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Case report

Parasitic leiomyoma after laparoscopic myomectomy

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ABSTRACT

A 31-year-old nulligravid underwent laparoscopic myomectomy and the masses were removed by an electric morcellator. Five years later, this patient suffered from acute pelvic pain and received an operation. During laparoscopic surgery, an 8-cm right-sided multiloculated ovarian cyst with chocolate-like content was seen. After adhesiolysis, two parasitic myomas (each ~2 cm in diameter) were found attached to the right ovarian cyst and the other two parasitic myomas (each ~1 cm in diameter) were found at the right infundibulopelvic ligament and omentum respectively. These tumors were successfully removed by laparoscopic procedure. Histopathological examination confirmed that all masses were leiomyomas and the right ovarian cyst was confirmed to be endometriosis. The formation of parasitic myomas was assumed that myomatous fragments during morcellation at the time of myomectomy may have been left behind unintentionally. Thus, morcellator should be used carefully. With that being said, all of the myomatous fragment should be removed after morcellation.

Introduction

Uterine leiomyomas are the commonest benign tumor of women in the reproductive age group, affecting 20% to 50% of this population. The severity of symptoms is dependent on the number of tumors, their size, and location. Management options depend on the patient's fertility potential and desire for future pregnancy. Myomectomy is still considered to be the best therapeutic choice for symptomatic myomas in women who desire to preserve their fertility.[1]

Laparoscopic myomectomy is generally considered to have better outcome than laparotomic myomectomy.[2] However, this technique has a unique complication risk that is unusually encountered in laparotomic myomectomy. We report a case of parasitic leiomyoma in a 36-year old woman who had undergone laparoscopic myomectomy 5-years before. This report will help gynecologists to be more vigilant and aware when performing the procedure.

Case Report

This is a case of a 31–year-old nulligravid with no significant past medical or surgical history presented with metrorrhagia and was found to have a myoma measuring 12 cm × 10 cm × 10 cm at the uterine fundus. The patient underwent laparoscopic myomectomy and the myoma was removed by an electric morcellator. The patient was discharged on the third postoperative day without any complications.

Five years after the aforementioned surgery, this patient came to our clinic again with acute pelvic pain for 2 days with a palpable mass at her right lower abdomen. Ultrasound examination showed findings of a heteroechogenic mass measuring 9.5 cm × 8.3 cm at the right adnexa with a slightly enlarged uterus. Computed tomography (CT) of the abdomen revealed a lobulated cystic mass (7.5 cm × 7.7 cm) with septations as well as peripheral soft tissue nodules at the right adnexa. Laparoscopy was arranged.

Conflicts of interest: All authors have no conflicts of interest to declare.

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During laparoscopic surgery, an 8-cm right-sided multiloculated ovarian cyst with chocolate-like content was seen, attached to the right ovarian fossa, sigmoid colon and *cul-de-sac*. After adhesiolysis, two parasitic myomas (each ~2 cm in diameter) were found attached to the right ovarian cyst (Figure 1). The other two smaller parasitic myomas (each ~1 cm in diameter) were found at the right infundibulopelvic ligament and omentum, respectively (Figure 2). Laparoscopic enucleation of the right ovarian cyst was performed and all parasitic myomas were removed. The patient made an uneventful recovery from the procedure and was discharged on the 3rd postoperative day. Histopathological examination confirmed that all masses were benign leiomyomas and the right ovarian cyst was confirmed to be endometriotic in nature.

Discussion

Parasitic myoma is an unusual growth pattern of leiomyomas and classically known as the rare variant of pedunculated subserous myoma.[3] If a pedunculated subserosal myoma develops a long stalk and goes on to adhere to surrounding structures such as the omentum or broad ligament and develop an auxiliary blood supply, it is called a wandering or migrating leiomyoma. In this way, if a wandering myoma loses its uterine blood supply and becomes attached and feeds off a nonuterine source, this condition is classified as a parasitic myoma. Loss of uterine blood supply and attachment to an adjacent organ may have been a spontaneous reaction or through an agent that restricts blood supply to the myoma (e.g., GnRH agonists, uterine artery embolization).[4] In addition, an iatrogenic parasitic myoma may be the other etiology of parasitic myoma. The use of minimally invasive surgery has grown over the past two decades. Laparoscopic surgery increased significantly from 35.78% to 71.66% for benign ovarian tumor, and also some benign gynecologic tumor.[5,6] Removal of an excised uterine myoma through a laparoscopic incision requires morcellation of the mass.[7,8] Myomatous fragments during morcellation at the time of myomectomy or hysterectomy may be left behind unintentionally. The electric morcellator produces minute fragments of myoma tissue, even with correct use and careful observation. It is possible that the fragments become implanted onto normal tissue almost anywhere in the peritoneal cavity.[9] An electric morcellator was used for removal of the myoma in this case, and it is assumed that previous residual fragments of myoma tissue may have caused the later occurrence of these parasitic myomas.

