

# Preoperational diagnosis of a uterine lipoleiomyoma using ultrasound and computed tomography images: A case report

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## Summary

A uterine lipoleiomyoma is a variant of uterine myomas, however, it is rarely found in patients and the diagnosis of uterine lipoleiomyoma has always been in retrospect. Uterine lipoleiomyomas are often diagnosed preoperatively as uterine myomas or ovarian mature teratomas. The key to distinguishing the tumors from lipoleiomyomas is to ascertain the primary site of development - uterus or adnexa. When a large uterine tumor is found in a postmenopausal woman, the possibility of malignancy should be considered. Now, however, advanced modern imaging systems can provide more precise diagnoses than before. The following case illustrates how a uterine lipoleiomyoma was highly suggestive preoperatively based on typical characteristics on ultrasound and computed tomography (CT). A homogeneous hyper-echoic mass confined to the uterus on ultrasound initiated the suspicion of the tumor. In addition, the uterine mass showed lower density than water on CT which further established the possibility of a fatty tumor of the uterus. The final pathological examination results confirmed the diagnosis of lipoleiomyoma.

*Key words:* Computed tomography; Lipoleiomyoma; Ultrasound.

## Case Report

A 69-year-old woman, gravida 9, para 8, 1 abortion, had frequently experienced enlarged abdominal girdle for a few months. Her medical history was unremarkable as was her surgical history. She had not received any form of hormonal replacement therapy since 52 years of age when menopause occurred. She denied weight loss, poor appetite or chills. Routine pelvic examination revealed an enlarged pelvic mass. Ultrasound through either the abdomen or vagina revealed a 10-cm homogeneous hyper-echoic mass in the fundal area of the uterus (Figure 1). Since we failed to detect either ovary and the margin of the tumor could not clearly be identified, computed tomography (CT) was performed. CT showed a 9-cm uterine mass of predominantly fatty tissue (Figure 2). Exploratory laparotomy was performed in this patient. Total hysterectomy and bilateral salpingo-oophorectomy were done smoothly. Operative findings revealed an intramural well-circumscribed mass measuring 9.0-cm in diameter, with a firm, lobulated yellowish surface intermixed with fat-like tissue (Figure 3). Pathological examination results showed interlacing bundles of mature smooth muscle and mature adipose tissue (Figure 4). These findings confirmed uterine lipoleiomyoma. The patient was discharged four days after surgery and has been regularly followed up for more than one year without recurrence.

## Discussion

Benign lipomatous lesions of the uterus are very rare, with an incidence of between 0.0005% to 0.28% accounting for less than 0.2% of benign uterine tumors [1-8]. They are composed of a mixture of mature adipose and smooth muscle cells. To date, pathogenesis of these tumors is still unclear although several theories have been proposed [2-4]. The theories include misplaced embryo-

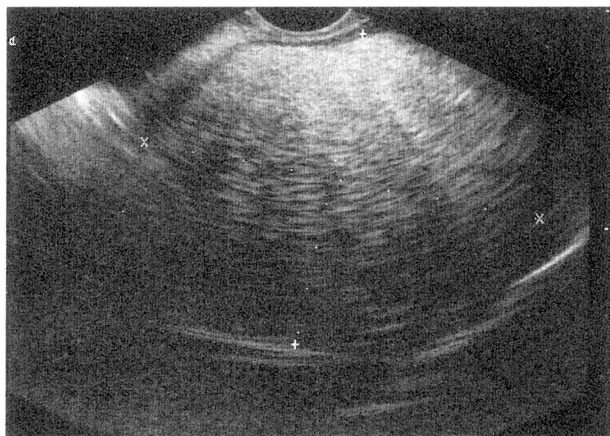


Figure 1. — Transvaginal ultrasound demonstrates a hyper-echoic mass 8 x 8 cm in diameter in the pelvis.



Figure 2. — Computed tomography shows the low-density mass on the fundal area of the uterus.

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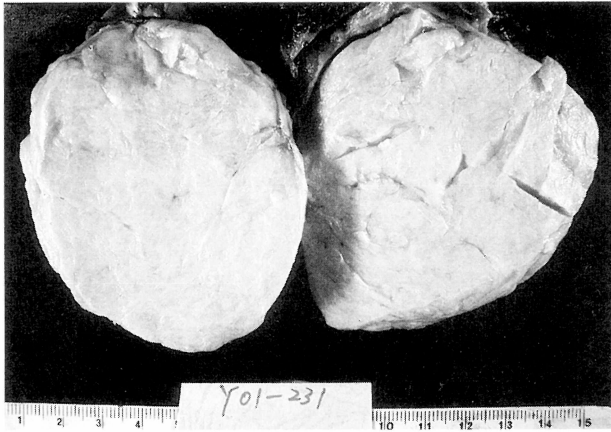


Figure 3. — Cross section of the uterus and the mass shows abundant adipose tissue-like component.

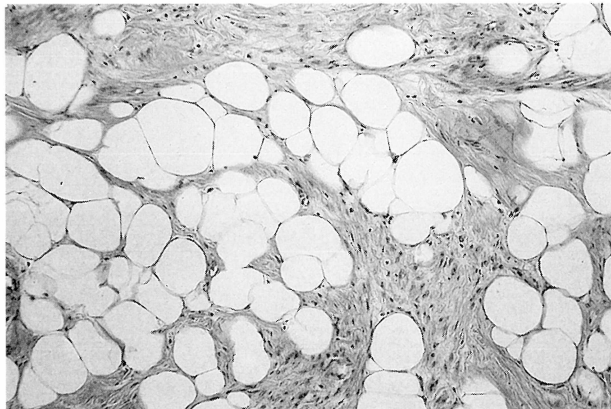


Figure 4. — Photomicrograph confirms the existence of mature smooth muscle intermixed with adipose tissue in the mass (H & E, x 200).

nic remains of lipoblasts, perivascular extension of peritoneal or retroperitoneal fat, direct transformation of smooth muscle cells or connective tissue into adipose cells [1, 5, 9], neometaplasia of the lipomatous component derived from immature perivascular cells [5, 10], and lipocytic differentiation of primitive connective or mesenchymal tissue. Malignant changes of uterine lipoleiomyomas are extremely rare but have been reported [11, 12]. Uterine lipoleiomyomas are more frequently found in postmenopausal women than in premenopausal women and some authors suggest that hormonal alterations may play a role in the pathogenesis of lipoleiomyoma of the uterus [13]. Clinically, the symptoms are similar to those caused by leiomyomas, such as urinary frequency, constipation, pelvic discomfort, heaviness, and uterine bleeding, however, these masses may cause no symptoms.

The adipose component of lipomatous uterine masses produces the increased echogenicity on ultrasound [7, 8, 14], which is often misdiagnosed as a mature teratoma of the ovary containing only fat and hair [14]. Sometimes, a hypoechoic ring, representing a layer of myometrium, can be identified surrounding the lipomatous mass [7]. However, none is specific. More specific findings have

been found on CT because of its superior ability to differentiate among soft tissue densities [2, 3, 6, 7, 15, 16]. That is why the majority of cases are retrospectively diagnosed. In our patient, based on clinical and ultrasound findings, we arranged for a CT and made an accurate diagnosis before operation. It was the first time this has been reported in Taiwan.

In summary, uterine lipoleiomyomas are rare, benign lesions. Differential diagnoses include fatty ovarian tumors, variant degeneration in ordinary leiomyomas and uterine sarcoma, especially leiomyosarcoma. Careful correlative findings of a hyperechoic mass on ultrasound and low-density mass on CT confined to the uterus allows a preoperative diagnosis to be possible.

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