



Accuracy of Ultrasound (USG) Guided Needle Localisation of Breast Lesions - An audit of local practice

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Background

Breast cancer is the most commonly occurring cancer in women in Hong Kong, the United Kingdom and worldwide. Today, many breast cancers are detected as a result of population screening or active surveillance; the majority of which are small stage 1 tumours, which may be amenable for breast conservation surgery. Subsequently, the demand for image-guided localisation has increased in modern day breast cancer services. It is therefore essential that small impalpable lesions be accurately localised pre-operatively to enable successful surgical excision at the first operation. The United Kingdom (UK) has well-established guidelines for acceptable accuracy in the localization of impalpable breast lesions. Hong Kong has yet to develop its own guidelines in this regard, but the UK guidelines are a good source of reference. In the UK, the National Health Service Breast Screening Program (NHSBSP) and the Association of Breast Surgery (ABS) define 2 standards: one relating to wire position and the other the accuracy of open biopsy of impalpable lesions. Audits on the accuracy of pre-operative localization of impalpable breast lesions are promoted by the Royal College of Radiologists.

Aim

To evaluate the accuracy of ultrasound-guided wire localisations performed at our department against the standards outlined by the NHS Breast Screening Program (NHSBSP) and the Association of Breast Surgery.

Standards & Targets

With reference to the guidance set by the NHS Breast Screening Program and the Association of Breast Surgery:

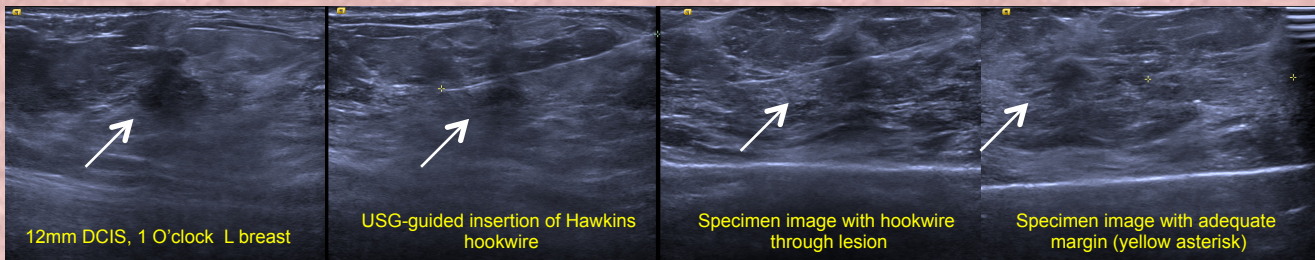
- ✓ >95% localisation wires should be within 10mm of the lesion in any plane
- ✓ $\geq 98\%$ of impalpable lesions should be correctly identified at the first operation

Method

Retrospective audit on the accuracy of all ultrasound (USG)-guided wire localization for pre-operative impalpable breast lesions performed at our department, Queen Mary Hospital. Period: 1/1/2018 – 30/06/2019

Indicators of performance:

- Distance from wire to lesion
- Number of patients with lesions correctly identified at the first operation



Key Results

- ① USG-guided wire localisations were performed in 52 patients with 66 impalpable breast lesions.
- ② The wire was measured within 10mm of the lesion in any plane in all cases (100%) and placed through the lesion in any plane in 65/66 of cases (98.4%). Target achieved
- ③ All lesions were correctly identified at the first operation (66/66, 100%). Target achieved
- ④ Complete surgical excision was confirmed in 91% (60/66) of cases, where 6 lesions (9%) required re-excision due to involved margin. Final pathology of all lesions requiring re-excision was ductal carcinoma in-situ (DCIS).

Discussion

Our sample size was small but the results are still locally representative. There was high accuracy in lesion localization with wire placed within 10mm of the lesion in 100% of cases and through the lesion in 98% of cases. There was also high open excision accuracy with 100% correct identification of lesions performed at first operation. However, complete excision at first surgery was only achieved in 91% of the cases. The final pathology of all lesions requiring re-excision was DCIS. These are known to have skipped lesions and have a wide span, which maybe a contributing factor to incomplete surgical excision at first OT.

Recommendations

Audit results were presented in departmental audit meeting. To reinforce good practice on our high localization accuracy with regular periodic monitoring of the performance to ensure on going quality assurance. To discuss findings with breast surgeons as well as radiologists and pathologists to explore further explanations for incomplete surgical excisions (i.e. technical/practical difficulties/report clarity etc). Implement changes as appropriate and conduct re-audit to assess impact of these strategies.