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CASE REPORT PEER REVIEWED | OPEN ACCESS

A large parasitic leiomyoma mistaken for an ovarian mass: A case report

Jessica Gocinski, Kerri Forrester Hensarling

ABSTRACT

Introduction: Uterine leiomyomas, commonly known as fibroids, are benign tumors composed of uterine myometrial tissue which are the most prevalent pelvic masses during female reproductive age. Abnormal uterine bleeding is the most common symptom. When a fibroid undergoes separation from the uterus and grows extensively it can cause difficulty in making an accurate diagnosis and limit potential treatment options.

Case Report: This case report discusses a large pelvic mass found in a 40-year-old female. Because of the size of the mass and inadequate diagnostic imaging, a proper diagnosis was difficult to establish, so the patient underwent surgical management. A total abdominal hysterectomy with bilateral salpingectomy and right oophorectomy was performed with additional unexpected intraoperative findings.

Conclusion: Parasitic leiomyomas can cause atypical patient presentations. They can grow to occupy a great amount of space in the abdominopelvic cavity which can create obstacles during diagnostic workup. This report demonstrates how a relatively rare type of fibroid can be easily misdiagnosed and lead to limited treatment options.

Keywords: Case report, Fibroids, Parasitic leiomyoma, Pelvic mass

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INTRODUCTION

Uterine leiomyomas are sensitive to estrogen and progesterone, which stimulates their growth. When comparing leiomyomas to normal uterine myometrial tissue, it has been found that the leiomyomas have a greater amount of estrogen receptors, further supporting the observation that their growth is stimulated by a high level of estrogen. Common symptoms of leiomyomas include abnormal uterine bleeding, pelvic pain or pressure, and infertility. The International Federation of Gynecology and Obstetrics, FIGO, categorizes leiomyomas as submucosal, hybrid (involves submucosal and subserosal), or other. A parasitic leiomyoma falls under "other" and is also referred to as a Type 8 leiomyoma [1, 2]. This type of fibroid is uncommon, and patients normally have a common risk factor of surgical history. A systematic review published in 2016 included 103 papers containing cases of parasitic leiomyomas. Out of 274 patients with parasitic leiomyomas, 44% of them had a history of myomectomy or hysterectomy [3]. Uterine fibroids are reported to occur in about 70% of females. Black race increases the risk by two- to three-fold compared to white race. The age ranges of 41–50 or 51–60 have about a ten-fold increase in risk compared to ages 21–30 [4]. Diagnosis of leiomyomas is with a transvaginal ultrasound. There are multiple treatment

options including medical management with hormonal contraceptives or nonsteroidal anti-inflammatory medications or surgical management with myomectomy, uterine artery embolization, or hysterectomy. Treatment choice depends on the patient's age, symptom severity, location of the fibroid, and desire for future fertility [5]. In the case of parasitic fibroids, accurate diagnosis with transvaginal ultrasound can be challenging. Treatment options are limited when the fibroid is considerably large and is causing compression of other abdominopelvic organs.

