

Evaluation and Management of Adnexal Masses

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The adnexa are those structures which lie along the uterus, the most important of which are the tubes and ovaries. The portions of the broad ligaments and mesosalpinx which contain embryonic remnants may also, at times, be palpable and therefore must be considered in any differential diagnosis.

Evaluation of the Adnexal Mass

Bimanual Pelvic Examination. The simplest, least expensive, and most fundamental technique in evaluating the adnexal mass is a bimanual pelvic examination. The normal ovary in a prepubertal female is usually not palpable and the normal postmenopausal ovary is so small and atrophic that it, too, is not often felt. The ovary in women between the ages of menarche and menopause, however, is about $1\frac{1}{2} \times 2 \times 3\frac{1}{2}$ cm. The experienced examiner can usually feel ovaries of this size in a cooperative patient of average body build.

During bimanual pelvic examination several determinations concerning the adnexal mass should be made. First, size should be estimated in reference to an absolute standard such as a centimeter ruler; comparison to fruits and vegetables lacks precision and should be avoided. It is important to differentiate cystic masses from those that are solid. The location

of the mass and its position in reference to the uterus, rectum and bladder should be described; mobility and tenderness on palpation may also be extremely important in differentiating neoplasms from inflammatory masses.

Intravenous urogram, ultrasound, and computerized tomography. There are several technical procedures using modern medical technology which are available today including intravenous urograms, ultrasonography, and computerized tomography.

An intravenous urogram will often provide helpful information about an adnexal mass as well as outline important portions of the urinary tract. Solid adnexal masses that are extremely vascular may take up the contrast material whereas cystic masses are not likely to do so. Any deviation of the bladder and ureters can readily be seen. The usual scout film of the abdomen taken prior to the injection of contrast material will occasionally show a tooth or portion of bone most commonly associated with a benign cystic teratoma (dermoid cyst).

Ultrasonography is useful in determining the size and location of adnexal masses as well as differentiating solid from fluid components of a mass.

Computerized tomography is considerably more expensive but will precisely delineate certain characteristics of an adnexal mass, especially attachments to bladder and bowel, when used in combination with contrast enhancement techniques.

In spite of the current interest in these newer screening techniques the bimanual pelvic examination is still the most practical means

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whereby most adnexal masses are found and is the basis for most therapeutic decisions.

Etiology

Physiologic. The ovaries and tubes may be enlarged owing to a number of causes. Physiologic enlargement of the ovary occurs with the formation of the corpus luteum of menstruation and to a greater extent with the corpus luteum of pregnancy. Enlargement because of normal cyclic function should be recognized. Theca luteal cysts are commonly found in association with gestational trophoblastic disease.

Bilateral enlargement of the ovaries is the usual finding in the polycystic ovary of Stein-Leventhal syndrome. Evaluation and treatment are usually medical and directed towards the underlying hormonal problem.

Inflammatory. Inflammatory disease involving adnexal structures is due to gonorrhoea, the most commonly reported communicable disease in our country today. Acute salpingitis of gonococcal origin may result in a tubo-ovarian abscess which may occupy the entire pelvis. These inflammatory enlargements are usually bilateral, tender, and are accompanied by the usual signs and symptoms of pelvic gonococcal infection.

Neoplastic. The third major category of adnexal masses is neoplastic which may be either benign or malignant. The benign cystic teratoma is the most common benign neoplasm of the ovary in the young adult woman. The identification of a tooth within the mass on a pelvic roentgenogram may be diagnostic, but most dermoid cysts are not identifiable in this manner. The dermoid cyst is often bilateral and arises in the central portion of the ovary. As it enlarges the ovarian cortex is compressed. In dermoid cysts up to 10 cm or 15 cm in diameter it is frequently possible to find a cleavage plane between the cyst and the ovarian substance. Ovarian conservation by cystectomy rather than oophorectomy may be practical.

A paraovarian cyst arises from embryonic remnants within the mesosalpinx and can usually be identified because it is separate from the ovary. The fallopian tube is often stretched across the cyst as the mesosalpinx is distended. In this instance, also, a cystectomy will preserve a functioning ovary and tube on the involved side.

