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Epidemiology and Characteristics of Extra-ovarian Conditions Mimicking Ovarian Cancer: A 4-Year Assay Among Iranian Women

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Abstract

Introduction: Involving approximately 4% of malignancies in women, ovarian cancer remains one of the most fatal cancers. However, it is important to consider conditions which are not primary ovarian diseases, but mimic their behaviors. In the present study, the epidemiological characteristics of extra-ovarian conditions mimicking ovarian masses are evaluated.
Methods: This cross-sectional study was conducted on patients with a primary diagnosis of ovarian mass who underwent surgery by gynecologists between January 2012 and March 2016. The surgeon's primary diagnosis and the final histopathology assessment report were evaluated for each patient. In cases where the final histopathology report was not in the spectrum of gynecologic pathology, possible reasons for incompatibility were investigated.
Results: Ultimately, 1876 patients with a mean age of 48.26±15.4 years underwent analysis. Among these patients, 27 (1.4%) had masses of a non-gynecologic origin. The final diagnoses were divided into four main categories: masses with a gastrointestinal origin (55.5%), infectious (18.5%), those with a retroperitoneal origin (18.5%), and embryologic-origin masses (7.4%).
Conclusion: The results suggest that extra-ovarian diseases should be considered in differential diagnoses of patients with a primary diagnosis of ovarian cancer. Furthermore, it was found that metastases from gastrointestinal tract tumors and infectious diseases are the most common pathologies among extra-ovarian conditions.
Keywords: Iran, Prevalence, Ovarian Cancer, Gynecology

Introduction

Involving approximately 4% of malignancies in women, ovarian cancer remains one of the most fatal cancers.[1,2] A notable number of risk factors are considered for ovarian cancer, including genetic, physiologic, and socioeconomic elements; however, such factors are still being identified.[3-6]

Symptoms of ovarian cancer in the early stages are not specific and may not attract attention.[7] A wide range of symptoms are reported, including abdominal bloating, persistent pelvic pain, and urinary urgency or frequency.[8,9] Unfortunately, there are no accurate screening tests for detecting ovarian cancer in its early phases, and most women remain undiagnosed until late-stage disease.[10]

Radiation, immunotherapy, chemotherapy, and surgery are among the available treatment options for ovarian cancer; nevertheless, it is important to consider conditions which are not primary ovarian diseases but mimic their behaviors.[9,11] Metastasizing tumors, peritoneal tuberculosis, pelvic abscess, hydatid cyst, malignant lymphoma, and retroperitoneal tumors are among the conditions which have different approaches and, in some cases, should not be operated.[12-18]

In the present study, the epidemiological characteristics

of extra-ovarian conditions mimicking ovarian masses and possible factors involved in misdiagnosing and outcome were investigated.

Methods

This cross-sectional study was conducted between May and September, 2016, at Baqiyatallah University Hospital, Tehran, Iran. All patients with a primary diagnosis of ovarian mass who underwent surgery by gynecologists between January 2012 and March 2016 were included in the study. Patients who underwent a concurrent surgery for other diseases during the same hospitalization were excluded from the evaluation.

The surgeon's primary diagnosis and the final histopathology assessment report were evaluated for each patient. In cases where the final histopathology report was not in the spectrum of gynecologic pathologies, possible reasons for incompatibility were investigated by evaluating records for gastrointestinal symptoms, accompanying symptoms, surgeon's physical examination, past medical history, chief complaint, non-gynecologic differential diagnosis by surgeon, compatibility of imaging and surgeon's diagnosis before surgery, compatibility of imaging and final histopathology report, and laboratory test impairments. In addition, the records of patients with non-gynecologic masses who needed additional surgery were evaluated for non-gynecological differential diagnosis, time of surgery, and intestinal preparation.

Data was analyzed using SPSS software version 21 (SPSS Inc., Chicago, IL) for Microsoft Windows. All continuous data are expressed as mean (SD), and categorical variables are expressed as number and percentage. Quantitative variables were checked for normality using the Kolmogorov–Smirnov test. A P value of less than 0.05 was considered statistically significant.

Results

Ultimately, 1876 patients with a mean age of 48.26±15.4 years were included in the analysis. Among these patients, 27 (1.4%) had a mass of non-gynecologic origin based on the final histopathological report. Table 1 reports in detail the histopathology and categories of the extracted specimens. The final diagnoses were divided into four main categories: masses with a gastrointestinal origin (55.5%), infectious (18.5%), those with a retroperitoneal origin (18.5%), and embryologic-origin masses (7.4%).

Patients with metastatic ovarian masses had no history of gastrointestinal malignancy, and their conditions were diagnosed for the first time in surgery. Ovarian metastases were bilateral in 70.3% and unilateral in 29.7% of cases.

