# Recommendation Patterns among Gynaecologists and Radiologists for Adnexal Masses on Ultrasound

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## Abstract

**Objective:** Ultrasound is the primary modality used to evaluate adnexal lesions. Follow-up recommendations for ovarian cysts remain controversial between gynaecologists and radiologists. The objective of this study was to compare practice patterns for adnexal masses described on ultrasound on the basis of the interpreter's field of specialty.

**Methods:** This study was conducted within the McGill University Hospital Network at two hospitals that differ in the department of interpretation of pelvic ultrasounds. In one hospital, all studies are reported by gynaecologists, and in the other, by radiologists. The study investigators collected data from pelvic ultrasounds of newly diagnosed ovarian lesions performed from May to June 2014. Multivariate logistic regression analyses were used to compare recommendation patterns between the two groups.

**Results:** A total of 201 of 1110 pelvic ultrasound studies performed met our inclusion criteria. Gynaecologists interpreted 69 (34%) pelvic ultrasounds, and radiologists reported on 132 (66%). Reported adnexal mass types were not significantly different between the two groups. As compared with gynaecologists, radiologists were more likely to recommend MRI or CT scans (OR 11.76; 95% CI 1.17–117.78), as well as follow-up ultrasound studies (OR 4.67; 95% CI 1.66–13.1), and they were less likely to recommend no further imaging (OR 0.18; 95% CI 0.07–0.45). Groups did not differ in recommendation patterns for referral to a specialist.

**Conclusion:** There are significant differences in recommendation patterns between gynaecologists and radiologists in evaluating new adnexal masses on ultrasound. This difference can have important effects on resource use and patients' concerns.

**Key Words:** Adnexal mass, ultrasound, imaging, gynaecologists, radiologists

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## Résumé

**Objectif :** L'échographie est la principale méthode utilisée pour évaluer les lésions annexielles. Les recommandations relatives au suivi des kystes ovariens ne font cependant toujours pas l'unanimité chez les gynécologues et les radiologistes. Cette étude avait pour but de comparer les pratiques relatives aux masses annexielles observées à l'échographie, selon la spécialité de la personne qui interprète les résultats.

**Méthodologie :** Cette étude a été menée au sein du réseau hospitalier universitaire de McGill, dans deux hôpitaux où diffère l'interprétation des échographies pelviennes. Celle-ci est faite par les gynécologues dans un des hôpitaux, et par les radiologistes dans l'autre. Les chercheurs ont recueilli des données provenant d'échographies pelviennes réalisées en mai et en juin 2014 et portant sur des lésions ovariennes nouvellement diagnostiquées. Des analyses de régression logistique multivariées ont été utilisées pour comparer les habitudes de recommandation des deux groupes de spécialistes.

**Résultats :** Au total, 201 des 1 110 échographies pelviennes réalisées répondaient à nos critères d'inclusion. Soixante-neuf (34 %) de ces examens avaient été interprétés par des gynécologues, et 132 (66 %), par des radiologistes. Les types de masses annexielles évaluées par les deux groupes ne présentaient pas de différences significatives. Comparativement aux gynécologues, les radiologistes avaient plus tendance à recommander des IRM ou des tomodensitogrammes (rapport de cote [RC] : 11,76; IC à 95 % : 1,17–117,78) ainsi que des échographies de suivi (RC : 4,67; IC à 95 % : 1,66–13,1), et étaient moins susceptibles de recommander d'autres examens d'imagerie (RC : 0,18; IC à 95 % : 0,07–0,45). Aucune différence n'a été observée entre les deux groupes en ce qui a trait à l'orientation vers un spécialiste.

**Conclusion :** Des différences non négligeables ont été observées entre les gynécologues et les radiologistes quant aux habitudes de recommandation lors de l'évaluation échographique de nouvelles masses annexielles. Ces différences peuvent avoir des effets importants sur l'utilisation des ressources et les préoccupations des patientes.

