Case Report

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Synchronous Clear Cell Renal Carcinoma And Bilateral Invasive Duct Carcinoma Breast- Rare association

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ABSTRACT

Occurrence of multiple primary malignant tumors is very uncommon .Co occuring tumors can be synchronous or non synchronous.Tumors presenting within a period less than or equal to 6 months are called synchronous and if they occur after 6 months they are termed as metachronous. Synchronous malignancies are rarer than metachronous. For defining tumors as synchronous both the tumors should show criteria of malignancy, possibility of metastasis must have been ruled out and both the tumors should be pathologically distinct. Breast cancer is the commonest tumor to be associated with other malignancies such as colorectal, endometrial, ovarian carcinoma, yet occurrence of invasive ductal carcinoma with clear cell renal carcinoma is rare. We present a 70 year old female with synchronous Breast carcinoma and Renal clear cell carcinoma .

Keywords: *Bilateral Invasive Duct Carcinoma Breast , Cowden Syndrome ,Primary, Renal Cell Carcinoma,Synchronous.*

Introduction

Primary malignancies of different organs can occur in same patient. When they are detected at same time or in time span of 6 months they are termed synchronous tumors whereas when second primary malignancy is detected at time span beyond 6 months of diagnosis of first primary malignancy , they are referred as metachronous tumors[1]. Multiple synchronous primary malignancies can be due to shared genetic mutation [1] Recently more number of cases with multiple primary malignant tumors are being reported probably due to advanced screening protocols and growing awareness of preventive care[2].Multiple contributory mechanisms are proposed such as chemicals ,viruses, chemotherapeutic regimens and ionising radiation. Breast carcinomas is commonly associated with endometrial and ovarian carcinomas. Renal tumors are associated with prostatic carcinoma ,bladder tumors ,malignant melanoma, Non Hodgkin lymphoma. Association of breast carcinoma with Renal cell carcinoma is rare. On reviewing literature, we found less than 20 cases of synchronously occurring breast carcinoma and Renal cell carcinoma.

Case Report

Our patient is 70 year old female who is known case of Diabetes and Hypertension presented with lump and pain in left breast since six months. There was no complaint of nipple discharge or axillary mass.

On clinical examination she had diffuse ill-defined hard mass involving upper outer ,upper inner and lower outer quadrant of left breast .Left nipple was retracted. No palpable tumor noted in right breast .No palpable axillary lymphadenopathy noted. Systemic examination was within normal limits.

On mammography ,extensive microcalcification suggestive of BIRADS cat 4a was reported in left breast. Abnormal irregularly marginated opacity in superolateral aspect of right breast suggestive of BIRADS cat 4b was reported . FNAC of palpable left breast lump was performed and was reported as high grade malignancy . On Trucut biopsy left breast lump was diagnosed as Invasive duct carcinoma . Right breast biopsy also showed Invasive duct carcinoma.

During metastatic work up for breast carcinoma , abodominal sonography was done which showed well defined 5.8x5.3cm sized heterogenous predominantly hyperechoeic lesion with cystic areas at upper pole of left kidney with significant peripheral and internal vascularity suggestive of neoplastic lesion .

Computerised tomography scan showed tumors in left breast , right breast and left kidney .In right breast 2.2 x 1.5 x 1.6cm sized heterogeneously enhancing soft tissue density lesion with speculated margins suggestive of malignancy was seen in upper outer quadrant. In left breast well defined 1.4 x1.4cm sized heterogeneously enhancing lesion with few tiny calcific foci within was seen in outer quadrant of left breast showing speculated margins suggestive of malignancy and diffuse thickening of breast parenchyma and overlying skin was present.CT Urography also showed presence of tumor in left kidney.

Patient underwent bilateral modified radical mastectomy and left nephrectomy. Right breast showed 2.1x1.8x1.5 cm tumor histologically invasive duct carcinoma grade II with ductal carcinoma in situ grade I with free surgical margins and no axillary lymphnodal metastasis T1aN0Mx .Left breast showed 1.2x1.0x0.8 cm tumor(Figure 1) histologically invasive duct carcinoma grade III with ductal carcinoma in situ grade III (Figure 2) T1aN0Mx with clear surgical margins ,no lymph nodal metastasis , both right and left breast tumors were positive for ER(score 8/8) and PR(score 8/8) and were negative for Her2 neu(0/8).

Nephrectomy specimen received showed 5x4.5x4.5 cm variegated tumor in left kidney(Figure 3) , histologically clear cell renal carcinoma WHO ISUP nuclear grade II(Figure 4) ,free renal vein and lymph nodes . On immunohistochemistry renal carcinoma was negative for ER receptor.

Thus both tumors were confirmed as primary on histology and IHC.

Fig. 1: Gross -Breast Carcinoma-grey white tumor with adjacent fibrosis.

Fig. 3: Gross-Renal Cell Carcinoma-V ariegated tumor at upper pole of left kidney.

