LETTER TO THE EDITOR

Real-Time Digital 3D Ultrasonographic Characteristics of Recurrent Leiomyomatosis

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A woman aged 42 years, gravida 2, para 1, presented with a palpable abdominal mass found during a pelvic examination in our hospital. She had experienced intermittent low abdominal discomfort during the last several months. Her medical history included myomectomy for uterine fibroid, a total abdominal hysterotomy, a left salpingo-oophorectomy for recurrent multiple uterine fibroids with severe menorrhagia, and a large left ovarian tumor. The histologic examination from the surgical specimen confirmed a diagnosis of leiomyomatosis with left ovarian borderline mucinous tumor.

One year later, she underwent debulking surgery for a retroperitoneal tumor and a ureteroneocystostomy with a double J tube and a suprapubic Foley insertion. Her left ureter was engulfed into a retroperitoneal tumor near the lower-third. During the laparotomy, multiple grey-whitish, firm, and solid retroperitoneal tumors were scattered in the paravesical space and deep within the pelvic cavity. They varied in size, ranging from 1.5–5.0 cm. The microscopic findings showed that there were leiomyomas with moderate to marked hypercellularity and mild nuclear pleomorphism. Occasional mitoses (0-1/10 HPF) were noted, but there was no evidence of necrosis. The pelvic lymph node demonstrated reactive hyperplasia and the fibroid proliferation of smooth muscle cells in the vascular wall and lumen. Six weeks later, the double J tube was removed using cystoscopy; the suprapubic Foley was extracted after 10 days. The postoperative course was uneventful for approximately 1 year. Later a self-palpable solid mass on the left pelvic wall was found during a pelvic examination when she visited our hospital and received routine follow-up treatment.

On initial examination, two-dimensional transvaginal ultrasonography demonstrated a solid mass that measured 59 × 58 mm, which was located at left pelvic wall, the other solid mass measuring 37 mm × 27 mm, was located on the right pelvic wall. The magnetic resonance examination of her pelvis and lower abdominal survey (before and after intravenous administration of gadolinium-diethylene-triamine-pentaacetic acid) revealed multiple confluent tumor nodules approximately 8 cm × 7 cm × 6 cm in size. These were found at the pelvic floor and on the left side of the pelvis, with the tumor directly invading the perirectum, left bladder wall, and the left vaginal stump.

To acquire more delicate images, we used a transvaginal scanner set for three-dimensional (3D) ultrasonography (Medison, Voluson 530D, Korea) with a 5.0–8.0 MHz volume transducer to access the pelvic mass. Under the real-time 3D multiplanar image display, three stereographs of the solid pelvic mass were obtained; one was located on the left pelvis, the other in the vaginal cuff, and the third one on the right pelvis. After defining the borders of the masses and launching the automatic volume calculation, the estimated volumes of the masses were 50.66 ml, 13.11 ml, and 36.40 ml, respectively (Fig. 1). To detect tumor vascularization, we reconstructed the stereograph within 5 seconds using the Anglo mode. Multiple disseminated, scattered, and confluent intratumoral vessels were depicted in three solid masses with heterogeneous echogenicity (Fig. 2). The blood flow analyses of these masses revealed the following: the left...
pelvic mass, pulsatility index (PI) = 0.92, resistance index (RI) = 0.41; the vaginal cuff mass, PI = 1.12, RI = 0.43; and the right pelvic mass, PI = 0.93, RI = 0.40 (Fig. 3). The patient was discharged with an uneventful hospital course and subsequently received regular follow-up.

Leiomyomatosis peritonealis disseminata (LPD) is an unusual entity characterized by the development of numerous leiomyomas throughout the peritoneal cavity, which appear grossly malignant but histologically benign [1–4]. LPD is a rare benign condition that mimics...
peritoneal carcinomatosis on diagnostic imaging study or at laparostomy [5]. This disorder usually develops in women of reproductive age, particularly in those in their 40s [6]. It is often associated with pregnancy, fibroids, and oral contraceptives [2,7]. Nonspecific pelvic pain and menorrhagia are common clinical presentations [2]. Because of an absence of body weight loss, ascites, and liver metastases in women with multiple pelvic nodules who bear children late in life, LPD should be considered when making a differential diagnosis. We reported a case of recurrent LPD, which is neither complicated with pregnancy nor associated with oral contraceptives. Real-time digital 3D ultrasonographic appearance was also demonstrated.

Real-time digital 3D ultrasonography has a significant role in the depiction of multiple pelvic masses, including the gross- and micro-inspection of a tumor. In our presenting case, 3D stereography shows these masses with regular borders and multiple internal thin interfaces between smooth muscles with heteroechogenicity. Three-dimensional power Doppler angiography demonstrated marked hyper-vascularity in these three masses. In this recurrent LPD case, randomly dispersed vessels, irregular branching, and thorn-like diameters all resemble malignant tumors. But, in the absence of vascular lakes, arteriovenous shunts have the characteristics of benign tumors. In addition, the Doppler study revealed decreased intratumoral PI values with increased tumor volumes, e.g., benign uterine myoma.

References