

MAMMOGRAM AND ULTRASOUND APPEARANCES OF GRADE 3 INVASIVE BREAST CANCERS: A TWO YEAR RETROSPECTIVE REVIEW

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Background

Early detection and treatment of grade 3 invasive breast cancer is exceedingly important to patient prognosis.

Invasive breast cancers are known to have many varied appearances on mammogram and ultrasound, but there are few publications that have looked specifically at the imaging appearance of the grade 3 invasive breast cancer subgroup.

This 2 year retrospective review was carried out in a UK NHS breast unit and includes biopsy proven patients of both symptomatic and NHS BSP origin.

Aims

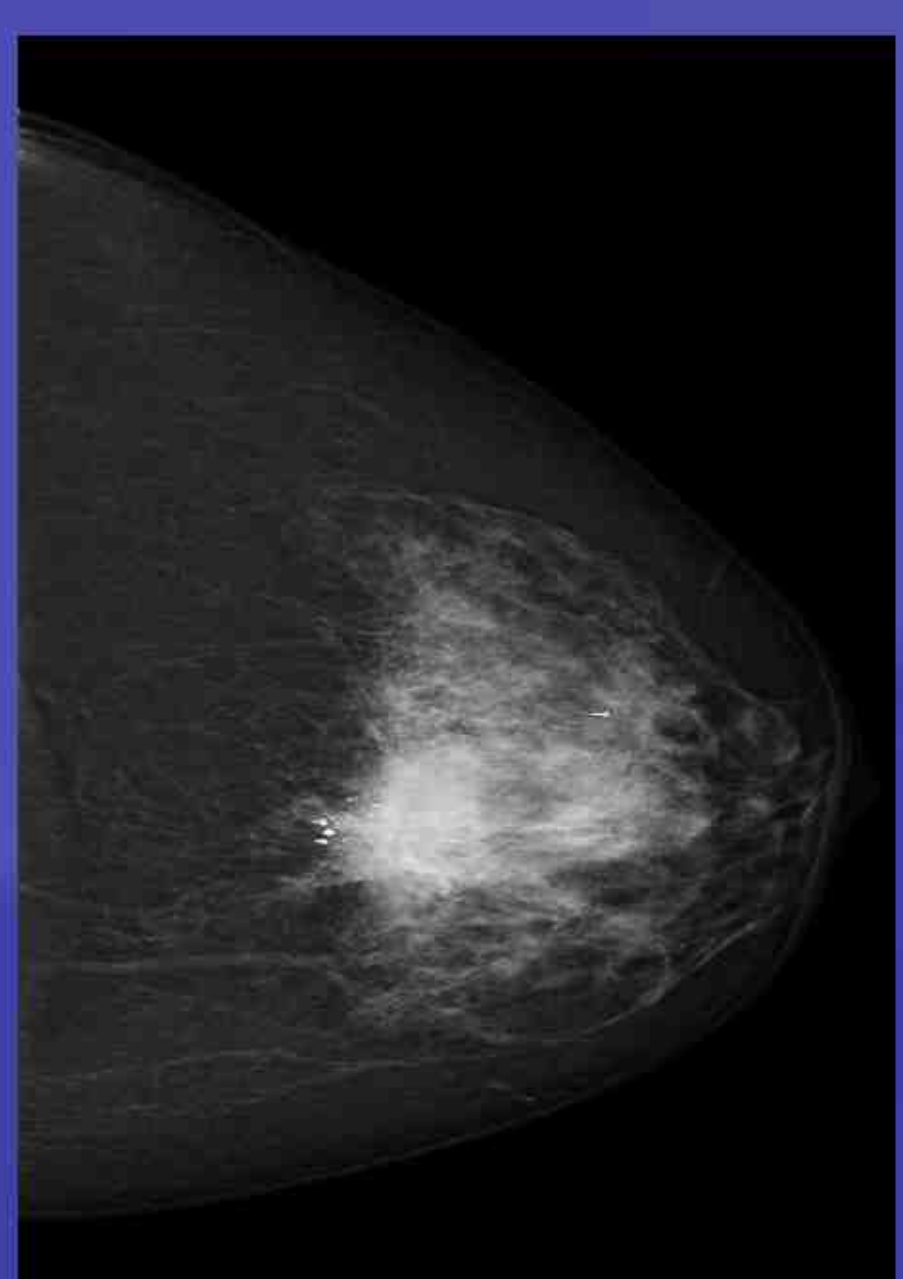
- To determine the range of imaging features at initial patient assessment that are associated with grade 3 invasive breast cancer.
- To determine the frequency with which grade 3 invasive cancers are associated with each imaging feature.
- To assess how commonly grade 3 invasive cancers are mammographically occult, sonographically occult, or only detected as a result of an imaging-detected lymph node abnormality when presenting clinically or recalled by the NHS BSP.

