CASE REPORT

A unique case of two primaries: carcinoma breast with carcinoma gallbladder

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jaipalreddy.pogal@gmail.com**SUMMARY**

The presence of two primary cancers in a patient is a very rare entity. Carcinoma breast and carcinoma gallbladder are one of the commonest cancers in North Indian women. We report a unique case of carcinoma breast with synchronous primary cancer in gallbladder. A 52-year-old woman presented with a lump in her left breast since 6 months. On examination, the lump was malignant with the involvement of the overlying skin and ipsilateral axillary lymphadenopathy. She also had hepatomegaly with palpable gallbladder lump. On imaging, there was a gallbladder mass infiltrating the adjacent organs. Biopsy of the breast lump revealed infiltrating ductal carcinoma, which was oestrogen, progesterone and HER-2 neu receptor positive. Immunohistochemistry analysis using cytokeratin 7 and 20 on gallbladder and breast mass biopsy specimen revealed the presence of separate primary cancers of gallbladder and breast. The patient received palliative chemotherapy, but died of the disease 5 months after diagnosis.

BACKGROUND

Carcinoma breast is one of the leading sites of malignancies among women all over the world including India.¹ North India has one of the highest incidences of gallbladder cancer in women in the world.² There are several published case reports of breast cancer metastatic to gallbladder^{3–5} and carcinoma gallbladder with metastasis to breast,⁶ but their presence as two separate primaries has never been reported till date. The presence of two primary cancers in a patient is a very rare entity. We report a unique case of carcinoma breast with synchronous primary cancer in gallbladder.

CASE PRESENTATION

A 52-year-old, postmenopausal woman presented with a painless lump in her left breast since 6 months. She had no other symptoms. On examination, there was a well-defined solitary lump in the upper and inner quadrant of the left breast measuring 6×6 cm with skin involvement and peau d'orange (figure 1). She had palpable left axillary lymphadenopathy. An examination of opposite breast and axilla was normal with no supraclavicular lymphadenopathy. On abdominal examination, she had moderate hepatomegaly with nodular surface and a firm palpable gallbladder lump measuring 3×3 cm. The patient was not icteric. There was no free fluid in the abdomen. A provisional diagnosis of Stage IV (T4N1M1) breast cancer was

Figure 1 Lump in the left breast.

made as per the International Union against Cancer staging system.⁷

INVESTIGATIONS

Core needle biopsy of the breast lump revealed infiltrating ductal carcinoma. On immunohistochemistry (IHC), the breast specimen was positive for the expression of oestrogen (ER), progesterone (PR) and HER-2 neu receptor.

An ultrasound of the abdomen detected a mass in the gallbladder fossa with infiltration of the adjacent liver. A CT of the abdomen revealed a 7.8×5.3 cm mass in gallbladder fossa infiltrating segments IV and V of the liver with satellite nodules in segments III and I. The mass was also infiltrating the hepatic flexure of colon and duodenum (figure 2).

Biopsy from gallbladder mass revealed adenocarcinoma, which was negative for the expression of ER,

Figure 2 A CT of the abdomen showing mass in gallbladder infiltrating liver.

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Figure 3 Immunohistochemistry analysis of gallbladder mass showing (A) negative expression for CK7 and (B) positive expression for CK20.

PR, HER-2 neu and cytokeratin (CK) 7 (figure 3A), while it was positive for CK20 (figure 3B). On further detailed IHC analysis, the breast lump specimen was CK7 positive (figure 4A) and CK20 negative (figure 4B).

DIFFERENTIAL DIAGNOSIS

After the initial clinical and radiological examination, a differential diagnosis of carcinoma breast with metastasis to liver and gallbladder or synchronous cancer breast and cancer gallbladder was considered. Pathological analysis using IHC expression for ER, PR, HER-2 neu, CK7 and CK20 helped in reaching a final diagnosis of synchronous primary cancers of breast and gallbladder.

TREATMENT

The patient received palliative treatment and in light of the more lethal nature of gallbladder malignancy, she was started on gemcitabine-based chemotherapy. She received gemcitabine (1000 mg/m²) intravenous infusion on days 1 and 8 along with oral capecitabine (500 mg/m²) twice a day from day 1 to day 14. The cycle was repeated every 21 days.

OUTCOME AND FOLLOW-UP

Following two cycles of chemotherapy, the patient developed gastric outlet obstruction. Chemotherapy was stopped and she was put on best supportive care. The general condition of the patient deteriorated further and she expired after 5 months from the date of diagnosis.

DISCUSSION

Similar to worldwide incidence, carcinoma breast is an overall leading site of cancer in Indian women.¹ Indian patients with

Figure 4 Immunohistochemistry analysis of breast lump showing (A) positive expression for CK7 and (B) negative expression for CK20.

breast cancer are usually locally advanced and metastatic at presentation. North India also reports one of the highest incidence rates of gallbladder cancer in the world.² Most patients with gallbladder cancer also present with advanced disease with unfavourable prognosis and poor response to treatment.⁸ The presence of multiple primaries is rare unless the patient belongs to any of the cancer syndromes. Some cases of carcinoma breast with metastasis to gallbladder have been published and most of these were of infiltrating lobular variety.^{3–5} Lobular carcinoma of breast is peculiar in its metastatic behaviour and may involve intra-abdominal and pelvic viscera, peritoneal and meningeal surfaces. Breast cancer metastasizing to gallbladder is more common than gallbladder cancer with breast secondaries,⁶ though both are rare entities. A majority of these metastases were metachronous, while only one case had synchronous presentation. IHC expression for CK7 and CK20 has been used to establish the origin of primary malignancies in such situations. Gallbladder cancers are usually ER/PR/HER2neu negative, CK7 negative and CK20 positive, while breast cancers are CK7 positive and CK20 negative.⁵

The treatment of a patient with two primary cancers is difficult and treatment modality with benefits common to both the primaries should be selected.

To the best of our knowledge, the simultaneous presence of cancer of breast and gallbladder in a patient has never been reported in the literature to date. In view of the high incidence of breast and gallbladder cancer in women of North India, such a situation should be kept in mind. Owing to the advanced presentation and poor prognosis of gallbladder cancer, a detailed evaluation of any gastrointestinal symptoms or an abnormal abdominal imaging should be conducted in this high-risk population.

Learning points

- ▶ An oncologist should be vigilant for the simultaneous presence of another primary cancer that is usually prevalent in his geographic region.
- ▶ For patients presenting in oncology clinics especially in north India, a high index of suspicion should be kept for the presence of gallbladder cancer.
- ▶ Immunohistochemistry is a valuable tool to identify the tissue of origin in cases with metastasis to unusual sites.

Contributors JP conceptualised this case report, collected data, conducted literature review and drafted the manuscript. VK contributed in analysis and interpretation of the data. NH analysed all the pathological and immunohistochemical details of the case. SM assisted with interpretation of the data and critically reviewed the manuscript. All authors reviewed and approved the final version of the article.

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