Laparoscopic Management of Adnexal Masses

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- Adnexal mass • Minimally invasive • Cyst
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The discovery of an adnexal mass is a common clinical problem affecting women of all ages. From 5% to 10% of American women will undergo a surgical procedure in their lifetime owing to a suspected ovarian neoplasm and between 13% and 21% of these women will be diagnosed with ovarian cancer.[1]

Thus, although the majority of adnexal masses are benign, the primary goal of diagnostic evaluation is the exclusion of malignancy. Currently, there is no effective way to screen for ovarian malignancy, and the risk rises with increasing age. Ovarian cancer is the leading cause of death from gynecologic cancers and the fifth leading cause of cancer death in women in the United States, with 15,280 deaths annually and a 1.42% lifetime risk of dying from ovarian malignancy.[2,3] The poor rates of survival result from a lack of early warning signals, sensitive screening, or early detection techniques.[4]

Some women with adnexal masses may present with acute torsion or rupture and peritoneal signs requiring immediate surgical intervention; however, the vast majority of adnexal masses are discovered incidentally during imaging or on pelvic exam.[1,5] Adnexal masses discovered incidentally represent a diagnostic and management dilemma.

This review will detail recent advances in diagnosis, treatment, and, importantly, minimally invasive surgical techniques that have the potential to decrease unnecessary morbidity among patients during evaluation of adnexal masses.

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DIAGNOSIS

Most adnexal masses arise from the ovary. Nevertheless, the differential diagnosis for any adnexal mass includes differentiation between an "extraovarian mass" (ectopic pregnancy, tuboovarian abscess, peritoneal inclusion cyst, pedunculated fibroid, diverticular abscess, appendiceal abscess/tumor, fallopian tube cancer, inflammatory/malignant bowel disease, and pelvic kidney) and an "ovarian mass" (physiologic cysts, endometrioma, theca lutein cysts, primary neoplasms, and metastatic carcinoma).[6]

The diagnostic evaluation of a woman with an adnexal mass begins with a thorough history and physical examination. Imaging, with or without laboratory studies, is necessary in a majority of cases. The ultimate diagnostic tool is histological examination.[6,7]

History

Special attention should be paid to the patient's family history, characteristics of her pain, and her menstrual history. It has been shown that more severe or more frequent than expected symptoms of recent onset warrant further diagnostic investigation because they are more likely to be associated with malignant ovarian masses.[8] Nulliparity, history of infertility and/or endometriosis, and a family history of breast, ovarian, or colon cancer are considered risk factors for ovarian cancer.[6,9,10] It has also been shown in recent studies that postmenopausal women who use hormone replacement therapy (HRT) are at an increased risk of ovarian cancer.[11–13]

The most important decision point in assessment of malignant potential for an adnexal mass is the stage of a woman's reproductive life. The suspicion for a malignancy is increased in prepubescent (germ cell tumors) and postmenopausal women (epithelial ovarian cancer) while masses in menstruating women are more likely to be gynecologic and most are functional cysts. Postmenopausal patients with adnexal masses undergoing surgical evaluation have an 8% to 45% chance of malignancy, while malignancy has been found in only 7% to 13% of premenopausal women undergoing similar procedures.[14,15] Nulliparous patients have been shown to have a 2- to 3-fold increased risk of ovarian cancer as compared with parous women. Endometriosis has been associated with increased risk of ovarian cancer and malignant transformation has been demonstrated.[16] Among familial risks, approximately 5% to 10% of epithelial ovarian cancers are suspected to be genetically based, a majority of which include *BRCA1* and *BRCA2* mutations.[1,17]

Physical Examination

The bimanual and rectovaginal examination focus on the size, location, consistency, and mobility of the adnexal mass to help formulate a differential diagnosis. However, these examinations, even when performed in conjunction with a rectal exam and even when performed under anesthesia, have limited utility both for detection and differentiation of an adnexal mass. Detection rates as low as 60% have been reported.[18] The bimanual exam is limited by body habitus and thus detection rates presumably are hampered even further by obesity.[19]

Imaging

Multiple imaging modalities are used in the diagnosis and the differentiation of adnexal masses including ultrasound, magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomographic (PET) scanning. Transvaginal sonography has emerged as the imaging modality of choice given its widespread