CASE REPORT

A 40-year-old G2P2 Caucasian female presented to a new primary care physician's office to establish care for routine health maintenance exam. The patient reported an abdominal lump that she suspected has been present for two years. There was no relevant medical history, surgical history, or family history. Obstetrical history included two uncomplicated vaginal deliveries. On physical exam a firm abdominal mass, located in the mid and right upper quadrant was discovered. The mass was not reducible and there was no associated tenderness. Upon further questioning the patient admitted to intermittent postprandial abdominal bloating. She denied any abdominal pain, change in bowel habits, nausea, vomiting, or genitourinary symptoms. An abdominal ultrasound was ordered and showed a midline 26 cm × 24 cm × 16 cm heterogenous soft tissue mass with internal vascularity and no obvious connection to the uterus. Further evaluation with a computed tomography (CT) scan of the abdomen and pelvis with intravenous contrast showed a macro-lobulated solid mass with internal septations and vascularity in the midline pelvis. The mass was suspected to originate from the right ovary (Figure 1). The patient was referred to gynecology for further evaluation and management. During gynecological evaluation the patient reported regular menstrual cycles. A pelvic ultrasound was performed in the office. The exam was limited due to the large size of the mass obscuring the view of pelvic organs and displacing them. Pelvic ultrasound measured the mass as 24.0 cm × 15.2 cm × 18.6 cm, but the origin of the mass was indeterminate. On pelvic exam, the cervix was barely visible due to a posterior uterine mass. Uterus size and position and bilateral adnexa were unable to be palpated. Pap smear was benign with negative human papilloma virus testing. Additional workup included a cancer antigen 125 level of 11 (normal values are 0–35 U/mL). Differential diagnoses included ovarian dermoid cyst, benign ovarian tumor, malignant ovarian tumor, leiomyoma, leiomyosarcoma, or neoplasm arising from the bowel. All diagnostic results and management options were discussed with the patient. A benign nature was suspected; however, given inconclusive imaging findings the definitive diagnosis could not be made without surgical pathology. The decision was made to proceed with surgical intervention. A gynecologist oncologist was made aware of the case in the event she was needed during surgery for assistance or surgical cancer staging. The patient was brought to the operating room and was placed in the supine position with a foley catheter in place. A vertical midline incision was made, starting three finger breaths above the umbilicus and extending down to the pubic symphysis. Intraoperatively, a large multi-lobular pelvic mass was discovered (Figures 2 and 3). The right fallopian tube was intimately involved, and the mass seemed to arise from the mesosalpinx (Figure 4). The left fallopian tube and ovary appeared normal. The mass was removed intact (Figure 5). Hysterectomy with bilateral salpingectomy and right oophorectomy was performed. The decision was made to leave the left ovary in situ given the normal appearance and premenopausal state of the patient. The patient's postoperative course was uneventful. Later gross pathological exam revealed the mass was multi-lobulated and covered by a smooth serosa. Final measurement was 26.0 cm × 19.5 cm × 14.8 cm. It was confirmed that the mass arose from the right uterine fundus in a pedunculated fashion. The mass weighed 3168.8 grams. The endometrial cavity was normal size and shape and grossly free of lesions. Final surgical pathology report revealed a parasitic leiomyoma.

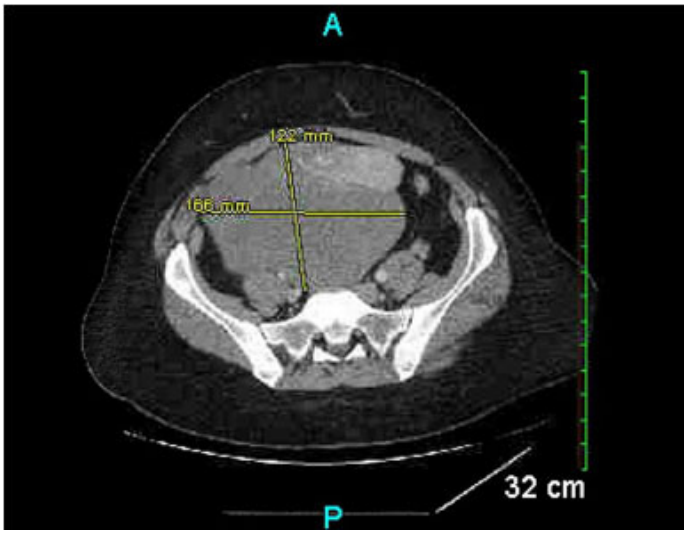

Figure 1: Axial computed tomography scan showing a large pelvic mass.

DISCUSSION

Uterine fibroids are common pelvic masses in females. When they transform into the relatively rare parasitic subtype, they can present diagnostic challenges. There are various postulations on how leiomyomas transform into the parasitic subtype. The first discovery and discussion of parasitic leiomyomas was published in 1909 by Kelly and Cullen [6]. They discovered that leiomyomas become parasitic when they separate from the uterus and obtain blood supply from another source. Kelly and Cullen proposed that the omentum plays a large role in this

transformation by rapidly increasing the number and size of blood vessels. The fallopian tubes, bladder, abdominal wall, broad ligament, intestines, or mesenteric vessels can also provide the fibroid with its main blood supply. In our case presented here, it can be proposed based on intraoperative findings that the leiomyoma received its main blood supply from the right fallopian tube and/or right broad ligament. Recent literature and data have shown a possible link between a history of laparoscopic surgery and the development of parasitic leiomyomas. A retrospective case series performed by Kimberly A. Kho and Ceana Nezhat showed that parasitic leiomyomas are more common in patients with a history of morcellation surgery [7]. Twelve patients with parasitic leiomyomas were included. Out of these 12 patients, 10 of them had a history of abdominal surgery. Morcellation is a surgical technique that involves cutting uterine tissue or leiomyomas into smaller pieces to allow for removal during laparoscopic procedures [8]. A study published by Gaspare Cucinella identified 601 patients who underwent a laparoscopic hysterectomy or laparoscopic myomectomy in 2007–2010 [9]. Four cases of parasitic leiomyomas were found. The morcellation technique was used during surgery in all four cases. The prevalence of developing a parasitic leiomyoma