Methods

- 24 month retrospective search of all grade 3 invasive breast cancer histology using the hospital electronic record.
- All grade 3 imaging was reviewed. NBSS descriptors were used to describe cancer appearance on mammogram and ultrasound. Occult lesions and lymph node abnormalities were noted.
- Descriptive statistics were performed.

Results

- 235 female patients were histologically diagnosed with grade 3 invasive breast cancer over the two year review period.
- 31% (72/235) patients were initially identified by the NHS BSP.
- 69% (163/235) patients presented via referral to our one stop symptomatic breast clinic.
- **Mean tumour size:**
 - Mean screen detected grade 3 breast cancer size was 20.5mm (range 6-80mm, median 16mm)
 - Mean one stop clinic grade 3 breast cancer size was 31mm (range 9-200mm, median 24mm)



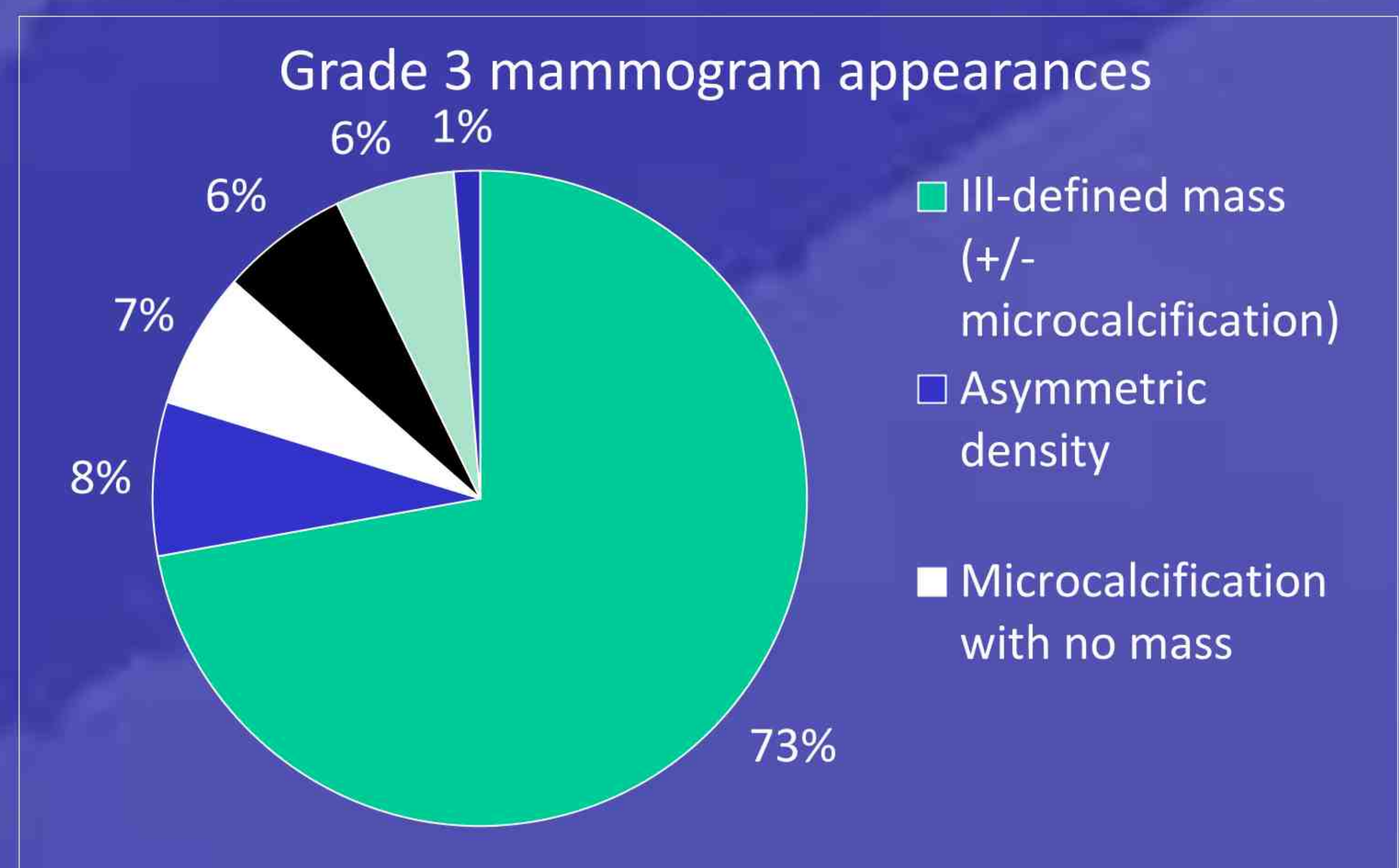
The most common imaging appearances for our grade 3 cancers: ill-defined mass on mammogram, and ill-defined mass on US



Results (continued)

