INITIAL SINGLE CENTRE EXPERIENCE WITH INTACT™ PERCUTANEOUS BREAST LESION EXCISION SYSTEM USING ULTRASOUND (USS) GUIDANCE

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Introduction: The Intact™ Breast Lesion Excision System (BLES) excises tissue using vacuum and radiofrequency. It is licenced in UK as a mammographic-mounted device or a handheld device for USS guidance. Published USA series suggest complete removal of breast abnormalities occurs frequently during Intact™ breast biopsy, but UK experience using USS guidance, is limited (1,2). We present our centre’s experience using this device under USS. The advantage of this technique over other vacuum assisted biopsy methods is that a small breast mass can be excised as a single piece of tissue, allowing pathologists to assess architecture and measure margins.

Methods: Selection of masses depended on the size of the mass (largest Intact™ wand is currently 20mm), visibility of the mass on USS and willingness of the patient to undergo the procedure. Intact™ was initially performed under general anaesthesia (GA) immediately prior to her therapeutic surgical excision, and subsequently under local anesthetic (LA). For LA excision an additional criteria for B5 excision biopsy was a contraindication to surgical excision for the patient due to co-morbidity. A safe distance >7mm from the skin can be measured following infiltration with LA to increase the distance (3), and was therefore not included in our selection criteria.

Procedure: For both GA and the LA procedures 20mls 1% Xylocaine with 1/200,000 adrenaline was diluted to 60mls total fluid volume with N/saline and infiltrated through a long 21G needle on all sides of the mass with particular attention to the region beyond the mass, as the Intact™ “basket” travels beyond the mass during its deployment. In addition the proposed tract for the wand was similarly infiltrated, all under USS guidance. Careful planning is required, for the patient position, the orientation of the wand and trajectory of the basket, and we found it particularly helpful to assess the orientation of the wand to the mass in both longitudinal and transverse planes immediately prior to deployment, to ensure the tip of the Intact™ blade had engaged with the mass and that the projected line of deployment was directly through the centre of the mass, so that the “basket” can completely enclose the mass. If planning is insufficient it is easy to mistakenly bisect the mass, especially if the line of the wand is not in line with the centre of the mass.

Results: 21 selected breast masses had excision biopsy with Intact™ in 16 women (age 24-91 years). Initial experience with GA: 11 masses in 9 women (6 x B2 and 5 x B5 masses). 4/5 B5 masses (GA)(4-17mm) were completely excised with no residual malignancy in the surgical excision. Subsequent experience was with LA: 10 masses in 7 women (3 x B2, 4 x B3 and 3 x B5 masses). 4/4 B3 masses (6-10mm) were completely excised without need for surgery. 1/3 B5 masses (8mm) had initially been assessed as B3/4 on 14G biopsy, but on the Intact™ specimen it was shown to be an intracystic papillary carcinoma, excised completely with a >1mm margin. The MDT decision was that no further surgery was necessary. 2/3 B5 masses were taken from the same patient with severe co-morbidities (7mm and 8mm). The procedure was technically very difficult as the patient was breathless on oxygen and unable to raise her arms. Both excisions were incomplete. She is having hormonal treatment and clinical follow up. This highlights the importance of careful patient selection.

Conclusion: This is a very small series but the technique holds promise, particularly for B3 masses less than 15mm diameter. It offers a potential alternative to surgical excision dependent on careful patient and lesion selection and on scrupulous technique.

References
2) The breast lesion excision system (BLES): a novel technique in the diagnostic and therapeutic management of small indeterminate breast lesions? Allen SD Nerurkar A, and Querci Della Rovere GU Eur Radiol 2011