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A case of long term survival with skeletal only metastatic breast cancer

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ABSTRACT

INTRODUCTION: The prognosis of patients with metastatic breast cancer is very poor. Because of this, treatment of skeletal metastasis is often palliative with limited goals rather than cure. However, there are those patients, such as presented here, who survive for an extended time.

PRESENTATION OF CASE: This thirty-six year old female presented with lytic lesions to one ulna and rib five years after mastectomy for breast cancer. Despite radiation and chemotherapy, the ulnar lesion expanded and resulted in an elbow dislocation. The rib lesion was resected and the arm amputated above the elbow. She developed local recurrence in both her above elbow amputation stump and chest wall and a more proximal below shoulder amputation was performed with resection of chest wall lesion. Even though she had locally aggressive disease, she has survived for 31 years after diagnosis without any evidence of disease.

DISCUSSION: Reports of metastatic breast cancer survival indicate the five year survival to be 15%. There have been few reports indicating that those patients with skeletal only or oligometastatic disease have improved prognosis. It is not clear what biological properties of these tumors results in the improved survival.

CONCLUSION: This case highlights the challenges of giving patients the optimal treatment in the light of limited ability to predict prognosis. It also highlights the need to further investigate the phenotypes of breast cancer that can, despite metastatic disease and with modern treatment go on to long survival. In addition this case demonstrates the importance of long term followup.

1. Introduction

The prognosis of patients with metastatic breast cancer is in general very poor. The 5 year survival rate from the national cancer database has been reported to be 15% and the median survival rate is 8–24 months [1]. Many of these patients will referred for an orthopedic consultation because half of women who present with metastatic breast cancer at primary diagnosis will develop bone lesions [2]. Because of this the orthopedic treatment of skeletal metastasis for these patients is often palliative with the goal being relief of pain and restoration of short term function, rather than that of affecting a cure. However, there are those patients that despite the poor odds against them are able to survive.

2. Presentation of case

A thirty-six year old Caucasian female secretary presented to the orthopedic clinic in 1988 with a 9 month history of a painful, tender mass involving the midshaft of her left ulna. She reported that the pain was constant, worse with activity and only partially relieved by pain medication. She had a history of a modified left mastectomy for carcinoma of her breast in 1983, 5 years earlier. At that time she had two positive axillary lymph nodes which had been removed. Besides her mastectomy she was treated with 1.5 years of chemotherapy with vincristine, adriamycin and cyclophosphamide. She received no pre or postoperative radiation.

On presentation to the orthopedic office radiographs were obtained of her left forearm which demonstrated an osteolytic lesion involving 4 cm of the ulna. A chest X-ray, taken at the same time, revealed a similar osteolytic lesion in the left sixth rib with an associated pleural based mass. A true cut needle biopsy of the forearm tumor revealed an adenocarcinoma compatible with the diagnosis of metastatic breast carcinoma. It was decided at the time that the likelihood of a cure was remote. The patient therefore, received radiation treatment for each of these two skeletal lesions

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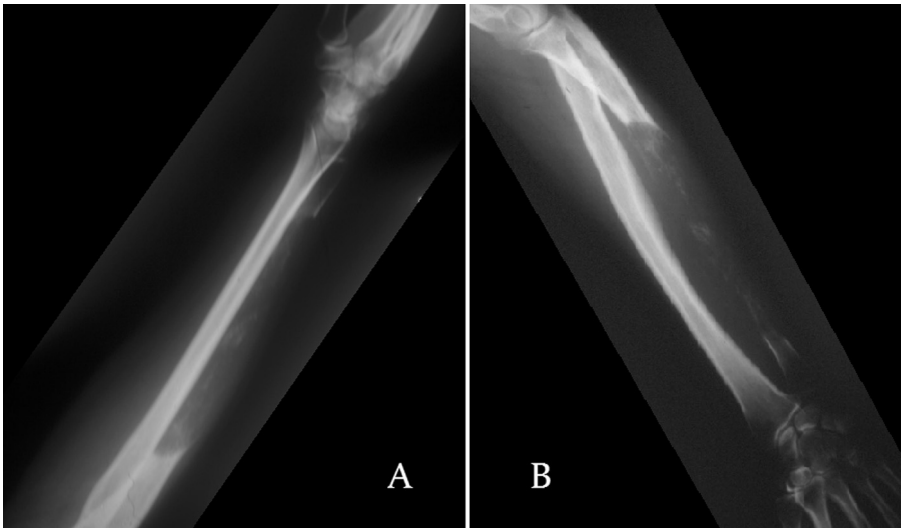

Fig. 1. (A) Lateral and (B) AP radiographs of the forearm demonstrating a large lytic lesion throughout the ulnar shaft caused by metastatic breast cancer.

