

Contents lists available at [ScienceDirect](http://ScienceDirect.com)

## Gynecology and Minimally Invasive Therapy

journal homepage: [www.e-gmit.com](http://www.e-gmit.com)

## Clinical images

## Disseminated peritoneal leiomyomatosis incidentally discovered during laparoscopic surgery

Rikiya Sano <sup>a,\*</sup>, Soichiro Suzuki <sup>a</sup>, Takuya Moriya <sup>b</sup>, Mitsuru Shiota <sup>a</sup><sup>a</sup> Department of Gynecologic Oncology, Kawasaki Medical School, Kurashiki, Japan<sup>b</sup> Department of Pathology, Kawasaki Medical School, Kurashiki, Japan

## ARTICLE INFO

## Article history:

Received 8 December 2015

Received in revised form

25 April 2016

Accepted 3 May 2016

Available online 11 June 2016

## Introduction

Disseminated peritoneal leiomyomatosis (DPL) is a rare condition in which numerous leiomyomas are scattered on the pelvic peritoneal surface. It has an appearance similar to that of pelvic cancer or ovarian cancer metastases. DPL is a benign fibrotic tumor occurring in women of reproductive age.<sup>1</sup> Cases are often discovered incidentally and diagnosed by histopathological analysis of the nodule.

## Case Report

The patient was a 33-year-old, gravida 2, para 0 woman with no significant medical or surgical history. At 7 weeks of gestation, her obstetrician confirmed fetal heartbeat in the fallopian tube on a transvaginal ultrasound. She exhibited no symptoms. An emergency laparoscopic surgery was performed for a suspected ectopic gestation. A laparoscopic linear salpingotomy was performed to conserve the fallopian tube. The uterus and ovary exhibited no abnormality. During the surgery, multiple white miliary nodules were discovered on the surface of the left broad ligament ([Figure 1](#)); some were excised for histologic evaluation, which confirmed leiomyomatosis ([Figures 2A–2C](#)). The surface was

calretinin-positive by immunostaining ([Figure 2D](#)), indicating that it was covered with the peritoneum; thus, DPL was diagnosed.

## Discussion

We detected DPL during laparoscopic surgery for ectopic pregnancy. Peritoneal dissemination after laparoscopic myomectomy or laparoscopic hysterectomy, the so-called “parasitic leiomyomas,” has often been reported.<sup>2–3</sup> However, these conditions differ from DPL.

DPL is a rare condition that affects numerous smooth muscles at the peritoneal surface, such as the uterus, adnexa, gastrointestinal tract, and omentum.<sup>1</sup> Physicians are required to distinguish DPL from cancer metastases. The sizes of the smooth muscles are mostly <1 cm. Histologically, collagen fibers, fibroblasts, myofibroblasts, smooth muscle cells, and decidual cells are observed. Most cases are accidentally detected at the time of cesarean section.<sup>4</sup> With the exception of reports of parasitic leiomyoma, case reports of DPL are very few. In the future, there is a greater opportunity to detect DPL because of the increase in the frequency of laparoscopic surgeries performed. Although the pathogenesis is unknown, pregnancy and sex steroids such as osteocalcin have been suggested as factors.<sup>5</sup> In the present case, the patient had no myoma in the uterus or history



