Original Research Paper

Volume - 13 | Issue - 03 | March - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Radio-Diagnosis

A RARE CASE OF RENAL ANGIOMYOLIPOMA COMPLICATED BY CORONAVIRUS DISEASE (COVID-19) : A CASE REPORT

Dr. Sahitya Thusoo* — 3rd Year Radiodiagnosis Resident, Government Medical College, Jammu
*Corresponding Author

Dr. Vipan Magotra — Professor , Department Of Radiodiagnosis, Government Medical College, Jammu

ABSTRACT Coronavirus disease 2019 (COVID-19) is a new disease that is responsible for the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and is characterized by a wide spectrum of clinical manifestations, ranging from mild upper respiratory tract symptoms to life-threatening conditions, such as acute respiratory distress syndrome and multi-organ failure.[1]While primarily a respiratory illness, infection with the novel coro- navirus (COVID-19) is associated with both thromboembolic and bleed- ing events [2-6]. The pathologic clotting associated with COVID-19 has been established in the literature, however, there is emerging data suggesting a concomitant risk of hemorrhage. The association with bleeding is most prevalent in critically ill patients, though it has been described in non-critically ill patients, such as a case of spontaneous kid- ney hematoma [6,7]. Renal angiomyolipoma (AML) are typically benign neoplasms which rarely present with rupture and hemorrhagic shock. We describe a case of a 56-year-old female who was diagnosed with a ruptured renal AML three weeks after COVID-19 infection.

KEYWORDS : Renal Angiomyolipoma (AML) , COVID -19 , renal hemorrhage

CASE REPORT:

A 56 Year old female presented to emergency Department Of Radiodiagnosis with complaints of left flank pain, with sudden onset, and rapid progression. Her pain began while at rest, reached maximum intensity within minutes. The patient denied fevers,nausea, vomiting, dysuria, and hematuria.

Three weeks prior, the patient had presented to the ED with five days of cough, shortness of breath, myalgias, and fevers, and was subsequently diagnosed with COVID-19 via nasopharyngeal PCR assay. Chest computed tomography performed at that time showed bilateral involvement of the pulmonary parenchyma with peripheral ground-glass opacities, thickening of the interlobular septa.(Fig. 5) . She was treated and discharged after a week.

At present she denied family history of renal disease or coagulopathic disorders.

Her initial vital signs were normal. An abdominal exam revealed a soft, nondistended abdomen with focal left upper quadrant tenderness. There was no palpable mass, rebound, or guarding. The patient also had severe tenderness upon percussion of the left costovertebral angle. Urine studies showed microhematuria .

Ultrasound was done and it revealed a well defined hypoechoic lesion at upper pole of left kidney with mildly prominent calyceal system and and minimal iso to hyperechoic collection around the kidney . Renal echogenicity and CMD were maintained . No dilatation of renal pelvis or ureter was seen .

Subsequent CECT abdomen-pelvis was advised. It revealed a heterogenously enhancing mass lesion measuring 3.5 × 3.8 × 3.1 cm arising from upper pole of left kidney with small areas of fat density within (FIG 1.) . Internal hyperdense areas within the mass lesion s/o intralesional hemorrhage with surrounding eccentric hyperdensity s/o perilesional hematoma were noted(FIG 2.) . Blood supply to mass lesion was from Left superior branch of left renal artery (FIG 3.). No evidence of calcification was seen. Left kidney was normal in size with normal uptake and excretion of contrast. Left perinephric fat stranding was seen with anteriorly pushed left kidney and perinephric hematoma (FIG 4.) . CECT findings in the presented case were consistent with left renal angiomyolipoma with intralesional ,perilesional and perinephric hemorrhage.

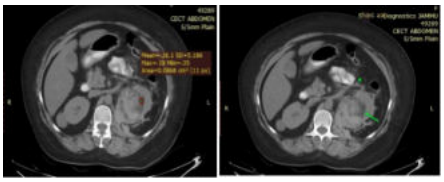

FIG 1 :Corresponding ncct image showing a mass lesion arising from upper pole of left kidney with small areas of fat density within the mass.

