How to Cite:
Rambe, T. P. R. R., & Atmaja, M. H. S. (2022). Kidney cancer with complications in Dr. Soetomo Regional Public Hospital, Surabaya, Indonesia. *International Journal of Health Sciences*, *6*(S1), 1832-1841. https://doi.org/10.53730/ijhs.v6nS1.4944

Kidney Cancer with Complications in Dr. Soetomo Regional Public Hospital, Surabaya, Indonesia

Tri Putra Rahmad Ramadani Rambe
Radiology Specialization Programme, Department of Radiology Faculty of Medicine, Airlangga University, Dr. Soetomo Regional Public Hospital, Surabaya, Indonesia

M. Hidayat Surya Atmaja
Department of Radiology, Faculty of Medicine, Airlangga University, Dr. Soetomo Regional Public Hospital, Surabaya, Indonesia

***Abstract*---**Kidney cancer is a disease in which kidney cells become malignant and grow uncontrollably, forming a mass or tumor. Before discussing further kidney cancer, it is important to briefly know the kidneys. The kidneys are two bean-shaped organs located in the lower abdomen on the left and right of the spine. The primary function of the kidneys is to excrete and excrete water, salt, and other unnecessary substances and turn them into urine. The urine collects in the renal pelvis (the funnel-shaped part of each kidney), then travels to the ureters (the tube between the kidneys and bladder), and finally to the bladder, where it is stored before urination. Another function of the kidneys is to help control blood pressure by making the renin hormone and forming red blood cells by forming the hormone erythropoietin. In the United States, an estimated 76,080 adults were diagnosed with kidney cancer, and 13,780 of them died from the disease in 2021. Meanwhile, a total of 2,394 new cases of kidney cancer were found in Indonesia with 1,358 total deaths in 2020. More than half of patients with kidney cancer are diagnosed at an advanced stage. The median age at which kidney cancer was diagnosed was 64, with most being diagnosed between the ages of 65 to 74. Kidney cancer is very rare in individuals under 45. There are several types of kidney cancer, namely Renal cell carcinoma, Urothelial carcinoma, Sarcoma, Wilm's tumor and Lymphoma.

***Keywords*---**kidney cancer, excretion, renal cell carcinoma, renin hormon.

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.
***Corresponding author**: Atmaja, M.H.S.; Email: hidayatsuryaatmaja@gmail.com*
Manuscript submitted: 27 Nov 2021, Manuscript revised: 09 Feb 2022, Accepted for publication: 18 March 2022

Introduction

To diagnose kidney cancer, doctors and radiologists perform examinations, including physical examinations, blood and urine examinations, biopsies, and radiological examinations such as CT scans, x-rays, MRI, cystoscopy, and nephro-ureteroscopy. In cystoscopy and nephro-ureteroscopy, a tube equipped with a camera is inserted into the bladder through the ureters and up to the kidney, which is performed for urothelial cancers of the urinary tract or renal pelvis. After the diagnosis, the administered treatments depend on the type and stage of the cancer, the possible side effects, and the patient's preferences and condition. The administered treatments include surgery, ablation (destroying cancer cells with less damaging techniques to tissue), targeted therapy, immunotherapy, or chemotherapy. This case report discusses kidney cancer with its multiple complications and its management.

Case presentation

A 63-year-old male patient came to the emergency department with complaints of bloody urination since +/- 4 months before MRS that gradually appear and disappear. The patient had previously been admitted to Lamongan Hospital +/-8 days before MRS due to red urination accompanied by clot retention. One day after being discharged from the hospital, the patient complained of red urination again. The patient had left back pain since the previous 5 months accompanied by a lump that was getting bigger. The patient had no history of stone expulsion or sandy urination. Nausea (-), vomiting (-). The patient did not experience weight loss. The patient had undergone cystoscopy + blood clot evacuation at Lamongan Hospital by a urologist. During the surgery, the operator found a clot (+), not a mass.

