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RESEARCH ARTICLE

TUMOUR THROMBUS ASSOCIATED WITH RENAL CELL CARCINOMA: A RARE CASE OF DELICATE SURGERY

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Abstract

Metastatic renal cell carcinoma is in itself a serious and potentially fatal cancer, but when renal vein thrombus is added, the patient's short-term prognosis worsens and surgery becomes even more complicated and mutilating. Four to ten per cent of kidney tumours invade the inferior vena cava and develop tumour extension into the renal vein and inferior vena cava. Only 1% has thrombus extension into the right atrium, a rare situation but one with a guarded prognosis. Cytoreductive nephrectomy is associated with an improvement in overall survival in patients without thrombus and in those with tumour thrombus limited to the renal vein and infra-diaphragmatic inferior vena cava with the advent of immunotherapy. Our article presents the case of a 73-year-old female patient who was admitted to Mohamed V Military Hospital of instruction for investigation of lumbar pain and imaging combined with a biopsy of the renal mass confirmed a metastatic renal tumour with thrombus extending to the junction of the renal vein with the inferior vena cava. The multidisciplinary consultation meeting decided to perform an extended total nephrectomy prior to systemic treatment and the challenge was to also remove the tumour thrombus from the renal vein and avoid any associated complications, which could be fatal.

Introduction:-

Despite an increase in incidental findings at an early stage metastatic forms are not uncommon, metastatic kidney cancer accounts for 15-40 % of all kidney cancers [1].The natural history of renal tumours is that of infiltration of the perirenal atmosphere beyond the capsule, followed by extension into the perinephric fat and adjacent structures, with spread first to the renal vein and then to the inferior vena cava. Around 5% of renal tumours are diagnosed with a thrombus of the renal vein or inferior vena cava [2].

Enlarged nephrectomy with complete removal of the tumour is recommended when the tumour is localised, but the cytoreductive nephrectomy currently recommended is discussed on a case-by-case basis when the tumour is already metastatic, depending on the patient's condition, the means of treatment, and several prognostic classifications such

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as Heng and MSKCC are used to include patients in a prognostic group (good, intermediate or poor) in order to make the decision to treat surgically and/or to give the patient the benefit of systemic treatments with the advent of immunotherapy [3]. This is a major and difficult operation, with a high risk of morbidity and mortality, but it remains an essential pillar of treatment.

Case Presentation:

The case reported is that of a 73-year-old woman, with a history of chronic passive smoking, whose daughter died of a renal tumour at the age of 34. She consulted for long-standing left lumbar pain that was resistant to analgesic treatment and had no other associated symptoms apart from significant weight loss.

The clinical examination revealed a sore left lumbar region and a positive lumbar contact.

Ultrasound revealed 2 large subhepatic peritoneal tumour masses, which did not appear to be of renal origin. Complementary scans revealed a large left polar renal mass measuring 7 cm.

The extension work-up revealed a metastatic advanced tumour infiltrating Gerota's fascia, the presence of a tissue thrombus in the left renal vein extending from the hilum to the inferior vena cava, the presence of latero-aortic and pre-cavitary adenopathies, and several secondary locations involving both lung fields. The tumour was classified as T4N2M1.

And in view of the strong suspicion of a metastatic renal tumour, a biopsy of the left renal mass was performed, which came back in favour of renal cell carcinoma. Then the tumour was classified as having an intermediary prognosis according to the Heng classification for metastatic renal tumours with the presence of only one risk factor and that was the diagnosis-treatment interval, which was less than 12 months.

After discussion of the case in a multidisciplinary consultation meeting, it was decided to perform an enlarged cytoreductive total nephrectomy before referring the patient to oncology for systemic treatment with a tyrosine kinase inhibitor.

Admitted to the operating room, and after a bi-subcostal incision, the patient underwent a total left enlarged nephrectomy associated with a thrombectomy that was painstakingly carried out after macroscopic visualization of the thrombus (Figure1), which was withdrawn posteriorly and protected by the surgeon's fingers before clamping the renal vein at its junction with the inferior vena cava, thus preventing thrombus migration that could have been fatal for the patient, The vena cava was then reconstructed using non-absorbable single-strand overjet 5.0.

