

Renal Cell Carcinoma: A Case Report and Literature Review

Francisco Javier Cortes-Gudiño¹, Félix Osuna-Gutiérrez², Martha Paulina Ornelas- Villalobos², Zepeda-Torres José María^{2*}, Luis Adrián Flores Chávez², Lucio Nájera Maldonado², Carlos Arturo López Romero² and Paola Lizette Padilla Mena²

¹Department of Urology, Hospital Ramón Garibay, Universidad Autónoma de Guadalajara, Guadalajara, Mexico

²School of Medicine, Autonomous University of Guadalajara, Guadalajara, Jalisco, Mexico

*Corresponding author: Maria ZTJ, School of Medicine, Autonomous University of Guadalajara, Guadalajara, Jalisco, Mexico, Tel: +52 4521044825; E-mail: josem.zepeda@edu.uag.mx

Received: January 09, 2022; Accepted: January 19, 2022; Published: January 26, 2022

Abstract

To publish the various clinical presentations that may manifest this type of pathology through the case of a 58-year-old male who comes to the clinic for weight loss of 10 kilos in 1 month and pain in the left renal fossa which radiates to the left iliac fossa and left testicle. Imaging studies were performed, and he found a large left kidney tumour which in turn was causing a varicocele confirmed by testicular ultrasound. The treatment of choice was open radical nephrectomy. It is extremely important to determine and prevent risk factors for patients who may develop this pathology, as well as to identify the paraneoplastic symptoms that can guide us to a more accurate diagnosis, as well as rule out differential diagnoses.

Keywords: *Renal Cancer; Nephrectomy; Risk factors; Clear cell carcinoma; Renal cell carcinoma; Varicocele*

1. Introduction

Renal cell carcinoma is a common entity in the general population and is the most lethal of all urological cancers [1]. They account for 2% to 3% of them. The age of predominance of this pathology ranges between 55 and 75 years of age and they are almost twice as common in men as in women [1-3]. The most common type of these tumours is adenocarcinoma or also known as renal cell tumour, 9 out of 10 tumours belong to this type. Of this type, the most prevalent type are clear cell tumours [4].

This clinical entity is of utmost relevance because its risk factors are increasingly present in our society, the most common of which are age, race (more common in African people), smoking (doubles the chance of developing it), obesity, hypertension and lately diabetes mellitus 1 and 2 have been associated with an increased risk of it [5,6].

The triad of renal fossa pain, macroscopic haematuria and palpable abdominal mass is becoming less frequent nowadays [7]. The main reason for patient consultation is increasingly due to paraneoplastic symptoms, such as high blood pressure, cachexia, weight loss and anaemia in some cases [7,8].

The diagnosis is made clinically by correlating it with the findings of various imaging studies such as CT and MRI scans [9,10]. The treatment for almost any renal tumour of considerable size is nephrectomy, either partial or total [7,8,11].

2. Clinical Case

Male patient aged 58 years, type 2 diabetes mellitus for 25 years treated with metformin, systemic arterial hypertension for 8 months treated with losartan, positive smoking, smoking 15 cigarettes a day without mentioning how long it has been going on, alcoholism denied.

He attended the urology department due to stabbing pain in the left renal fossa radiating to the left iliac fossa and to the left testicle, in addition to a weight loss of 10 kilos in the last month.

Physical examination corroborated the pain radiating to the left iliac fossa and to the left testicle, with a score of 7 on the visual analogue scale.

Laboratory studies with blood biometry, liver function tests and serum electrolytes within normal. General urine examination revealed proteinuria and glycosuria, renal function tests reported urea 72.2, blood urea nitrogen 33.7, creatinine 2.07 and a glomerular filtration rate of 34.3 ml/min/1.72 m² which places him in stage 3B of the Glomerular Filtration Rate interpretation criteria. Testicular ultrasonography showed the presence of a cyst in the head of the epididymis in the right testicle and a varicocele in the left testicle (FIG. 1), the latter due to continuous pressure from the left renal vein.



FIG. 1. Ultrasonography of the testicles. The right testicle with an occupying lesion in the right testicle with cystic echostructure in the epididymis and the left testicle with varicocele.

In the abdominopelvic tomography the left kidney was observed with a significant increase in its dimensions, at the time of the study of 14.79 × 8.88 × 9.85 in its longitudinal, anteroposterior and transverse axes respectively. As well as significant striation of the perirenal fat and renal hilum fat. Retroperitoneal and mesenteric nodes were normal (FIG. 2).

In the abdominopelvic tomography the left kidney was observed with a significant increase in its dimensions, at the time of the study of $14.79 \times 8.88 \times 9.85$ in its longitudinal, anteroposterior and transverse axes respectively. As well as significant striation of the perirenal fat and renal hilum fat. Retroperitoneal and mesenteric nodes were normal (FIG. 2).



FIG. 2. Coronal abdominopelvic CT scan showing marked enlargement of the left kidney.

In the MRI of the abdomen, the left kidney showed an apparent tumour mass in the upper pole and infiltration in the lower pole, with areas of cystic degeneration. It also showed hypointense ADC maps, which is suggestive of a diffuse tumour infiltration of the kidney. Right kidney with involvement of the perirenal fat due to change of a right pyelonephritis.

