

Ultrasound in the Diagnosis of Ovarian Cancer: a Re-audit of Local Practice.

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Background:

Ovarian cancer was the sixth most commonly diagnosed cancer in Scotland.¹ Currently no clear evidence has been identified as to whether screening in high risk groups has beneficial impact on reduction of mortality from ovarian cancer.

The standard:

Per Royal College of Radiologists (RCR) audit template:

- Pelvic ultrasound reports describing a suspicious ovarian lesion should list the presence or absence of the following ultrasound features - bilateral lesions, ascites, solid areas, intra-abdominal metastases, septated/multilocular cysts. This allows calculation of a Risk of Malignancy Index (RMI) score.

- Computed tomography of the abdomen and pelvis should be performed in secondary care for all patients suspected of having ovarian cancer who have a Risk of Malignancy Index score greater than 200 (SIGN) or 250 (NICE).

Target:

- 95% of ultrasound reports should detail the presence or absence of each of the 5 features (or 4/5 features if accounting for inability to visualise ovaries)
- 100% of patients should have CT for staging.

Methodology:

55 patients diagnosed with epithelial ovarian cancer in 12-month period between 1st July 2018 to 30th June 2019 who underwent imaging in radiology departments across NHS Grampian were audited. The number of criteria reported in each report was then evaluated, and compared to that of the previous audit cycle (2017-2018).

Results:

55 patients were diagnosed with ovarian cancer over the last 12 months spanning July 2018 to June 2019. Of these, **30 (54.5%)** patients had initial USS imaging, whilst the rest were diagnosed by CT first.

52 out of 53 patients (98%) had follow-up CT imaging within the allotted timeframe once Gynaecology referral was made; one young patient with a borderline case did not undergo staging CT. This was deemed acceptable when compared to the previous cycle result of all **49** patients undergoing staging CT (**100%**).

20 out of 30 reports (66.7%) listed 2 or more features needed to calculate the risk of malignancy (RMI) score, as compared to **16 out of 18 reports** in the previous cycle (**88.9%**).

4 out of 30 reports (13.3%) listed 4 or more features, with **9** listing three features, **7** listing two features, **9** listing one feature, and **1** report not mentioning any features.

Ascites/free fluid was mentioned in **22 reports (73.3%)**, compared to **15** in the previous cycle (**83.3%**).

Multilocular/septated cysts mentioned in **17 reports (56.7%)**, compared to **15** in the previous cycle (**83.3%**).

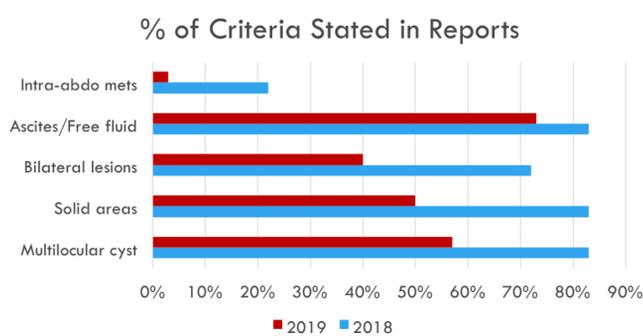
Solid areas were mentioned in **15 reports (50%)**, compared to **15** in the previous cycle (**83.3%**).

12 reports (40%) mentioned presence/absence of bilateral lesions, compared to **13 reports** in the previous cycle (**72.2%**).

Most reports which did not were due to the inability to visualise pelvic organs, e.g. due to gross ascites etc.

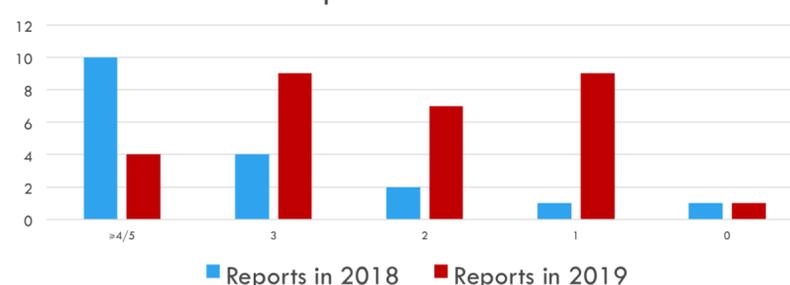
Only **1 (3.3%)** report mentioned the possibility of intra-abdominal metastasis, compared to **4** in the previous cycle (**22.2%**).

Ultrasound Feature(s)	Reports (n=30)
Multilocular/Septated Cyst(s)	17
Solid Areas	15
Bilateral Lesions	12
Ascites/free fluid	22
Intra-abdominal metastases	1



Number of features reported	Reports in 2019 cycle (n=30)	Reports in 2018 cycle (n=18)
≥ 4/5	4	10
3/5	9	4
2/5	7	2
1/5	9	1
0/5	1	1

Number of Reports with Relevant Criteria



Discussion:

Overall, there was a marked decrease in proportion of reports detailing both $\geq 4/5$ criteria (**13.3%** in the 2019 audit cycle in comparison to **55.6%** in the 2018 audit cycle) and $\geq 2/5$ criteria (**66.7%** in the 2019 audit cycle in comparison to **88.9%** in the 2018 audit cycle). The RCR audit template target of 95% of reports detailing $\geq 4/5$ criteria was therefore not achieved.

There is currently no clear evidence that screening in high risk groups has a beneficial impact on reduction of mortality from ovarian cancer. Two large scale studies addressing this question - the UK Familial Ovarian Cancer Screening Study (UKFOCSS)² as well as the Prostate, Lung, Colorectal and Ovarian Cancer Screening (PLOS) Trial in the USA³ are still to report. A randomised controlled trial involving 200 000 patients from England, Wales and Northern Ireland (United Kingdom Collaborative Trial of Ovarian Cancer Screening – UKTOCS) was also inconclusive.⁴ Nevertheless, current SIGN and NICE guidelines dictate that computed tomography of the abdomen and pelvis should be performed in secondary care for all patients suspected of having ovarian cancer who have a Risk of Malignancy Index (RMI) score greater than 200 (SIGN)⁵ or 250 (NICE)⁶.

Only **12 reports (40%)** mentioned presence/absence of bilateral lesions. However, it was noted that most reports which did not were due to the inability to visualise pelvic organs, e.g. due to gross ascites etc.

Only **1 (3.3%)** report mentioned the possibility of intra-abdominal metastasis, however it was noted that ultrasound is likely not the best modality to assess for this – CT is the best modality to evaluate metastases, and all high-risk patients do undergo cross-sectional imaging.

Conclusion & Next Steps:

All pelvic ultrasound reports should detail at least 2 out of 5 criteria required to calculate the Risk of Malignancy (RMI) score to facilitate discussion regarding further management in suspected cases of ovarian malignancy. These standards are currently not being achieved; therefore means for improvement include presenting audit findings to staff in the Radiology Departments in Aberdeen Royal Infirmary as well as peripheral hospitals (e.g. Dr Gray's Hospital, Elgin) across NHS Grampian, and highlighting the importance of a detailed description in that it allows an RMI score to be calculated. Discussion as to the suitability of ultrasound imaging to assess for intra-abdominal metastases should also be held, as high-risk patients do have cross sectional imaging which is the best modality to assess for presence of metastases. Posters detailing the criteria to be reported are also to be put up in Radiology Departments as an aide-memoire. Re-audit of local practice is to be repeated in 1 year's time.

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