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Case Report

Breast cancer with synchronous renal cell carcinoma: a rare case of dual malignancy

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ABSTRACT

Synchronous breast and kidney carcinomas are extremely rare with only 11 cases have been reported in the literature so far in the world. We present a case of a 40-year-old lady diagnosed with right invasive ductal cell carcinoma. During the workup of the patient, an incidental renal mass was identified. After appropriate investigations, the patient underwent a right modified radical mastectomy with a right partial nephrectomy. The patient recovered successfully and was put on regular follow-up post-discharge. We are reporting a case of synchronous presentation of carcinoma breast with RCC which is rare since in world literature, most of the multiple malignancies reported are metastasis/metachronous breast carcinoma with RCC. The aetiology of synchronous malignancy is complex, some primary tumours may not be symptomatic and detected in the routine metastatic workup, and this poses a challenge for the surgical team. Hence with the histopathological report and with the other clinical and radiological parameters, we made a final diagnosis of carcinoma right breast pT2N0M0 with synchronous renal cell carcinoma (RCC) pT1aN0M0. the patient was planned for adjuvant chemotherapy and advised regular follow-up.

Keywords: Breast cancer, RCC, Dual Malignancy, Synchronous tumours, Metachronous tumours

INTRODUCTION

Multiple malignancies rarely occur in the same patient. When two malignancies occur within 6 months, such types of lesions are called synchronous tumours. If the two malignancies are separated by a period of more than 6 months, such lesions are called metachronous lesions.[1] Breast cancer is one of the most common malignancies in women with an overall disease burden of 26.4 % and has surpassed lung cancer as the most common cancer in India. RCC has a much lower disease burden of 1.3 % overall according to GLOBOCON 2020.[2] Renal and breast cancer separately are associated with multi-organ malignancies in a syndromic patient, but the association of synchronous breast and renal cancer is rare. This case report aims to present a case of synchronous breast and renal cancer and the associated management of the condition.

CASE REPORT

We present a case of a 40-year-old lady who came with complaints of a painful lump in the right breast for 6 months with a history of significant weight loss and loss of appetite. There is no history of any nipple discharge, ulceration or lump in any other part of the body. No complaints of any backache, shortness of breath, dyspnoea, jaundice, bleeding PR, irregular menses, or haematuria. The patient has no known comorbidities and no previous surgical history. She is P2l2 with all children with normal vaginal delivery. The patient was conscious and oriented with an initial vitals of 126/82 mm Hg and a PR of 94/min. The examination of the contralateral breast was normal. A 2×3 cm hard lump was palpable in the upper outer quadrant of the right breast with a regular margin and surface fixed to the breast parenchyma without any fixity to the skin or underlying muscles. The

bilateral axilla was WNL. The rest of the systemic examination was WNL.

The patient was investigated for suspicion of malignancy. USG of the bilateral breasts showed an ill-defined heterogeneously hypoechoic lesion of 2.3×2.4 cm with few echogenic foci of calcification, right axilla clear (BIRADS5). FNAC-Ductal carcinoma right breast. Tru-cut biopsy indicated invasive ductal carcinoma ER+/PR-/Her 2 neu+ NST grade 2. CECT chest and abdomen-ill-defined mass lesion 22×30×24 mm in UOQ right breast, exophytic ball shaped heterogeneously enhancing mass lesion 30×29×34 mm at the cortex of the lower pole of the right kidney. MRI KUB was done to evaluate the renal mass which showed a well-defined round encapsulated heterogeneously hyperintense mass arising from the lower pole of the right kidney, with the small exophytic component, showing restricted diffusion, likely neoplastic. PET CECT showed a metabolically active right breast mass lesion, likely neoplastic, low-grade metabolic activity has been seen to enhance the lesion along the lower pole of the right kidney-? RCC/ metastasis which looks unlikely.

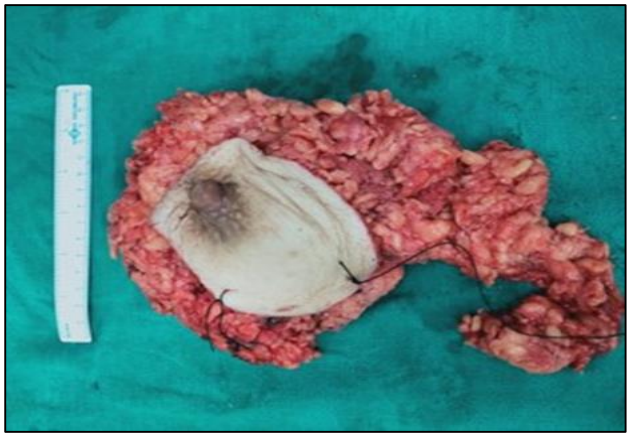

Figure 1: Right MRM.

