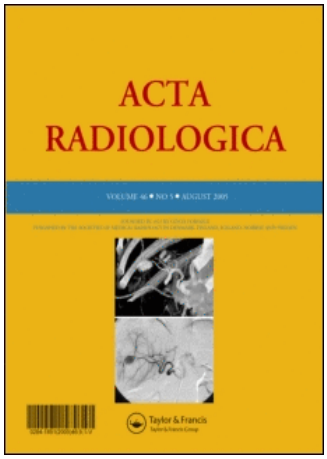


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CASE REPORT ACTA RADIOLOGICA

# Lipoleiomyoma of the Peritoneum

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Lipoleiomyomas are rare, mixed mesenchymal tumors composed of adipose and smooth muscle cells. They usually arise from the uterus, with extrauterine tumors being extremely rare. The imaging and gross appearance is similar to other tumors with these constituents. Recognition of this rare and benign tumor is of great importance, in order to avoid erroneous diagnosis. We present a case of an extrauterine lipoleiomyoma with minimal amounts of fat, only identified by MRI. The extrauterine location was highlighted by multiplanar MRI, and the presence of a capsule suggested a benign tumor.

**Key words:** Imaging; lipoleiomyoma; peritoneum

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Lipoleiomyoma is a rare, benign neoplasm composed of smooth muscle cells and benign adipocytes (1, 2). They most often occur in the uterine body and seldom develop in extrauterine locations (1, 3–7). Magnetic resonance (MR) imaging plays an important role in assessing the extrauterine location of the tumor and in the differential diagnosis of other pelvic fat-containing conditions.

We present a case of intraperitoneal lipoleiomyoma with atypical imaging features, which, to our knowledge, is the first to be reported.

## Case report

A 48-year-old postmenopausal woman, gravida VI, para IV, presented with a large lower abdominal mass disclosed 1 month previously. Physical examination revealed a distended, painless abdomen and normal laboratory parameters. Pelvic ultrasound showed a heterogeneous solid mass occupying the abdominal and pelvic cavities. The uterus was normal; however, the adnexa were not visualized.

Imaging workup included a computed tomography (CT) study (Fig. 1) of the abdomen and pelvis, demonstrating a large and homogeneous mass ($35 \times 30 \times 15$ cm), with low density, extending from the level of the renal hilum to the pelvic cavity. A magnetic resonance imaging (MRI) study showed an abdominopelvic tumor with foci of high signal intensity on T1-weighted images (Fig. 2A). Using a fat-suppression technique (Fig. 2B), the tumor signal was suppressed only in tiny foci, suggesting the existence of a fat component. The non-suppressed areas corresponded to small areas of high mucin content. After gadolinium administration, the enhancement in some areas confirmed the solid component of the tumor (Fig. 2C). The uterus and the adnexa were normal (Fig. 3), and there was no ascitis or enlarged lymph nodes.

At surgery, a 36-cm, well-encapsulated tumor connected by a stalk to the parietal peritoneum—left paracolic gutter—was resected. Histopathologic

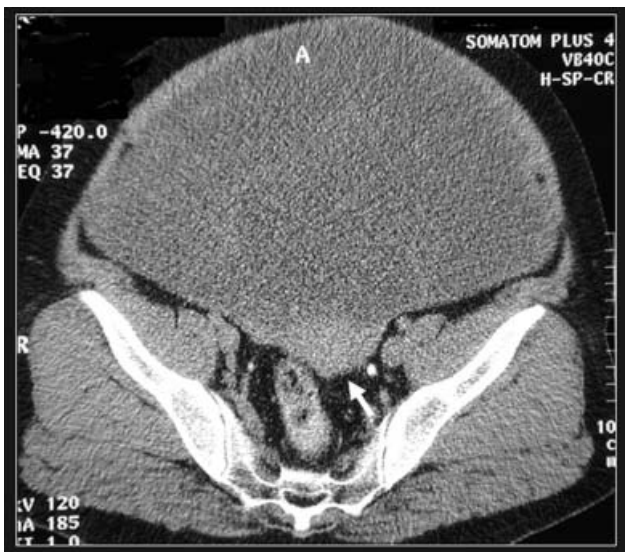


Fig. 1. CT image shows a large ($35 \times 30 \times 15$ cm), homogeneous, low-density abdominopelvic tumor. The uterine body is visualized posterior to the tumor (white arrow). Even retrospectively, no fat or mucin areas were identified.

