ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 8, Issue – 3, May – 2023 , Page No. : 332 – 335

Concurrent Renal Cell Carcinoma and Angiomyolipoma in a patient without Tuberous Sclerosis- A rare case

[1]Nanda Patil, Professor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad
[2]Shubhang Monpara, Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad
[2]Nidhi Goswami, Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad
[2]Neha Ghadge, Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad
[2]Manasi Bhade**,** Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad
Corresponding Author: Nidhi Goswami, Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad**.**

Citation this Article: Nanda Patil, Shubhang Monpara**,** Nidhi Goswami**,** Neha Ghadge**,** Manasi Bhade, "Concurrent Renal Cell Carcinoma and Angiomyolipoma in a patient without Tuberous Sclerosis- A rare case", IJMSIR- May - 2023, Vol – 8, Issue - 3, P. No. 332 – 335.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

The occurrence of Renal Cell Carcinoma in association with Angiomyolipoma is rare. Simultaneous neoplasms of such type may occur in two different settings either hereditary and sporadic. In hereditary disorders most common association is Tuberous Sclerosis. Sporadic association of Renal Cell Carcinoma with Angiomyolipoma is very rare. We report a case of concurrent Renal Cell Carcinoma and Angiomyolipoma in a 65 years old patient lacking the Tuberous Sclerosis complex to highlights its rare occurrence.

Keywords: Angiomyolipoma, concurrent tumor, Renal Cell Carcinoma

Introduction

Occurrence of Renal Cell Carcinoma and Angiomyolipoma in the same kidney is very uncommon finding. Majority of such cases are associated with Tuberous Sclerosis which is an autosomal dominant disorder. Rarely Renal Cell Carcinoma and Angiomyolipoma can occur in same kidney with no evidence of Tuberous Sclerosis ([1,2]).

We report a case of Clear cell Renal Cell Carcinoma with concurrent Angiomyolipoma in a 65 years old male patient lacking Tuberous Sclerosis complex to highlight its rare occurrence.

Case Report

A 65 years old male patient presented with right lumbar region pain for 3 weeks. Physical examination revealed right sided abdominal tenderness. Computer tomography of abdomen and pelvis showed heterogeneously enhancing lesion measuring 16 x 13 x 9cm arising from upper and mid pole of right kidney with mass effect suggesting Renal Cell Carcinoma.

The other laboratory finding were within normal limits. There was no evidence of mental retardation or tumor like hamartoma on clinical and radiological examination. Also, there was no history of Epilepsy or family history of tuberous sclerosis.

The patient underwent radical nephrectomy Gross examination of right radical nephrectomy revealed a large bosselated tumor at upper and mid pole of kidney measuring 16.5 x 12 x 9 cm. On cut section, tumor was

grey white with variegated areas of hemorrhage and necrosis. Tumor was involving renal capsule. Renal hilum showed a separate tumor measuring 4.2x 4 x 3.5 cm. Cut section of tumor was grey white to yellow.(Figure 1)

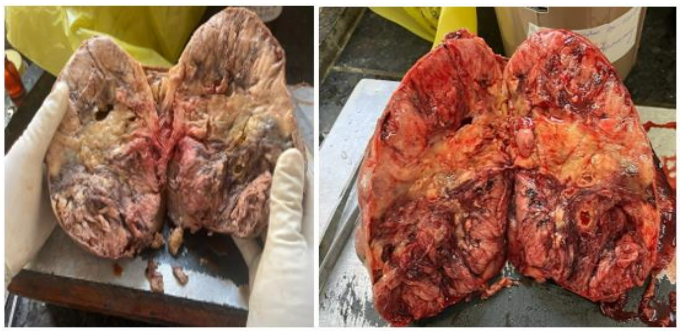

Figure 1: Right kidney showing two distinct intrarenal tumors. Renal cell carcinoma at the upper and mid pole and angiomyolipoma near hilum.

