

# PRIMARY ANGIOSARCOMA OR NOT? a radio-pathological Review of 4 cases referred to a Specialist Centre.



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## Introduction

Primary angiosarcoma of the breast is a very rare neoplasia, which unlike secondary angiosarcoma is not associated with previous radiation exposure. It accounts for less than 0.05% of all malignant tumours of the breast, however it is highly aggressive and carries a worse prognosis than mammary carcinomas. Radiologically, angiosarcoma and vascular lesions pose a significant challenge for diagnosis as there are no pathognomonic features seen on conventional imaging (ultrasound or mammography). Findings can be very bland or even occult. Breast MRI is considered the most sensitive imaging modality. Histological appearances can also be non-specific, and careful correlation of radiological and pathological findings is needed in order to optimise the diagnostic pathway of these patients. Referral for joint discussion by specialist Breast and Bone/soft tissue pathologists is often indicated.

## Methods

Four cases with a histopathological diagnosis of a vascular lesion have been identified within the last 6 months, which are presented here. They have been cross referenced with the imaging findings, pathology findings, MDT notes/ patient records. These include 2 cases referred to our Specialist Centre from elsewhere in the Region, and 2 cases from our Breast Unit. This review includes 4 cases; including a low grade primary angiosarcoma, an atypical vascular lesion which on final surgical diagnostic excision proved to be a benign haemangioma, and vascular lesions of uncertain malignant potential, which are due to undergo a surgical diagnostic excision.

## Case 1

This 57 year old patient was referred to our Sarcoma team from another centre with a diagnosis of Primary Angiosarcoma. She had presented with a lump in the left breast, with no abnormality identified on mammography. Ultrasound showed subtle diffuse hyperechoic changes, but no focal abnormality. Clinical core biopsy was performed. The histology was sent to a Specialist UK centre for review, and then to an American Specialist Pathologist for opinion. The patient was treated with radical mastectomy. Pathological examination showed a large 80mm diffusely infiltrative low grade angiosarcoma.

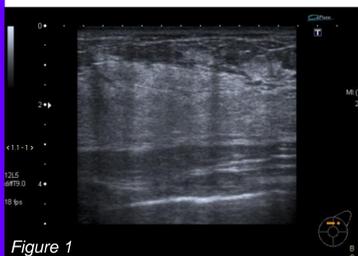


Figure 1: Ultrasound of symptomatic area showed subtle diffuse hyperechoic change.



Figure 2: T2W sequence of breast MRI shows subtle infiltrating tissue stranding of intermediate signal intensity.



Figure 3: T1 subtracted post-contrast sequence shows corresponding infiltrating asymmetrical enhancement.

## Case 2

This 39 year old patient was referred to our Centre due to an incidental breast finding identified on body CT. Conventional Breast Imaging did not show any abnormality. Breast MRI revealed an MRI 4 lesion correlating with the CT. Second look ultrasound and biopsies were performed. Histopathology of the core showed a vascular lesion with some atypical features. The findings were discussed with the local soft tissue pathologists, and surgical excision biopsy was performed. Final histopathology was reassuring but in view of diagnostic uncertainty and management implications, a second opinion was sought. A diagnosis of benign haemangioma was confirmed.



Figure 4: post-contrast CT image shows an enhancing indeterminate mass in the left breast.

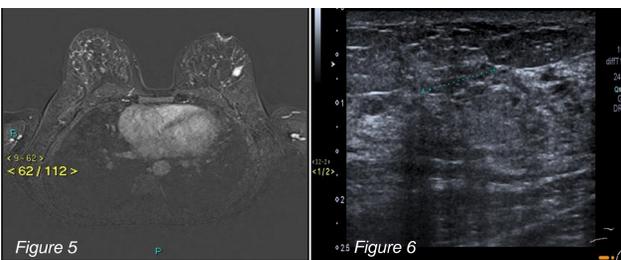


Figure 5: T1 subtracted post-contrast sequence shows avidly enhancing mass corresponding to the site of CT abnormality.