The postoperative follow-up was simple, with good pain management, the wound was clean and the patient was declared discharged after 3 days. Seen again in consultation, the patient was found to be healing well and the anatomopathologic results confirmed the diagnosis of renal cell carcinoma (Figure2) associated with tumour thrombus (Figure3). The patient was referred to oncology for further treatment.

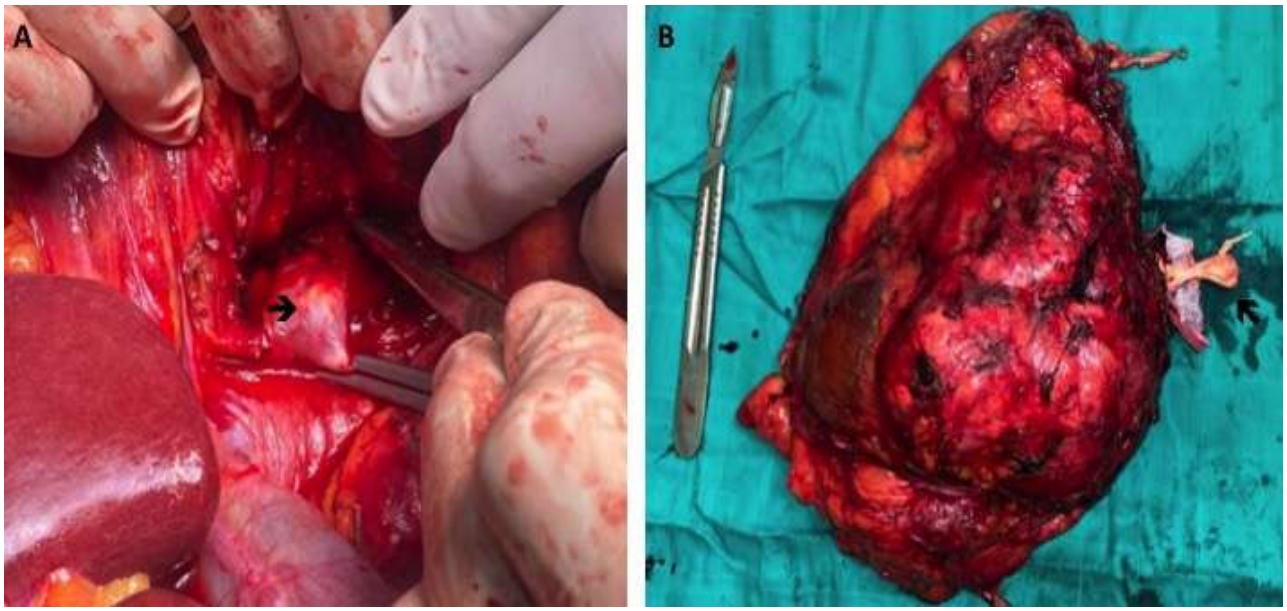

Figure 1:- Macroscopic appearance of tumor thrombus in the left renal vein:
(A) : Peroperative view.
(B) : After nephrectomy.

