1. ABSTRACT

The aim of this study was to analyze whether, in a series of benign ovarian tumors, the diagnosis could be reliably established and whether the surgical treatment was appropriate. All patients underwent the preoperative evaluation and laparotomy was performed in all cases. The patients were followed for up to 3-8 years after surgery.

Demolition surgery (mono or bilateral adnexectomy with hysterectomy) was more frequently performed in postmenopausal women, while conservative surgery (enucleation, monolateral adnexectomy) was done in fertile women. Evaluation of the treatment in our series shows that the surgical approach was more aggressive than necessary with respect to the histological diagnosis. Although in the serous and mucinous form tumors on can not rule out the possibility of malignancy in the remaining part of the ovary, the current approach should be more conservative, with enucleation of the mass and preservation of the ovary.

2. INTRODUCTION

Over the last few years, new diagnostic techniques have made a significant contribution to the diagnosis of adnexal masses and in selecting the best surgical treatment. The modality of the treatment varies according to the type of tumor (ovarian, fallopian, broad ligament and its contents) and the benign or malignant nature of the mass. The most frequent and clinically significant adnexal disease present is enlarged ovaries. Majority of ovarian masses are benign (80%), with cystic, solid or mixed characteristics and a favorable prognosis. The other 20% of these masses are malignant tumors (1). Considering that the lifetime risk of developing an ovarian tumor is around 5-7% (2), diagnostic means are needed which permit accurate classification of these ovarian masses before surgery. Unfortunately, the available diagnostic modalities do not allow distinction of benign ovarian tumors from malignant tumors. In the majority of cases, this is only established by histological analysis of the surgical specimen. Nevertheless, we attempted to analyze, whether using the available methodologies, the correct diagnosis of ovarian tumors an ovarian mass can be classified as benign or malignant, enhance the suitable diagnostic modality can be instituted.

During the pre-menarche period, germ-cell neoplasms prevail, and during the post-menopausal period, epithelial tumors prevail. Therefore, patients in these age groups are at a high risk for having a malignancy, and thus require exploratory surgery (1-3). On the other hand, during the reproductive years when there is a greater incidence of ovarian masses, the benign forms appear to prevail. Consequently, in patients during the reproductive years, thorough examination may reduce the need for aggressive surgery.

3. MATERIALS AND METHODS

We studied 172 patients with benign ovarian neoplasms. These women were admitted to the Department of Gynecology and Obstetrics of the University of Bologna between 1988 and 1993. All patients underwent the following preoperative evaluation: clinical history, pelvic ultrasound scan
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and determination of serum level of CA125. Laparotomy was performed in all cases. The treatment consisted of mono- or bilateral enucleation of the mass; mono- or bilateral adnexitomy; mono- or bilateral adnexitomy with hysterectomy. Patients were followed for up to 3-8 years after surgery.

3.1. Bimanual pelvic examination
This evaluation was first carried out to establish the nature of the mass and its relationship to adjacent organs. A smooth surface, mobility, monolateral involvement and the presence of unilocular cysts smaller than 7-8 cm were most consistent with the diagnosis of benign tumors (1).

3.2. Ultrasound pelvic examination
This harmless and non-invasive procedure, is the most commonly used procedure to determine the origin, contents (solid or liquid) and volume of the neoplasm. When possible, transvaginal ultrasound is preferable, its sensitivity of around 100% and specificity of around 83% (4) is higher than the transabdominal ultrasound which has a specificity and sensitivity of over 80% (5). In a multicentric study, Maggino et al (6) proposed the following criteria for the classification of ovarian masses:

Probable benign mass (Class I):
- dimensions < 5 cm
- clear thin wall
- non-echogenous content
- no septa or up to three thin septa
- no free liquid in the pouch of Douglas

Dubious mass (Class II):
- dimensions from 5 to 10 cm and/or
- clear, smooth, thick wall and/or
- hypoechogenic liquid content or solid homogeneous content and/or
- more than three thin septa and/or
- thick but regular septa and/or
- absence of endocystic projections and/or
- absence of free peritoneal fluid

Probable malignant mass (Class III); if none of the above features are observed.

3.3. Color flow Doppler technique combined with ultrasound
This technique is useful for more precise classification of the mass by studying its vascularization. In benign tumors, vascularization is normal, and in malignant tumors, neovascularization is evident. In fact, based on the IP measurement of the vessels, a series of significant parameters for Doppler TSV ultrasound have been proposed (7):

Benign tumors:
- IP > 1.0 (high impedance flow)
- peripheral blood flow
- diastolic end

Malignant tumors:
- IP < 1.0 (low impedance flow)
- central blood flow
- no diastolic end

3.4. Determination of serum CA125
Even though it is not a specific marker, CA125 is the most common laboratory test used in patients with ovarian cancer. According to some authors (8), a serum CA 125 level of over 35 mIU/ml, in patients with an ovarian mass, has a sensitivity of 95% and a specificity of 61% for the diagnosis of cancer. Therefore, it can be deduced that a low serum level of CA 125 indicates presence of a benign mass.

