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Serendipitously Sighted Secondaries.

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ABSTRACT

We present a case of fracture humerus after a significant fall, whose screening serendipitously pointed to an unexpected involvement of other system with secondaries from her previously diagnosed carcinoma breast.

Keywords: Serendipitous, Breast, Secondaries

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INTRODUCTION

Sometimes trauma becomes a blessing in disguise as it serendipitously directs to either a pre existing lesion either to the patient or to the clinician. We present one such case where a fracture pointed to an unexpected involvement of other system with secondaries from the carcinoma breast.

Case Report

A 50 year old lady presented with pain in her right shoulder and difficulty in moving her right shoulder after a fall in a platform near her house. On the time of fall she first landed her head on to bonnet of a car and then fell side on to the ground. She did not have any loss of consciousness. One year back, she had undergone total mastectomy for carcinoma of her right breast and because at that time, she did have low platelet counts, she could not be given chemotherapy. However she was asymptomatic till the day of fall. Her examination revealed swelling in her right shoulder with all movements of her right shoulder were restricted. Her radiographs are seen in figure 1.There was a fracture in the upper humerus with an angulation.

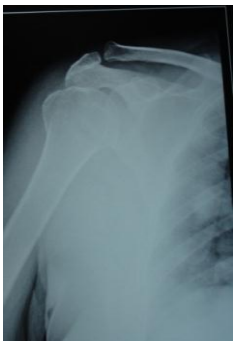

Figure 1: Radiograph of right shoulder of the patient

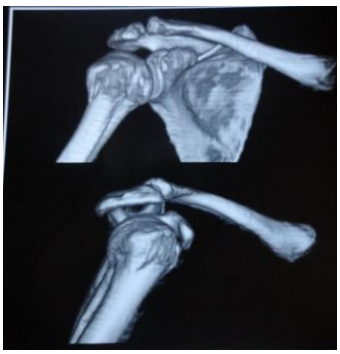

Figure 2: Reconstruction CT right shoulder of the patient- without any secondary lesions

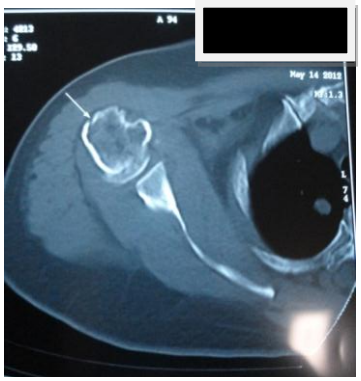

Figure 3.CT of the right shoulder of the patient with the fracture of proximal humerus is marked by an arrow. The facture site didnot show any secondary lesions

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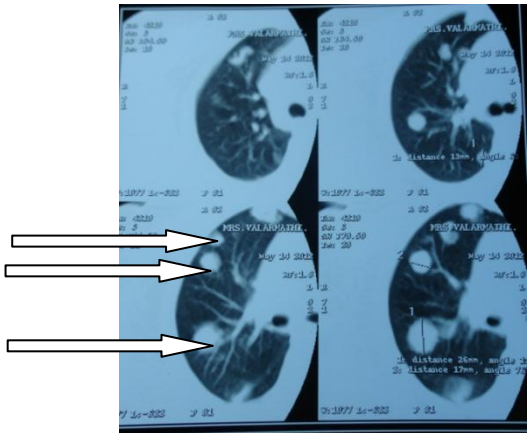

Figure 4: Arrows showing multiple secondaries in the right lung which was serendipitously spotted.