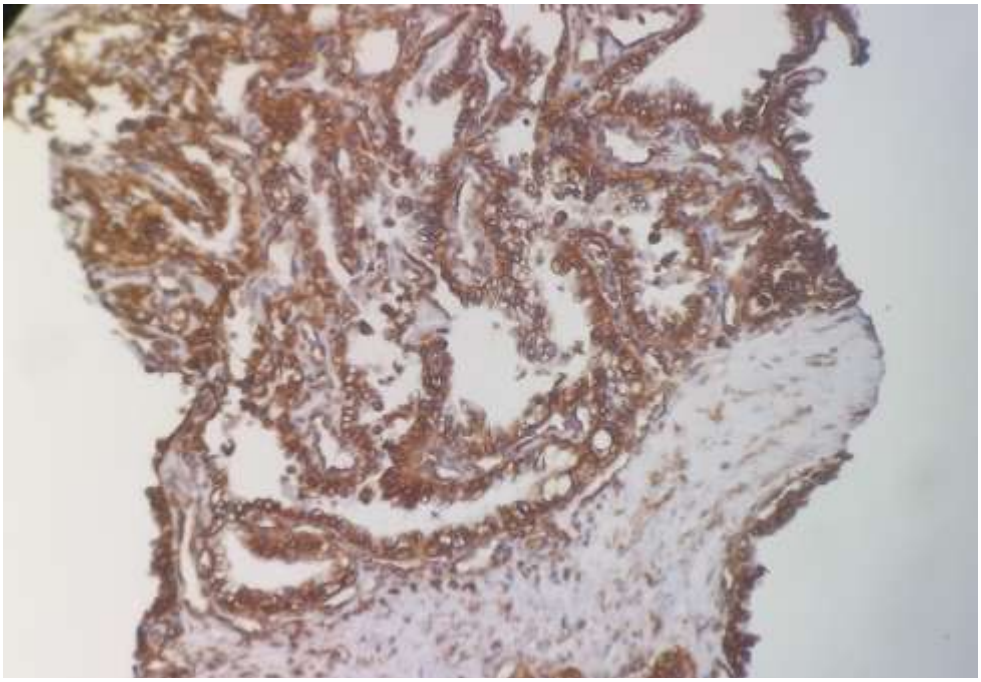

Figure 2:- Tumour cells strongly express anti-RCC antibody (IHC x200).

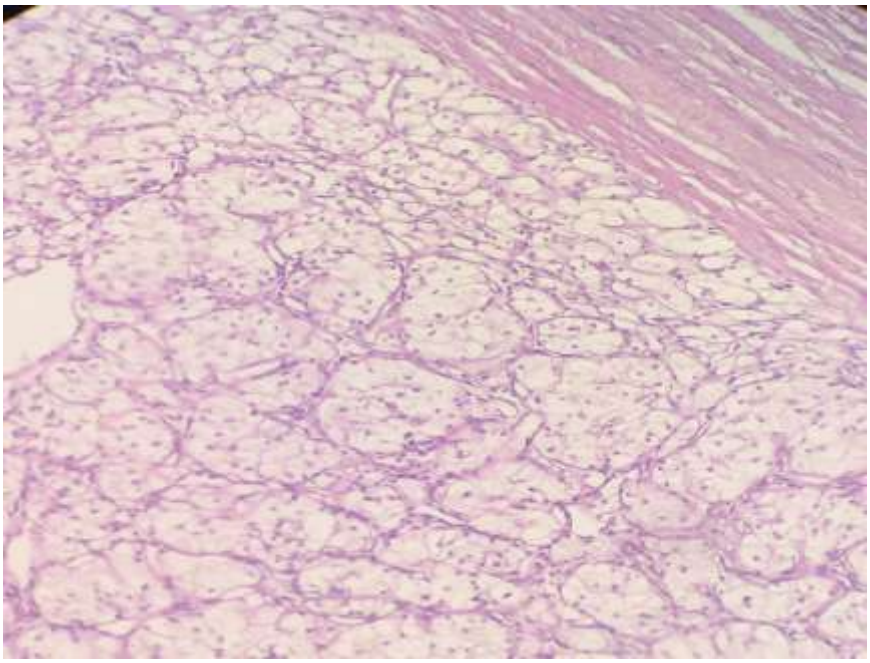

Figure 3:- Vascular wall filled by a clear cell carcinomatous tumour proliferation (HEx200).

Discussion:-

Renal cell carcinoma accounts for 4.1% of all newly diagnosed cancers and 2.4% of all cancer deaths in 2020, is also one of the most lethal urological cancers [4].

Most renal cell carcinomas are asymptomatic and are detected incidentally on imaging. The classic triad of symptoms (macroscopic hematuria, abdominal mass, and flank pain) occur in less than 20% of patients [5], our patient, who described only an absurd pain, sometimes abdominal, sometimes lumbar, without any other clinical sign apart from a weight loss observed during the last month.

Between 4% and 10% of patients renal cell carcinoma have a tumour thrombus of varying size in the renal vein or inferior vena cava at the time of diagnosis [6] and Surgical treatment of renal cell carcinoma with thrombosis is a challenge and there still is controversy regarding the safety of this strategy.

The prognosis of patients with renal cell carcinomas in the metastatic stage, like this patient, is unfavorable, and survival is limited to months even with the availability of immunotherapy [7].

Tumours with a higher Fuhrman grade, N+ or M+, at the time of surgery are more aggressive and have a higher probability of recurrence, with a lower cancer-specific survival.

Treatment is based on aggressive and delicate surgery with radical nephrectomy and thrombectomy with risks of bleeding and fatal embolism and may be performed for survival reasons.