Physical examination

General Condition	
Good GCS	456
Karnofsky score	80%
Weight	70 kg
Heigth	170 cm
Body Surface Area	1.81 m^2
Vital sign	
Blood pressure	128/78 mmHg
Axillary Temperature	36.5° C
Heart Rate	84 bpm
Respiratory Rate	20 x/min

Genitourinary state

a. Flank mass : Palpable solid mass in flank S uk ± 5 × 6 cm, mobile
b. CVA knock pain : -/+
c. Suprapubic : Empty bladder, post op scar (-),

d. External genitalia : Male, circumcised, 22 Fr 3-way catheter inserted with irrigation, urine production ± 1500 cc/24 hours, clear yellow

e. DRE : Anal sphincter tone (+), smooth mucosa, prostate within normal limits

: Handschone: feces (+), blood (-)

Clinical Photos

Laboratory Findings

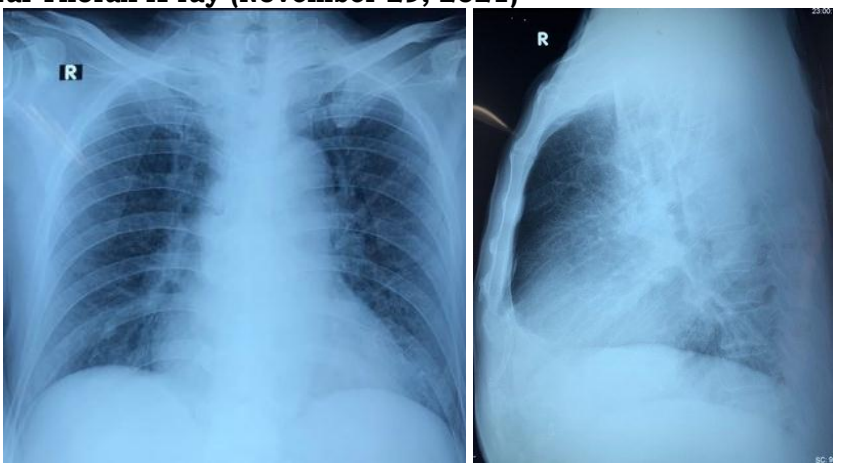
Hb	9.7	g/dL
Leu	12.0	10^3/uL
Plt	395	10^3/uL
GDA	114	mg/dL
SGOT/SGPT	22/43	U/L
BUN/SK	17/1.04	mg/dL
Na/K/Cl	139/3.7/99	mmol/L
Albumin	3.57	gr/dl
PPT/APTT	13.7/31.2	Second
HBsAg	Reactive	
LDH	99	
Calcium	8.3	

Urinalysis 11/29/2021

pH	6.0
Eri	+3
Leu	+2

Radiological Examination

AP/Lateral Thorax X-ray (November 29, 2021)



*Infiltrates in the right pericardiac area can be a metastatic process, Minimal bilateral pleural effusion and heart within normal limits.

Plain X-Ray of the Abdomen 20/11/2021

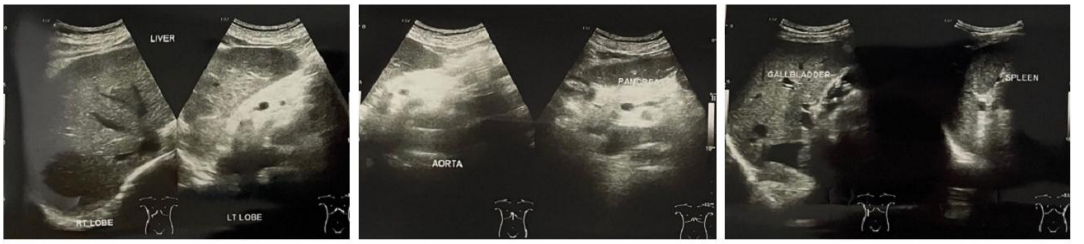
*There are no opaque stones along the urinary tract, No visible metastases in the visualized bones and Lumbar spondylosis

1836

Upper-lower abdominal ultrasound - November 2021

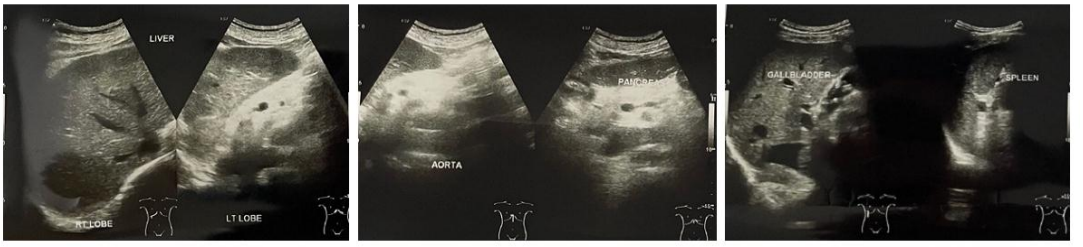
*Ren D: Hydronephrosis (-), stone (-), mass (-), Cyst (+)
*Ren S: Hydronephrosis (-), stone (-), mass (+), Cyst (-)
*Buli: Clot (+), stone/mass (-)

Upper-lower abdominal ultrasound - 11-17-2021



*Liver, Lien, Pancreas, Gallbladder within normal limit.

