

## Introduction

Digital breast tomosynthesis (DBT) is known to increase the sensitivity of the detection of mammographic abnormalities when combined with standard 2-D mammography.<sup>1,2,3</sup> DBT is yet to be formally established in the workup of MRI findings in high-risk NHS breast screening programme (NHSBSP) patients. However, evaluation should be in accordance with the NHSBSP assessment guidance to include clinical examination, additional imaging and ultrasound (US).<sup>4</sup> Combining DBT with conventional imaging may increase the overall sensitivity.<sup>5,6</sup>

The aim of this evaluation is to consider the value of second look DBT in MRI detected abnormalities in high-risk surveillance women (NHSBSP).<sup>7</sup> Reporting and interventional advanced practitioners (AP's) should be aware of the implications of DBT.

## Method

8 high-risk MRI patients were referred for second-look ultrasound, between April 2018 and December 2019 and reviewed. Data were extracted from the NBSS database and KC62 report.

## Results (Figure 1: see below)

6 patients had DBT, 2 were excluded not requiring additional mammographic imaging due to age. All had an ultrasound and clinical examination. Needle intervention was performed in all 6 cases and 5 were normal or benign.

1 case demonstrated an architectural distortion on the DBT which was not perceivable on 2-D mammography. Whilst the ultrasound was unclear; DBT guided stereotactic biopsy confirmed this as invasive ductal carcinoma, grade 1.

| No. | Lesion Type                                | MRI grade | DBT done?   | 2-D Mamm | DBT | U | Biopsy     | Biopsy Result | Outcome    |
|-----|--|-----------|-------------|----------|-----|---|------------|---------------|------------|
| 1   | Mass                                       | 3         | YES         | M2       | M2  | 1 | SCBX (DBT) | B1            | RR         |
| 2   | Well defined masses                        | 2         | X           | M1       | X   | 2 | FNA        | C2            | RR         |
| 3   | Irregular mass type II curve               | 4         | YES         | M1       | M5  | 3 | SCBX (DBT) | B5b           | Mastectomy |
| 4   | Well defined mass                          | 3         | YES (NO 2D) | X        | M2  | 2 | X          | X             | RR         |
| 5   | non mass enhancement ? Glandular           | 3         | YES (NO 2D) | X        | M1  | 2 | FNA        | C2 cyst       | RR         |
| 6   | C2 mass (2016) with inc enhancement        | 3         | YES (NO 2D) | X        | M2  | 3 | VAB (DBT)  | B2 hamartoma  | RR         |
| 7   | 2mm WDM                                    | 2         | YES (NO 2D) | X        | M3  | 1 | SCBX       | B1            | RR         |
| 8   | asymmetry non mass enhancement ? Glandular | 3         | X           | M1       | X   | 1 | X          | X             | RR         |

## Discussion

6 patients were reviewed by the same Consultant that reported the MRI. Reviewer consistency is considered best practice to enable correlation in interpretation, however further assessment is often undertaken by AP's.

## Clinical Imaging

In 2015 a study of 520 patients found 164 lesions in 114 women (22%). Targeted US identified 69.5% of lesions, however of the remaining 30.5% 50 lesions, 32 were seen on DBT, increasing the overall detection rate to 89%.<sup>5</sup> Another study found 84 additional findings at MRI in 135 patients. When combining second look US with DBT the overall detection rate increased from 52% to 75%.

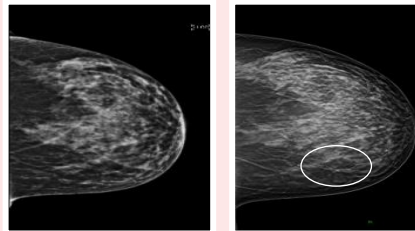


Figure 2: Standard 2-D mammography (L) with DBT slice demonstrating a distortion (R) initially seen on MRI (Figure 3)

The literature suggests that DBT following MRI additional findings has the potential to significantly increase detection rates when compared to standard 2-D mammography and US alone. Our case of an abnormality only visible on DBT and not perceivable on 2-D mammography or US, but which correlated with the MRI appearances reflects this (Fig 2 and 3). DBT should therefore be considered in the evaluation of MRI findings. In cases where standard 2-D mammography is not required (<40 years) with an MRI finding, 2D+DBT for further investigation may prove useful.

## References

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4. PHE. Clinical guidance for breast cancer screening assessment. 2016. PHE pub.49.
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## Advanced Practice

Consultant Radiographers or Radiologists report Breast MRI cases however Advanced Practitioners may be required to assess findings. An NHSBSP approved course should be undertaken for those radiographers requesting and reporting DBT images. DBT may give confidence to the findings or increase margin characterisation, and can also aide lesion localisation prior to ultrasound. Correlation with MRI is required. Advanced practitioners should review DBT cases with the breast team regularly to maintain competency. In-house training may be offered to support stereotactic DBT procedures.

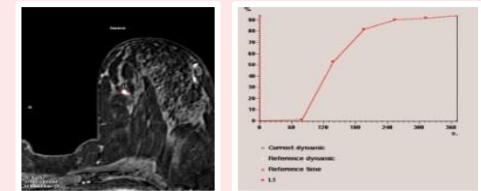


Figure 3: MRI with contrast and region of interest located (L1) – associated Type II curve

## Learning Points

The following recommendations are taken from the literature and own clinical experience;

- DBT should be considered for evaluation of second look MRI findings to enable localisation prior to US.
- DBT can increase confidence in benignity or normal ultrasound.
- Stereotactic core biopsy can be guided by DBT images.
- Evaluation by the same reviewer of the MRI report is good practice, however advanced practitioners should regularly review DBT cases and have knowledge of breast MRI.

## Conclusion

Despite a small sample, the findings indicate the significance of DBT prior to ultrasound assessment for second look MRI findings. In high risk patients DBT may prevent unnecessary MRI biopsy.

DBT may increase confidence in margin characterisation or provide reassurance of parenchymal composite structures.

From the results it appears DBT can demonstrate abnormalities not perceivable with 2-D mammography or US, therefore DBT should be considered for evaluation of MRI findings. Further evaluation with a larger cohort and re-audit is required to affirm the results.

Advanced practitioners may benefit from utilising DBT in the workup. Service improvement with inclusion of DBT into mammography advanced practice may ultimately benefit patient management.