Figure 6: Second look ultrasound following MRI shows subtle area of mixed reflectivity (callipers).

## Case 3

This 83 year old lady was seen in our symptomatic service for a lump in the right breast. No abnormality was identified on mammography and ultrasound showed an indeterminate area of mixed echogenicity. An US guided core biopsy was performed. The histopathology was discussed with the local Sarcoma specialists, and a vascular lesion of uncertain malignant potential has been diagnosed. The patient is due to undergo a surgical diagnostic excision for further evaluation of this.

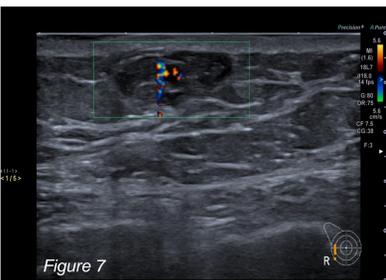


Figure 7: Ultrasound of symptomatic area shows indeterminate area of mixed echogenicity and internal colour doppler flow.

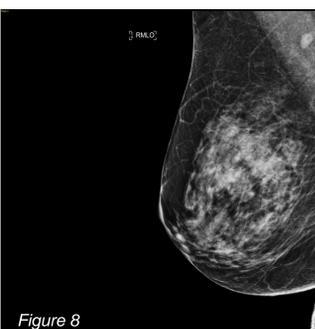


Figure 8

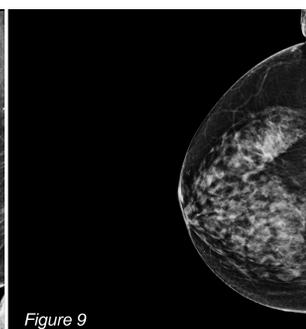


Figure 9

Figures 8 and 9: MLO and CC mammographic views. No abnormality seen.

## Case 4

This 49 year old patient was recalled from breast screening for an increasing density in the right breast. Ultrasound evaluation showed a hyper-reflective lesion with internal cystic areas at the site corresponding to the mammographic lesion. Ultrasound guided core biopsy was performed and histopathology showed a vascular lesion favouring a benign process. It was difficult to ascertain whether this was confined to subcutis (and therefore excision would not be required) or located within breast parenchyma. MDM decision was for a diagnostic surgical excision to be prudent.

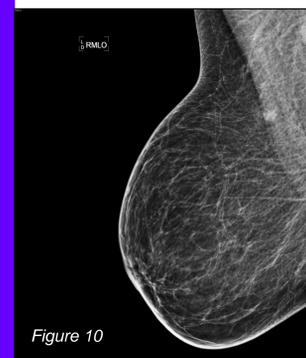


Figure 10

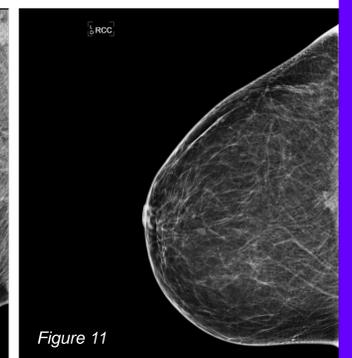


Figure 11

Figures 10 and 11: MLC and CC mammographic views show ill-defined density at 12 o'clock.



Figure 12

Figure 12: Targeted ultrasound showed hyper-reflective lesion with internal cystic areas

## Conclusion

This presentation demonstrates vascular cases with varying radiological appearances. Histologically it can be impossible to distinguish the periphery of a benign haemangioma from a low grade angiosarcoma in a small core biopsy, and hence diagnosis of vascular lesions in breast parenchyma can be challenging. Location in the subcutis or breast parenchyma is relevant to the histopathological interpretation of subtle findings. Good communication between the breast pathologist, soft tissue pathologist and breast radiologist is crucial to diagnosis. Further specialist pathological review may be indicated.

Given the rarity and challenges of these lesions, it is of high importance that suspected cases of primary angiosarcoma are appropriately referred to a specialist tertiary centre for optimal management.

**Unusual appearance on breast imaging, think of a vascular lesion.**

## References

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