Ovarian fibroma: our experience of 34 cases

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Summary

Thirty-four cases of ovarian fibroma are reported. The early symptoms were pelvic pain and abnormal uterine bleeding.

All patients were in advanced menopause, mean age 63, except for one that was normally menstruatuating and was 23 years old.

In all cases an ultrasound scan TV/TA and CA 125 tests were performed, and afterwards all patients were treated with either conservative or radical surgery. In addition to the above examinations, color Doppler tests on pelvic vessels were performed in 18 cases.

Key words: Ovarian fibroma; Fibroma with minor sex-cord elements.

Introduction

Most ovarian masses have a benign origin [1, 2] and can be found in all age groups. Among sex cord-stromal tumours, thecoma-fibromas are the most frequent, with an incidence ranging from 4% to 5% [3-5] or 3-5% of ovarian neoplasias [6]. One third of the patients with ovarian tumours have no symptoms until the tumour mass reaches palpable dimensions. Half, however, have no palpable masses [5].

Ovarian fibromas are clinically asymptomatic because of their small diameter, so that they are found accidentally. Mass dimension increase causes symptoms such as urinary problems, abdominalgia and sometimes acute abdomen for the torsion of the mass itself [6].

In particular ovarian fibromas are relatively rare and their diagnosis is difficult before surgery, because their firm consistence and the presence of ascitis and pleural effusion are often mistaken for ovarian malignancy [7]. Sometimes fibromas are histologically indistinguishable from ovarian fibrosarcomas or sex cord-stromal tumours, such as granulosa-cell or Sertoli-cell tumours [8], because of their high cellularity and the presence of sex cord elements.

According to some authors, ovarian fibromas are bilateral in 4-8% of the cases and multiple in 10% [6]. They appear more frequently in menopause, but they can be found at any age.

When its diameter reaches more than 5 cm., the tumour is associated with ascites in 50% of the cases, and with ascites and hydrothorax in 1-3%, causing the Syndrome of Meigs. At ultrasound scan the fibroma appears as a roundish nodule, usually of small dimensions, of homogeneous echogenicity, with clearly defined contours. The masses that reach large volumes have lacunar cystic spaces due to the presence of haemorrhage and sometimes areas of calcification [6]. Therefore the fibroma can appear as a non-homogeneous solid mass, sometimes diffusely hypoechogenic. The presence of cystic spaces inside is not a casual finding but deals with small vascularized lesions. In 90% of the cases they are unilateral. Moreover, in 40% of the cases a light effusion may be found in the Douglas pouch [9, 10].

Materials and Methods

Thirty-four ovarian fibromas were examined retrospectively studying the files from January 1994 to December 2001 of the Division of Pathology Oncology Institute of Bari. Of 190 women treated for neoplastic pathologies, 24 cases were submitted to surgical procedures for a primitive ovarian mass, and ten cases were accidentally found during surgical operations for malignant diseases. All patients underwent ultrasound scan, either transabdominal or transvaginal, and CA 125 seric dosage. Eighteen of 24 patients affected by primitive ovarian pathology were submitted to color-Doppler. After presurgical routine examinations, all patients underwent either radical or conservative surgical treatments.

Formalin fixed, paraffin-embedded, hematoxylin-eosin stained sections of all ovarian fibromas were examined. Deparaffinzed sections were immunohistochemically stained for CAM 5.2 (Becton-Dickinson, dilution 1:4), Vimentina (Dako, dilution 1:300), smooth-muscle specific actin (Dako, dilution 1:100), desmina (Dako, dilution 1:100), estrogen receptors (Dako, dilution 1:20; microwave technique), progesterone receptors (Delta-Biological, dilution 1:5; microwave technique), S 100 (Dako, dilution 1:100; polyclonal), B 72.3 (Sorin, dilution 1:300) and CA 125 (Cis-Diagnostic, dilution 1:3).

Results

The patients examined were between 23.7 and 85.2 years old, with a mean age of 63.6 ± 3.1 years.