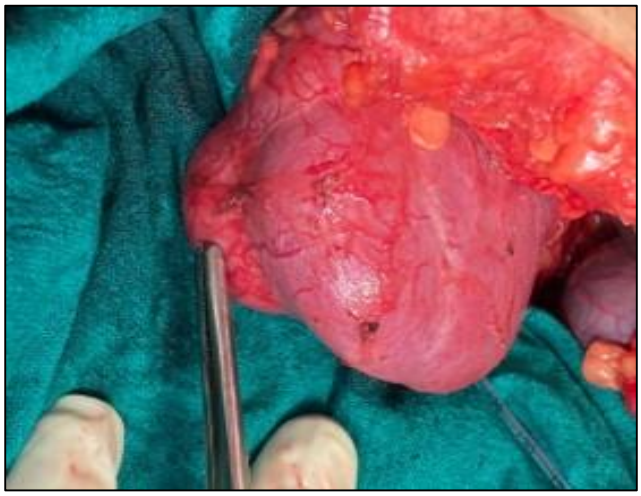

Figure 2: An exophytic mass arising from the lower pole of right kidney.

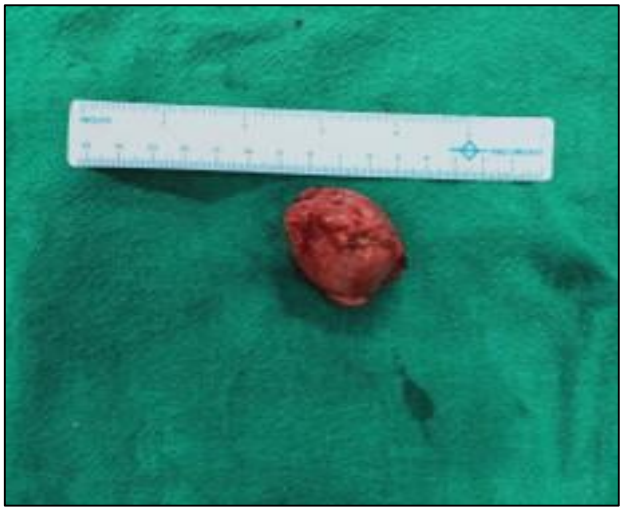

Figure 3: Excised specimen of renal mass after partial nephrectomy.

Figure 4: Cut section of renal exophytic mass.

Figure 5: CECT abdomen shows renal mass.

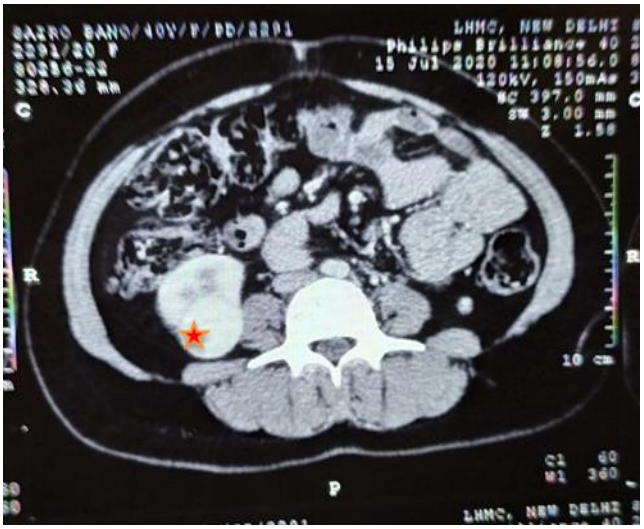

Figure 6: MRI KUB shows renal mass.

Because of the above finding, the patient was taken up for right modified radical mastectomy and exploratory laparotomy with right partial nephrectomy. An exophytic mass of approximately 2×2.5 cm was seen in the right pole of the kidney. No associated lymphadenopathy with the rest of the visualised abdominal organs WNL. The postoperative period of the patient was uneventful.

Final histopathology report showed right breast invasive ductal carcinoma (NST grade 2) ER+/PR-/HER 2 neu+, Margins uninvolved. 0/13 right axillary lymph-nodes uninvolved and right kidney partial nephrectomy specimen showing clear cell variant of RCC (pT1aNx), margins un-involved.