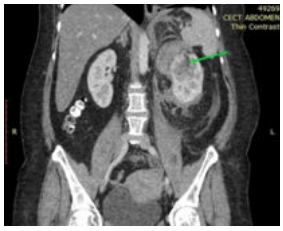

FIG 2 : Corresponding CECT image shows heterogenous enhancement within the mass lesion. The mass shows internal hyperdense areas s/o intralesional hemorrhage with surrounding eccentric hyperdensity s/o perilesional hematoma

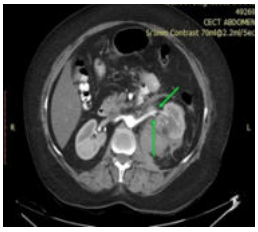

FIG 3 : Blood supply to mass lesion - Left superior branch of left renal artery

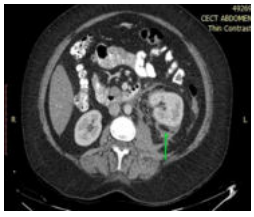

FIG 4. Left perinephric fat stranding seen with anteriorly pushed left kidney and perinephric hematoma

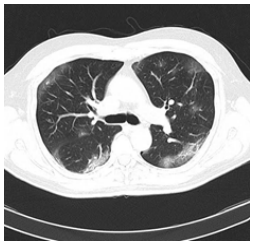

FIG 5. HRCT Chest showing bilateral involvement of the pulmonary parenchyma with peripheral ground-glass opacities, thickening of the interlobular septa

DISCUSSION:

Renal AML is a benign neoplasm caused by proliferation of epithelioid cells and composed of adipose tissue, blood vessels, and smooth muscle [8]. There is female predominance with an approximate incidence of approximately 0.13% [9,10]. Sporadic association is seen in 80% of renal angiomyolipomas while the remainder are associated with tuberous sclerosis. Renal AMLs larger than 4 cm have a significantly higher risk of rupture, however, rupture can occur at smaller sizes and larger AMLs may remain stable [8,10]. 50 years is the median age at time of solitary renal AML rupture [11,12]. Some patients may present with Wunderlich syndrome,i.e. spontaneous, nontraumatic aemorrhage into the perinephric space characterized by the triad of flank pain, flank mass, and hypovolemic shock however over 90% of renal AMLs are discovered incidentally on imaging [12,13]. Spontaneous rupture has also been associated with coagulopathic states such as pregnancy [14-16].

The timing of a single incident of a ruptured renal AML rupture following a COVID-19 infection is notable however causality cannot be made . The patient had none of the previously mentioned risk factors, including pregnancy, aneurysm, or AML size greater than 4 cm. Spontaneous bleeding complications have often been described after infection with COVID-19, such as retroperitoneal hematoma, gas- trointestinal bleeding, hemopneumothorax, and cerebral aemorrhage, [5,6,9,17–19]]. Proposed mechanisms of COVID-associated coagulopathy include direct infection of endothelial cells via ACE-2 receptors and delayed autoantibody development against endothelial cells [19,20].

CONCLUSION:

Rupture of a renal AML may mimic other diagnoses and can lead to life-threatening hemorrhagic shock. A high index of suspicion for such spontaneous events should be maintained after understanding the possibility of increased bleeding risk in patients with recent COVID-19 infection.