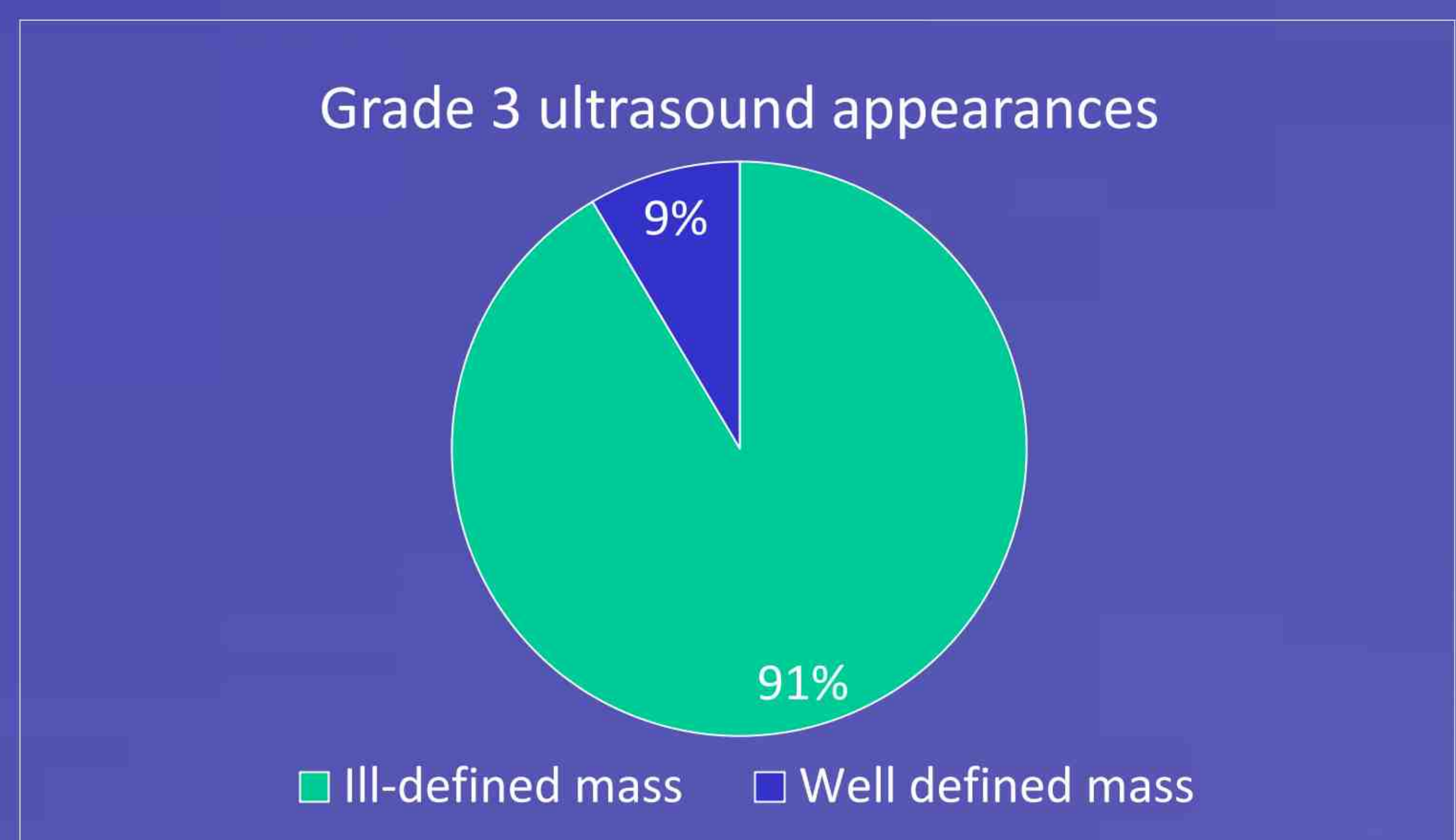
• Mammogram: imaging appearance:

- 73% (171/235) ill-defined mass
 - Of these, 33% (57/171) had associated microcalcification
- 8% (18/235) asymmetric density
- 7% (16/235) microcalcification with no associated mass
- 6% (15/235) mammographically occult
- 6% (14/235) well defined mass
- 1% (3/235) architectural distortion
- 0% (0/235) presented with lymph node abnormality only



• Ultrasound: imaging appearance:

- 91% (215/235) ill-defined mass
- 9% (20/235) well defined mass



Conclusion

Grade 3 invasive breast cancers most commonly present on mammogram as an irregular mass without associated microcalcification, and as an ill-defined mass on ultrasound. It is notably rare for grade 3 cancer to present as an architectural distortion or as an isolated lymph node abnormality. It is worthwhile noting that 6% of grade 3 cancers are mammographically occult, and that the mean imaging size at presentation is smaller when detected by the NHS BSP.