The diagnosis was a left renal tumour which underwent surgery for a left radical nephrectomy finding a tumour of approximately 15 cm.

During the surgical procedure, the left kidney was removed without any problems, and the kidney was weighed, giving a total weight of 1.305 kg (FIG. 3 and 4).



FIG. 3. Total weight of tumour removed.



FIG. 4. Tumour removed.

The nephrectomy specimen was sent to pathology, and it was reported that the tumour invades calyces, renal pelvis, ureter and renal vein with a medium increase, and there is also contact with multiple areas of invasion to the same extent towards the perihilar adipose tissue, anterior fascia of Gerota and retroperitoneal adipose tissue.

Microscopic examination showed large, round, polygonal cells with well-defined cytoplasmic borders, in some areas with abundant, clear cytoplasm, central nucleus with variable nuclear atypia and prominent nucleoli, in some cells the nuclei are small (8-10 microns) with inconspicuous nucleoli (Grade II), in others the nuclei are pleomorphic, large and irregular with prominent reddish nucleoli (Grade IV).

In the areas adjacent to the necrotic areas, discohesive, pleomorphic cells, some spindle-shaped, others epithelioid with sparse dense eosinophilic cytoplasm, some intracytoplasmic inclusions are observed. Hematoxylin and eosin stain was used in this pathological study (FIG. 5).

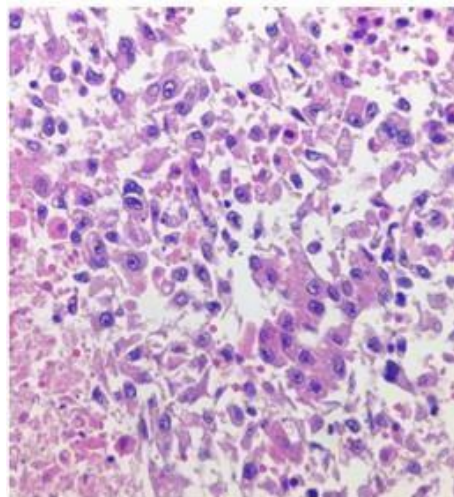


FIG. 5. Cut at $\times 100$ magnification.

3. Discussion

Renal cell tumours are an extremely frequent entity in urological consultations [1,2]. Clear cell tumours are the most common, accounting for 90% of these tumours [4]. Early identification of risk factors in our patients as well as early diagnosis makes patient survival even higher [3,4].

Furthermore, it should not only be limited to exploring the renal system, as the clinical manifestations can range from the genitals (varicocele) to distant metastases (lung, bone, liver). It is therefore important to always look for organ involvement that may occur alongside the main disease with the help of imaging studies. The importance of a multidisciplinary team for both diagnosis and treatment is key to a better prognosis for patients [9,10].

4. Conclusion

The selection of patients who will undergo this type of procedure must be careful, multidisciplinary management is essential to maintain the optimal conditions possible for each case, since the risks are usually high, it is a fact that the diameter of the distal bile duct is the most important predictive factor when selecting the diameter of the balloon to use, since excessive dilation increases the risk of perforation.

5. Declarations

Conflict of interest: There is no conflict of interest.

REFERENCES

1. Campbell M, Walsh P, Wein A, et al. Campbell-Walsh urology. 12th ed. Philadelphia, PA: Elsevier, USA; 2021.
2. Chin AI, Lam JS, Figlin RA, et al. Surveillance strategies for renal cell carcinoma patients following nephrectomy. *Rev Urol.* 2006;8(1):1-7.
3. Ferlay J, Soerjomataram I, Dikshit R, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer.* 2014;136(5):E359-86.
4. American Cancer Society. *Cancer.org.* 2021 [cited 20 February 2021]. Available from: <https://www.cancer.org/content/dam/CRC/PDF/Public/8659.00.pdf>
5. Terris M, Klaassen Z, Kabaria R. Renal cell carcinoma: links and risks. *Int J Nephrol Renovasc Dis.* 2016;9:45-52.
6. Hakimi AA, Furberg H, Zabor EC, et al. An epidemiologic and genomic investigation into the obesity paradox in renal cell carcinoma. *J Natl Cancer Inst.* 2013;105(24):1862-70.
7. Ljungberg B, Bensalah K, Bex A, et al. Guidelines on Renal Cell Carcinoma. *Uroweb.org.* 2021 [cited 20 February 2021]. Available from: https://uroweb.org/wp-content/uploads/10-Renal-Cell-Carcinoma_LR.pdf
8. Quiroga Matamoros W, Fernandez F, Citarella Otero D, et al. Guidelines for the management of renal cell carcinoma. *Colombian Urology.* 2016;25(2):169-89.
9. Decastro GJ, McKiernan JM. Epidemiology, clinical staging, and presentation of renal cell carcinoma. *Urol Clin North Am.* 2008;35(4):581-592.
10. Zhang J, Lefkowitz RA, Bach A. Imaging of kidney cancer. *Radiol Clin North Am.* 2007;45:119-47.

11. Zabor EC, Furberg H, Mashni J, et al. Factors associated with recovery of renal function following radical nephrectomy for kidney neoplasms. *Clin J Am Soc Nephrol*. 2016;11(1):101-07.