3.5. Echo-guided aspiration of ovarian cysts
Aspiration and the cytologic examination of the aspirated liquid, has a diagnostic reliability of 85-95% (9). This method alone, however, is not sufficient to rule out malignancy.

3.6. Laparoscopy
This method allows direct vision of the pelvic organs, and is useful in clarifying the origin of the neoplasm. In addition to allowing examination of surface characteristics of the tumor, this procedure allows retrieval of the peritoneal liquid, peritoneal washing and aspiration of liquid from the neoplasm for cytological analysis. Neither this technique nor the cytological analysis of the aspirated liquid makes it possible to rule out malignancy.

The aim of this study was to analyze whether, in a series of benign ovarian tumors, the available diagnostic techniques did in fact allow the diagnosis of benign ovarian tumor to be made and whether the surgical treatment was appropriate.

4. RESULTS

Only 7 of the 172 patients had a positive family history of neoplasms: mothers of three patients had ovarian cancer (1 epithelial tumor and 2 benign mucinous cystic tumors), one patient had breast cancer and three patients had colon cancer. One third of the patients had pregnancies and only 12% had taken oral contraceptives for 2 years or more. At the time of diagnosis, 97% of the patients were asymptomatic and only 3% reported aspecific symptoms such as abdominal discomfort, pelvic pain or menstrual disorders. Pelvic ultrasound scan and serum CA 125 level did not make it possible, in any case, to define the true nature of the ovarian mass. In terms of age, 119 patients (69%) were in fertile age, and 53 (31%) patients were in the postmenopausal period. Neither of patients were in the pre-menarche
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period. Based on histology, tumors were found in the following categories of patients:

- serous tumors (n=57) were equally distributed between fertile women (n=28) and those in postmenopausal period (n=29);
- mucinous tumors (n=42) and dermoid cysts (n=57) were found more frequently in fertile women (n=32 of 42 and 52 of 57, respectively);
- all Brenner tumors (n=6) were in fertile age women;
- only fibrothecomas (n=10) were more frequent in postmenopausal women.

There was a net prevalence of unilateral ovarian masses, even in the serous and mucinous tumor types. Brenner tumors and fibrothecomas were found as unilateral tumors. Laparotomy and removal of tumors were performed in all patients as follows:

- 41 enucleations (34 monolateral and 7 bilateral);
- 84 adnexiectomies (64 monolateral and 20 bilateral);
- 6 monolateral adnexiectomies with biopsy of the contralateral ovary;
- 41 mono- or bilateral adnexiectomies with hysterectomy.

Demolition surgery (mono- or bilateral adnexitectomy with hysterectomy) was more frequently performed in postmenopausal women, while conservative surgery (enucleation, monolateral adnexitectomy) was done in fertile age women. The three to eight year follow-up showed that:

- no tumor relapse occurred in the remaining part of the ovary after enucleation of the tumor (41 cases);
- no tumor occurred in the contralateral ovary from which a biopsy was taken after monolateral adnexitectomy (6 cases);
- no changes were observed in the contralateral ovary of the women who underwent monolateral adnexitectomy with (n=64) or without (n=19) hysterectomy even in those cases in which the incidence of bilateral involvement was more frequent.

5. DISCUSSION

In our series, the diagnosis of 172 cases of benign ovarian tumors could not be made before surgery and was almost always made by histological examination of the surgical specimen. Age, clinical and ultrasound features of the tumor and the serum level of CA 125 were important in evaluating the nature of the neoplasm - but were not sufficient to firmly establish the diagnosis. In agreement with other studies, most tumors were found in fertile age women, with dermoid cysts and mucinous tumors being the most commonly observed tumor.

Evaluation of the treatment in 172 benign tumors shows that the surgical approach was more aggressive than necessary. The approach, therefore, should be more conservative, with enucleation of the mass and preservation of the ovary. It can therefore be concluded that there are no diagnostic means currently available that make it possible to assure with certainty whether an ovarian neoplasm is benign or malignant. Although some techniques such as echodoppler have greatly reduced diagnostic error margins, in benign ovarian tumors, the surgical treatment by laparotomy should be reconsidered in view of a possible percelioscopic treatment. In spite of the serious concern that serous and mucinous tumors may be malignant neoplasms, enucleation of the mass is now preferred method for the surgical treatment of benign ovarian tumors.

6. REFERENCES