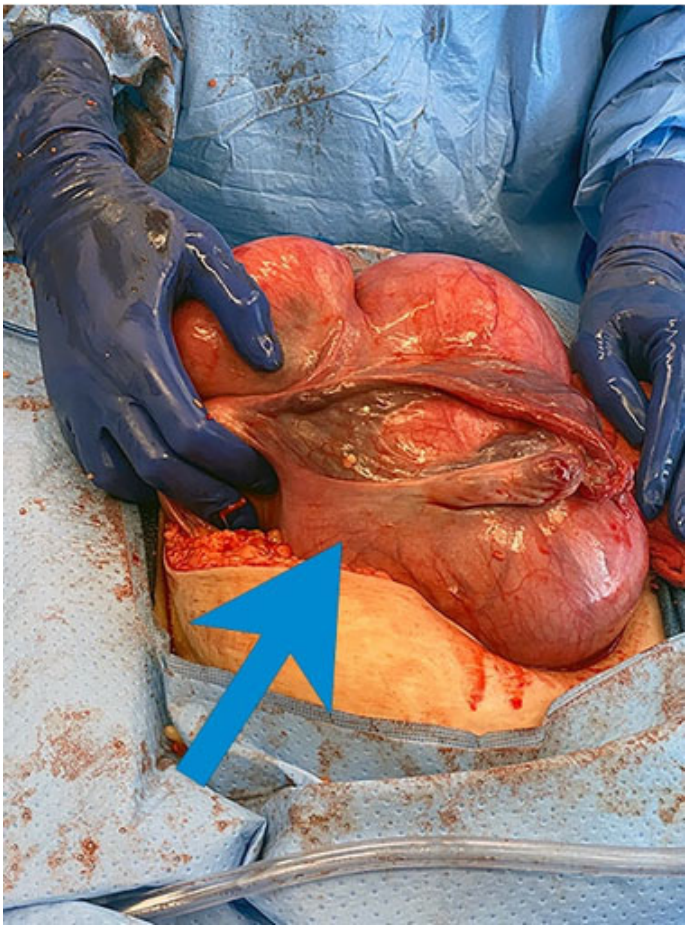

Figure 2: Multi-lobular abdominopelvic mass encapsulated in serosa.

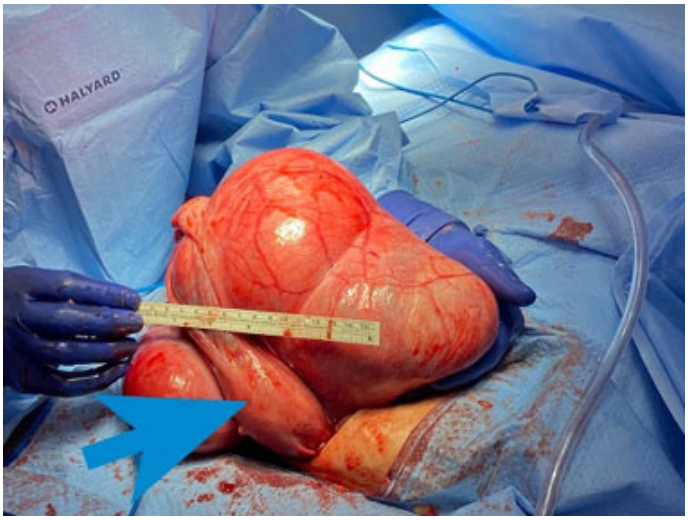

Figure 3: Leiomyoma removed through abdominal incision with uterus (blue arrow).

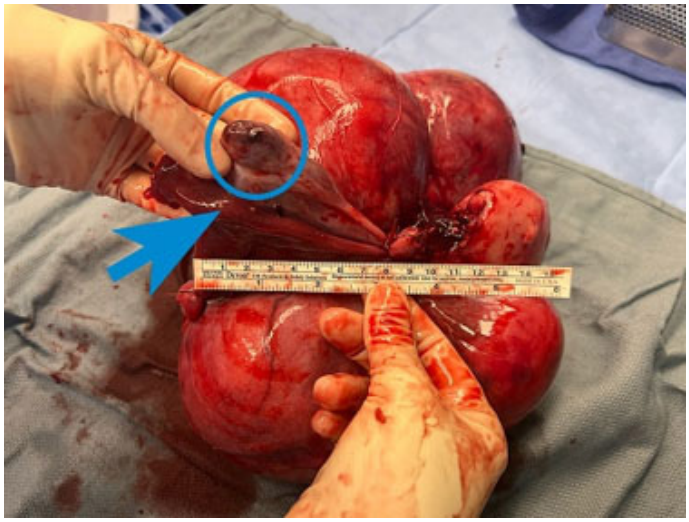

Figure 4: Leiomyoma seen with involved right fallopian tube (arrow) and right ovary (circle).

