

Solitary fibrous mass of the omentum mimicking an ovarian tumor: case report

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Summary

There are some pelvic masses which are difficult to correctly classify as malignant or benign. The decision concerning method and choice of surgical intervention is not simple in this situation. Some tumors are extremely rare and need to be presented in the literature. The authors report a rare case of fibrous tumor of the omentum simulating a malignant ovarian tumor, which ultimately resulted to be a primary solitary fibrous tumor of the omentum. Ultrasound findings are mostly precise prognostic tools according ovarian masses. However, from time to time, Doppler blood flow examination may present false positive results.

Key words: Ovarian cancer; Solitary fibrous tumor; Ultrasonography.

Introduction

Currently, the most efficient and popular method in the diagnosis of pelvic masses is transvaginal ultrasonography (TUS) performed by an experienced sonographer. The main advantage of this method is the timing of the test, its costs and above all, its high prognostic values, making it the better choice over other imaging diagnostic tools (i.e. MRI and CT) and various biochemical tests.

Subjective evaluation of an ultrasound scan performed on modern equipment by an experienced examiner can determine in most cases the risk level of malignancy of a pelvic tumor [1]. Usually, it is also possible to effectively predict the specific type of a tumor (eg., endometrioma, dermoid cyst, hydro-, pyo- or hematosalpinx, paraovarian cyst, hemorrhagic corpus luteum cyst or myoma) based on “pattern recognition” of the gray-scale ultrasound and determine its point of origin [2]. Furthermore, morphological and Doppler indices together with mathematical models that calculate the risk of malignancy are also applicable and quite helpful [3-5]. Nevertheless, there is a group of neoplasms called diagnostically “difficult” tumors. These types of tumors usually present a difficult diagnostic scenario, where despite the use of all available diagnostic methods, it is difficult to ascertain their precise nature. This poses a complicated dilemma on deciding whether to observe or to operate, and then where, how, and by whom these tumors should be operated on [6]. The problem is even greater when it comes to dealing with rare tumors of the pelvis. The mere uniqueness of these neoplasms provides more dilemmas for the team of clinicians involved in the therapeutic process. This is the reason why the present

authors decided to report a rare case of a patient with a pelvic tumor simulating a malignant ovarian tumor, which ultimately resulted to be a primary solitary fibrous tumor of the omentum.

Case Report

A 29-year-old woman presented to her general practitioner with unspecific symptoms of pelvic pain and heaviness, urinary bladder pressure, loss of appetite, and bloating. She also reported intermittent pain in the left iliac fossa.

A trans-abdominal pelvic ultrasound scan was performed and a solid mass measuring 3.6×3 cm in size was discovered, located laterally to the uterus. On color Doppler examination, it was noted that the structure was highly vascularized. This was the main reason the patient was referred to a gynecologist and a colorectal surgeon for further consultation by her general practitioner. All the investigations done by the surgeon ruled out the possibility of the tumor having an origin in the bowel. The patient was then examined by a gynecologist in order to try and establish the origin of this tumor. A full gynecologic examination was performed and the pelvic tumor was suspected to be most likely of ovarian origin.

The patient’s past gynecologic history was uneventful and her age at menarche was 16 years, with a regular but long menstrual cycle (40 days). Her periods were moderate, painless, and she menstruated for up to seven days. She had two spontaneous vaginal deliveries without complications. Her past medical and surgical history were unremarkable. The only regular medication of note was a transdermal contraceptive patch.

On bimanual examination, the left adnexa was slightly enlarged. A smooth, slightly mobile mass of about four cm in diameter was palpable. The uterus and right adnexa were normal on palpation. A trans-vaginal ultrasound scan was performed in gray scale. The uterus appeared normal in shape and size measuring 5.2×4 cm, endometrium measured 15 mm. The right ovary was

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Figure 1. — Ultrasound scan of suspicious solid pelvic tumor close to enlarged parametrial vessels.

of normal echogenicity and measured $2.5 \times 1 \times 5$ cm. The left ovary measured 3.3×1.9 cm and was connected to the solid tumor $3.8 \times 2.9 \times 2.2$ cm in size (Figure 1). Blood vessels were moderately distended in both parametria. Free fluid was absent within the pouch of Douglas and no other abnormality was detected on the trans-vaginal as well as the trans-abdominal ultrasound scans. The serum concentration of CA-125 was 27.5 IU/l. As a result of the aforementioned findings, a detailed TUS was performed with the aim of a subjective assessment and to measure the morphologic and Doppler indices of the solid tumor [4, 5, 7]. A subjective assessment was performed by an experienced sonographer and the tumor was classified as “uncertain but benign”. From this assessment it was also suggested that the tumor could have either be an ovarian fibroma, a non-ovarian tumor in origin, a bowel tumor or a pedunculated myoma. The latter was ruled out as it was located a little too far away from the uterus (> three cm).

