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Sarcomatoid Carcinoma of Kidney: Case Report

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Abstract

Sarcomatoid renal carcinoma is a rare and agressive variant of the cancer of the kidney. This tumor are indifferencied and originates from all renal cell carcinomas. The diagnosis is exclusively histologic and therapeutic modalities are limited to radical nephrectomy. We report a new case and will discuss diagnosis, therapeutic and prognostic characteristics of this rare and agressive entity.

Keywords: Sarcomatoid carcinoma; Kidney; Prognosis; Surgery

Introduction

The term sarcomatoid renal cell carcinoma was introduced by Farrow in 1968, who studied 38 cases of kidney tumors with a double contingent of malignant cells: a carcinomatous component and a pleomorphic undifferentiated component of sarcomatoid-like cells [1]. The classification of tumors with features of "carcinoma" and "sarcoma" has been debated since Virchow in 1864, which initiated the term carcinosarcoma [2]. It is currently accepted that sarcomatoid carcinomas of the kidney are not a distinct histological entity, but may develop from all histological subtypes of renal cell carcinomas, as proposed in the WHO 2004 classification [3,4]. Sarcomatoid transformation of renal cell carcinoma seems uncommon (1 to 15%), which explains the low number of series in the literature.

From its description, the pejorative prognosis of the sarcomatoid contingent has been clearly established with respect to conventional renal cell carcinoma [2]. The aim of this article was to carry out a review based on the recent literature of epidemiological, clinical-biological, prognostic and therapeutic sarcomatoid carcinomas of the kidney.

Observation

Mr. K.S, 70 years old, with no pathological history. She complained for four months of low back pain associated with a single episode of hematuria, without other urinary disorders, or digestive associated. On clinical examination, the patient was afebrile. A mass was palpated at the left flank extending 4cm below the costal margin, solid consistency. Computed tomography showed a higher mass of the 14cm long axis, which had a tissue density, which increased in an inhomogeneous manner after injection of the contrast medium. This mass shows a renal pedicle break-in and invasion of the renal pedicle (Figure 1). In view of the suspicion of invasion of the renal pedicle, a magnetic resonance imaging supplement was performed to show an aggressive renal process with thrombotic material occupying the left renal vein with the IVC is free (Figure 2). The surgical approach was left sub costal. After detachment of the left colic angle at the exploration we discovered a voluminous tumor adherent to the adjacent structure and in particular the adrenal We had proceeded to a left enlarged nephrectomy, before the invasion of the left renal vein an extraction of the thrombus tumor by veinotomy was realized. On gross examination, the nephrectomy piece, measuring 18 x 13 x 8cm and weighing 1kg, found a 13cm beige-white tumor infiltrating peri-renal fat. It is the site of extensive tumor necrosis estimated at 60% of the tumor area. The vein lumen is filled by a tumor thrombus. Microscopic examination revealed a malignant tumor proliferation made of fusiform cells, arranged in intersecting bundles associated with numerous figures of mitosis. Presence of pure-tumor vascular emboli (Figure 3). This morphological analysis concluded Furhman's nuclear grade 4 sarcomatoide carcinoma. Class pT3aNx.

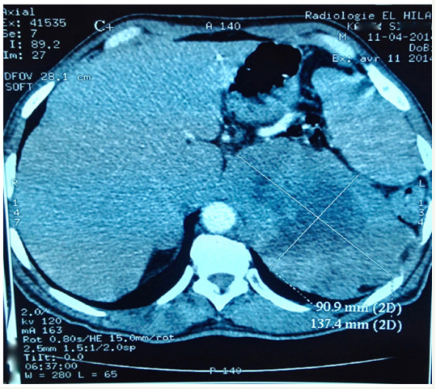

Figure 1: Tomodensitometric section showing superior polar mass of the left kidney with injection of the heterodense contrast medium. This process measures 140x83mm of large and necrotic zone seat.

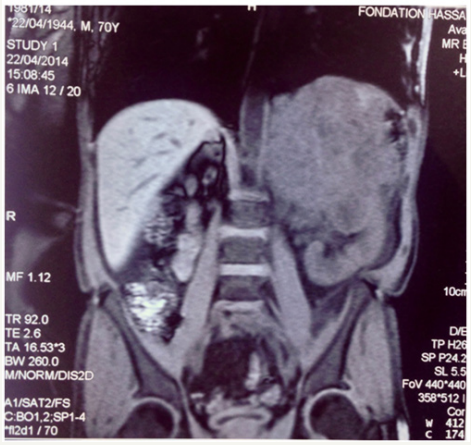

Figure 2: Sagittal magnetic resonance imaging showing a left renal process, infiltrating the renal sinus and the renal pedicle. The VCI remains free and of normal caliber.

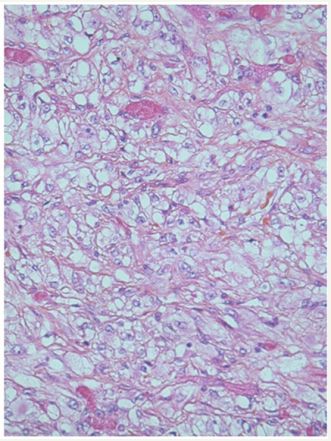

Figure 3: Histological aspect (HES, x 400): mixed appearance with the tumor is made of fusiform cells sometimes irregular nucleus.

Discussion

Sarcomatoid carcinoma of the kidney is a rare variant of kidney cancer. Its incidence in contemporary studies is estimated to be between 1 and 13% of all renal tumors [5]. The median age of these patients, between 55 and 60 years of age (32-87 years), was comparable to renal cell carcinomas without sarcomatoid transformation [6,7].