In all 24 cases affected by primitive adnexal pathology, pelvic ultrasound scan (transabdominal or transvaginal) had shown ovarian morphologic alterations.

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Eighteen of 24 patients were submitted to color-Doppler and only 14/18 showed scarce vascularization associated with low-speed flow referable to ovarian fibroma.

The CA 125 seric dosage tested in all patients was proved positive (above 35) in five out of 24 (20.83%).

All patients underwent different surgical treatments as reported in Table 1. All had ovarian fibromas: unilateral in 30/34 (88.24%) and bilateral in 4/34 (11.76%) (Table 2).

Moreover, in 10/34 cases an effusion of small entity was found in the Douglas pouch. One of these cases also showed free effusion in the abdomen (the cytological diagnosis highlighted the presence of malignant cells).

Associated findings at surgery are reported in Table 3, in particular ten cases were associated with malignancy (9 in the cases of unilateral ovarian fibromas and 1 case in the bilateral cases).

Table 1. — *Different surgical procedures performed.*

Total abdominal hysterectomy with bilateral oophorectomy	14 (41.18%)
Unilateral oophorectomy	18 (52.94%)
Bilateral oophorectomy	2 (5.88%)
Appendectomy	11 (36.67%)
Omentectomy	5 (16.67%)
Cholecistectomy	2 (6.67%)
Lymphadenectomy	8 (26.67%)
Bowel resection	4 (13.33%)

Table 2. — *Clinical data on 34 patients with ovarian fibroma.*

Unilateral ovarian fibroma	*30/34*	*(88.24%)*
Associated with benign multiple findings	19/30	(63.33%)
Associated with malignancy	9/30	(30%)
Not associated to other findings	2/30	(6.67%)
Bilateral ovarian fibroma	*4/34*	*(11.76%)*
Associated with benign multiple findings	3/4	(75%)
Associated with malignancy	1/4	(25%)
Not associated to other findings	0	

Histological features were similar in all cases and consisted of typical spindle cells arranged in intersecting bundles, occasionally in a storiform pattern, separated by bands of abundant hyalinized collagen (Figure 1 and Figure 2). Areas of edema and myxoid changes were rare. Moreover, foci of coagulative necrosis and several sertoliform tubules scattered with the spindle cells (one case) were present. In all cases, the spindle cells showed positive staining for vimentin and occasionally for desmin and smooth-muscle-specific-actin. Immunohistochemical staining for estrogen and progesterone receptors and for tumour markers B 72.3 and CA 125 were always negative.

Macroscopically, dimensions varied from 43 and 58 mm, with an average of 51+7 mm.

Two cases were "cellular fibromas" found respectively in women from 73 to 84 years old. Histologically the tumours were composed of spindle cells showing slight pleomorphism and 3 mitosis per 10 HPF (Figure 3).

Table 3. — *Associated pathological findings.*

Ovarian serous cyst	2 (3.03%)
Mucinous cystoadenoma of the ovary	3 (4.55%)
Scleroatrophic contralateral ovary	1 (1.52%)
Malignant mixed Mullerian tumour (heterologous)	1 (1.52%)
Serous papillary adenocarcinoma of the contralateral ovary	1 (1.52%)
Paratubaric cyst	2 (3.03%)
Simple endometrial hyperplasia	5 (7.58%)
Complex polypoid hyperplasia of the endometrium	5 (7.58%)
Atrophic senile endometrium	14 (21.21%)
Endometrial polyp	3 (4.55%)
Single intramural leiomyoma of the uterus	5 (7.58%)
Single subserous leiomyoma of the uterus	2 (3.03%)
Multiple leiomyomata	2 (3.03%)
Endometrial well diversified polypoid papillary endometrioid adenocarcinoma	1 (1.52%)
Poorly diversified endometrioid adenocarcinoma	2 (3.03%)
Moderately diversified adenocarcinoma of the uterine body	2 (3.03%)
Pelvic endometriosis	1 (1.52%)
Chronic appendicitis obliterans	8 (12.12%)
Microglandular carcinoid of the appendix	1 (1.52%)
Cholelitiasis	2 (3.03%)
Tubulo-papillary adenoma of the rectum and sigmoid colon	1 (1.52%)
Primitive adenocarcinoma of the peritoneum	1 (1.52%)
Adenocarcinoma mildly differentiated in the large bowel	1 (1.52%)

