Fat necrosis: a review of imaging and pathology in a UK breast unit
Is it safe to not biopsy or follow up?

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Background

- Fat necrosis of the breast is a benign condition, but imaging findings can be variable and indeterminate.

- In our Trust, where biopsy is considered unnecessary on imaging due to features entirely in keeping with fat necrosis, local policy has been to advise follow up imaging at 6 weeks.

- However, neither Best Practice Guidelines 2010 nor Northern England Strategic Clinical Network Breast Cancer Clinical Guidelines 2016 state that follow up is required.

- Best Practice Guidelines 2010 state:

'the following solid breast lesions may be safely diagnosed using clinical and imaging information and do not require needle biopsy…

  −Presumed fat necrosis
    - *clinical benign (p2)*
    - *imaging typical of fat necrosis u2 (+/- M1/M2)*

If there is any doubt about the nature of the lesion or discrepancy between the clinical and imaging features, needle biopsy should be performed.'

- Northern England Strategic Clinical Network Breast Cancer Clinical Guidelines 2016 state:

  'If clinically benign (P1/P2) and imaging consistent with fat necrosis U2 (+/-M1/M2) then biopsy is not required. If there is ANY doubt either clinically or radiologically then biopsy should be performed.'

Aim

- To assess the utility and outcome of follow up imaging (+/- biopsy performed at follow up imaging) where initial imaging is considered consistent with fat necrosis.
- We present a retrospective audit of our management of patients with likely fat necrosis on imaging.

Methods

- All patients with fat necrosis reported on first imaging between January 2015 and December 2016 were identified retrospectively from breast clinic records.
- Imaging and pathology findings were reviewed on the hospital electronic patient information systems.
- Descriptive statistics were performed.

Results

- Ninety-six patients (89 female, 7 male) were identified from breast clinic records.
- 31% (30/96) patients had one imaging attendance, 55% (53/96) had two, and 14% (13/96) >2 attendances.
- 43% (13/30) patients where imaging was thought likely to be fat necrosis but appearances were not entirely typical, underwent biopsy at their first imaging attendance, with 2 malignancies detected.
- 69% (66/96) patients had imaging findings which were considered consistent with fat necrosis and were assigned to follow up imaging.
- Of the 66 patients who were assigned to follow up imaging, 25 had a history of trauma and 41 had no history of trauma.
- Of those assigned to follow up imaging, 74% (49/66) demonstrated radiological improvement or complete resolution.
- Of those assigned to follow up imaging, 26% (17/66) underwent biopsy at their second imaging visit, 8% biopsied (5/66) at a later visit.
- Of those biopsied at follow-up, one biopsy result (5%, 1/22) was malignant, all others were benign (95%, 21/22).
- On subsequent review of imaging, the 1 case (out of the 66 who were initially assigned to a follow up scan) which proved malignant on core biopsy was not in retrospect consistent with fat necrosis on the initial imaging and should have been biopsied at the initial attendance (initial scan by visiting locum).
- There has been no further cancer identified in this cohort of patients to date (as at June 2018).

Typical fat necrosis . Entirely resolved at 6 week follow up.

Ultrasound reported as fat necrosis, biopsy at 6 week follow up = B5b. Imaging considered misinterpreted on review.
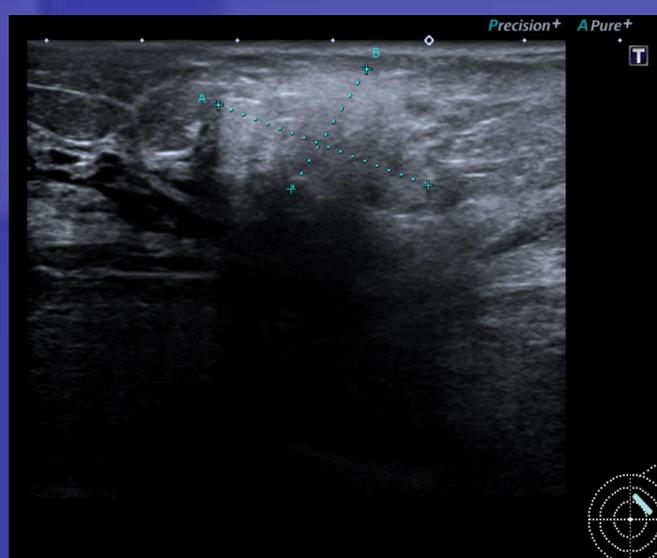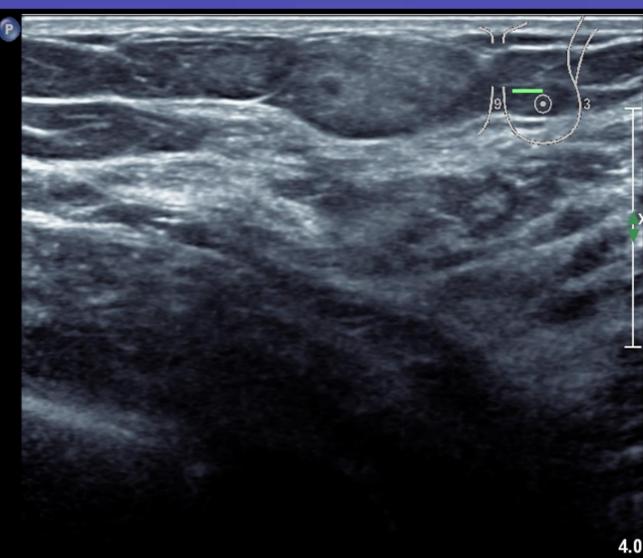
Conclusions

- Core biopsy should be performed at first imaging attendance if radiological findings are not entirely consistent with fat necrosis.

- Our findings indicate that, regardless of the presence or absence of a history of trauma, if US indicates typical fat necrosis there is no benefit from routine follow up imaging .

- Study findings support national and regional guidelines, and local policy will be changed to adhere to these.