Upper-lower abdominal ultrasound - November 29, 2021

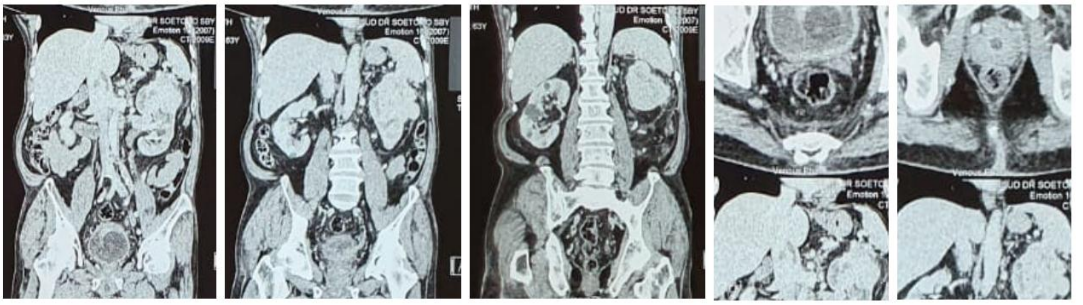


*Hepar, Lien, Pancreas, Gallbladder within normal limit.

*Ren D: Hydronephrosis (-), stone (-), mass (-), Cyst (+) uk ± 2.6 x 1.92 cm

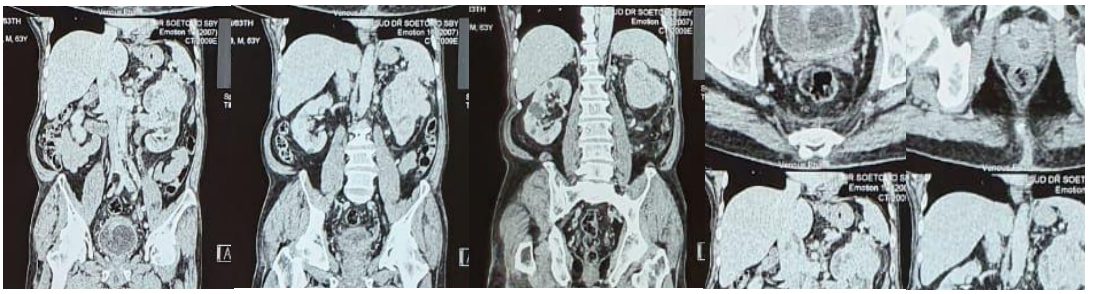
*Ren S: Hydronephrosis (-), stone (-), solid mass, irregular, uk ± 7.43 x 5.85 x 7.71 cm, Cyst (-)
*Buli: Clot (+), stone/mass (-)

Abdominal Contrast Enhancement MSCT (02/12/2021)



*Right Kidney : Mid pole cyst and lower pole biggest size ± in mid pole right kidney, stone/mass (-)
*Left Kidney: Solid mass (46 HU) with calcified component (157 HU), well defined border, lobulated margin with size ±8.7 x 6.5 x 8.9 cm at perirenal until posterior perirenal, upper pole untul mid pole left kidney, contrast enhancement (117 HU), massa pushed lien to the superoposterior side, mass get feeding from left renalis artery, seems AV fistulation of left renalis vein, thrombus at inferior vein cava at thoracal 11—12, hidroureter proximal until distal, liver cyst size ± 0.7 cm at segmen III left lobe and gallbladderstone size ± 0.2 cm.

