**Audit of Ultrasound Technique for the Evaluation of Soft Tissue Lumps**

**Descriptor:**

Audit of operator technique and report documentation for ultrasound scanning of soft tissue lumps.

**Background:**

Soft tissue lumps are common. Ultrasound scanning provides relatively cost effective, readily available, non-ionising and real-time dynamic imaging characterisation, making it the investigation of choice for initial triaging. However, the reproducibility and reliability of this modality is dependent on the skill of the operator and appropriate recording of the results.1, 2

The British Sarcoma Group (2019) and European Society of Skeletal Radiology (2015) published guidelines for how soft tissue ultrasound should be performed and what should be documented in reports.1, 2 The National Institute for Clinical Excellence and Royal College of Radiologists provide overarching standards for all suspected cancer imaging and radiology reporting, which should be completed within two weeks of referral.3, 4

## The Cycle

**The standard:**

1.  A clinical history (including duration, precipitants, symptoms and change in size) and clinical examination of the lump (including position, palpation and local skin changes) should be performed and recorded at the time of the scan.1

2.  A linear high frequency probe should be used, typically 15 or 18 MHz depending on the anatomical location.1

3.  The scan images and report should document the three-dimensional size, morphology (including shape and margins), echotexture (including cystic, solid or mixed), location (including relation to local structures) and Doppler characteristics (at low flow settings, for example using power Doppler).1,2

4.  The report should include comment on whether the lump is benign, indeterminate or suspicious for malignancy. If relevant, the report should also make recommendations for management, such as referral to multidisciplinary team meeting, further imaging or biopsy.4

5.  The scan images and report must be readily available to clinicians in primary and secondary care.1

**Target:**

100% of ultrasound scans and reports for soft tissue masses should meet these standards.

## Assess local practice

**Indicators:**

The percentage of ultrasound scans and reports which adhere to each of the standards.

**Data items to be collected:**

1.  Clinical history and examination performed at time of scan and recorded in report?

2.  Linear high frequency probe used?

3.  Location and relation to local structures recorded in report?

4.  Mass size recorded in report (three dimensions)?

5.  Morphology and echotexture recorded in report?

6.  Vascularity commented on in report?

7.  Benign / indeterminate / suspicion for malignancy documented and, if appropriate, management recommendations provided in report?

**Suggested number:**

Ultrasound scans of soft tissue masses in the trunk or extremities of adults only. All cases performed during the preceding two months, or the most recent 150 consecutive cases (whichever number is greatest). Exclude paediatric, head and neck, haematoma follow-up, hernia and displaced subcutaneous contraceptive implant scanning.

**Suggestions for change if target not met:**

1. Publicise the standards for soft tissue mass ultrasound scanning technique and reporting, through in-person departmental radiology meetings and dissemination of written material to radiologists and sonographers.

2. Create an automated soft tissue ultrasound report template for use during electronic report transcription, in order to improve standardisation of scanning techniques and comprehensive reports.

3. Re-audit six months after intervention, to assess for improvement in practise. Continue the audit spiral, to ensure sustained compliance with the standards.

**Resources:**

1. Radiology information system (RIS) to review administrative details and reports.

2. Picture archiving computer system (PACS) to review saved ultrasound images.

3. Statistical computer software, such as Microsoft Excel, for recording and analysing data.

**References:**

1. <http://www.britishsarcomagroup.org.uk/wp-content/uploads/2019/01/BSG-guidance-for-ultrasound-screening-of-soft-tissue-masses-in-the-trunk-and-extremity-FINAL-Jan-2019.pdf>
2. Weber M, Lalam R, Trattnig S et al. Soft Tissue Tumors in Adults: ESSR-Approved Guidelines for Diagnostic Imaging. Seminars in Musculoskeletal Radiology. 2015; 19(05):475–482.
3. <https://www.nice.org.uk/guidance/ng12/chapter/Recommendations-on-patient-support-safety-netting-and-the-diagnostic-process#sarcomas>
4. <https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr181_standards_for_interpretation_reporting.pdf>

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