

Misinterpreted Interval Arbitration Cancers: An Audit and Pictorial Case Review

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Background

Mammography arbitration is a method for reducing the number of benign/normal recalls to assessment, whilst detecting small cancers. It has evolved from single reader arbitration to panel consensus review¹. Arbitration cancers have been interpreted by one of two readers and can be considered having borderline or subtle signs²

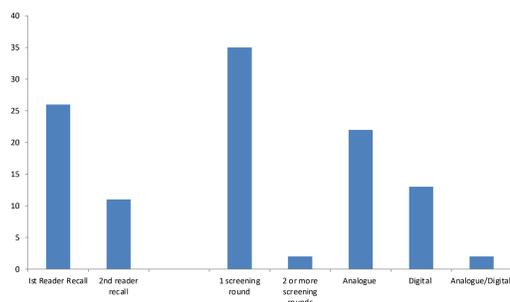
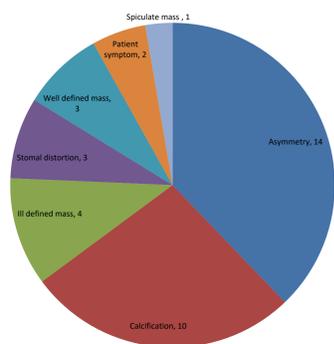
Purpose and Method

A pictorial review to highlight some interesting cases of vague or misleading appearances resulting in a normal report.

A large breast screening unit's collated data of consensus interval cancers April 1991-March 2017, was used.

The mammographic appearances of these cases were recorded; descriptive results and topical cases are presented

Results



- Interval arbitrated cancers became 0.6% (N=37/6071) of all arbitrations
- 35 were from one screening round; 2 from 2 screening rounds
- 22 were analogue cases and 13 were digital cases; 2 were both analogue first then digital.

Discussion

Discordant interval cases represent less than 1% of all discordant/arbitrated screen reads. Of these 70% were recalled by the 1st reader and therefore deemed normal/benign by the 2nd reader and consensus opinion. Lesion type is dominated by calcification and asymmetric densities. Surprisingly only one case was a lobular carcinoma as these tend to be obtuse.

Conclusions

The main findings are:

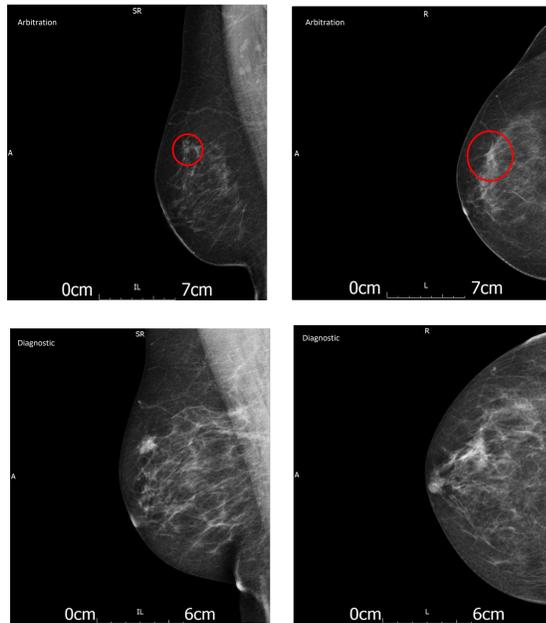
A lesion can be more prominent on one view.
Previous images were persuasive that there was little change in mammographic appearance.
Although this is a small subset it could provide useful cases for PerForms.

An automatic film reader alert on NBSS would be very useful to highlight previously arbitrated cases to ensure no further concern

References

- Jenkins J, Murphy A E, Edmondson-Jones M, Sibbering D M, Turnbull A E. (2014) Film reading in the East Midlands Breast Screening Programme – Are we missing opportunities for earlier diagnosis? Clinical Radiology. 69: 385-390.
- Caumo F, Brunelli S, Tosi E, Teggi S, Bovo C, Bonavina G, Ciatto S. (2011) On the role of arbitration of discordant double readings of screening mammography: Experience from two Italian programmes. (La Radiologia Medica) 116:84-91.

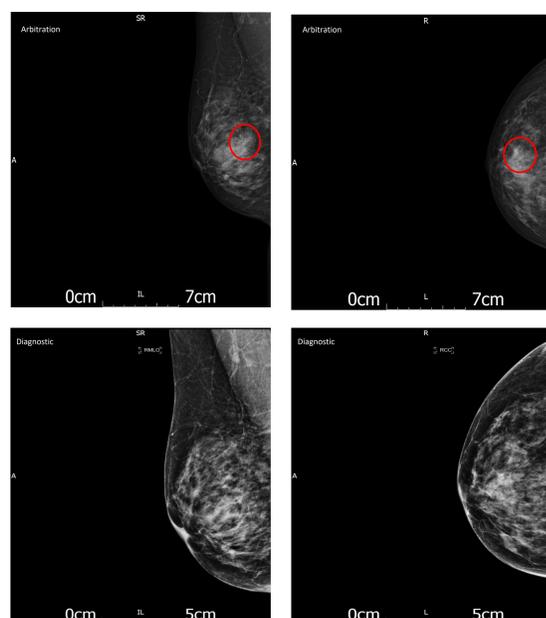
Case 1 Architectural distortion



Arbitrated by 3rd reader and considered tissue only. If now at group consensus this probably would have been recalled.