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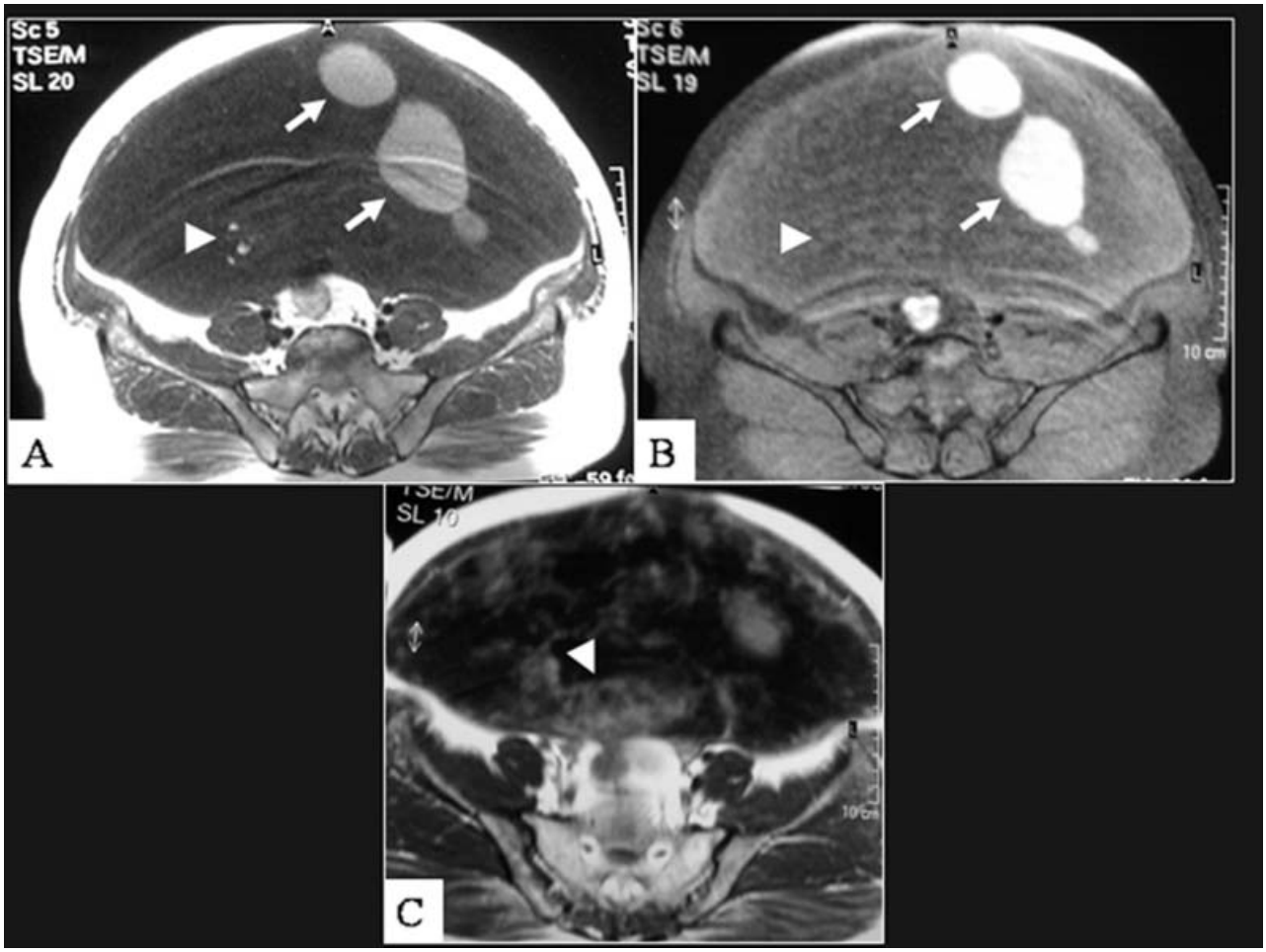


Fig. 2. A. Axial T1-weighted image. B. Axial fat-saturated T1-weighted image at the same level as A. These two images demonstrate that areas of high signal intensity on T1-weighted images that do not saturate with a fat-suppression sequence (white arrows) correspond to small areas of high mucin content, and tiny foci of high signal intensity on T1-weighted images that are suppressed on the fat-saturation technique represent foci of fat tissue (white arrow heads). C. Axial T1-weighted MR image after gadolinium administration shows solid enhancing areas (arrow head).

analysis revealed a well-encapsulated tumor composed of smooth muscle cells with small foci of mature adipocytes. Neither nuclear atypia nor mitosis or necrosis was observed. The histopathologic diagnosis was a lipoleiomyoma.

After 6 years of follow-up, the patient is asymptomatic without any clinical signs of recurrence.

## Discussion

Lipoleiomyomas are rare, benign tumors, usually originating in the uterus, being exceedingly rare at extrauterine locations (2). It has been suggested by some authors that these extrauterine tumors represent a fatty metamorphosis of leiomyoma (5, 10). In some instances, subserosal uterine leiomyomas may grow elsewhere in the pelvic cavity, being attached to the uterine body by a thin stalk. This stalk may occasionally be damaged, and the tumor may become secondarily adherent to other pelvic organs, giving the false impression that it arises from that specific organ (parasitic leiomyoma). In some cases, simultaneous adipose and smooth muscle differentiation appears to take place.