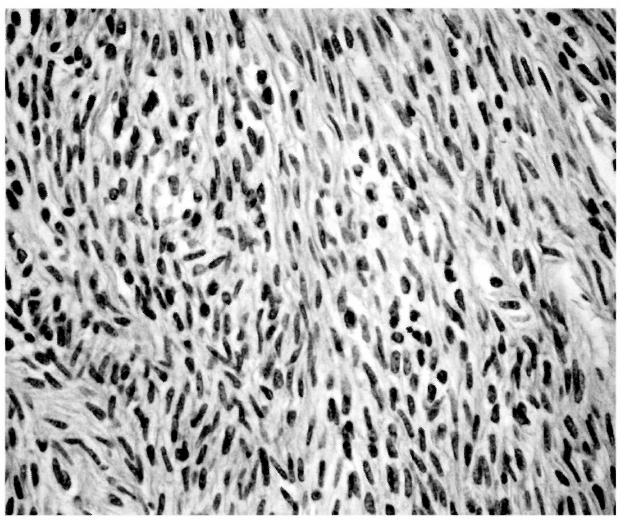

Figure 1. — Fibroma with intersecting bundles of single cells producing collagen (H&E, x10).

Discussion

Ovarian fibromas are benign clinical entities, often asymptomatic, and are not usually associated with hormonal syndromes [11]. The highest incidence occurs in middle-aged women, with a mean age of 48 years. The literature shows a prevalence of ovarian fibromas in members of the same family [5].

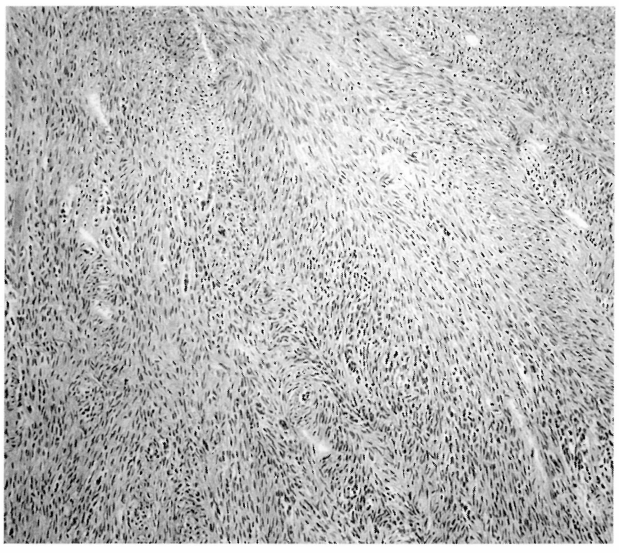

Figure 2. — Fibroma. The cells have spindle-shaped nuclei lacking atypia or miotic activity (H&E, x40).

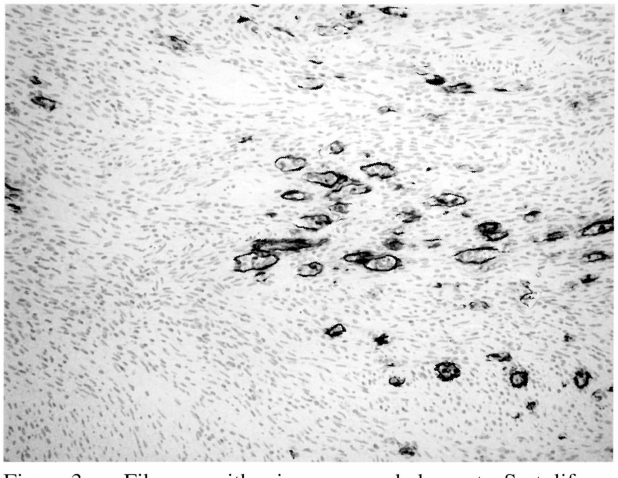

Figure 3. — Fibroma with minor sex cord elements. Sertoliform tubules were immunostained by low molecular weight cytokeratin (Cam. 5.2).