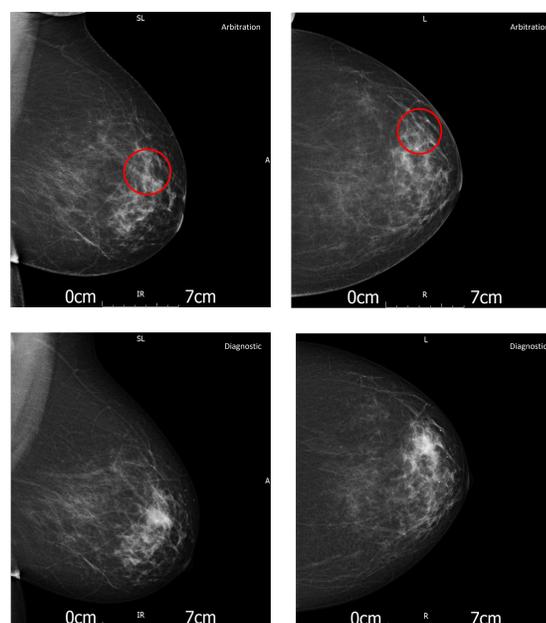
Grade 1 ductal carcinoma

Case 3 Distortion seen on CC, not seen on MLO



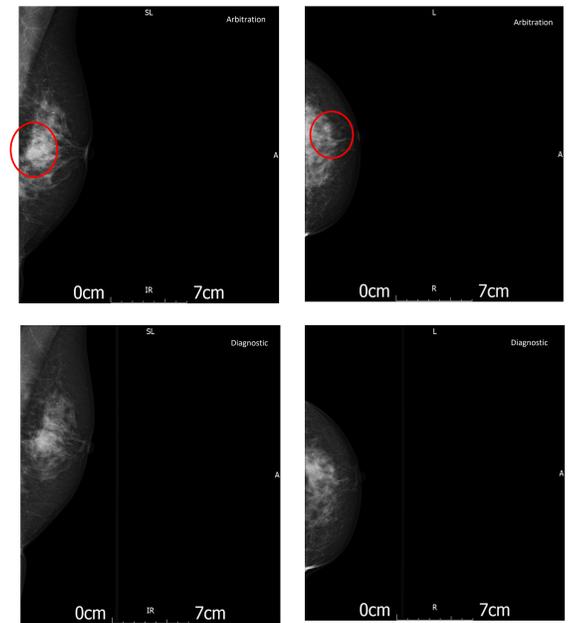
A distortion seen best on the CC view and not convincingly seen on the MLO view. Group consensus felt this was a positional change only. **Grade 1 ductal carcinoma**

Case 5 blood vessel confusing the picture



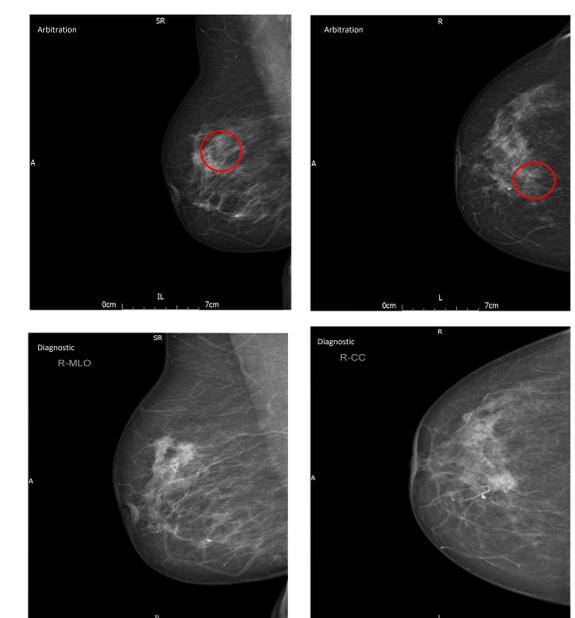
5 years and a screening in between. A large vessel was thought to over lie dense tissue by the 3rd reader **Grade 2 ductal carcinoma**

Case 2 Dense tissue and positional issues



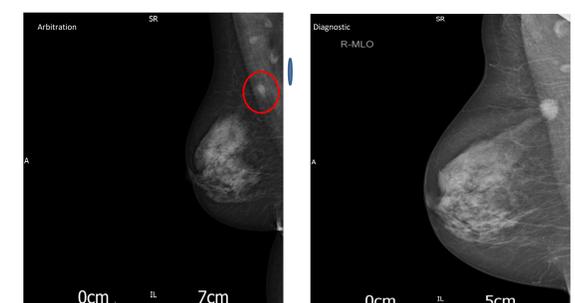
Within the dense breast tissue and difficult to position CC views. Considered positional and best possible at consensus. **Grade 3 ductal carcinoma**

Case 4 Architectural distortion



Group consensus considered this a positional change **Grade 3 ductal carcinoma**

Case 6 Lymph node



This was considered one of several normal nodes with an overlying density. Seen on the MLO view only. **Grade 1 ductal carcinoma**

Further Reflections

These cancers are often obvious in retrospect. This suggests misinterpreting subtle changes including

- change from analogue to digital resolution,
- improving digital resolution over time and equipment update
- variation in position

Increasing a reader's sensitivity with group consensus discussion and audit reviews may further reduce this small cohort of cancers.

Additionally being aware of a previously arbitrated feature may influence future recall decisions.