CASE REPORT

# Pulsatile secondary scalp deposit from a breast malignancy: A rare entity!

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**Keywords**
Pulsatile, scalp lump, breast malignancy

## Introduction

According to literature pulsatile scalp lumps are usually due to arteriovenous malformations, arterial aneurysms and deposits from internal malignancies. Distant pulsatile scalp metastasis is not a common presentation of breast cancer, unless in the advanced stages of the tumour [1]. It is reported that advance cancers, which metastasis to scalp accounts for 12.8% and among them breast cancer reported as 7.84% [2]. A patient with a breast malignancy presenting with a pulsatile scalp lump as the primary complaint is an unusual presentation.

## Case Presentation

41 year old previously well female presented with a history of a right side frontal scalp lump of one month's duration. It was a painless lump which progressively increased in size. She had no history of trauma or headache. She denied any other lumps in the body. She was having loss of appetite and loss of weight. She was married and had two children. She had used hormonal contraceptives for 5 years. She denied any history of malignancy, including thyroid, breast and skin. There was no family history of malignancies as well.

On examination, she had a firm, pulsatile, non-tender lump on the right frontal region. It measured 3cm × 3cm, spherical in shape and it was attached to the bone. Thrill and cough impulse was absent. Thyroid showed mild enlargement. No cervical lymph nodes were palpated. During her breast examination she was found to have 3.5cm×2.5cm firm, mobile lump on her right breast with ipsilateral palpable axillary lymph nodes. Other examination findings were unremarkable.

Imaging studies were performed. Her mammogram and ultrasound scan of the breast showed BIRADS 5 lesion with BIRADS 4a in right side axillary lymph node. Tru cut biopsy of the breast lump was reported as an Invasive carcinoma of non-specific type and the FNAC of the suspicious axillary lymph node showed metastatic deposits from the breast lesion. Her chest x-ray showed bilateral pleural effusions. During her ward stay she developed a pathological fracture of lesser trochanter of the left femur.

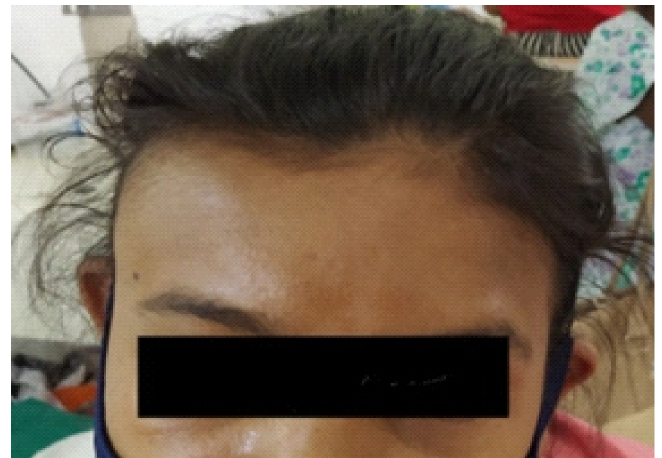

**Figure 1** Scalp lump of right frontal region of a 41 year old lady

The patient underwent Contrast Enhanced CT of head, neck, chest, abdomen and pelvis. It showed a stage IV carcinoma of the right breast with a metastatic lesion in the right frontal bone which abuts the right globe involving superior rectus and superior oblique muscles and bilateral pleural effusions. She was referred to Oncologist for neo adjuvant chemo-radio therapy.

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## Discussion

Pulsatile bony metastatic deposits from advanced malignancies are due to increased vascularity of the lump as a result of over expression of vascular endothelial growth factor (VEGF) by tumour deposits [3]. According to literature it was reported to be associated with papillary carcinoma of thyroid, follicular carcinoma of thyroid, renal cell carcinoma and gastrointestinal malignancy [3]. Pulsatile scalp metastases are very uncommon in breast malignancy and not reported. Cutaneous metastases of breast malignancies are usually manifested in the overlying skin or adjacent to the tumour site.

According to literature scalp metastases from a primary breast tumour is an indicator of progression after treatment or a widespread metastatic disease and very few cases have reported scalp metastases from a primary breast cancer without any other identifiable metastatic sites [1,2,4,5].

Scalp neoplasms represent 2% of the skin tumours and can originate as a primary tumour from epithelium, pilosebaceous, eccrine and apocrine glands or present as metastases [2]. It is reported that 12.8% tumours in the scalp are metastatic malignant lesions and among those deposits from breast cancer account for 7.84% [1].

