



# Disseminated Peritoneal Leiomyomatosis: A Complication Of Uterine Morcellation



Jessica G. Rogers, M.D., Andrew D. Jones, M.D., M.A., Kristin A. Olson, M.D.

Department of Pathology and Laboratory Medicine, University of California, Davis Medical Center, Sacramento, CA

## INTRODUCTION

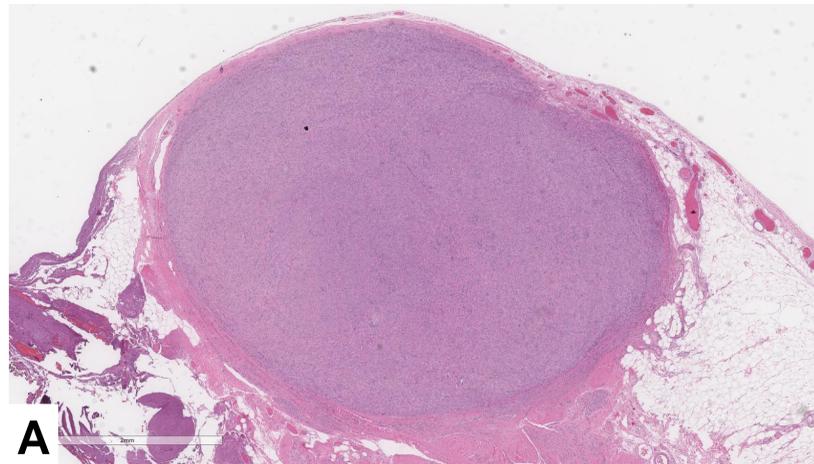
The uterine leiomyoma is the most common pelvic tumor in women, having been identified in up to eighty percent of hysterectomy specimens. Minimally invasive hysterectomy frequently involves morcellation of the specimen, allowing for smaller incisions and shorter hospitalizations. However, some concerning complications of leiomyoma morcellation have recently been recognized, including that of disseminated peritoneal leiomyomatosis (also termed “parasitic myomas”).

## METHODS

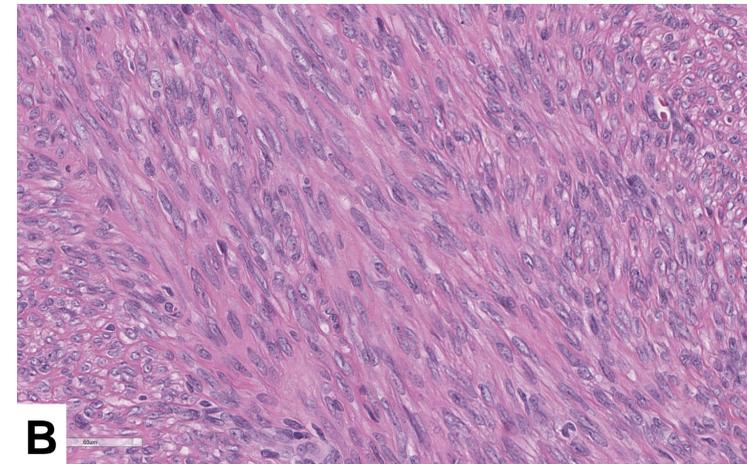
A review of the literature was performed with a PubMed search for the phrases “disseminated peritoneal leiomyomatosis and uterine morcellation” and “parasitic myomas and uterine morcellation”.

## RESULTS

While parasitic leiomyomas are not a new entity and have been reported in the literature for many years, the association with uterine morcellation is more recent, with the first such report occurring in 1997<sup>1</sup> and most other reports appearing within the last 8 years. One recent systematic review of parasitic leiomyomas observed that although the entity was first described in 1909, it has become much more common with uterine morcellation. The authors found 274 patients in the literature with parasitic leiomyomas, 39% of which could be contributed to uterine morcellation<sup>2</sup>. The incidence of parasitic leiomyomas following morcellation is reportedly 0.12-0.95%<sup>3,4</sup>.



A



B

Figure 2. The nodule was dense and well circumscribed (A; 20x, H&E stain), consisting of bland spindled cells arranged in fascicles (B; 400x, H&E stain).

## CASE

We present a 39-year-old woman who underwent a hysterectomy at age 35 for symptomatic leiomyomata. She experienced persistent pelvic pain following the surgery. Initially, multiple ultrasound examinations were negative. Magnetic resonance imaging two years later revealed a 2.0 x 1.1 x 1.5 cm abdominal wall mass at the site of her previous incision, and subsequent additional imaging showed multiple pelvic masses ranging from 0.6 cm to 1.6 cm in diameter. The radiologic differential diagnosis included hemangioma, endometriosis, desmoid tumor, leiomyoma, and metastatic cancer. Initial biopsy favored a leiomyoma, and the wall mass was subsequently resected.

Grossly, a 2.0 cm tan-red firm mass was received with one ragged surface and one smooth surface (Figure 1).