REFERENCES:

1) Wiersinga WJ, Rhodes A, Cheng AC, Peacock SJ, Prescott HC. Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19): A review. JAMA 2020;3248:782–793.
2) Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020;395(10223):507–13.
3) Klok FA, Kruip M, van der Meer NJM, et al. Confirmation of the high cumulative incidence of thrombotic complications in critically ill ICU patients with COVID-19: an updated analysis. Thromb Res. 2020;191:148–50.
4) Agarwal S, Jain R, Dogra S, et al. Cerebral microbleeds and leukoencephalopathy in critically ill patients with COVID-19. Stroke. 2020;51(9):2649–55.
5) Long A, Grimaldo F. Spontaneous hemopneumothorax in a patient with COVID-19: a case report. Am J Emerg Med. 2020:228.e1–2.
6) Al-Samkari H, Leaf RS, Dzik WH, et al. COVID-19 and coagulation: bleeding and thrombotic manifestations of SARS-COV-2 infection. Blood. 2020;136(4):489–500.
7) Scialpi M, Russo P, Piane E, Gallo E, Scalera GB. First case of retroperitoneal hema toma in COVID-19. Turk J Urol. 2020;46(5):407–9.
8) Bissler JJ, Kingswood JC. Renal angiomyolipomata. Kidney Int. 2004;66(3):924–34.
9) Flum AS, Hamoui N, Said MA, et al. Update on the diagnosis and management of renal angiomyolipoma. J Urol. 2016;195(4 Pt 1):834–46.
10) Fujii Y, Ajima J, Oka K, Tosaka A, Takehara Y. Benign renal tumors detected among healthy adults by abdominal ultrasonography. Eur Urol. 1995;27(2):124–7.J. Young, J. Kalczynski, A. Emerling et al. American Journal of Emergency Medicine 47 (2021) 316.e1–316.e3 316.e2
11) Xu XF, Hu XH, Zuo QM, Zhang J, Xu HY, Zhang Y. A scoring system based on clinical features for the prediction of sporadic renal angiomyolipoma rupture and hemorrhage. Medicine (Baltimore). 2020;99(20):e20167.
12) Nason GJ, Morris J. Bhatt JR, et al. Eur Urol Focus: Natural history of renal angiomyolipoma favors surveillance as an initial approach; 2020.
13) Kim JW, Kim JY, Ahn ST, et al. Spontaneous perirenal hemorrhage (Wunderlich syndrome): an analysis of 28 cases. Am J Emerg Med. 2019;37(1):45–7.
14) Zhang T, Xue S, Wang ZM, Duan XM, Wang DX. Diagnostic value of ultrasound in the spontaneous rupture of renal angiomyolipoma during pregnancy: a case report. World J Clin Cases. 2020;8(17):3875–80.
15) Snow A, Halpenny D, McNeill G, Torreggiani WC. Life-threatening rupture of a renal angiomyolipoma in a patient taking over-the-counter horse chestnut seed extract. JEmerg Med. 2012;43(6):e401–3.
16) Heck AM, DeWitt BA, Lukes AL. Potential interactions between alternative therapies and warfarin. Am J Health Syst Pharm. 2000;57(13):1221–7 [quiz 1228-1230].
17) Gadiparthi C, Perisetti A, Sayana H, Tharian B, Inamdar S, Korman A. Gastrointestinal bleeding in patients with severe SARS-CoV-2. Am J Gastroenterol. 2020;115(8):1283–5.
18) Li J, Long X, Zhu C, et al. A case of COVID-19 pneumonia with cerebral hemorrhage.Thromb Res. 2020;193:22–4.
19) Degeneffe A, Bruneau M, Spitaels J, Gilis N, De Witte O, Lubansu A. Acute hemorrhage after Intracerebral biopsy in COVID-19 patients: report of 3 cases. World Neurosurg. 2020;141:157–61.
20) Iba T, Levy JH, Levi M, Thachil J. Coagulopathy in COVID-19. J Thromb Haemost.2020;9:2103–9.
21) Yang YH, Huang YH, Chuang YH, et al. Autoantibodies against human epithelial cells and endothelial cells after severe acute respiratory syndrome (SARS)-associated coronavirus infection. J Med Virol. 2005;77(1):1–7.
22) Lee AYY, Connors JM, Kreuziger LB, et al. COVID-19 and Coagulopathy: Frequently Asked Questions. Hematology. 2020 https://www.hematology.org/covid-19/covid-19-and-coagulopathy. Accessed 4 OCT 2020.