*Right Kidney: Mid pole cyst and lower pole biggest size ± 2.7 x 2.7 cm in mid pole right kidney, stone/mass (-)
*Left kidney: Solid mass (46 HU) with calcified component (157 HU), well defined border, lobulated margin with size ± 8.7 x 6.5 x 8.9 cm at perirenal until posterior perirenal, upper pole until mid pole left kidney, contrast enhancement (117 HU), massa pushed lien to the superoposterior side, mass get feeding from left renalis artery, seems AV fislulation of left renalis vein, thrombus at inferior vein cava at thoracal 11-12, hydroureter proximal until distal, liver cyst size ± 0.7 cm at segmen III left lobe and gallbladderstone size ± 0.2 cm
*Bladder: Stone (-), mass (-), blood clot (+)
*Prostat: mass (-), calcification (-)



*Liver/Gallbladder/Spleen/Pancreas: there's no mass/nodul/cyst
*There's multiples nodul at basal right and left lung

Trans Thorax Echocardio - 12-13-2021
Conclusions:

a. MR trivial and TR trivial
b. Thrombus at IVC

Results and Discussions

To diagnose kidney cancer, doctors perform examinations, including physical examinations, blood and urine examinations, biopsies, and radiological examinations such as CT scans, x-rays, MRI, cystoscopy, and nephro-ureteroscopy. In cystoscopy and nephro-ureteroscopy, a tube equipped with a camera is inserted into the bladder through the ureters and up to the kidney, which is performed for urothelial cancers of the urinary tract or renal pelvis. After the diagnosis, the administered treatments depend on the type and stage of the cancer, the possible side effects, and the patient's preferences and condition. The administered treatments include surgery, ablation (destroying cancer cells with less damaging techniques to tissue), targeted therapy, immunotherapy, or chemotherapy.

There is no screening test to detect kidney cancer. Doctors recommend people at high risk for radiological examinations to see their internal organs or look for early-stage kidney cancer. The good news is although there is no proven way to prevent kidney cancer, the risk can be reduced by quitting smoking, lowering blood pressure, maintaining a healthy weight, and consuming lots of vegetables and fruit.

Standard reporting is increasingly being utilized to better communicate imaging data. In a recent survey of urologists and radiologists, researchers attempted to identify the imaging features believed to be significant in reporting an indeterminate renal mass. The following important features were identified: mass size and comparison with mass size on previous imaging, type of mass (cystic vs solid), presence of fat, presence of enhancement, and radiological stage. There is an inter-specialist consensus that the Bosniak system for classifying cystic masses should be applied. Compared to radiologists, urologists are more likely to apply nephrometry scoring, mass position with respect to the renal pole line, and quantitative reporting of enhancement on CT. Other descriptors should also be

reported, as they may affect the results with various scoring systems such as the R.E.N.A.L. nephrometry and the SSIGN (stage, size, grade, necrosis) system. These factors include the presence of necrosis or an infiltrative growth pattern, the presence of extrarenal spread (eg, the degree of involvement of perirenal fat and visceral metastases), the presence of lymphadenopathy, the number and location of the renal arteries and veins, and the presence of a vascular or collecting system. invasion.

Conclusion

Urinary disorders accompanied by bloody urination and a history of infection and kidney stones are the forerunner to the occurrence of kidney tumors. Therefore, a healthy lifestyle and a regular diet are very influential in preventing kidney cancer. Examination with radiological modalities plays an important role in establishing the diagnosis. Then a combination of physical examination, rectal toucher, laboratory, histopathological, and radiological examination shall be performed as an integrated unit. Staging to determine the next management is also very closely related. Following are the stages of kidney cancer:

- Stage I, the tumor is 7 centimeters or smaller and is found only in the kidney.
- Stage II, the tumor is larger than 7 centimeters and is found only in the kidney.
- Stage III, one of the following criteria is found. The cancer varies in size and have spread to nearby lymph nodes; or the cancer has spread to the blood vessels in or near the kidney (renal vein or vena cava), to the fat around structures in the kidney that collect urine, or to the layer of fatty tissue around the kidney.
- Stage IV, one of the following criteria is found. That the cancer has spread beyond the layer of fatty tissue around the kidney and may have spread to the adrenal glands above the kidney with cancer or to nearby lymph nodes; or the cancer has spread to other parts of the body, such as the bones, liver, lungs, brain, adrenal glands, or distant lymph nodes. However, cancers with cystic content will be classified using the Bosniak system as follows:
- Bosniak I: benign simple cyst, hairline thin walls of 2 mm, no septa, calcifications, or solid components
- Bosniak II: benign cyst - "minimal complex", few hairline thin septa of <1 mm or thin calcifications (unmeasured thickness), kidney lesion <3 cm
- Bosniak III: minimal complex, few hairlines thin septa or minimally smooth thickened walls or septa, calcification present and may Jbe thick and nodular. High attenuation lesion >3 cm in diameter, total intrarenal (<25% visible wall); need follow-up (F for follow-up): need follow-up ultrasound/CT/MRI
- Bosniak III: indeterminate cystic mass. Irregular or smooth walls or septa thicken with a measurable increase. Treatment/examination: partial nephrectomy or radiofrequency ablation for poor surgical candidates
- Bosniak IV: clear and malignant cystic mass