The present authors have previously proposed an ultrasonographical morphological index in distinguishing malignant from benign ovarian tumors. This index has a cut-off value of 8 points in which any tumor with a value equal or above this seemed to be malignant. This tumor scored 10 points hence the high suspicion of its malignant nature [4]. The evaluation based on the SM index was as follows: the tumor together with the ovary had a volume of 21 cm^3 (1 point), solid structure (5 points together for the capsule and internal wall structure categories), lack of a septum (0 points), high echogenicity (4 points), it was unilateral (0 points), and there was the absence of ascites (0 points).

A Doppler index (SD) previously proposed in the authors' department consisting of the following categories: number of vessels, vessel localization, pattern of vessels, shape of blood flow velocity waveform, and the presence of a protodiastolic notch were given a positive score of 1 point, each with a cut-off point equal to or more than 4 points as the threshold indicating malignancy [5]. When the exact vessels were analyzed, they showed low resistant blood flow, with parameters of pulsatility index (PI) = 0.78, resistance index (RI) = 0.42, and peak systolic velocity (PSV) = 30.2 cm/s. This mass was given the maximum score of 5 points, which raised the present authors' suspicion which was suggestive of a malignant process.

The tumor was further assessed in the Alcazar scoring system which takes into consideration both the morphology and Doppler findings, with a cut-off point of 6 points on the scoring system. The tumor achieved 10 points [8].



Figure 2. — CT scan of pelvic tumor in connection with urinary bladder.

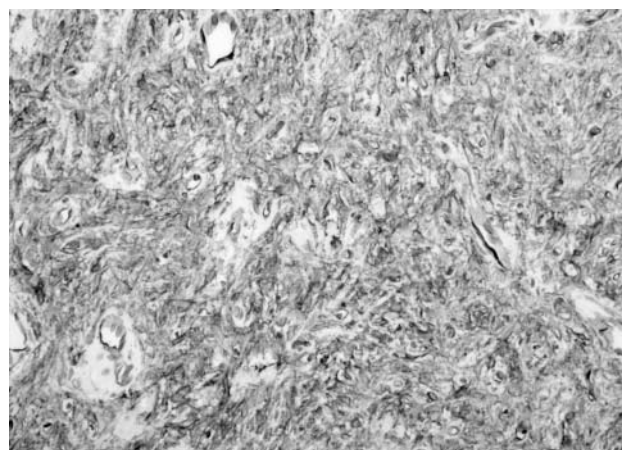


Figure 3. — Positive staining for CD34 in the endothelium and tumor cells: solitary fibrous tumor.

On further investigations, a CT scan was performed. It revealed an oval fluid structure in the left parametrium with a maximum diagonal diameter of about 30 mm without a visible capsule. The parametrial vessels extended to this structure. Towards the front of the lesion, adjacent to the upper-lateral left wall of the bladder, there was a polycyclic structure strengthening intensively in arterial and portal phase with a maximum diagonal diameter of about 37 mm, with fluid area. This structure was not connected to the uterus. This anomaly was connected by a narrow pedicle to the anterior pole of the parametrium. The bladder and lymph nodes were unchanged on the CT. The conclusion was that the tumor described in the ultrasound examination was cystic-solid areas, while the structure close to the abdominal wall had an ambiguous nature on the CT scan. Intense gain indicated the presence of pathological vascularity. Numerous enlarged venous plexus around the left parametrium were also revealed (Figure 2).

After all these out-patient procedures, the patient was referred to the Division of Gynecological Surgery, Poznan University of Medical Sciences for further treatment. She was admitted to the hospital and underwent all the necessary preparations for surgical treatment. All laboratory tests were in normal range, her chest x-ray was unremarkable. US scan confirmed the previous findings. Basing on the aforementioned results and suspicion of a malignant ovarian tumor, the patient qualified for an exploratory laparotomy and further treatment depending on the histopathological examination findings.

Laparotomy was performed and a solid tumor measuring four cm in diameter was found to have originated from the greater omentum. There were massive adhesions between the tumor and the bladder and laterally to the left pelvic wall. Adhesiolysis was performed, the tumor was resected in one part, and sent for intraoperative histopathological examination. The uterus and both ovaries were normal, and of note, only the left parametrial vessels were enlarged. All the other structures in the operative field were normal on palpation and visual inspection.