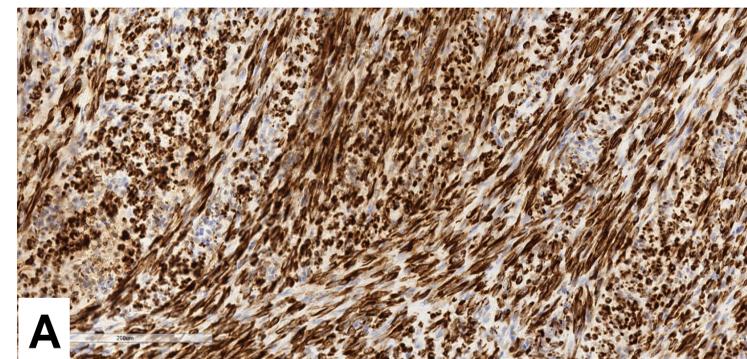
Microscopically, the nodule was well circumscribed and contained whorled fascicles of spindled cells (Figure 2). The lesional cells did not demonstrate significant cytologic atypia or increased mitotic activity. Actin, desmin, and CD117 immunostains confirmed the morphologic impression of a smooth muscle tumor, with the only the latter being negative.

The constellation of findings was considered diagnostic of disseminated peritoneal leiomyomatosis.

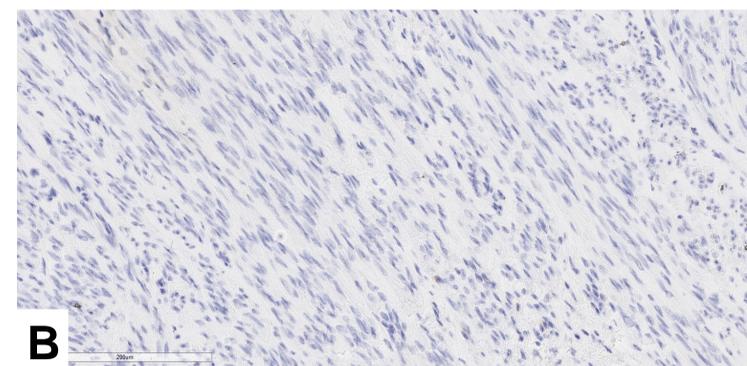
The patient continues to be monitored for her remaining pelvic masses, which are thought to be foci of parasitic leiomyoma that developed after morcellation of her uterine leiomyoma.

## DISCUSSION

Parasitic myomas arising after uterine morcellation have been reported by multiple authors, and should be part of the differential diagnosis in all women with intra-abdominal masses after hysterectomy. The medical literature on parasitic leiomyomas following uterine or leiomyoma morcellation continues to grow, initially consisting of sporadic case reports and more recently evolving into systematic reviews<sup>1-6</sup>. In 2014, the FDA warned against the use of power morcellation in most hysterectomy and myomectomy surgeries, citing that approximately 1 in 350 women who undergo hysterectomy or myomectomy for leiomyoma is found to have an unsuspected uterine sarcoma<sup>7</sup>. Consequently, the use of uterine morcellation appears in decline given the concern about intraperitoneal tumor spread, which should contribute to a decline in the incidence of parasitic leiomyoma. Nevertheless, because the majority of parasitic leiomyomas cannot be attributed to uterine morcellation (with one systematic review demonstrating that 56% of affected women lacked a history of uterine surgery), the parasitic leiomyoma should also be included in the differential diagnosis for all women with intra-abdominal masses. Other mesenchymal tumors to consider in this location include leiomyosarcoma, desmoid tumor, and gastrointestinal stromal tumor. Differentiating these entities from one another can be accomplished with histology and immunostaining. In contrast to the relatively bland leiomyoma, the leiomyosarcoma will demonstrate cellular atypia, an increased mitotic rate, and often necrosis. A gastrointestinal stromal tumor will typically stain with CD117 or DOG1. Desmoid tumors will stain with beta-catenin. In summary, this case is important in that it exemplifies a benign condition that should be included in the differential diagnosis for all women with intra-abdominal masses.



A



B

Figure 1: A & B. The staining pattern is consistent with a smooth muscle tumor (200x; A. Actin, B. CD117).

## REFERENCES

- Ostrzenski A. Uterine leiomyoma particle growing in an abdominal wall incision after laparoscopic retrieval. *Obstet Gynecol.* 1997;89:853-4.
- Lete I, Gonzalez J, et al. Parasitic leiomyomas: a systemic review. *Eur J Obstet Gynecol Reprod Biol.* 2016 Aug;203:250-9.
- Van der Meulen JF, Pijnenborg JM, et al. Parasitic myoma after laparoscopic morcellation: a systematic review of the literature. *BJOG.* 2016 Jan;123(1):69-75.
- Smits RM, De Kruif JH, et al. Complication rate of uterine morcellation in laparoscopic supracervical hysterectomy: a retrospective cohort study. *Eur J Obstet Gynecol Reprod Biol.* 2016 Apr;199:179-82.
- Wu C, Zhang X, et al. Leiomyomatosis peritonealis disseminata: A case report and review of the literature. *Mol Clin Oncol.* 2016 Jun;4(6):957-958.
- Lu B, Xu J, et al. Iatrogenic parasitic leiomyoma and leiomyomatosis peritonealis disseminata following uterine morcellation. *J Obstet Gynaecol Res.* 2016 Aug;42(8):990-9.
- US Food and Drug Administration. UPDATED Laparoscopic uterine power morcellation in hysterectomy and myomectomy: FDA Safety Communication. [Cited 21 August 2016.] Available from URL: <http://www.fda.gov/medicaldevices/safety/alertsandnotices/ucm424443.htm>.



Figure 1: A gross photo of the resected abdominal wall nodule.