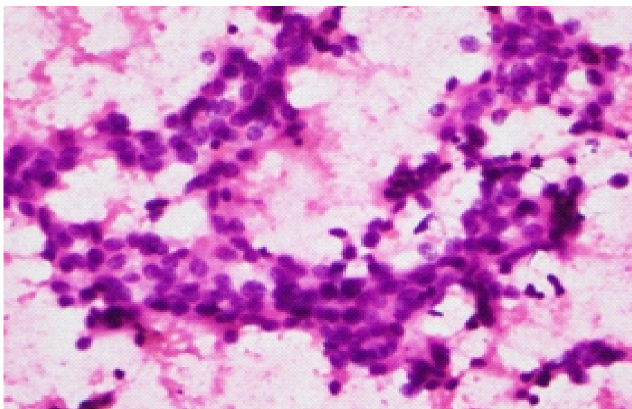


**Figure 2** FNAC of the scalp lump (H & E ) shows clusters of malignant cells. They contain pleomorphic hyperchromatic nuclei with scanty to moderate cytoplasm.

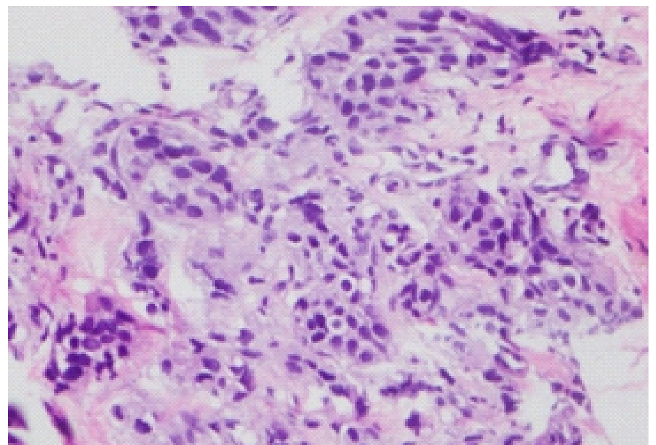
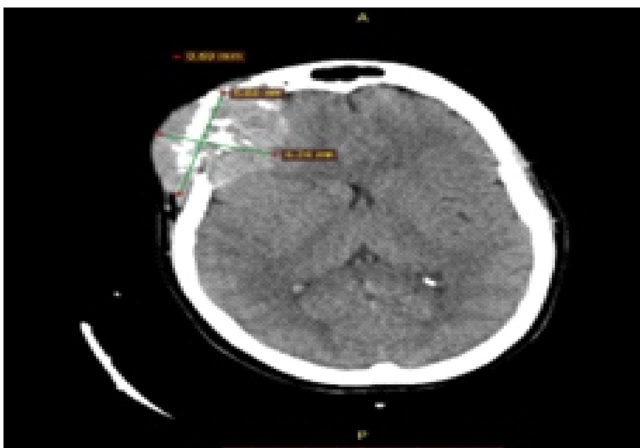


**Figure 3.** Histology of the right breast lump (H & E) shows an invasive carcinoma composed of infiltrating nests surrounded by a desmoplastic stroma. The cells contain enlarged hyperchromatic nuclei with scattered mitotic figures.



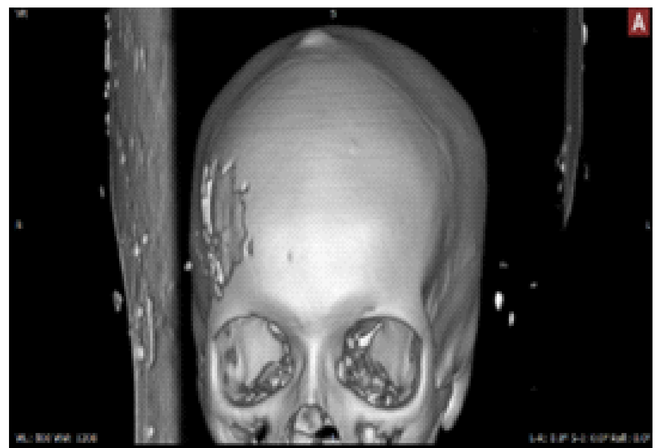




**Figure 4**.Axial (A) and 3DC (B) Contrast enhanced computed tomography of head showing large lytic area involving right frontal and parietal bones.

**References**

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**Learning Points**

- Tumours of the scalp can be a manifestation of an advanced malignancy of other organs.
- Though rare, a differential diagnosis of metastatic breast cancer should be considered when pulsatile bony secondaries are present.
- Extensive clinical examination and investigation should be carried out in patients with malignant lesion of the scalp to find the primary site.