The intraoperative histopathology findings were as follows: solid tumor of connective tissue, with edema and without signs of malignancy; most likely fibroma or fibroadenoma. However, the final histopathology report was a solitary fibrous tumor (Figure 3). The patient's postoperative stay was uneventful and the patient was discharged three days after the operation.

Discussion

The occurrence of primary omental tumors is very rare, moreover, they have mainly been studied by histology as there is scarce reporting from US and CT findings in the medical literature. US is very useful in examining the internal structures of neoplasms but one major limitation is its inability to precisely determine the origin of the lesion prior to surgery [9].

Solitary fibrous tumors are rare and generally, there is lack of sufficient information in the medical literature. These lesions have only recently been described and hence the difficulty in accurately determining their behavior. The most common extrathoracic sites reported are the head and neck region, somatic soft tissue (especially the lower extremities), and the retroperitoneum or pelvis, although their occurrence in just about any site in the body has occasionally been noted. They are usually very difficult to diagnose due to their wide histological variability, especially when they occur in extrathoracic sites [10].

In the present case, the tumor presented with unspecific symptoms reminiscent of those reported in ovarian cancer. It is opinion that this unspecific symptoms in conjunction with their frequency and duration may be useful in identifying women with ovarian cancer [11].

When a detailed TUS was performed, the lesion was suspected to be malignant in nature basing the present authors' suspicion on the proposed index from their department i.e. morphological index (SM), the Doppler index (SD), together with the Alcazar scoring system. Additionally, it is always helpful to determine the precise location of the tumor prior to performing the operation and this was further made difficult by the ambiguity of the CT scan findings. In the presented case ultrasonography had high prognostic value and the CT assessment was inaccurate.

It is very important to achieve preoperatively accurate information regarding malignant potential as this helps in choosing the appropriate surgical management for the patient. The morphology index proves to be a helpful tool for clinicians to use as they decide on which management route to take for ovarian tumors prior to surgery, as well as on

the type of operation to be done. It helps to differentiate benign lesions from the malignant ones as demonstrated by Szpurek *et al.* [4].

The most interesting part of this investigation was the examination by color Doppler imaging. The adnexal mass appeared to be highly vascularized and was given a color score of 4 according to the International Ovarian Tumor Analysis (IOTA) group [12]. Furthermore, Witczak *et al.* also demonstrated how vessel localization in adnexal tumors played an extremely important role in the prediction of malignancy preoperatively with a remarkably high specificity in the diagnosis [13]. In presented case however Doppler findings were false positive.

Other tumors of the greater omentum that have been reported to present similar symptoms and investigative findings, especially when they occur in the lower pelvic region, are leiomyosarcoma, lipoma, fibroma, and abdominal desmoids.

Leiomyosarcoma is a relatively rare malignant tumor of smooth muscles, usually found in the uterus, GI tract, retroperitoneum, and genitourinary tract. Soufi *et al.*, reported a case of a patient who presented with liposarcoma of the omentum located in pelvic area. The localization and an elevated CA125 levels raised suspicion of presence of ovarian cancer [14]. Fibromas are another group of omental tumor mimicking ovarian tumors. Their occurrence is very rare despite the fact that connective tissue is found throughout the body. Ono *et al.* reported a case of a patient with fibroma of the omentum that resembled an ovarian tumor in the pelvis. On ultrasonographic examination the lesion appeared to be likely of ovarian origin. Nonetheless, laparotomy revealed otherwise, that it was indeed an omental tumor. This clearly shows the challenges presented to the clinicians on how difficult it is to preoperatively diagnose omental fibromas precisely due to their similar appearance to ovarian tumors [15]. The present authors have also found few reports of hemangiopericytoma of the omentum presenting as an ovarian tumor [16, 17].

Reflecting on the above cases, we can draw a similarity to the present case on the difficulty clinicians meet on the preoperative classification and diagnosis of neoplasms that occur in the lower pelvis. Their initial presentation and US examination do not always give the exact nature of their malignancy, which is very important factor in selecting the type of surgical treatment that would best suit the patient. Generally as reported by Hasegawa *et al.*, solitary fibrous tumors are benign, although some have been noted to recur and/or metastasize, hence the necessity for a careful long-term follow up for all patients [10].

In conclusion ultrasound findings are precise prognostic tools according ovarian masses but false positive result can be also performed. More advanced procedures as CT sometimes does not give more information. For difficult and very rare tumors even all possible methods are not suffi-

cient to perform the precise prognosis preoperatively. This is the reason why every gynecologist evaluating pelvic mass should remember, although ovarian tumor is the most probable, various sites of origin should be considered.

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