

Imaging Techniques for the Detection and Monitoring of Invasive Lobular Carcinoma

Information for Primary and Secondary Healthcare Professionals

Why is Invasive Lobular Carcinoma (ILC) Difficult to Detect or Monitor Using Routine Imaging Techniques?

The main imaging techniques used in breast cancer screening and monitoring are mammography, breast ultrasound, magnetic resonance imaging (MRI) and computed tomography (CT) or positron emission tomography (PET) scans.^{1,2} Primary and metastatic ILC can be difficult to detect and monitor using standard imaging techniques because of the linear growth pattern of ILC tumours, with neoplastic cells invading the stroma, forming web-like sheets.^{1,3} ILC tumours therefore rarely form a lump and have a low-density of cells and lower metabolic activity, affecting the sensitivity of certain imaging modalities for detecting ILC.³ Detecting metastatic ILC is also difficult because of the unusual pattern of metastasis compared with invasive ductal, or no special type, carcinoma (IDC/NST), including the peritoneum, gastrointestinal tract and leptomeninges.⁴

What Impact Does the Unique ILC Growth Pattern Have on Imaging?

Mammography is often used for routine breast cancer screening and monitoring.^{1,5} However, mammograms have low sensitivity for detecting ILC, with up to 30% of cases not visualised using this technique.³ The sensitivity is even lower when breast tissue is dense.^{3,6} In a survey of 303 breast imaging radiologists, 92.5% agreed they were less confident using mammography to diagnose ILC in women with dense breasts compared with non-dense breasts.⁷ **Ultrasound techniques** have a better overall sensitivity (88%–98%) than mammograms for detecting ILC, enabling the visualisation of breast areas that may be obscured on a mammogram due to dense breast tissue.⁸ Furthermore, ultrasounds provide a better estimate of tumour size and improved detection of multifocality, where two or more tumours originate from the primary tumour.⁵ However, ultrasounds are not commonly used for routine breast cancer screening and ongoing monitoring.³ **MRI** is typically used for screening women at high risk of breast cancer, and National Institute for Health and Care Excellence (NICE) guidelines recommend using MRI for preoperative assessment in ILC to examine tumour size.^{3,5} MRIs have the highest sensitivity for detecting ILC (93%–100%), however, they are not routinely used for detection or post-treatment follow up.⁵ **CT/PET scans** can be used for detecting metastatic breast cancer.² However, the lower metabolic activity of ILC than IDC/NST and the tendency to form sclerotic bone lesions means the probability of CT/PET scans detecting metastases is 2.82 times lower in patients with metastatic ILC compared with patients with metastatic IDC/NST.⁵

What Alternative Imaging Tools Could Improve Detection and Monitoring of ILC?

Effective diagnosis and monitoring of ILC requires supplementary imaging techniques, beyond standard mammograms and ultrasound techniques, including:

- **Digital breast tomosynthesis (DBT)** or **contrast enhanced digital mammography (CEDM)**: DBT has been reported to double the detection rates of ILC, with CEDM having even higher sensitivity rates than DBT for detecting ILC.⁵
- Greater utilisation of **MRIs** for detecting primary ILC: In women with dense breasts or those with a higher risk of developing ILC, regular MRIs would be beneficial. Almost 80% of breast imaging radiologists agreed that screening beyond mammography is needed to diagnose ILC in women with dense breasts or a history of ILC.⁷
- Greater utilisation of **whole-body diffusion-weighted MRIs** for detecting and monitoring metastatic ILC: Due to the lower metabolic activity of lobular cells, whole-body diffusion-weighted MRI is valuable for detecting additional sites of metastatic LBC earlier, compared with CT or PET scans which may underestimate the extent of metastatic disease.⁴
- Other CT/PET modalities: **18F-fluoroestradiol (18F-FES)** may be superior in the detection of ILC metastases given the high rate of ER expression.⁵

The Key to Change

The routine imaging techniques used to detect breast cancers are not sufficient for detecting and monitoring of patients with ILC, leaving many patients with delayed or incorrect diagnoses. You can be the key to change by supporting and getting involved with #DistinctlyLobular, our Lobular Breast Cancer UK Treatment Guidelines campaign, which aims to increase understanding of ILC as a distinct disease and ensure patients are diagnosed early and receive the most effective treatments.



Want to know more?

Please visit our Lobular Breast Cancer UK website lobularbreastcancer.org.uk or contact us on info@lobularbreastcancer.org.uk

Registered Charity No: 1191402 in England & Wales. **References:** 1. Duffy et al. *Lancet Oncology*. 2020;21:1165–1172. DOI:10.1016/S1470-2045(20)30398-3; 2. NICE 2025. Advanced breast cancer: diagnosis and treatment. Available at: <http://www.nice.org.uk/guidance/cg81> [Last accessed: August 2025]; 3. Johnson et al. *Breast Cancer Research*. 2015;17(94). DOI:10.1186/s13058-015-0605-0; 4. Bhaludin et al. *European Radiology*. 2022;32(9):6514–6525. DOI:10.1007/s00330-022-08714-6; 5. Van Baelen et al. *Annals of Oncology*. 2022;33(8):769–785. DOI:10.1093/annonc/abab112; 6. Berg et al. *Radiology*. 2004;233(3):830–849. DOI:10.1148/radiol.2333031484; 7. Coffey et al. *Journal of Breast Imaging*. 2024;6(2):157–165. DOI:10.1093/jbi/wbad112; 8. Manning et al. *RadioGraphics*. 2022;42(4):E115–116. DOI:10.1148/rq.210058.