The most prevalent chief complaints of these 27 patients were lower abdominal pain (77.8%) followed by abnormal uterine bleeding (11.1%), lower abdominal pain and fever (3.7%), vaginal discharge (3.7%), and swelling of the abdomen (3.7%). Accompanying symptoms were recorded for 7 (25.9%) cases on the medical history sheet. Gastrointestinal symptoms were recorded for 5 (18.5%) patients. Past medical history was recorded for all patients. Information on physical examination was recorded for 24 (88.9%) patients. Differential diagnoses

Table 1. Distribution of Final Histopathological Results

Histopathologic Report	No. (%)
Infectious	5 (18.5)
Hydatid cyst	2 (7.4)
Pelvic abscess	2 (7.4)
Pelvic tuberculosis	1 (3.7)
Gastrointestinal-origin	15 (55.5)
Acute appendicitis	2 (7.4)
Stromal tumor (W/O Mx[a])	1 (3.7)
Secum cancer (with Mx)	1 (3.7)
Colon cancer (with Mx)	9 (33.3)
Appendix cancer (with Mx)	1 (3.7)
Concurrent sigmoid and ovary cancer	1 (3.7)
Retroperitoneal-origin	5 (18.5)
Leiomyoma	4 (14.8)
Hodgkin lymphoma	1 (3.7)
Embryologic-origin	2 (7.4)
Mesonephric duct remnant	2 (7.4)

[a] Metastasis to ovary.

by imaging methods were compatible in 3 (11.1%) patients in whom pelvic abscess, hydatid cyst, and colon cancer were the final diagnoses. Diagnosis by imaging methods was not compatible with the surgeon's diagnosis in 1 (3.7%) patient who had a pelvic abscess.

The alpha-phetoprotein (αFP) level was checked in 7 patients and found to be higher than normal in all cases. The carcinoembryonic antigen (CEA) was checked for 4 (14.8%) patients and found to be normal in 3 (11.1%) cases. CA-125 levels were checked in 18 (66.7%) patients, among whom 15 (55.6%) had normal levels. Beta-HCG was normal in all 4 (14.8%) patients in whom it was investigated.

Discussion

Among the 1876 study patients, 1.4% had a mass of non-gynecologic origin based on the final histopathological report. Among non-gynecologic masses which mimic ovarian cancer, gastrointestinal-origin masses are the most prevalent type, followed by infectious masses. It was also noted that lower abdominal pain was the most prevalent chief complaint of patients with these types of masses. Analysis showed that intestinal preparation has an important role for preventing additional surgery. Nearly all related tumor markers such as αFP, beta-HCG, CEA, and CA-125 were normal in these patients.

Ozat et al evaluated the characteristics of women with extra-ovarian diseases mimicking ovarian malignancy in a retrospective review. They reported a prevalence of 5.11% for extra-ovarian diseases among 2210 women with ovarian masses. The most prevalent pathologies were peritoneal tuberculosis (37.17%) followed by gastrointestinal malignancies (22.13%), pelvic abscess (17.70%), and pelvic

echinococcosis (7.08%); these results are, to some extent, in line with those of the present study.[1] Infectious diseases had a lower prevalence in the current study, which may be because of the higher prevalence of infectious diseases in Turkey or better patient selection in the current study.

Assessing the epidemiology and characteristics of 116 patients with secondary ovarian malignancies, de Waal et al reported that metastasis to ovary accounted for 15% of all ovarian malignancies in their center. They also mentioned that tumors of gastrointestinal origin are the most common primary site (39%) of metastasis to ovaries, followed by breast (28%) and endometrium (20%) tumors.[13] In their study, 22 cases had ovarian masses mimicking primary ovarian tumors, among which 36% originated from the large intestine. In 69% of their patients, the ovaries were involved bilaterally, which is line with the results of the present study.

Gynecologists should consider non-gynecologic masses in their differential diagnosis when approaching ovarian masses and perform a complete evaluation before surgery. History taking, physical examination, laboratory and radiographic evaluations in their appropriate times can prevent unnecessary surgical actions and provide the possibility of pre-operative preparations.

Although gastrointestinal masses were the most common non-gynecologic pathology among patients of the current study, GI symptoms were not recorded in most of the patients' profiles. Accompanying symptoms were not recorded in 74.1% of profiles, and none of the patients had a surgeon's differential diagnosis. This may be attributable to inconvenient history taking resulting in the wrong diagnosis.

Conclusion

The findings of the present study suggest that extra-ovarian diseases should be considered in the differential diagnosis of patients with a primary diagnosis of ovarian cancer. It was further found that metastases from gastrointestinal tract tumors and infectious diseases are the most common pathologies among extra-ovarian conditions.

Further studies with larger sample sizes and follow ups regarding the evaluation of prognosis and survival of patients are suggested. It is also recommended that patients be referred to oncological gynecologists and intestinal preparation be considered before surgery.

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