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## INTRODUCTION

Ultrasound is considered the modality of choice for the evaluation of the majority of gynaecological disorders discovered on physical examination or incidentally.[1] In fact, the combination of transabdominal and endovaginal ultrasound allows for detailed characterization of the nature of most ovarian disorders.[2] Ovarian lesions can be categorized in two ways depending on ultrasound findings. Simple cysts are unilocular, anechoic, and smooth walled.[3] These cysts are more likely to be benign.[2] Cysts that do not share these characteristics are referred to as complex cysts. These include, but are not limited to, endometriomas, hemorrhagic cysts, dermoid cysts, cystadenomas, and primary or metastatic cancers.[2]

The initial management of ovarian lesions seen on ultrasound remains controversial among gynaecologists and radiologists. The objective of this study was to compare patterns of recommendations and practice patterns for new adnexal masses described on ultrasound on the basis of the sonologist's field of specialty.

## MATERIALS AND METHODS

We conducted a retrospective study within the McGill University Hospital Network in Montréal, Québec. Within this network, there are two hospitals that differ in the specialty departments that report pelvic ultrasound findings: in one hospital, pelvic ultrasounds are exclusively reported by gynaecologists, and in the other, findings are reported exclusively by radiologists. Even so, in both specialties, technologists are the ones most often performing the examination. We reviewed reports of all pelvic ultrasound examinations conducted within the two centres over a period of 2 months, between May and June 2014. We excluded all ultrasound studies in which no adnexal lesions were found, follow-up ultrasound examinations for previously described adnexal lesions, and studies performed during pregnancy. The majority of those excluded consisted of ultrasound studies done in obstetrical patients. We collected data on patients' age and radiological findings, which included suspected radiological diagnoses, largest diameter of the mass, and whether there was a suspicion of an underlying malignancy. Radiological diagnosis was categorized as simple cyst, complex cyst, endometrioma, or dermoid cyst. Follow-up recommendations were categorized in the following manner: no follow-up recommended, referral to a specialist, additional pelvic ultrasound imaging, and MRI) or CT scanning. We compared follow-up recommendations between the two groups by using the gynaecology group as the reference group. We calculated ORs with their corresponding 95% CIs by using multivariate logistic regression. We adjusted ORs for patients' age, largest mass diameter, and radiological diagnosis. We considered *P* values under 0.05 to be statistically significant.

This study was approved by the Medical Research Ethics Department of the Jewish General Hospital and McGill University Health Network. Patient consent was waived because no identifying features were included in this study.

## RESULTS

In a 2-month period, 1111 pelvic ultrasound studies were performed within the two centres. There were 201 eligible charts, with 34% of pelvic ultrasound studies performed by gynaecologists, and 66% of pelvic ultrasound studies performed by radiologists (Figure). As shown in Table 1, the baseline characteristics of women differed slightly, with the gynaecology group interpreting images in older patients, albeit with a total of slightly less complex masses. The median largest diameter of adnexal masses was compared between the two groups and was similar; more specifically, the median largest diameter was 30.57 mm in the gynaecology group and 29.68 mm in the radiology group. There were four suspected malignant masses in the gynaecology group (5.80%)

**Table 1. Baseline characteristics of women who underwent pelvic ultrasound for an adnexal mass at one of two hospitals within the McGill University Hospital Network between May and June 2014, by specialist performing imaging**

| Characteristics | Gynaecologists n (%) | Radiologists n (%) |
|---|---|---|
| Age | | |
| <35 | 15 (21.74) | 39 (29.55) |
| 35–50 | 34 (49.28) | 64 (48.49) |
| >50 | 20 (28.99) | 29 (21.97) |
| Diagnosis | | |
| Simple cyst | 42 (60.87) | 65 (49.24) |
| Complex cyst | 23 (33.33) | 54 (40.91) |
| Endometrioma | 3 (4.35) | 5 (3.79) |
| Dermoid | 1 (1.45) | 8 (6.06) |
| Suspicion of malignancy | 4 (5.80) | 2 (1.52) |
| Median size (mm) | 30.57 | 29.68 |