The sex ratio did not seem not different with about twice as many men as women. Sarcomatoid kidney carcinomas were frequently found on clinical signs (85 to 90% of cases after the series), whereas renal carcinomas without sarcomatoid differentiation with more than 50% chance of discovery [2,8-10]. The most common symptoms were lower back pain or hematuria. Microscopically It is about bulky masses, with numerous haemorrhagic and necrotic foci. This tumor often extends into the perirenal fat and invades the vessels of the hilum. Sarcomatoid carcinoma is a very aggressive, discovery often at an advanced stage of the TNM classification of kidney cancer. Below the detailed TNM classification for kidney cancer variant (Table 1).

Table 1: TNM staging of renal cell carcinoma.

Primary Tumor (T)				
TX		Primary tumor cannot be assessed		
TO		No evidence of primary tumor in the kidneys		
T1		Tumor ≤7cm in greatest dimension, limited to the kidneys		
	T1a	Tumor ≤4cm in greatest dimension, limited to the kidneys		
	T1b	Tumor >4cm but not >7cm in greatest dimension, limited to the kidneys		
T2		Tumor >7cm in greatest dimension, limited to the kidneys		
	T2a	Tumor >7cm but not >10cm in greatest dimension, limited to the kidneys		
	T2b	Tumor >10cm in greatest dimension, limited to the kidneys		
T3		Tumor extends into major viens or perinephric issues, but does not invade the adrenal gland or spread beyond Gerota's fascia		
	T3a	Tumor extends into renal viens or its muscles or perirenal and/or renal sinus fat, but not beyond Gerota's fascia		
	T3b	Tumor grossly extends into vena cava below the diaphram		
	T3c	Tumor grossly extends into vena cava above the diaphram or invades the wall of the vena cava		
T4		Tumor invades beyond Gerota's fascia and extends into the contiguous adrenal gland		
Regional lymph nodes (N)				
NX		Regional lymph nodes cannot be assessed		
NO		No regional lymph nodes metastasis		
N1		Metastasis to regional nodes		
Stage Grouping				
Stage 1		T1	N0	M0
Stage 2		T2	N0	M0

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Stage 3		T1	N1	M0
		T2	N1	M0
		T3a	N0-N1	M0
		T3b	N0-N1	M0
		T3c	N0-N1	M0
Stage 4		T4	Any N	M0
		Any T	Any N	M0
		Any T	Any N	M1

Sarcomatoid carcinoma of the kidney is frequently found in a metastatic stage. The usual sites of sarcomatoid carcinoma metastases are the lung, bone, liver, ganglia, and brain [8,11]. Microscopically, it is a mixed-component tumor, comprising varying degrees of pseudo-sarcomatous elements and malignant epithelial elements [12]. The sarcomatoid beaches are sometimes so dense that it is difficult to assert the epithelial nature of the lesion. It is therefore necessary to multiply the cutting plans. Immunohistochemicals can be of great help in these cases since tumor cells express cytokeratin in 94% of cases, EMA in 50% of cases and vimentin in 56% of cases [6]. Cytologically, they are classified into Furhman 4 nuclear grade. We find below the complete Fuhrman grading of kidney cancer (Table 2).

Table 2: Complete Fuhrman grading of kidney cancer.

Grade	Nuclei		Nucleoli
	Size (µm)	Shape	
1	10	Round, Uniform	Inconspicious or absent
2	15	Slightly irregular	Evident at high power (X400 magnification)
3	20	Obviously irregular	Prominent, large at low power (X100 magnification)
4	>20	Bizzare, Often multilobed	Heavy chromatin clump

Numerous composite morphologic and nuclear grading systems have been proposed for RCC and although that of the Fuhrman classification have achieved widespread usage, the validity of the grading criteria of this classification has been questioned. In addition, there are few studies that have attempted to validate the Fuhrman system for RCCs beyond that of the clear cell subtype. Recent studies have indicated that grading of papillary RCC should be based on nucleolar prominence alone and that the components of the Fuhrman grading classification do not provide prognostic information for chromophobe RCC.

The overall prognosis of patients with sarcomatoid carcinoma of the kidney is pejorative. In the recent literature, median overall survival ranged from 4.9 to 19 months. The survival at 2 years ranged from 15 to 30% and 5-year survival from 2 to 20% [6,7].

The basis of treatment is nephrectomy (partial or enlarged) when it is feasible [13,14]. To date, there is no standard systemic therapy for patients with sarcomatoid carcinoma of the metastatic kidney. In his retrospective series of 43 patients with sarcomatoid carcinoma of metastatic kidney, Golshayan et al reported a rate of 19% of objective responses to antiangiogenic drugs [8]. Efficacy of anti-antigenic agents appeared to be better in patients with a clear cell carcinomatous contingent and a small percentage of sarcomatoid challenge. The study by Haas et al. [15] in a series of patients, with treatment with doxorubicin associated with gemcitabine, showed two complete responses (survival of Six years and eight years) and a partial answer [15]. Studies of Phase II evaluates the combination of anti-angiogenesis and chemotherapy are ongoing (gemcitabine-sunitinib), (gemcitabine-capecitabine-Bevacizumab)

Conclusion

Sarcomatoid carcinoma of the kidney is not a distinct histological entity, but is derived from all renal cell carcinomas. The natural evolution of these kidney tumors is formidable with a poor spontaneous prognosis of this tumor. Currently In the absence of a recommendation, the management of sarcomatoid carcinoma of the kidney should be that of renal cell carcinoma at high risk.

Consent of Patients

Written informed consent was obtained from the patient's next of kin for publication of this case report and any accompanying images.

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