Microscopic examination from a large tumor mass revealed large, round to polygonal neoplastic cells arranged in sheets, clusters as well as forming tubules. Neoplastic cells revealed round to oval nuclei with coarse chromatin and prominent nucleoli on high power field. Tumor revealed cystic change, thin arborising blood vessels and tumor necrosis and was involving renal capsule. Renal vein, artery, ureter and perinephric fat were free from tumor. The tumor was diagnosed as Clear cell Renal Cell Carcinoma Grade II according to WHO International Society of Urologic Pathology. (Figure 2)

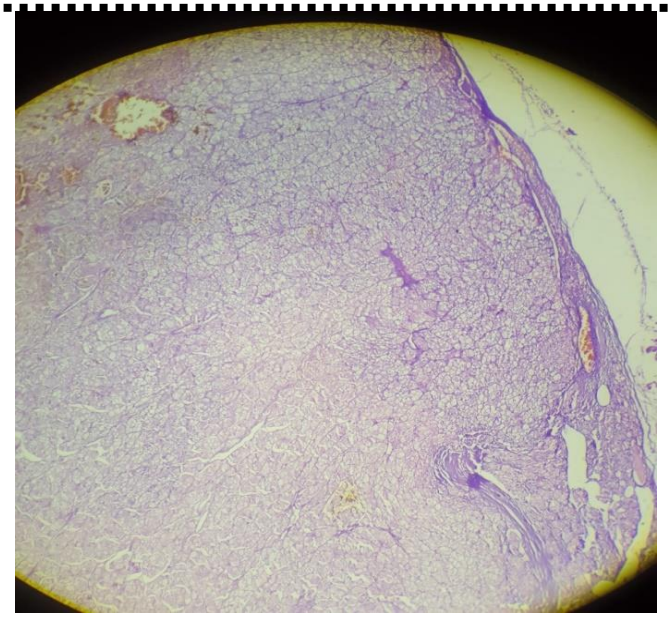

Figure 2: Renal cell carcinoma showing round to polygonal neoplastic cells with clear cytoplasm, round regular nuclei with heterogenous chromatin, stroma showing thin wall vascular channel (400X H & E).

Section from a separate tumor near hilum revealed a tumor composed of thick-walled blood vessels admixed with spindle shaped neoplastic cells showing elongated nuclei without atypia and adipose tissue. This tumor was diagnosed as angiomyolipoma. (Figure 3)

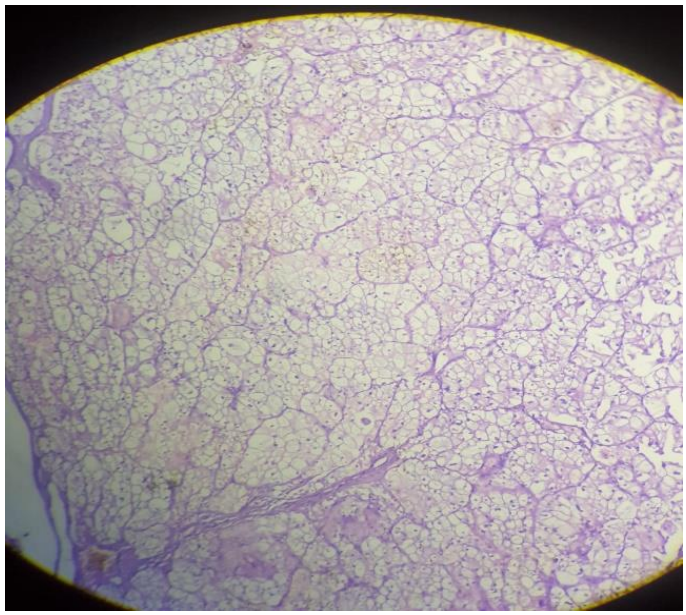

Figure 3: Renal cell carcinoma showing cystic spaces and tubule formation. (400x H & E)

Discussion

Simultaneous occurrence of two types of tumors in the same kidney is very rare and renal cell carcinoma with concomitant angiomyolipoma is seen in patient with Tuberous Sclerosis. Tuberous Sclerosis is an autosomal dominant disorder with clinical presentation as mental retardation, epilepsy as well as tumor like lesion involving various organs.[3]

Incidence of Angiomyolipoma in Tuberous Sclerosis is 80 % and that of Renal Cell Carcinoma is of 1-2 %. However, concomitant occurrence of these two tumors is very rare.[4,5]

In Tuberous Sclerosis, the mean age of patient presenting with Renal Cell Carcinoma with Angiomyolipoma is 59 years with striking female dominance, which is not seen in sporadic cases.[6] Clear cell Renal Cell Carcinoma has been described as most common type of Renal Cell Carcinoma both in sporadic and Tuberous Sclerosis associated cases of concurrent tumors.