Acknowledgements

None of the authors received financial or material support for the study and the work. None of the authors has financial or proprietary interest related to the study.

Disclosure

None of the authors have a conflict of interest to declare in relation to this work.

References

1. Kutikov A, Fossett LK, Ramchandani P, et al. Incidence of benign pathologic findings at partial nephrectomy for solitary renal mass presumed to be renal cell carcinoma on preoperative imaging. Urology. 2006;68(4):737–40.
2. Thompson RH, Hill JR, Babayev Y, et al. Metastatic renal cell carcinoma risk according to tumor size. J Urol. 2009;182(1):41–5.
3. Lane BR, Babineau D, Kattan MW, et al. A preoperative prognostic nomogram for solid enhancing renal tumors 7 cm or less amenable to partial nephrectomy. J Urol. 2007;178(2):429–34.
4. American Cancer Society. Cancer Facts &Figures. 2014.
5. Mathew A, Devesa SS, Fraumeni JF Jr, et al. Global increases in kidney cancer incidence, 1973-1992. Eur J Cancer Prev. 2002;11(2):171–8.
6. Nguyen MM, Gill IS, Ellison LM. The evolving presentation of renal carcinoma in the United States: trends from the Surveillance, Epidemiology, and End Results program. J Urol. 2006;176(6 Pt 1):2397–400.
7. Kane CJ, Mallin K, Ritchey J, et al. Renal cell cancer stage migration: analysis of the National Cancer Data Base. Cancer. 2008;113(1):78–83.
8. Frank I, Blute ML, Leibovich BC, et al. Independent validation of the 2002 American Joint Committee on cancer primary tumor classification for renal cell carcinoma using a large, single institution cohort. J Urol. 2005;173(6):1889–92.
9. Ficarra V, Schips L, Guille F, et al. Multiinstitutional European validation of the 2002 TNM staging system in conventional and papillary localized renal cell carcinoma. Cancer. 2005;104(5):968–74.
10. Rothman J, Egleston B, Wong YN, et al. Histopathological characteristics of localized renal cell carcinoma correlate with tumor size: a SEER analysis. J Urol. 2009;181(1):29–33.
11. Campbell SC, Novick AC, Belldegrun A, et al. Guideline for management of the clinical T1 renal mass. J Urol. 2009;182(4):1271–9.
12. Pierorazio PM, Hyams ES, Lin BM, et al. Laparoscopic radical nephrectomy for large renal masses: critical assessment of perioperative and oncologic outcomes of stage T2a and T2b tumors. Urology. 2012;79(3):570–5.
13. Long JA, Arnoux V, Fiard G, et al. External validation of the RENAL nephrometry score in renal tumours treated by partial nephrectomy. BJU Int. 2013;111(2):233–9.
14. Kanao K, Mizuno R, Kikuchi E, et al. Preoperative prognostic nomogram (probability table) for renal cell carcinoma based on TNM classification. J Urol. 2009;181(2):480–5.
15. Haggstrom C, Rapp K, Stocks T, et al. Metabolic factors associated with risk of renal cell carcinoma. PLoS One. 2013;8(2):e57475.

16. Yaycioglu O, Eskicorapci S, Karabulut E, et al. A preoperative prognostic model predicting recurrence-free survival for patients with kidney cancer. Jpn J Clin Oncol. 2013;43(1):63–8.
17. Karakiewicz PI, Suardi N, Capitanio U, et al. A preoperative prognostic model for patients treated with nephrectomy for renal cell carcinoma. Eur Urol. 2009;55(2):287–95.
18. Kutikov A, Smaldone MC, Egleston BL, et al. Anatomic features of enhancing renal masses predict malignant and high-grade pathology: a preoperative nomogram using the RENAL Nephrometry score. Eur Urol. 2011;60(2):241–8.