Approximately 17,000 cases of ovarian

cancer are diagnosed in the United States annually. Each year between 11,000 and 12,000 women die from this disease. The majority of these patients have extensive disease involving structures out of the pelvis at the time of initial laparotomy. Most ovarian cancers are epithelial tumors and a smaller number are of stromal and germ cell origin. The scope of this discussion does not include the total management of ovarian cancer, but the importance of adequate evaluation at the time of initial laparotomy cannot be overemphasized. The cell type and degree of differentiation of the tumor, together with the clinical extent of disease determined at laparotomy, are critical in planning management and forming a prognosis. It is impossible to evaluate the upper abdomen adequately through a Pfannenstiel incision. While the cosmetic advantages are obvious, the critical importance of adequate staging must be the major consideration at the time of surgery.

Many ovarian cysts can be removed intact through an adequate incision. The major advantage of the vertical midline incision is that it can be extended from the symphysis pubis beyond the umbilicus (to the xyphoid cartilage if necessary) to remove a large cyst and to satisfactorily explore the upper abdomen. In the patient with Stage III ovarian cancer with involvement of the omentum and peritoneal surfaces it is necessary to palpate and visualize the liver and diaphragm so that biopsies can be performed. It is also important in the patient with ovarian cancer which appears to be grossly limited to the pelvis to evaluate the organs of the upper abdomen. If biopsies are taken from the inferior surface of the diaphragm, the omentum and para-aortic lymph nodes, between 10% and 25% of patients will be found to have microscopic disease even though grossly evident tumor is limited to the pelvis.

The adolescent and young adult woman with unilateral ovarian tumor presents a unique problem. It is natural for most of these patients to wish to preserve their childbearing capacity and it is reasonable that the operating surgeon will respect their desire. Conservative surgery consisting of unilateral salpingo-oophorectomy is certainly justified in young patients with tumors such as dysgerminomas and granulosa theca cell tumors. It is particularly important in such patients, when conservative surgery is initially done, that adequate inspection and biopsy

of the contralateral ovary be carried out. It is usually preferable, in the young patient, to perform a more conservative operation if there is any doubt about the final pathologic diagnosis. A more radical procedure can usually be safely done at a later time if careful pathologic examination proves it to be necessary.

Metastatic cancer. Ovarian cancer may be secondary to primary tumors in the gastrointestinal tract, the breast, and the endometrium as well as other less common sites. Usually, the primary site is obvious; however, in some patients with endometrioid cancer of the ovary (resembling endometrial malignancy) it may be exceedingly difficult to differentiate a primary endometrial cancer which is metastatic to the ovary from a primary endometrioid cancer of the ovary metastatic to the uterus.

Fallopian tube. The fallopian tube must also be regarded as a primary site for an adnexal mass. Aside from inflammatory conditions, ectopic pregnancy is probably the mass most commonly seen. The presence of pain, the tender mass, and the history of overdue menses together with a positive pregnancy test and blood in the cul-de-sac will often help in making this diagnosis.

Primary carcinoma of the fallopian tube is seldom suspected prior to operation. Occasion-

ally, a history of intermittent watery discharge from the vagina and an oval-shaped pelvic mass are noted in cancers of the tube.

Management Guidelines

Certain guidelines should be kept in mind in evaluating adnexal masses. Any adnexal enlargement in the postmenopausal woman should be an indication for removal. In the adult woman prior to the menopause a cystic mass 5 cm or 6 cm in size that persists through one or more complete menstrual cycles is an indication for exploration. If the mass is enlarging during that time of observation, the indication for surgery is more urgent; solid, bilateral masses are more suspicious than cystic unilateral masses.

Finally, there are a few situations in which emergency exploration is indicated. Torsion of an ovarian cyst, characterized by pelvic pain of increasing severity, is often accompanied by a mild leukocytosis and low-grade fever; the pain is usually aggravated by motion. Hemorrhage from a ruptured ectopic pregnancy demands immediate surgery as soon as the diagnosis is made as does a ruptured tubo-ovarian abscess; the latter is best treated by complete hysterectomy and bilateral salpingo-oophorectomy. Failure to act promptly in such instances may result in generalized peritonitis.