Actas Urol Esp. 2014;38(10):655–661

Actas Urológicas Españolas

www.elsevier.es/actasuro

ORIGINAL ARTICLE

Lessons learned from the comparative study between renal mass biopsy and the analysis of the surgical specimen☆

M. Domínguez-Esteban[a,*], F. Villacampa-Aubá[b], H. Garcia-Muñóz[c], Á. Tejido Sánchez[b], J. Romero Otero[b], F. de la Rosa Kehrmann[b]

[a] *Servicio de Urología, Hospital Universitario Marqués de Valdecilla, Santander, Spain*
[b] *Unidad de Uro-Oncología, Servicio de Urología, Hospital Universitario 12 de Octubre, Madrid, Spain*
[c] *Sección de Uro-Patología, Servicio de Anatomía Patológica, Hospital Universitario 12 de Octubre, Madrid, Spain*

Received 9 January 2014; accepted 2 February 2014
Available online 29 October 2014

KEYWORDS
Biopsy;
Renal mass;
Grade;
Histology

Abstract

Introduction: The role of renal mass (RM) biopsy is currently under discussion. As a result of the progressive increase in the incidental diagnosis of RMs (which have a higher percentage of benignity and well-differentiated cancers), new approaches have emerged such as observation, especially with elderly patients or those with significant comorbidity. RM biopsy (RMB) should provide sufficient information for making this decision, but so far this has not been the case. We examine our prospective series of in-bench RMBs after surgery and compare them with the anatomy of the removed specimen.

Material and methods: We obtained (prospectively, in-bench and with a 16-gauge needle) 4 biopsies of RMs operated on in our department from October 2008 to December 2009. These RMs were analyzed by 2 uropathologists and compared with the results of the specimen.

Results: We analyzed 188 biopsies (47 RMs); 12.75% were ''not valid''. The ability of biopsy to diagnose malignancy or benignity was 100%, and the coincidence in the histological type was 95%. The success in determining the tumor grade was 100% when the cancer was low-grade and 62% when high-grade. None of the analyzed data (necrosis, size, etc.) influenced the results in a statistically significant manner.

Conclusion: RMB with a 16-G needle enables the differentiation between malignancy and benignity in 100% of cases, with a very similar diagnostic accuracy in the tumor type. Tumor grade is still the pending issue with renal mass biopsy.

☆ Please cite this article as: Domínguez-Esteban M, Villacampa-Aubá F, Garcia-Muñóz H, Tejido Sánchez Á, Romero Otero J, de la Rosa Kehrmann F. Enseñanzas derivadas del estudio comparativo entre biopsia de masa renal y el análisis del espécimen quirúrgico. Actas Urol Esp. 2014;38:655–661.

* Corresponding author.
E-mail address: mariodominguezesteban@gmail.com (M. Domínguez-Esteban).

2173-5786/$ – see front matter

PALABRAS CLAVE
Biopsia;
Masa renal;
Grado;
Histología

Enseñanzas derivadas del estudio comparativo entre biopsia de masa renal y el análisis del espécimen quirúrgico

Resumen

Introducción: El papel de la biopsia de masa renal (MR) está actualmente en discusión. Ante el aumento progresivo en el diagnóstico incidental de MR (que tienen un mayor porcentaje de benignidad y cánceres bien diferenciados) surgen nuevos planteamientos como la observación, especialmente en pacientes añosos o con importante comorbilidad. La biopsia de la MR (BMR) debería proporcionar datos suficientes para tomar esa decisión, pero hasta ahora no ha sido así. Estudiamos nuestra serie prospectiva de BMR tomadas en banco tras la cirugía, comparándola con la anatomía de la pieza extirpada.

Material y métodos: Se obtuvieron, prospectivamente y en banco, 4 biopsias con aguja 16 Gauge (G) de las MR operadas en nuestro servicio desde octubre de 2008 a diciembre de 2009. Estas fueron analizadas por 2 uropatólogos y comparadas con el resultado de la pieza.

Resultados: Se analizaron 188 biopsias (47 MR): 12,75% «no validas». La capacidad de la biopsia para diagnosticar la malignidad o benignidad fue del 100%, y la coincidencia en el tipo histológico del 95%. El acierto en el grado tumoral fue del 100% si el tumor era de bajo grado y del 62% si era de alto grado. Ninguno de los datos estudiados (necrosis, tamaño...) influyeron de manera estadísticamente significativa en los resultados.

Conclusión: La BMR con aguja 16 G permite diferenciar entre malignidad y benignidad en 100% de los casos, con una exactitud diagnóstica en el tipo tumoral muy similar. El grado tumoral sigue siendo la asignatura pendiente de la BMR.

Introduction

The incidence of CRC has been increasing in recent years, mainly in localized stages.[1]

The therapeutic options for these small RMs (≤4 cm) are summarized in the following points: partial nephrectomy (surgery of choice, but with perioperative morbidity),[2] radical nephrectomy (less perioperative morbidity, but worse functional outcome in the medium and long term and therefore poorer overall survival)[3,4] or minimally invasive ablative techniques, such as cryotherapy or radiofrequency (with worse oncological results).[5]

At present, observation is also proposed, on the ground that 25% of lesions are benign ones and that the vast majority of CRCs ≤4 cm are good prognosis tumors.[6] These data would allow monitoring and treating only in specific cases.

However, the vast majority of these approaches are not based on the anatomopathological diagnosis of the renal mass, but on probabilities. Performing diagnostic percutaneous biopsies has been rejected for being inefficient and unsafe, it being reserved for suspected cases of metastases of an extrarenal tumor, lymphoma, or of an inflammatory/infectious disease. Recently, the review of the renal biopsies performed, along with greater experience on the part of pathologists, have re-launched this technique,[7] so that we can determine the malignity of the tumor and act accordingly.[8]

Tumor grade (Fuhrman) is considered an important prognostic factor.[9] Nevertheless, the percutaneous biopsy does not reach good results in this regard, a relevant fact having been omitted: in the case of high-grade tumors we would propose an aggressive approach, and in the opposite case, we might choose observation.

In most published series, biopsies are performed with 18-20G needles, and this might be one of the factors that prevent the pathologist from defining grade accurately.[7]

In our institution, the needle usually employed for renal biopsies with suspected nephropathy or a poor function of the renal graft is a 16G needle.[10] The aim of this report was to compare the results of large-core needle biopsies (16G) in renal tumors obtained on bench, after surgery, with an anatomopathological study of the extracted piece, by analyzing which factors have an influence on the diagnostic accuracy of the biopsy.

Materials and methods

We present a prospective observational study analyzing the on-bench biopsy results performed on all RMs operated on in our department, over the period between October 2008 and December 2009.

We obtained 4 biopsies from each mass, 2 central biopsies and 2 peripheral ones, all of them performed using a biopsy gun with a 16G needle, after radical or partial surgery, without any manipulation of the sample and with no intentional exposure of the lesion.

Biopsies were submitted in pairs (central or peripheral) to the pathological anatomy service (department of uropathology) on blotting paper and in formalin. These biopsies were reviewed without knowing the final anatomy of the renal sample, and assigning to each biopsy: tumor histological type according to the World Health Organization (WHO)[11] classification and tumor grade according to Fuhrman.[12]

Those biopsies with insufficient material for diagnosis and/or normal renal tissue, with no pathological data on their benign or malignant nature, were deemed invalid.