

A SAFE AND EFFICIENT WAY TO SAVE TIME AND MONEY

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Introduction

Patients younger than 25 with a solid mass that fulfils benign criteria (BI RADS 3, graded U2 in our institution) do not require a biopsy (1). Following the introduction of shear wave elastography (SWE), it has been suggested that patients younger than 40 could also avoid a biopsy (2) providing grey scale and SWE are benign and concordant. How much time and money could this save?

Method

All U2 lesions biopsied between January 2015 and June 2017 were audited. Patients' age, imaging grade, number of passes and histology were collected. The average time required and costs in imaging and histology were estimated.

Results

histology after biopsy

283 biopsies of U2 lesions were performed. 166 patients were younger than 40 (58%). 165/166 lesions were described as a mass, 1 was described as a focal area of micro-cystic changes. 161/166 had a B2 histology (140 fibroadenoma). 2 patients had a B1 result (1 normal breast tissue, cyst at repeat biopsy, and 1 lipoma). 3 had a B3 result. 2 were papillomas, and 1 ADH which was upgraded to low grade DCIS after vacuum excision. This patient presented with a P2 3 cm area of focal micro-cystic changes. Most patients had 2 cores or less.

radiology costs in our institution (January 15 - June 17)

cost of disposable: £22.
time to perform a biopsy (from obtaining consent to finishing the dressing): 10 min on average.
clerical time associated to the biopsy procedure: 3 min on average.
MDT time for a benign case without difficulty: 2 min.

TOTAL: cost £3652
radiology time 27.7 h (versus an estimate of 5.5 h, 166 x 2 min, for SWE)
clerical time 8.3 h
MDT time 5.5 h

histology costs in our institution (January 15 - June 17)

cost of outsourcing for the technical preparation: £27 (the time involved in preparation in the outsourcing facility is about 10 min per biopsy but was not taken into account as not dependent of our institution)
reporting time: 5 min on average for a fibroadenoma and a maximum of 2 cores. 5 min to create and finalise the report. Total: 10 min.
administrative/preparation time: 5 min

TOTAL: cost £ 4482
histology time 29 h (taking into account 9% of biopsies with 3-6 cores)
admin/prep time 13.8 h

Discussion

Stiffness can be present in a benign mass, The percentage of benign masses being stiff varies in different studies (2,3) and the stiffness of a benign mass also depends of its size (4). There is now evidence that it is safe to avoid performing a biopsy providing the grey scale and SWE appearances are benign (2,3). The savings that would have resulted in applying this model have been calculated with 2 hypothetical percentages.

If **60%** of the lesions biopsied had been soft in SWE (no biopsy)

TOTAL COST SAVED: £ 4480
radiology time saved: 11.2 h
histology time saved: 17.4 h **TOTAL CONSULTANT TIME 28.6 HOURS**
MDT TIME SAVED: 3.3 h
total clerical time saved: 13.3 h

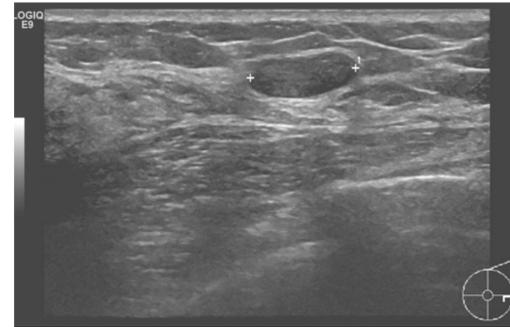
If **80%** of the lesions biopsied had been soft in SWE (no biopsy)

TOTAL COST SAVED: £ 6507
radiology time saved: 16.7 h
histology time saved: 23.2 h **TOTAL CONSULTANT TIME 39.9 HOURS**
MDT TIME SAVED: 4.4 h
total clerical time saved: 17.7 h

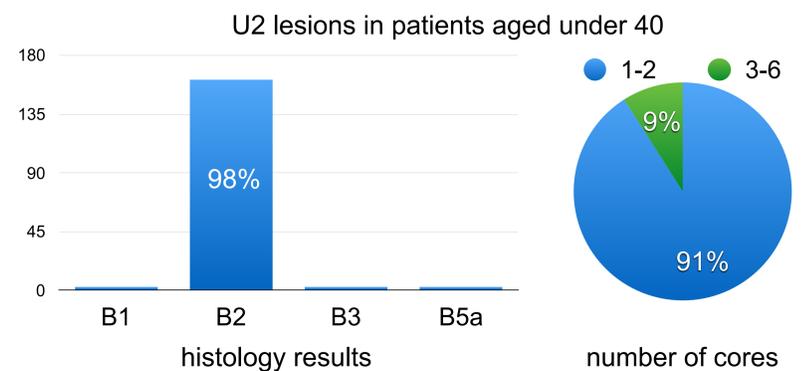
2 one stop clinics a week, with 20-25 patients booked in each, are performed every week in our institution. Savings would be even more important in a larger department. It appears clear that a recommendation to avoid biopsy in the appropriately selected benign looking breast masses would result in significant savings in time and money. The only malignancy that we initially graded U2 did not present as a mass so would be biopsied.

REFERENCES

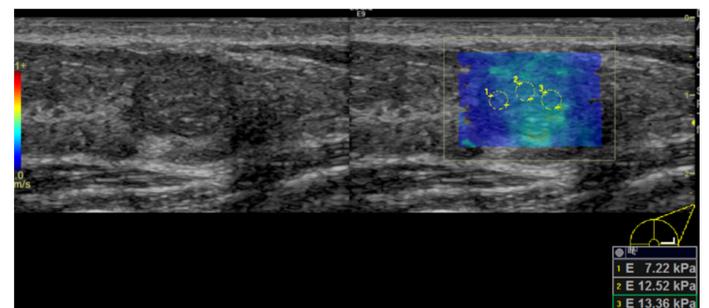
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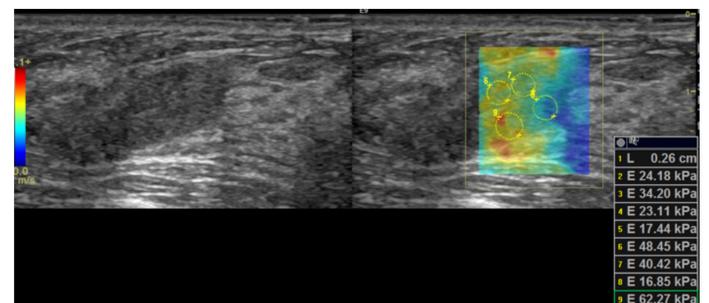
typically benign looking mass most likely fibroadenoma. BI RADS 3 U2 in our institution



disposables used at Ealing Hospital for a biopsy total cost £22



fibroadenoma soft in SWE: blue in colour, mean stiffness < 50 kPa, maximum stiffness < 55 kPa



fibroadenoma intermediate in SWE: some areas red in colour, mean stiffness < 50 kPa but maximum stiffness >55 kPa