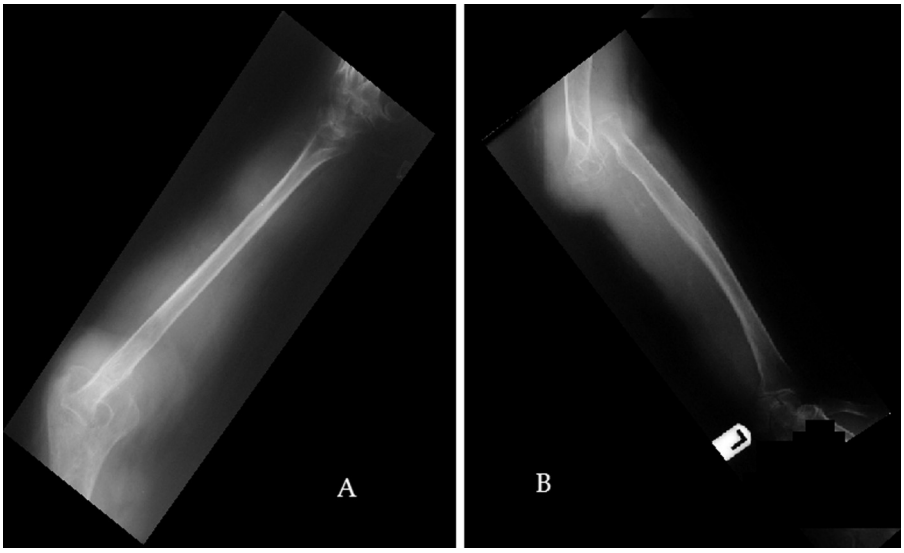

Fig. 2. (A) Lateral and (B) AP radiographs of the forearm demonstrating advancement of the lytic lesion despite radiation treatment resulting in dislocation of the radial – humeral articulation and significant pain with loss of function.

and was placed on Nolvadex. The patient returned to the office in 1992. She had significant relief for a few years after the second round of treatment but now the pain had returned in the forearm. Radiographs at that time showed that the tumor had advanced to destroy most of the ulna sparing only it's proximal few centimeters (Fig. 1) but the patient was feeling well and no plans were made for any surgical intervention. However, over the next year the tumor continued to advance destroying the entire ulna leading to dislocation of the elbow (Fig. 2). She developed severe pain in her forearm and significant disability due to the lack of left arm function. At that time she requested amputation of her arm.

To relieve symptoms and decrease the tumor burden a palliative above elbow amputation was performed in 1993. The mass was $15 \times 4 \times 4$ cm in size and resulted in destruction of the proximal ulna, invasion of the distal humerus and dislocation of the radius (Fig. 3). Recent histological analysis of retained specimens of her tissue was performed which demonstrated that the tumor was apocrine in morphology, positive for Her2 nu, and androgen receptor but negative for estrogen and progesterone (Fig. 4). In addition to her amputation, segments of two ribs were removed where her

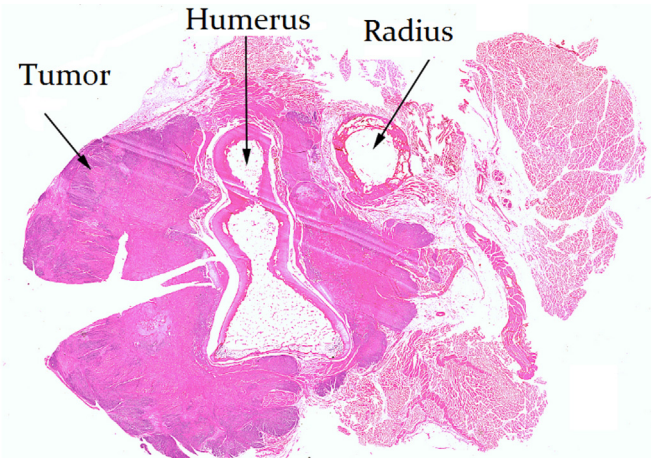

Fig. 3. H+E stained large mount sections of the proximal aspect of the forearm amputation. These slides demonstrate the significant size of the lesion and the dislocation that occurred at the elbow due to the mass.