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OVARIAN CYSTS AND CONTROLLED OVARIAN HYPERSTIMULATION (COH)

"Functional ovarian cysts" are literally nothing more than ovarian follicles that have become enlarged, dilated and distended with fluid. However, they acquire special relevance when detected in women about to undergo controlled ovarian hyperstimulation (COH) with gonadotropins, where they can literally, "throw a spanner in the works" causing a slight delay, postponement and sometimes even a cancellation of the cycle of treatment.

PRESENTATION

Aside from causing menstrual dysfunction, such as a delay in the onset of menstruation or irregular cycles, they are usually asymptomatic. In some case, these "cysts" will undergo rapid distention (often as a result of a minor degree of bleeding inside the cyst itself) and the woman will experience a sharp or aching pain on one or other side of her lower abdomen and/or deep seated pain during intercourse. Rarely, these "functional cysts" rupture, causing sudden onset of severe lower abdominal pain, which may simulate an attack of acute appendicitis or even a ruptured ectopic (tubular) pregnancy. While very unpleasant, a ruptured "functional cyst" hardly ever produces a degree of internal bleeding that warrants surgical intervention. The pain, which is worse on movement, almost always subsides progressively over a period of four to five days.

DISTINGUISHING BETWEEN "FUNCTIONAL CYSTS" AND OVARIAN TUMORS

Ovarian cysts may be "functional" or "cystic tumors." "Functional cysts" grow in response to a sustained elevation in blood levels, of luteinzing hormone (LH) and/or follicle stimulating hormone (FSH). On the other hand, "cystic ovarian tumors" are capable of independent growth and do not require gonadotropin stimulation. This is what distinguishes them from "functional" ovarian cysts. It follows that "functional ovarian cysts" may develop as a result of non-physiological, sustained pituitary gonadotropin stimulation or as a result of prolonged administration of gonadotropins (e.g. Follisim, Gonal F, Bravelle or Menopur).

When detected (usually by ultrasound examination) “functional ovarian cysts” must be distinguished from ovarian tumors that are cystic and which are subject to numerous complications such as twisting (torsion), hemorrhage, infection and even malignant change (rare in women of the reproductive age) and which invariably require urgent surgical intervention.

“FUNCTIONAL OVARIAN CYSTS” FOLLOWING THE USE OF GnRHa

Gonadotropin releasing hormone agonists (GnRHa) such as lupreulide acetate (Lupron), administered 8-10 days prior to spontaneous or induced menstruation, elicit an initial and rapid out-pouring of pituitary gonadotropins. This causes blood FSH and LH to fall to negligible concentrations within a few days, which is followed by a synchronous drop in blood estrogen (estradiol) levels. This elicits uterine withdrawal bleeding or menstruation. The process of pituitary gonadotropin exhaustion, referred to as "down-regulation," leads to blood LH concentrations being sustained at very low levels throughout the subsequent cycle of COH with gonadotropins, thereby optimizing follicular maturation as well as the endometrial response to estrogen.

The ovaries of some women tend to over-respond to the initial GnRHa-induced pituitary gonadotropin surge (i.e. the" flare effect"), often leading to rapid over development of one or more ovarian follicles (i.e. "functional ovarian cysts"). While such "functional cysts" will almost always resolve spontaneously within a few weeks, prolonged GnRHa administration (for longer than 3 weeks) prior to COH tends to blunt ovarian follicular response. Accordingly, it is usually unwise to continue GnRHa administration for too long so as to await spontaneous resolution of "functional ovarian cysts." "Functional ovarian cysts" commonly produce estrogen. Thus a failure of menstruation to occur within 7-10 days of initiating treatment with GnRHa often points to the absence of estrogen withdrawal and hence, the existence of one or more "functional ovarian cysts." At this point, a vaginal ultrasound should be done in order to look for a "functional cyst." Thereupon, depending upon its size, and other timing-related issues, one can either wait to see if the cyst disappears spontaneously within a few days, or immediately resort to needle aspiration under local anesthesia. We usually perform needle aspiration, sooner rather than later in such cases. Menstruation will usually occur within 2-3 days of the performance of a needle aspiration. Thereafter, after confirming that the blood estradiol level has fallen below 70 pg/ml, COH can be initiated.

BASIS FOR MANAGEMENT

"Functional ovarian cysts" do not present as serious health hazard, even when they are present during pregnancy. Almost without exception, "functional ovarian cysts" spontaneously resolve within 4 to 6 weeks. Tumors will not. Accordingly, the persistence of any ovarian cyst for longer than 6 weeks should raise suspicion with regard to it being a tumor. Since ovarian tumors may undergo malignant change, *all* ovarian cysts that persist for longer than 6 weeks (whether in non-pregnant or pregnant women) should be treated by surgical removal, and the specimen submitted for pathological diagnosis.

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This handout is intended as an aid to provide patients with general information. As science is rapidly evolving, some new information may not be presented here. It is not intended to replace or define evaluation and treatment by a physician.