ORIGINAL ARTICLE CLINICAL PRACTICE MANAGEMENT

A Multidisciplinary Approach to Improving Appropriate Follow-Up Imaging of Ovarian Cysts: A Quality Improvement Initiative

SA-CME

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Abstract

Purpose: Incidental ovarian cysts are frequently detected on imaging. Despite published follow-up consensus statements, there remains variability in radiologist follow-up recommendations and clinician practice patterns. The aim of this study was to evaluate if collaborative ovarian cyst management recommendations and a radiologist decision support tool can improve adherence to follow-up recommendations.

Methods: Gynecologic oncologists and abdominal radiologists convened to develop collaborative institutional recommendations for the management of incidental, asymptomatic simple ovarian cysts detected on ultrasound, CT, and MRI. The recommendations were developed by modifying the published consensus recommendations developed by the Society of Radiologists in Ultrasound on the basis of local practice patterns and the experience of the group members. A less formal process involved the circulation of the published consensus recommendations, followed by suggestions for revisions and subsequent consensus, in similar fashion to the ACR Incidental Findings Committee II. The recommendations were developed by building on the published work of experienced groups to provide the authors' medical community with a set of recommendations that could be endorsed by both the Department of Gynecology and the Department of Radiology to provide supportive guidance to the clinicians who manage incidental ovarian cysts. The recommendations were integrated into a radiologist decision support tool accessible from the dictation software. Nine months after tool launch, institutional review board approval was obtained, and radiology reports mentioning ovarian cysts in the prior 34 months were retrospectively reviewed. For cysts detected on ultrasound, adherence rates to Society of Radiologists in Ultrasound recommendations were calculated for examinations before tool launch and compared with adherence rates to the collaborative institutional recommendations after tool launch. Additionally, electronic medical records were reviewed to determine the follow-up chosen by the clinician.

Results: For cysts detected on ultrasound, radiologist adherence to recommendations improved from 50% (98 of 197) to 80% (111 of 139) ($P < .05$). Overmanagement decreased from 34% (67 of 197) to 10% (14 of 139) ($P < .05$). A recommendation was considered "overmanaged" if the radiologist recommended follow-up when it was not indicated or if the recommended follow-up time was at a shorter interval than indicated. Clinician adherence to radiologist recommendations showed statistically nonsignificant improvement from 49% (36 of 73) to 57% (27 of 47) ($P = .5034$).

Conclusions: Management recommendations developed through collaboration with clinicians may help standardize follow-up of ovarian cysts and reduce overutilization.

Key Words: Incidental ovarian cyst, collaborative management recommendation, overutilization of imaging, decision support tool

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INTRODUCTION

Background Knowledge

Medical imaging accounts for more than $100 billion in annual health care costs [1]. It has been estimated that approximately 20% to 50% of all advanced medical imaging may be unnecessary [2]. Although the ordering of inappropriate imaging tests by clinicians has been the focus of much attention, radiologists may also

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significantly contribute to overutilization through recommendations for unnecessary follow-up imaging of incidental findings [2,3]. This problem has in part resulted from the lack of published consensus guidelines indicating when and how follow-up imaging should be performed. Nevertheless, inappropriate follow-up imaging wastes health care resources and can cause potential patient harm in the form of unnecessary radiation exposure, contrast-related adverse events, inherent risks of additional diagnostic procedures, and patient anxiety.

Incidental findings are commonly encountered on diagnostic imaging examinations. Ovarian cysts are a prime example. Asymptomatic ovarian and adnexal cysts measuring greater than 2.5 cm in diameter are estimated to occur in 8% of premenopausal women, whereas cysts measuring less than 10 cm are estimated to occur in 18% of postmenopausal women [3,4]. The vast majority of these cysts are benign [5]. The appropriate management of asymptomatic ovarian and adnexal cysts depends on several factors. The quality of imaging is important for radiologists to be confident in their diagnoses. Additionally, the clinical background of the patient, including individual risk factors for ovarian cancer, is essential in selecting the appropriate management. Both the Society of Radiologists in Ultrasound (SRU) and the ACR have recently published recommendations regarding follow-up of asymptomatic ovarian and adnexal cysts on ultrasound, CT, and MRI [6,7]. However, radiologist adherence to SRU recommendations remains variable [8]. Contributing factors may include radiologists' lack of knowledge of these society recommendations, variability of the societal recommendations, lack of emphasis on the importance of providing standardized recommendations, concerns about missing potential cancer, clinical workflow demands, and lack of feedback from referring clinicians.

At our institution, radiologist adherence to the 2010 SRU consensus recommendations for the management of asymptomatic ovarian and adnexal cysts imaged on ultrasonography was only 59% [8]. In 27% of cases, follow-up recommendations were classified as overmanaged [8]. In addition to the problems stated earlier arising from inappropriate follow-up imaging, this variability in radiology reporting may diminish both clinicians' confidence in radiologic management suggestions and patients' confidence in their health care providers when recommendations differ among physicians in different specialties, often within the same institution.

In our experience, clinician adherence to radiologist recommendations is also variable. Clinicians may choose a management approach on the basis of their in-depth knowledge of each patient's risk factors, clinical history, and physical examination findings. General practitioners may prefer to refer patients to gynecologists for further management. Lack of consistency in radiologist recommendations may contribute to clinician uncertainty in selecting the most appropriate follow-up.

The focus of this quality improvement initiative was to develop collaborative recommendations at an institutional level to improve adherence to management algorithms by both radiologists and clinicians to deliver coordinated, quality patient care. We hoped to achieve this goal through collaboration between the Department of Gynecology and the Department of Radiology. We sought to facilitate adherence to these collaborative recommendations by incorporating them directly into the radiology dictation software. We also wanted to provide point-of-care educational material regarding the collaborative recommendations to referring clinicians through the use of standardized statements and endorsements in the radiology report.

METHODS

Ethical Issues

No ethical issues were identified during this quality improvement initiative. This study was HIPAA compliant and approved by our institutional review board, with a waiver of the requirement to obtain informed consent.

Setting

This project was conducted at the New York University Langone Medical Center, a 791-bed tertiary care facility and teaching hospital in New York City. Abdominopelvic examinations are interpreted by 17 fellowship-trained radiologists in our abdominal imaging division and include those performed in the emergency, inpatient, and outpatient settings.

Planning the Intervention

To address some of the potential concerns clinicians confront when deciding whether to follow radiologists' recommendations, we met with our colleagues in the Division of Gynecologic Oncology to develop collaborative recommendations for the management of ovarian and adnexal cysts. We wanted to incorporate their expertise as the opinion leaders regarding this topic at our institution. The gynecologic oncologists contributed clinical insights from their own implementation of gynecology practice guidelines and shared their experiences involving local practice patterns. Referring clinicians might be more confident and reassured in adhering to radiologist