Although the management of renal tumours is currently well codified by the learned societies, the presence of a venous thrombus, which may be limited to the renal vein or extend straight to the inferior vena cava, worsens the prognosis of the disease and further complicates surgical management.

Surgical management is based on precise determination of the level of tumour thrombus on preoperative imaging. MRI makes this possible and CT scans, which are highly effective in differentiating tumour thrombi from ordinary thrombi and assessing their extent [8], and the surgeon must have a clear surgical approach to the procedure. This is not a simple nephrectomy, and any unmeasured act can lead to thrombus migration, with fatal consequences fortunately this was avoided for our patient.

The bi-subcostal incision (chevron incision) used in our case is a popular approach as it offers excellent exposure and control of the renal hilum and inferior vena cava, and therefore of the entire thrombus that was taking up the entire left renal vein right up to the inferior vena cava[9].

The purpose of discussing our case is to draw attention to a crucial element that completely changes the prognosis of the disease for which the patient consulted.

Conclusion:-

The management of this type of patient involves morbid surgery, with a median or even a bi-subcostal incision, which is delicate and very stressful for the surgeon. Despite the combination of multidisciplinary surgery and adjuvant treatment, this disease still has a poor prognosis, and it should be noted that the venous extension of the tumour thrombus is correlated with Fuhrman grade[10], perioperative complications and length of hospitalisation.

Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Author contributions

All authors contributed at all stages.

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References:-

1. Arroua F, Maurin C, Carcenac A, Ragni E, Rossi D, Bastide C. [Role of surgery cytoreductive nephrectomy and metastasectomy in the management of metastatic renal cell carcinoma: a literature review]. Prog Urol. 2010 Dec;20(13):1175-83. French. doi: 10.1016/j.purol.2010.06.001. Epub 2010 Jul 6. PMID: 21130395.
2. Alexandros Mallios, Claude Laurian. Cancer du rein gauche et thrombus cave. Sang Thrombose Vaisseaux. 2011;23(8):439-441. doi:10.1684/stv.2011.0640
3. Lenis AT, Burton CS, Golla V, Pooli A, Faiena I, Johnson DC, Salmasi A, Drakaki A, Gollapudi K, Blumberg J, Pantuck AJ, Chamie K. Cytoreductive nephrectomy in patients with metastatic renal cell carcinoma and venous thrombus—Trends and effect on overall survival. Urol Oncol. 2019 Mar 28 [Epub ahead of print]. doi: 10.1016/j.urolonc.2019.03.009.
4. Cancer of the Kidney and Renal Pelvis - Cancer Stat Facts. SEER https:// seer.cancer.gov/stat facts/html/kidrp.html. Accessed November 12, 2021.
5. Cohen HT, McGovern FJ. Renal-cell carcinoma. N Engl J Med. 2005; 353(23):2477–2490
6. Martinez-Salamanca JI, Huang WC, Mill an I, Bertini R, Bianco FJ, Carballido JA, et al. Prognostic impact of the 2009 UICC/AJCC TNM staging system for renal cell carcinoma with venous extension. Eur Urol 2011; 59:120-7.
7. Sountoulides, P., Metaxa, L., & Cindolo, L. (2011). Atypical presentations and rare metastatic sites of renal cell carcinoma: A review of case reports. Journal of Medical Case Reports, 5(1), 429. doi:10.1186/1752-1947-5-429
8. Quencer KB, Friedman T, Sheth R, Oklu R. Tumor thrombus: incidence, imaging, prognosis and treatment. Cardiovasc Diagn Ther. 2017 Dec;7(Suppl 3):S165-S177. doi: 10.21037/cdt.2017.09.16. PMID: 29399520; PMCID: PMC5778532.
9. Pouliot F, Shuch B, LaRochelle JC, Pantuck A, Belldegrun AS. Con- temporary management of renal tumors with venous tumor thrombus. J Urol 2010; 184:83341.
10. C. Manceau , J. Porterie , L. Chaltiel , A. Gryn , L. Bellec , M. Roumiguie, M. Thoulouza , N. Doumerc , B. M archeix , M. Soulie , E. Grunenwald , J.B. Beauval . Chirurgie du cancer du rein avec thrombus tumoral de la veine cave inférieure : la plus grande série européenne, avec 30 ans d'expérience au sein d'un centre expert. Progrès en urologie Volume 28, Issue 13, November 2018.