The combination of this two distinct can be separate tumor, composite tumor or collision tumor. Collision tumor is meeting of two tumors arising in independent sites. A composite tumor is seen when two different neoplasms occur in same renal nodule, whereas separate tumors are simultaneous occurrence of two tumors at two distinct sites. In our case, tumor had sporadic occurrence and was seen in male patient at late age presenting as separate tumors.[7]

Radiological examination can help in diagnosis of such cases, computed tomography (CT) can differentiate between Renal Cell Carcinoma and Angiomyolipoma. Renal Cell Carcinoma appears as heterogeneously enhanced mass, while Angiomyolipoma revealed adipose tissue. Lipopenic Angiolipoma can radiological diagnosis lead to misinterpretation in such cases. MRI may be useful.

In our case, Angiomyolipoma was missed in the radiological diagnosis. Histopathological examination plays important role in diagnosis of such cases. Extensive sampling is required. Lipomatous component of Angiomyolipoma can be mistaken as perinephric fat. Invasion of renal cell carcinoma resulting upstaging of the tumor.[8]

Also, occasionally epithelioid component of Angiomyolipoma which can be misinterpreted as Renal Cell Carcinoma. Hence, immunohistochemistry for the diagnosis of Angiomyolipoma is required in such unusual cases which includes positive reaction with Actin, HMB 45 and negative reaction with cytokeratin antibodies.[9]

The clinical outcome of coexisting Renal Cell Carcinoma and Angiomyolipoma depends on pathologic stage of Renal Cell Carcinoma component.[10]

Conclusion

Concurrent Renal Cell Carcinoma and Angiomyolipoma is rare, one must be aware of this entity to prevent misdiagnosis and upstaging of tumor.

References

1. H. Moch, P. A. Humphrey, T. M. Ulbright, and V. E. Reuter, WHO Classification of tumours of the urinary system and male genital organs, vol. 8, lyon, 4th edition, 2016.
2. A. A. Petrolla and G. T. MacLennan, “Renal cell carcinoma and other concurrent renal neoplasms,” Journal of Urology, vol. 178, no. 5, pp. 2163–2163, 2007.
3. Amal Fekkar, Kaoutar Znati and Hafsa Elouazzani, ‘Concurrent Angiomyolipoma and Clear Renal cell carcinoma in the same kidney’. Vol. 2021 no. 5 pp, September 2021
4. Corsenca A, Aebersold F, Moch H, et al. Combined nephrectomy and pre-emptive renal transplantation in a tuberous sclerosis patient with angiomyolipoma,

renal carcinoma and life-threatening abdominal hemorrhages. Nephrol Dial Transplant. 2007; 22: 3330–33.

5. Rakowski SK, Winterkorn EB, Paul E, et al. Renal manifestations of tuberous sclerosis complex: Incidence, prognosis, and predictive factors. Kidney Int. 2006;70:1777–82.
6. Aanchal Kakkar, MD; Archana George Vallonthaiel, 'Composite renal cell carcinoma and angiomyolipoma in a patient with tuberous sclerosis'. Canadian urological association, vol 9, Issue 7-8, July- August 2015.
7. Jimenez RE, Eble JN, Reuter VE, et al. Concurrent angiomyolipoma and renal cell neoplasia: A study of 36 cases. Mod Pathol. 2001;14:157–63.
8. J. F. Val-Bernal, F. Villoria, and M. A. Pérez-Expósito, "Concurrent angiomyolipomas and renal cell carcinoma harboring metastatic foci of mammary carcinoma in the same kidney: an incidental autopsy finding in a patient with a follow-up of thirty years," Annals of Diagnostic Pathology, vol. 5, no. 5, pp. 293–299, 2001.
9. Aron M, Aydin H, Sercia L, et al. Renal cell carcinomas with intratumoral fat and concomitant angiomyolipoma: Potential pitfalls in staging and diagnosis. Am J Path. 2010;134:807–12.
10. Rafael E. Jimenez, M.D., John N. Eble M.D., ' Concurrent Angiomyolipoma and Renal Cell Neoplasia' The United States and Canadian Academy of Pathology. Vol 14, no. 3 pg no. 157 December 2001.