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The Complexity of Diagnosing Sclerosing Breast Adenosis

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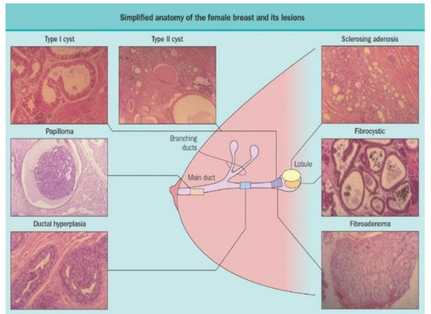
What is Benign Breast Disease (BBD)?

Benign Breast Disease is any abnormalities or changes within the breast tissue that are noncancerous

- Most common in women between 30 and 50
- Breast Imaging Reporting and Data System (BI-RADS) code 2

This image below shows the anatomy of the female breast with corresponding labelling of potential benign breast diseases)

(Stachs, Stubert, Reimer, & Hartmann, 2019, para. 1)

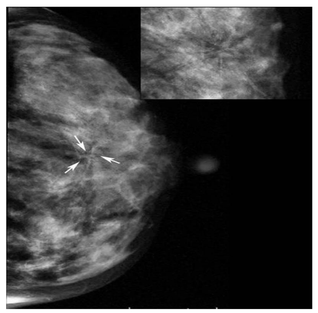


(Santen, 2018, p. 3)

Sclerosing Breast Adenosis (SA)

- BBD that involves proliferating changes in the epithelial and mesenchymal tissues of the breast
  - Tissue is disposed in whorls and distorts the normal glandular structures
- Most common in perimenopausal women
- Usually asymptomatic, but can form palpable masses
- Associated with the risk of developing cancer 1.7 to 3.7 times more than a patient without these abnormalities
- The diagnostic appearance of SA may mimic invasive carcinoma

(Tan, Zhang, Le, Fu, & Wang, 2019, para. 1)



(Tan et al., 2019, p. 3)

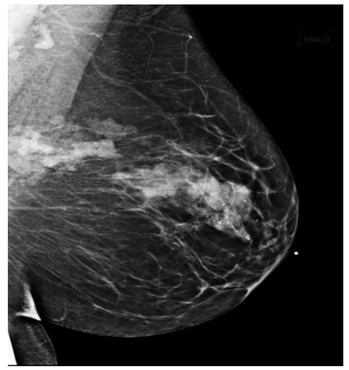
The white arrows in this image point to the architectural disorder of SA in a mammogram

Common Imaging Difficulties in Diagnosis:

Mammography

- May present as a focal asymmetry
  - Clustered, round or punctate microcalcifications
- May present as architectural distortion, irregular density, or spiculated mass
- Mass may be well circumscribed oval or lobular mass

(Payne et al., 2016, p. 3)



(The above image depicts a biopsy clip in the retroareolar region with clustered calcifications surrounding it)

(Payne et al., 2016, p. 30).

Ultrasound

- Nonspecific, oval hypoechoic
- Nonshadowing masses
- Circumscribed, indistinct or microlobulated margins
- Cannot be differentiated from other BBD or from well circumscribed malignancies

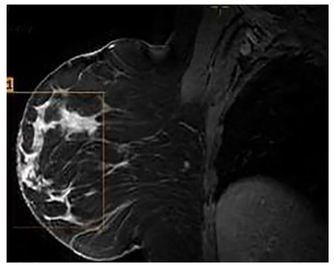
(Payne et al., 2016, p. 30)

(Axmacher, Bhatt & Hesley 2020, Fig. 2)

These images show an ultrasound of a circumscribed hypoechoic mass with an increased transmission and vascularity

MRI

- Type 3 enhancement/ kinetic curve
  - Strongly suggestive of malignancy
- May present as ductal enhancement or as homogenously enhancing
- Oval or round with lobulated or angular margins
- Intermediate signal intensity on T1- and T2 weighted images



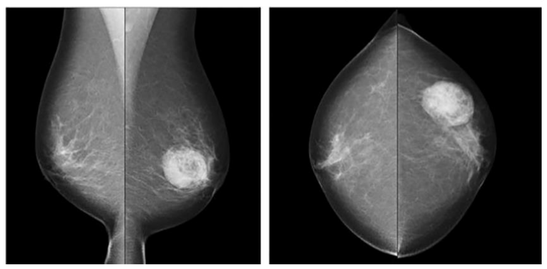
The image above shows abnormal enhancement within the area of asymmetric glandular tissue. It also shows a mixture of type 2 and type 3 washout)
(Payne et al., 2016, p. 30)

Case Study #1

A 73-year-old woman presented with a palpable mass in the left breast.

- No prior mammograms
- Present mammogram showed 36 mm well-defined mass
- Ultrasound showed well defined mass, composed of hypoechoic and hyperechoic areas
- Core needle biopsy was diagnosed as SA
  - Due to age and severity of mass size, partial mastectomy was performed
  - Pathology showed ductal carcinoma in situ in SA in a hamartoma

(Fukai et al, 2018, para. 1)

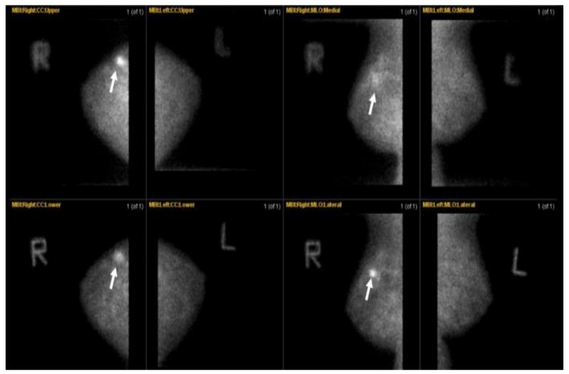


(The above images show MLO and CC views of the left breast. They show a well-defined mass with high density.)
(Fukai et al., 2018, Fig. 1)

Case Study #2

A 51-year-old women presented with heterogeneously dense breast and a history of benign breast cysts

- Patient underwent molecular breast imaging
  - Presented with positive uptake in the upper outer right breast
- Ultrasound and MRI confirmed a mass in this region
- Biopsy was conducted and deemed benign sclerosing adenosis



(Axmacher et al., 2020, para 1-3) (Axmacher et al., 2020, Fig. 1)

(The images above point to the focal uptake in the right upper outer quadrant)

Conclusion

- The purpose of this research was to explain what sclerosing breast adenosis is and how the diagnosis can be quite complex.
- SA patients are usually diagnosed between the ages of 30 and 50
- SA's hypervascularity and washout kinetics in MRI make it extremely difficult to distinguish radiologically from carcinoma
- SA has been shown to be present in 12% of benign and 5% to 7% of malignant specimens on histopathological examinations
- The likelihood of a lesion showing a type 2 kinetic washout is 6%
- The likelihood of a lesion showing a type 3 kinetic washout is 29% to 77%
  - Both washouts will require a biopsy

(Payne et al., 2016, p. 31

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