

Imaging-led symptomatic breast clinics: a case for direct access to radiology

Radiologists play a pivotal role in patient management in modern hospital medicine. Traditionally, the radiology input was in the form of direct communication between radiologists and clinicians. This direct contact has been diluted to some extent with the advent of patient archiving and communication systems, whereby reports are accessible remotely within the hospital (Reiner et al, 1999).

The interaction between radiologists and clinicians has also evolved, and predominantly takes place in the multidisciplinary team meeting. Contact between radiologists and patients, on the other hand, was traditionally limited, but is rising because of the ever-increasing number of interventional procedures and use of real-time imaging. Despite this, there continues to be minimal direct contact between the radiologist and the patient in terms of communicating the results of imaging studies.

Health-care delivery is dynamic and has to respond to changes in resources and technological advances. Clinicians are under intense time pressure. Any duplication of clinicians' work adds pressure to stretched health-care resources.

Within breast imaging, the radiologist plays an important and central role in patient management. The diagnosis of breast pathology hinges predominantly on mammography and ultrasound imaging. There is reduced clinician confidence in clinical examination, which is partly a result of the relative subjectivity of physical examination compared to imaging. As a result, virtually all patients with breast symptoms – pain, lump or discharge – are referred for mammography and/or ultrasound imaging (Oestreicher et al, 2002).

Mammography and ultrasound reports are highly standardised and provide a clear scale of suspicion of malignancy. The American College of Radiology (Burnside et al, 2009) and Royal College of Radiology (Maxwell et al, 2009) scoring systems are unambiguous, easy to understand and applicable to all breast lesions. A similar scoring system is used for clinical palpation and biopsy results of breast lesions, making it easy to detect and resolve any non-concordance.

The efficacy of this system provides a model for other sub-specialities of radiology and indeed LI RADS and PI RADS (Langlotz, 2009) are being developed to reduce confusion in image interpretation regarding the level of suspicion of malignancy in liver and prostate respectively. Such lexicons could also be developed for thyroid, lung nodules or bony lesions.

ABSTRACT

Radiologists play a pivotal role in patient management in modern hospital medicine and more so with regard to breast imaging. The diagnosis of breast pathology hinges predominantly on mammography and ultrasound imaging. With reduced clinician confidence in clinical examination alone, virtually all patients with breast symptoms are being referred for imaging. The traditional 'one-stop' clinics are victims of their own success and demand outstrips availability. This article makes a case for imaging-led breast clinics to increase efficiency, reduce duplication of work and cost, and increase throughput of patients.

'One-stop' breast clinics are considered the ideal way of evaluating patients with breast symptoms. They involve triple assessment: clinical evaluation, imaging and/or biopsy. Commonly, the clinical examination is undertaken by surgeons, breast care physicians or breast care nurses. Imaging is performed and read by radiologists, breast physicians or highly trained radiographers, trained to perform biopsies as and when required. The traditional professional boundaries of skilled personnel in breast cancer management are being blurred, with different professions working together for service delivery, more so because of the long and increasing waiting times for patients to be seen.

Traditional one-stop clinics are victims of their own success and demand outstrips availability because of the extensive personnel requirement – surgeons, radiologists, nurses and administrative staff – to run these clinics effectively. Moreover the throughput of patients in the clinic is restricted as one patient is seen at multiple points before being discharged.

Imaging-led clinics

To deal with this problem, many centres around the world have started imaging-led breast clinics (Osborn et al, 2006). In this model, direct access to radiology is enabled from primary care. A standardised protocol for imaging is followed depending on the patient's age and symptoms. The radiologist performs a full assessment and detailed imaging, and a report with the planned management is sent to the primary care physician. There are multiple reasons why this model is effective:

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“ The throughput of patients in one-stop breast clinics would increase with a reduction in the number of contacts between patients and the clinical team. ”

Reducing the need for surgical input

In more than 90% of referrals from primary care to the tertiary centre, the patient is found to require no further treatment following all investigations (Patel et al, 2000). In the first instance, the radiologist doing the scan or a trained breast care nurse can discuss the imaging findings with the patient. Surgical input is clearly not required for these patients. Patients can be referred to the surgeon if a biopsy was performed by the radiologist, for any benign condition requiring surgical input or for any other discordant findings.

Clinical examination by radiologists

Radiologists can perform the clinical examination, which could be followed by ultrasound in the same setting if necessary. This would reduce multiple contacts of the patient with different specialists, which inevitably leads to duplication of work. Surgeons with the confidence to discharge patients based on clinical examination alone are rare. Radiologists will be able to perform clinical examination and imaging at the same time, leading to increased confidence in the diagnostic pathway. Also the confidence of patients in the clinical examination skills of surgeons is diminishing, with many patients requesting a scan despite normal clinical findings.