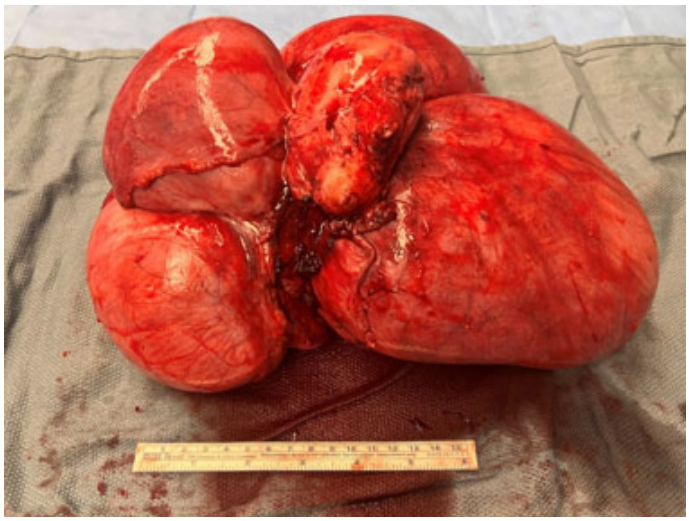

Figure 5: Large parasitic leiomyoma.

in patients with morcellation was concluded to be 0.9%. As evidenced here, parasitic leiomyomas are uncommon and occur more often in patients with a surgical history. Our case demonstrates a patient with a large parasitic leiomyoma involving the right fallopian tube and right ovary, yet no surgical history. In addition to the patient's negative surgical history, what made our case difficult was the unreliability of the imaging studies. The origin of the mass was unable to be determined because of the size. Uterine fibroids are typically diagnosed with transvaginal ultrasound. A double-blind study by Margit Dueholm [10] concluded that transvaginal ultrasound has a sensitivity of 99% and specificity of 91% for identifying fibroids. While transvaginal ultrasound is the preferred initial imaging for diagnosing fibroids, it proved to be of little use in our case. A retrospective study by Saroja Adusumilli [11] in 2006 analyzed magnetic resonance imaging (MRI) from 87 patients who had sonographically indeterminate adnexal masses. The sensitivity of MRI for detecting malignancy was 100%. The specificity of MRI for diagnosing benign pathology was 94%. However, the one case in which the MRI was indeterminate was a large, 11 cm, ovarian fibroma. It was difficult to determine if it was an ovarian fibroma or pedunculated fibroid because the ovaries were not visualized. Three of the cases included in the study were extraovarian masses that were misdiagnosed as ovarian origin based on MRI. One case was a broad-ligament fibroid that was misdiagnosed as ovarian carcinoma. Exhibited by this retrospective study and our case, when patients present with a large pelvic mass imaging can be difficult to rely on. A similar case of a parasitic fibroid in a 75-year-old female with no surgical history was presented by Archana Barik [12]. Compared to our case, the size of the mass was smaller (10 cm), and ultrasound and MRI were successful in identifying the mass as a parasitic fibroid. Our patient presented in this report had a 26 cm pedunculated parasitic fibroid that was misdiagnosed by imaging. The pelvic ultrasound was indeterminate due to the size of the mass. The CT scan was inadequate because it misleadingly reported that the mass originated from the ovary. Since a final diagnosis was unable to be made the patient underwent surgical intervention.

CONCLUSION

Despite uterine fibroids being a well-known cause of pelvic masses in females, the rare parasitic subtype can pose difficulty for clinicians in establishing an accurate diagnosis. Clinical imaging evaluation can be limited when these fibroids separate from the uterus and have the potential to enlarge and obscure pelvic organs. Parasitic leiomyomas should be included as a differential diagnosis for patients with pelvic masses, even in patients with a negative surgical history. When diagnostic workup proves inconclusive, surgical intervention can be both diagnostic and therapeutic.

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Author Contributions

Jessica Gocinski – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are

appropriately investigated and resolved

Kerri Forrester Hensarling – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest
Authors declare no conflict of interest.

Data Availability
All relevant data are within the paper and its Supporting Information files.