand, there is information about the association between histological type and multifocality. Kletscher et al. showed that papillary type and mixed type lesions are more significantly associated with multifocality.

Whang and Gohji reported that histopathological type is not a multifocality predictive factor. Robert G. Uzzo reported multifocal disease in 15.2% of cases and mentions greater association between kidney cancer multifocality and papillary histological subtype, advanced stage (especially T3N0M0) and tumors larger than 4 cm.

**OBJECTIVE**

The objective of the present study was to determine if there was a correlation between tumor histopathology, size, grade or stage and multifocality in kidney cancer.

**MATERIALS AND METHODS**

Histopathological results of urology service patients that underwent radical nephrectomy between November 1, 2007 and October 31, 2008 were reviewed. Pathological stage, tumor grade, tumor size and histological subtype were evaluated and correlated with multifocality in kidney cancer.
RESULTS

Forty-six radical nephrectomies were carried out. Two of them were eliminated from the study due to confusing histopathological report, leaving 44 nephrectomies carried out for kidney cancer included in the study. Case records of those 44 patients were analyzed resulting in mean tumor size of 6.93 cm. Histological subtypes were clear cell in 41 patients (93.1%), papillary cell in 2 patients (4.54%) and chromophobe cell in 1 patient (2.27%) (Image 1).

From the total of 44 patients, 3 patients presented with Fuhrman 1 (6.81%), 22 with Fuhrman 2 (50%), 10 with Fuhrman 3 (22.72%) and 9 with Fuhrman 4 (20.45%) (Image 2).

TNM classification resulted in 6 patients with stage T1a (13.63%), 18 patients with T1b (40.90%), 17 patients with T2 (38.63%), 1 patient with T3a (2.27%), 1 patient with T3b (2.27%) and 1 patient with T4 (2.27%) (Image 3).

From the total of 44 radical nephrectomies multifocality was observed in 15 specimens (34%) (Image 4).

Pearson correlation was applied to multifocality with the other variables resulting in a Pearson value of 0.04, 0.18, 0.10 and 0.12 for histological subtype, Fuhrman grade, tumor size and TNM stage, respectively. There was no statistical correlation between these variables and multifocality in kidney cancer.

DISCUSSION

There were no satellite tumors visualized in the preoperative period through imaging studies such as ultrasound and CAT in the present study. Once the pathology specimens were analyzed a 34% multifocality probability was found.

As with many other studies in the literature, there was no association between tumor grade and multifocality observed in the present study. Whang and Gohji reported that histopathological type was not a multifocality predictive factor and in the present study there was also no correlation between histological type and multifocality prediction.19,20

Gohji evaluated many factors including tumor size, stage, grade, histological subtype and vascular invasion and reported that only vascular invasion was a significant multifocality factor. In 10 kidneys with multifocal lesions, 80% had vascular invasion. Sümer Baltaci et al. found vascular invasion in 6 out of 22 kidneys (27.3%). However, in the statistical analysis it was not observed.4,20 The present study did not measure vascular invasion.

Multifocality risk was observed in 34% of the specimens analyzed in the present study and no correlation was observed between multifocality and tumor stage, grade, size and histological subtype. Whang et al. reported that multifocality presents more frequently in tumors in stage T3a or higher. Kletscher et al. reported no correlation between tumor stage and multifocality concurring with results of the present study.18,19

CONCLUSIONS

Histological subtype, Fuhrman grade, tumor size and TNM stage do not correlate with multifocality in kidney cancer. This represents one more test in favor of nephron-sparing nephrectomy in localized RCC patients with healthy contralateral kidney.

Multifocal  No multifocal

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<th>T3a</th>
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<td>45</td>
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<td>35</td>
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Image 3. RCC TNM 2002 classification percentage.

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<td>13.6%</td>
<td>40.9%</td>
<td>38.63%</td>
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Image 4. RCC multifocality percentage.

Multifocal  No multifocal

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Multifocal  No multifocal

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