Lipoleiomyomas are typically well encapsulated and larger than 10 cm at presentation (1), occurring exclusively in adults and mostly in postmenopausal women (10, 11).

The imaging appearance of an extrauterine lipoleiomyoma is similar to those of uterine origin, being a hyperechoic mass on ultrasonography and a well-circumscribed, predominantly fatty lesion with areas of non-fatty soft-tissue density on CT. The high signal intensity areas on T1-weighted images and the identification of chemical shift artifacts on MR imaging suggest the lipomatous nature of the lesion (1, 4, 7–11). In our case, only minimal amounts of fat were detected on the MRI study using a fat-suppressed sequence.

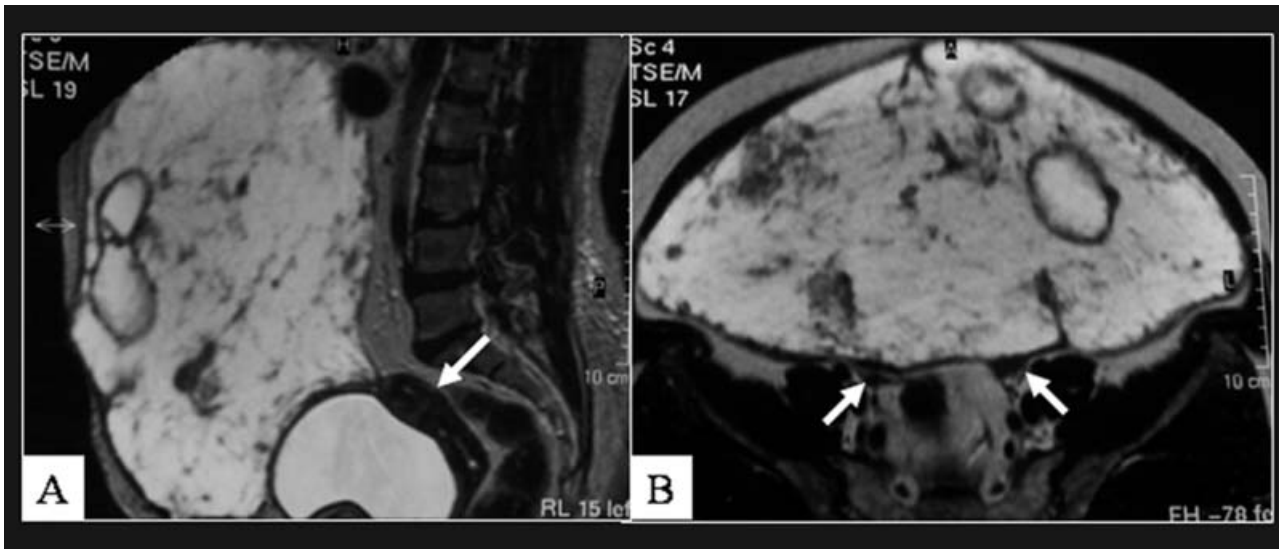


Fig. 3. A. Sagittal T2-weighted image shows the tumor superiorly to the urinary bladder and uterus (arrow). B. Axial T2-weighted image shows right and left ovaries (arrows)

The multiplanar facility and the superior detail of the anatomy offered by MR sequences are advantageous in identification of the extrauterine origin of the tumor.

The differential diagnosis of female pelvic fat-containing tumors includes uterine lipoleiomyoma, ovarian teratoma, angiomyolipoma, liposarcoma, myelolipoma, and pelvic fibromatosis (6). Ovarian teratoma is the most common fat-containing female pelvic tumor; identification of an ovarian origin and chemical shift imaging demonstrating the fatty component are helpful for a correct diagnosis. Liposarcomas account for the majority of large retroperitoneal lesions containing fat, but are rarely located intraperitoneally. Well-differentiated liposarcoma should be considered in the case of a non-encapsulated, grossly fatty mass with enhancing thickened or nodular septa, associated with non-adipose areas and prominent foci of high signal intensity on T2-weighted sequences, reflecting high cellularity (3). In the absence of fat signal intensity, liposarcoma cannot be differentiated from other soft-tissue tumors. Lesions with less fat, but still mostly fatty, may represent either lipomas or atypical lipomatous tumors. Differentiation between these two entities cannot be made on the basis of imaging findings alone.

MRI is very important in delineating tumor origin, excluding ovarian origin, and confirming the peritoneal location as well as planning surgical removal. We believe this is the first case reported of a peritoneal lipoleiomyoma—left paracolic gutter—with an atypical imaging appearance, large size, and minimal fat recognized only on MR T1- and fat-suppressed T1-weighted images.

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