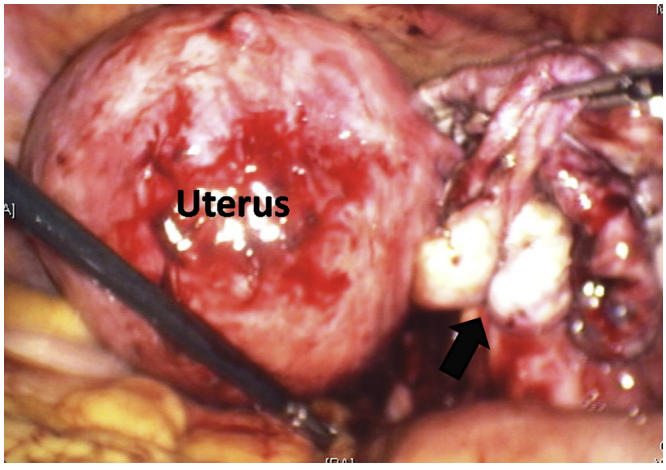

Figure 1. Two parasitic myomas (arrow) on the right ovarian cyst.

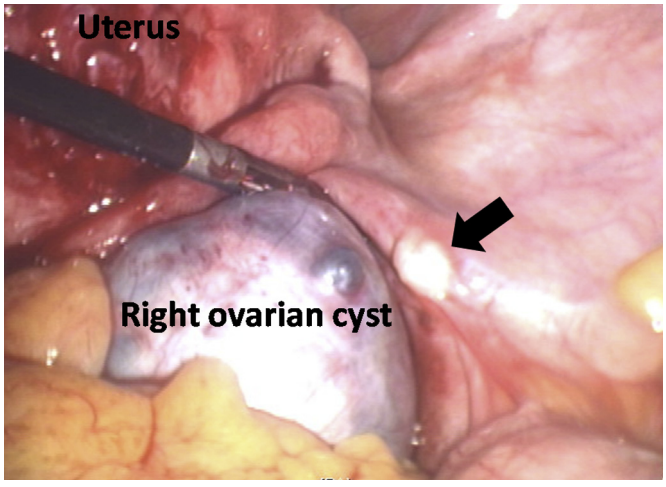

Figure 2. Parasitic myoma (arrow) on the right infundibulopelvic ligament.

Kho and Nezhat[4] reported a large case series of parasitic myomas ($n = 12$). They found that the greatest risk factor for the development of parasitic myomas is the presence of uterine leiomyoma. However, one patient in their series did not have any evidence of uterine leiomyoma. The other hypothesis for the pathogenesis of parasitic myomas that deserves consideration is the *de novo* formation from smooth muscle metaplasia of pluripotential cells as theorized in cases of disseminated peritoneal leiomyomatosis or in patients posthysterectomy with bilateral salpingo-oophorectomy.[10] The vascular spread theory may be the other etiology of parasitic myomas as suggested in cases of intravascular leiomyomatosis and benign metastasizing leiomyomatosis.[11,12]

Experts believe that the hormonal receptor status should be determined when researching the developmental mechanism of parasitic myomas. A few case reports reveal that there are steroid hormone receptors in parasitic myomas, however, they remain unspecified to any usual or typical pattern.[9] Although it is not confirmed that the steroid hormone receptor status plays a significant role in the growth and development of parasitic myomas, accumulation of more cases would be required to further evaluate and understand the developmental mechanism of parasitic myomas.

The clinical presentations of parasitic myomas are nonspecific. Symptoms depend on the size and location of the mass. Case reports or series often disclose patients with pain, pelvic pressure, dyspareunia, abdominal or pelvic mass, mass at the abdominal wall, or even an incidental asymptomatic tumor, found upon regular medical checkups.[4,7,13] As these symptoms are more commonly associated with uterine myomas, the diagnosis of parasitic myomas is often incidental at the time of surgery for symptomatic uterine myomas.

Although a few case studies have clearly reported parasitic myomas after laparoscopic morcellation procedure, the incidence of iatrogenic parasitic myomas in the literature may continue to increase as many surgeons increasingly favor laparoscopic myomectomy as the procedure of choice. Electric morcellation facilitates the rapid removal of even large sections of tissue through the minimal access ports. Therefore, it is important to meticulously inspect the surgical field without changing the position of the patient, and at the end of the surgery, liberal irrigation should be performed while alternating from Trendelenburg to reverse Trendelenburg positions after the procedure. This enables the tissue fragments to float and dislodge from any potential attached surfaces. Furthermore, colpotomy with transvaginal manual morcellation is also a good alternative and decreases the chances of small myoma fragments being left behind in the abdomen.

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