Synchronous bilateral breast cancer in a male patient following hormone therapy for prostate cancer

Abstract We report an unusual case of bilateral, synchronous breast cancer in a male patient who had a history of estrogen therapy for prostate cancer. A 64-year-old Japanese man was diagnosed with T1N0M0 prostate cancer and received a total prostatectomy. Twenty months after the resection, the patient developed multiple bone metastases, and received radiation therapy, systemic chemotherapy, and hormone therapy for 15 months. After completing this treatment, he was diagnosed with T1N0M0 primary breast cancer in his left breast and underwent a modified mastectomy. Five months after the mastectomy he received systemic chemotherapy followed by estrogen therapy because of the progression of prostate cancer. Three months after this treatment, he was diagnosed with T1N0M0 primary breast cancer in his right breast. To the best of our knowledge, this is a rare case of synchronous bilateral male breast cancer following hormone therapy for prostate cancer.

Key words Male breast cancer · Bilateral breast cancer · Prostate cancer · Estrogen · Hormone therapy · Gynecomastia

Introduction

Male breast cancer is rare, with an incidence of only 1%. Breast cancer is considered to be hormone-dependent, and estrogen appears to be important among the hormonal factors. We report a rare case of a male patient with synchronous bilateral breast cancer that occurred following anti-androgen and estrogen therapy for prostate cancer.

Case report

In June 2003, a 64-year-old Japanese man was diagnosed with prostate cancer; he received a total prostatectomy in July 2003. The pathological findings demonstrated moderately differentiated adenocarcinoma (GS 4+3, Cap*, ew*, ly*, v*, pn*, sv*, nr*). Twenty months after the resection, the patient developed multiple bone metastases and local recurrence. He received radiation therapy for the cervical vertebrae and remnant prostate cancer lesions, followed by maximal androgen blockade therapy using a luteinizing hormone-releasing hormone (LH-RH) agonist (3.6 mg/day of leuprorelin acetate for 4 weeks) and an anti-androgen agent (flutamide 375 mg/day). Because of the side effects of flutamide, he was given chlormadinone (200 mg/day) or estramustine phosphate sodium (1253 mg/day) or ethinyl-estradiol (1.5 mg/day) for 15 months.

In August 2006, he noticed a mass in his left breast, which was diagnosed as T1N0M0 prostate cancer. Computed tomography (CT) revealed a solid mass with a diameter of 20 mm in his left breast and no masses in his right breast (Fig. 1a). He underwent modified radical mastectomy. On histological diagnosis, the breast lesion was invasive ductal carcinoma, papillotubular type (Fig. 2a), ly*, v*, estrogen receptor (ER)*, progesterone receptor (PgR)*, HER2/neu*, p53*, and prostate-specific antigen (PSA)*, and the Ki-67 labeling index was under 1%. There was no involvement in the nine resected axillary lymph nodes. Because of the absence of hormone receptors in the breast lesion, continuous hormone therapy was added for the pros-
Male breast cancer is a comparatively rare disease, accounting for 1% or fewer of all male cancers and only about 1% of all breast cancers. Various risk factors have been proposed for male breast cancer, including BRCA2 gene anomalies, an imbalance between estrogen and testosterone, Klinefelter's syndrome, a genetic background such as a familial history of...