The most frequent symptoms of ovarian fibroma are mainly connected with an abdominal mass, especially if larger than 10 cm, or with ascites, [12] which can be associated with fluid in the thorax (Meig's Syndrome). The origin of this syndrome is ascribed to either mechanical irritation due to compression or active secretion of fluids by the tumour [7].

Clinical-instrumental investigation cannot determine the exact nature of the neoplasm and even the macroscopic aspect of ovarian fibroma is not typical enough to exclude other ovarian tumours, such as Brenner, Krukenberg or metastatic carcinomas.

Macroscopically, a tumour size larger than 3 cm [8] and especially the absence of follicular structures within the tumour facilitate the distinction between fibromas and other ovarian tumours.

When the ultrasound scan does not prove useful in visualizing the homolateral ovary, the differential diagnosis with subserous pedunculated myomas can be difficult. Then the aid of color-Doppler can be helpful to clear up any doubt. The mass, indeed, will appear vascularized with high-speed flow in cases of pedunculated myomas, and slightly vascularized with low-speed flow in cases of ovarian fibromas [9, 10].

Microscopically, histological findings generally permit a diagnosis with no difficulty. However, in some cases the differential diagnosis is more difficult for thecomas, especially fibrous thecomas, stromal tumours, fibromatosis and massive edema of the ovary.

Occasionally the presence of numerous smooth muscle cells makes the differentiation between fibromas and leiomyomas difficult.

A rare variant of ovarian fibroma is the so-called "fibroma with minor sex cord elements" [13], in which elements of sex cord components are found, such as granulosa cells or Sertoli cells, forming tubules or nests. If these elements are numerous and they account for more than 10% of the stromal component, the differential diagnosis between fibromas and true granulosa cell tumours or Sertoli cell tumours is often difficult. Cases characterized by a high cellular area, such as cellular fibromas, can be misinterpreted as fibrosarcomas. Thus the differential diagnosis should be made on the basis of the absence of atypical nuclei and the number of mitoses, which should be less than 3 x 10 HPF [14].

The cases in our study belong to a heterogeneous group for age, with a mean age of 63.6 years and with early symptoms such as pelvic pain and abnormal uterine bleeding. These symptoms were not due to endometrial pathologies in all cases because histological evaluation following hysterectomy evidenced simple endometrial hyperplasias (5 cases), complex polypoid endometrial hyperplasia (5 cases), intramural (5 cases), subserous (2 cases), multiple (2 cases) leiomyomas and large endometrial polyps (3 cases) (Table 3).

In one case, sex cord elements were present in the form of sertoliform tubules, often so abundant as to resemble a Sertoli cell tumour. This possibility, however, was ruled out on the basis of the general histological aspect of the tumour, the advanced age of the patient, and the absence of endocrinal symptoms, apart from metrorrhagic episodes with no evidence of endometrial lesions.

As regards the histogenesis, the majority of ovarian fibromas are likely to be derived from the specific stromal cells of the ovary [7], as their histological pattern mimics that of thecomas with the presence of sex cord elements.

The treatment of ovarian fibromas is always surgical [7, 11]: conservative surgery (unilateral salpingo-oophorectomy) in younger patients, still in their reproductive age, and radical surgery in older patients (total hysterectomy and bilateral salpingo-oophorectomy), especially in cases where the benign nature of the neoplasia has not yet been established.

The percentage in our study (24/190 equal to 12.63%) is surely higher compared to the literature. If you consider the totality of the cases we found, as well as the

cases found accidentally when other pathologies were in course (34/190), the percentage found by us seems to increase even more (17.89%). This event can be partially explained by the fact that we found some of the fibromas casually either during interventions for benign pathologies or during the execution of new techniques of microinvasive laparoscopy.

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