DISCUSSION

The prevalence of multiple primary tumours is between 0.734 to 11.7%.[3] Multiple primary tumours include synchronous and metachronous cancers excluding the metastasis of primary cancer.[4] According to the SEER database, synchronous lesions occur within 2 months of the primary malignancy.[5]

Breast cancer is known to be associated with multiple primary malignancies which most commonly include cancer in the opposite breast and multiple other organs including liver, head and neck cancers, and cancers of the female genital tract. Breast cancer has the highest propensity for developing multiple primary malignancies accounting for 18.3% of all metachronous and 34% of all synchronous malignancies. The most common association of secondary malignancy in breast carcinoma is with contralateral breast followed by genitourinary cancer.[6] Multiple mechanisms have been postulated regarding the same which include hereditary and genetic conditions like BRCA gene association, similar risk factors and the chemotherapeutic drugs and radiotherapy used for the treatment of primary breast cancer.[7]

RCC is the most common malignancy of the genitourinary tract and is the most common second primary malignancy accounting for 10.9-28.9% of the disease burden. Other malignancies associated with RCC include non-Hodgkin's lymphoma, other genitourinary tumours, and skin tumours like melanoma.[8] Multiple studies have estimated that approximately 60% of RCC is SPN and approximately 80% of RCC occurs as synchronous lesions (as per SEER criteria).[8,9] Primary RCC is more aggressive, has a higher pathological staging and larger tumour size compared to Second RCC and more frequently produces pathological signs and symptoms.[10]

As described previously both breast and kidney tumours are known to be associated with secondary primary malignancies of other organs, the association of breast and kidney tumours together is rare.[11,12] Most second primary malignancies are detected incidentally during the workup of the primary malignancy and there is no definitive consensus and guidelines in the management of these. General practice dictates simultaneous resection of both tumours as indicated per treatment guidelines of individual tumours. In case of non-feasibility, the more aggressive tumour should be operated on first.[13]

CONCLUSION

With technological advancements and an increase in life expectancy, there is an increase in the incidence of the second primary malignancy. Co-existing multiple lesions should be evaluated individually and metastasis should be evaluated and ruled out. The possibility of multiple primary tumours whether synchronous or metachronous should be considered. A complete evaluation of the patient should be done to rule out other incidentally diagnosed malignancies. Individual tumours should be managed per individual guidelines, staged and staged and treated accordingly.

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REFERENCES

1. Lv M, Zhang X, Shen Y, Wang F, Yang J, Wang B, et al. Clinical analysis and prognosis of synchronous and metachronous multiple primary malignant tumours. Medicine. 2017;96(17):e6799.
2. International Agency for Research on Cancer. India Source: Globocan 2020. Available at: https://gco.iarc.fr/today/data/factsheets/populations/356-india-fact-sheets.pdf. Accessed on 11 January, 2023.
3. Demandante CGN, Troyer DA, Miles TP. Multiple primary malignant neoplasms: case report and a comprehensive review of the literature. Am J Clin Oncol. 2003;26(1):79-83.

4. Vogt A, Schmid S, Heinimann K, Frick H, Herrmann C, Cerny T et al. Multiple primary tumours: challenges and approaches, a review. ESMO Open. 2017;2(2):e000172.
5. Johnson CH, Peace S, Adamo P, Fritz A, Percy-Laurry A, Edwards BK. The 2007 multiple primary and histology coding rules. National Cancer Institute, Surveillance, Epidemiology and End Results Program. Bethesda. 2007.
6. Tanjak P, Suktitipat B, Vorasan N, Juengwiwattanakitti P, Thiengtrong B, Songjang C, et al. Risks and cancer associations of metachronous and synchronous multiple primary cancers: a 25-year retrospective study. BMC Cancer. 2021;21(1):1045.
7. Second cancers: developing a new cancer after breast cancer. Available at: https://www.cancer.org/cancer/breast-cancer/living-as-a-breast-cancer-survivor/second-cancers-after-breast-cancer.html. Accessed on 18 April, 2023.
8. Beisland C, Talleraas O, Bakke A, Norstein J. Multiple primary malignancies in patients with renal cell carcinoma: a national population-based cohort study. BJU Int. 2006;97(4):698-702.
9. Abdel-Rahman O. Risk of subsequent primary kidney cancer after another malignancy: a population-based study. Clinical Genitourinary Cancer. 2017;15(5):e747-54.
10. Sato S, Shinohara N, Suzuki S, Harabayashi T, Koyanagi T. Multiple primary malignancies in Japanese patients with renal cell carcinoma. Int J Urol. 2004;11(5):269-75.
11. Sarma M, Borde C, Subramanyam P, Shanmuga Sundaram P. Random synchronous malignancy in the male breast: a case report. J Breast Cancer. 2013;16(4):442-6.
12. Chakraborty S, Tarantolo SR, Batra SK, Hauke RJ. Incidence and prognostic significance of second primary cancers in renal cell carcinoma. Am J Clin Oncol. 2013;36(2):132.
13. Chen J, Lou J, He Y, Zhu Z, Zhu S. A comprehensive analysis of renal cell carcinoma as first and second primary cancers. World J Surgical Oncol. 2022;20(1):57.

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