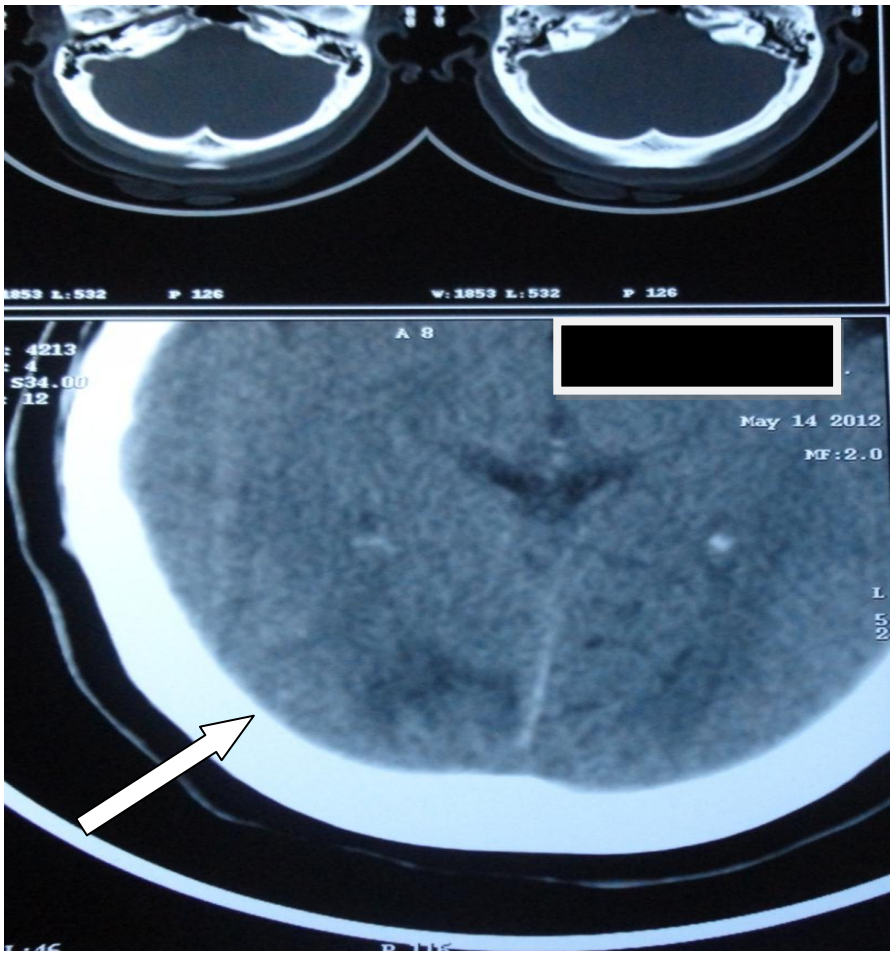

Figure 5: CT sections with arrows showing secondaries in the brain of the patient

A CT of the right shoulder and screening of the brain were ordered. The CT of the right shoulder (Figure 2, 3 and 4) was reported as three parts fracture. To our surprise, the CT report continued that there were multiple lesions in the visualised lung adjacent to the right upper humerus. (Figure 4) To further add to it, there were secondaries detected in the occipital region of brain also (Figure 5). The patient was counselled. She was treated with arm sling, nasal calcitonin spray and oral calcium. She was sent back to the cancer centre she was operated .However they could not start her on adjuvant chemotherapy as the earlier admissions also, she was sent back with counselling. She died three months after the presentation with the fracture.

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DISCUSSION

Breast cancer happen in both sexes but it occurs more frequently in women. It ranks second only to the skin cancers. In modern medicine, quick diagnosis and effective treatment of these patients make them to live longer. Gene mutations account for one tenth of the breast cancers e.g. breast cancer gene 1 (BRCA1) and breast cancer gene 2 (BRCA2) [1]. Cancer cells separating from the primary tumor, and going through the blood circulation to another part of the body is called secondaries [2]. In our case a breast tissue malignancy had carried on to the brain and lungs.

Considering brain secondaries , cancers from lung, breast, bowel, kidney and skin spread to the brain. These cause symptoms resembling primary brain tumours, like headache, weakness of the limbs depending on the area of brain it affects, seizure, psychological change, confusion and tiredness [2]. But there were no such symptoms in our patient. She was totally asymptomatic till the fall. A secondary brain tumor is alleged if a patient had past history of cancer somewhere else in the body or only in routine scanning secondaries are also detected in other places, such as the liver or bones. Occasionally in some individuals, there can be more than one tumor in the brain (multiple brain secondaries) but still can be asymptomatic. [2] In secondary brain tumors, thorough neurological examination of limbs and ophthalmic examination for optic nerve and relevant imaging are done. Only when rarely biopsy of brain secondary was indicated , it was usually done by a neurosurgeon, i.e. if it was a solitary brain tumor and investigations have not found cancer elsewhere in the body. Histopathologically breast tissue could be demonstrable in brain biopsy sections [2].

For secondary brain tumors, steroids , and special type of radiotherapy called stereotactic radio-surgery is used. It sends high dose of radiation precisely to the tumor tissue and causing only smaller amount of damage to surrounding normal tissue. Chemotherapeutic agents that can cross 'blood-brain barrier' are also used. Hormonal therapy or immunotherapy is tried. Anticonvulsant drugs are also prescribed to prevent seizures. There is also a role for psychological counseling in those patients with emotional disturbances [2]. In general, therapy was mainly intended to preserve if not advance the quality of life by controlling the growth or reduce the size and spread of the cancer and reduce unpleasant symptoms and this is called palliation. Even before anything , the patient must be assessed atleast if she will endure the side-effects of systemic chemotherapies, radiotherapy or surgery [3]. When a secondary breast cancer was diagnosed, in the bones, lungs or brain, its management is mainly radiotherapy. [3] In our case, any of these methods could not be tried as our patient's hematological state did not permit. If such patient had not been diagnosed to have a primary breast cancer earlier, then only a biopsy of the breast was necessary [3]. But as in our case she had already biopsy proved carcinoma breast and even underwent surgery for that, no breast biopsy was considered.

In another series of a 10 year long follow up of a large group of 4703 breast cancer patients, it was found that the prognosis of the individual case depended on the presence of micro-metastasis in the bone marrow at the time when the breast cancer was first diagnosed. Also the larger size tumors, more histological grade, more involvement in lymph-nodes and absence of hormone receptor in tumors, the patient carries have a poor prognosis [4]. Experimentally human bone graft was inserted in mouse and human breast cancer cell line from a metastatic nodule in a patient was injected into the mouse blood stream. These cells particularly selectively reached the human bone implant only and not the bones of mouse, signifying a species-specific movement of the malignant cell [5]. Depending on dormancy of malignant cells, they can spread early or late. Secondaries are the cause of death in these patients. When the cell signals controlling cell dormancy are altered especially in a supportive micro environment, the dormant cancer cells multiply [6]. Understanding these mechanisms of primary cancer cell dormancy and their how they grow at the metastatic site help in developing approaches to control these cells. New 3D co-cultures of breast cancer cells with cell types are developed and studied in conditions in which cancer cells be dormant and in simulated conditions where they can proliferate [6].

CONCLUSION

This case was presented to highlight the need to screen with imaging adequately especially even if the patient had a significant velocity of the trauma. History of diagnosis and treatment o any cancer is a must in all traumatic cases also. In patients who were discharged from treatment also, periodic screening for secondaries is a must.

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