Discussion:

Eitiopathogenesis of multiple primary malignant tumors is complex and in addition to environmental factors like tobacco ,occupation ,pollution and ultraviolet light genetic predisposition,radiotherapy ,chemotherapy ,hormonal factors genderspecific factors also contribute[3].According to literature prevalence of multiple primary malignancies is about 4.5-11.7%.[4]

Criteria to diagnose synchronous malignant tumors include-

1) presentation of two or more primary tumors simultaneously or within 6 months from each other[5]
2) probability of metastasis should be excluded
3) both tumors must present pathologically different malignancy[6]

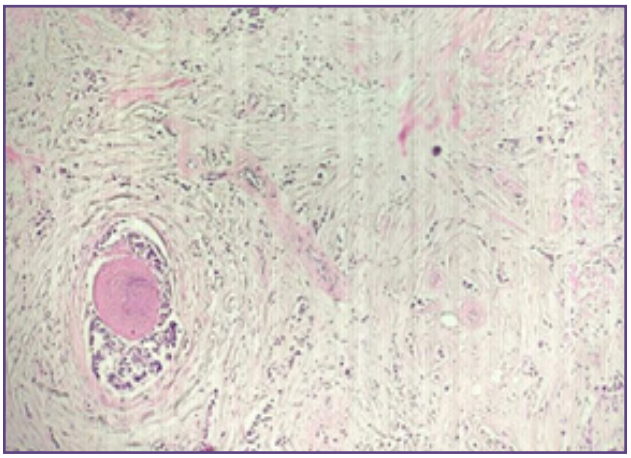

Fig 2: Invasive duct carcinoma grade III with ductal carcinoma in situ gradeIII(H&E ,100X).

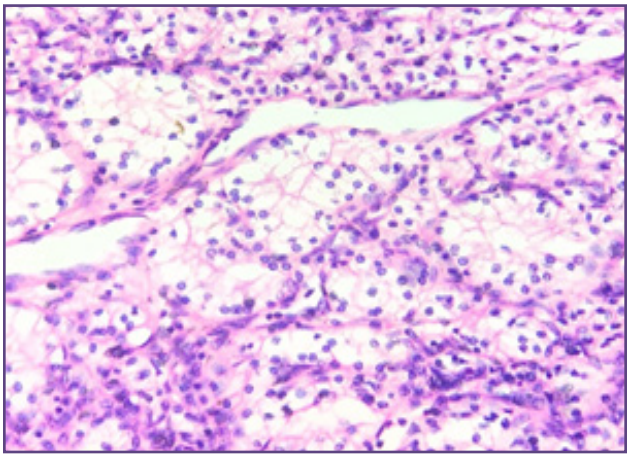

Fig. 4: Clear Cell Renal Carcinoma WHO grade II (H&E,400X).

Our patient had synchronous malignancies as renal carcinoma and breast carcinomas were diagnosed within 6 months duration . Immunohistochemistry confirmed that these tumors were primary and possibility of metastasis was ruled out .

According to literature prevalence of multiple primary malignancies is about 4.5-11.7%[4] . Jiao F et al[7] in there population base reported 8 cases of synchronous breast primaries with RCC with prevalence of 13.1%which was less than Christian B et al[8] study reporting prevalence of 26%. Kurlekar U A et al reported a case of unilateral infiltrating lobular carcinoma of breast and clear cell renal carcinoma which was non reactive for estrogen and progesterone receptors . Ravi Arjunan et al[9] also reported a case of Infiltrating ductal carcinoma of breast with papillary RCC which was non reactive for estrogen and progesterone receptor analysis. Renal cell carcinoma can be seen with other malignancies such as colorectal carcinoma, gynaecological malignancies, lung ,nasopharyngeal and haematological malignancies. Bilateral breast carcinomas are associated with Li Fraumeni syndrome, Cowden syndrome .Renal tumors are associated with Von Hippel Lindau Disease,Bird Hogg-Dube syndrome . Synchronous bilateral breast carcinoma and Renal cell carcinoma can be part of Cowden syndrome . Cowden syndrome forms a subset of PTEN hamartoma syndromes characterised by germline mutations of tumor suppressor PTEN Mutation and mucocutaneous lesions,benign hamartomas,macrocephaly [10] There are increased risks of malignancies of breast ,thyroid ,endometrium, kidney and colon in patients with PTEN hamartoma syndrome [11]and hence they should undergo periodic screening for early detection of malignancies . Patient did not had any dermatological manifestations and on gastrointestinal endoscopy there was a polyp which was diagnosed as inflammatory polyp on histopathological examination. Genetic study for PTEN (Phosphatase and TENSIN homologue) gene mutation is required to confirm or rule out Cowden syndrome .

Conclusion

Multiple primary synchronous malignancies can be due to shared genetic mutations. Such cases require strict exclusion of possible metastasis, confirmation of primary nature of malignancies and genetic work up.

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Competing Interests

Nil

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