Improving the patient experience

Studies have shown that patients prefer prompt answers and resolution of their anxiety (Basu et al, 2011). It is prudent and practical for radiologists to convey investigation findings in real time. In most cases, patient information leaflets can be provided to give additional information about the clinical condition and patients then discharged to primary care (Mazari et al, 2017). This would build radiologist–patient rapport and increase patients' and radiologists' satisfaction. A fast track 'cancer exclusion service' is also the direction in which government policies are moving in this era of limited resources.

Radiology alone may be sufficient

A study comparing direct access to radiology *vs* traditional surgeon-led breast clinics found no significant difference in false negative rates (Osborn et al, 2006). The false negative rate of combined mammography and ultrasound for breast cancer is 1% (Goddard, 2008). Given the high resolution of ultrasound imaging and low threshold for performing a biopsy, the value of adding clinical examination is questionable. Palpation-guided breast biopsies can be performed in rare cases where necessary, particularly if the patient presents repeatedly following normal imaging.

Efficient use of resources

In an ideal world, the radiologist would interpret the imaging and the surgeon would perform the clinical assessment in a one-stop clinic. However, given the limited resources available, alternative ways of working are needed. It is much easier for radiologists to learn to undertake the physical examination than training surgeons in mammographic and ultrasound skills. Most radiologists are already experienced in clinical examination as a result of the NHS breast screening programme (Goddard, 2008). Moreover, most UK radiologists have undertaken core medical or surgical training before entering radiology. Although core training may not be equivalent to an experienced surgeon performing a physical examination, expertise could easily be built and would be faster than surgeons learning radiological interpretation.

Increased patient throughput

The throughput of patients in one-stop breast clinics would increase with a reduction in the number of contacts between patients and the clinical team. This would mean more patients could be seen more quickly. With limited slots available for traditional breast clinics, this is a tremendous opportunity for cost and time saving. A full economic analysis would be helpful to substantiate this.

Freeing up surgeons' time

Reducing surgical input into radiology-led clinics would help free valuable surgeons' time in favour of performing surgeries. Patients whose results are discordant can be reviewed in combined surgical–radiology clinics.

Potential for surgeon triage

GPs are the 'gatekeepers' between patients and tertiary specialist services and if strict referral criteria based on national guidelines are followed, only genuine referrals will reach the tertiary centre. To further reduce workload for radiology, there is an option of triaging the patients by surgeons. With limited resources, the aim is to streamline both surgeons' and radiologists' time for genuinely needful patients only. Patients who have been referred by the GP, but whose symptoms have resolved or who are deemed to not need any imaging (e.g. patients under 40 years of age do not need mammograms), could be potentially triaged to be discharged without imaging.

Planning appropriate treatment

The breast radiologist plays an increasingly important role not just in diagnosis of patients with symptoms and plans for further imaging but also in deciding the most appropriate surgical treatment and help radiation oncologists plan radiation therapy. Brook et al (2011) showed that the involvement of a breast radiologist changed the management decision (surgical approach, neoadjuvant chemotherapy) in 37% of cases.

Discussion

There are multiple ways in which the breast radiology model could be applied to other areas of radiology. Directly reporting results to patients could be an innovative way of working for patients undergoing computed tomography colonogram and lung computed tomography screening for detecting colon and lung cancer respectively (Lee et al, 2017). Demand for these studies is anticipated to increase in the future. Patients could be informed about their results in prearranged consultation slots with radiologists who can advise the patient on appropriate future management plans. This would not only be helpful for patients who will be given the report by someone fully trained in interpreting the scans but may also increase radiologists' morale. Presently, there is a shortage of imaging personnel relative to surgeons, but that should not stop the implementation of innovative ways of working that could make the speciality more attractive to future radiologists. It can sometimes be difficult to change traditional methods of working and doctors may need time to fully appreciate the benefits of a new system. During the transition period, it might be worth running both traditional and imaging-led clinics in parallel. Although imaging-led breast clinics are already working successfully in some centres (Osborne et al, 2006), pilot studies should be undertaken in new centres with support from surgical colleagues.

Conclusions

It is time for radiologists to increase the 'value' of their report and play an active role in management of patients. Imaging-led breast clinics would be a start, which would be easy to implement. There should be less emphasis on the volume of work because of the increasing complexity of investigations and more on the quality and value of the report. This would also raise the profile of clinical radiology as an attractive speciality for future trainees. **BJHM**

Conflict of interest: none.

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KEY POINTS

- Imaging-led breast clinics are an innovative and efficient way of running breast clinics, freeing up surgeons' time to perform surgery.
- Imaging-led breast clinics would increase patient throughput through the breast clinic without compromising on quality of the diagnostic pathway.
- This would lead to increasing patient satisfaction because it would produce a faster 'cancer exclusion' service.

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