**Figure 1.** White miliary nodules are discovered on the surface of the left broad ligament.

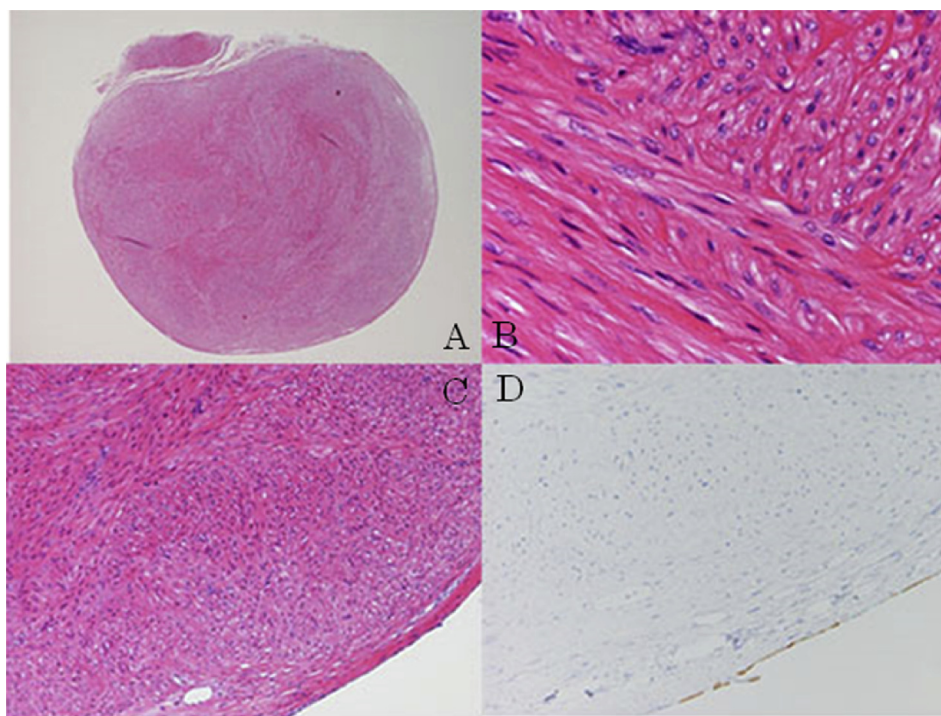
Conflicts of interest: The authors have no conflicts of interest relevant to this article.

\* Corresponding author. Department of Gynecologic Oncology, Kawasaki Medical School, 577 Matsushima, Kurashiki, Okayama 701-0192, Japan.

E-mail address: [sano\\_r@med.kawasaki-m.ac.jp](mailto:sano_r@med.kawasaki-m.ac.jp) (R. Sano).

<http://dx.doi.org/10.1016/j.jgmit.2016.05.004>

2213–3070/Copyright © 2016, The Asia-Pacific Association for Gynecologic Endoscopy and Minimally Invasive Therapy. Published by Elsevier/Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



**Figure 2.** (A) Low-power field of disseminated peritoneal leiomyomatosis (DPL). (B, C) Spindle-shaped smooth muscle cells; mitotic figures are absent. (D) The surface is calretinin-positive by immunostaining (magnification: A  $\times 40$ , B  $\times 400$ , C and D  $\times 100$ ).

of surgery. Excluding “parasitic leiomyoma,” there are few reports on DPL detected during laparoscopic surgery.

There is no guideline for the management of DPL. But in the literature, the long-term prognosis of DPL is good.<sup>6</sup> Asymptomatic DPL requires no therapy because it is usually impossible to remove all nodules and the disease has a benign clinically indolent course. Treatment is necessary in patients with symptomatic disease and in those with growing or recurrent lesions. Because regression has been described with declining levels of estrogen or postmenopause, GnRH analogue therapy or salpingo-oophorectomy should be considered prior to contemplating surgical excision. At 2 years of conservative follow up, this patient was well and symptom free. The most important point in management of DPL is excluding cancer metastasis. When such nodules are examined during surgery, it is important to ensure that they are benign by performing tissue biopsy.

## References

1. Kurman RJ, Hedrick Ellenson L, Ronnett BM. *Blaustein's Pathology of the Female Genital Tract*. 6th ed. New York: Springer Science and Business Media LLC; 2011: 470–471.
2. Kumar S, Sharma JB, Verma D, Gupta P, Roy KK, Malhotra N. Disseminated peritoneal leiomyomatosis: an unusual complication of laparoscopic myomectomy. *Arch Gynecol Obstet*. 2008;278:93–95.
3. Miyake T, Enomoto T, Ueda Y, et al. A case of disseminated peritoneal leiomyomatosis developing after laparoscope-assisted myomectomy. *Gynecol Obstet Invest*. 2009;67:96–102.
4. Jeyarajah S, Chow A, Lloyd J, Zacharakis E, Purkayastha S, Tekkis P. Follow-up in patients with disseminated peritoneal leiomyomatosis: a report of an unusual, high-risk case. *BMJ Case Rep*. 2009. <http://dx.doi.org/10.1136/bcr.08.2008.0802>.
5. Tavassoli FA, Norris HJ. Peritoneal leiomyomatosis (leiomyomatosis peritonealis disseminata): a clinicopathologic study of 20 cases with ultrastructural observations. *Int J Gynecol Pathol*. 1982;1:59–74.
6. Bourgain C, Pierre E, De Vits A, Amy JJ, Kloppel G. Disseminated peritoneal leiomyomatosis. An unusual case. *Pathol Res Pract*. 1994;190:500–504. discussion 504–506.