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**Aimee Chuin Ai Teong**  
Department of Obstetrics and  
Gynaecology, Singapore  
General Hospital, Singapore

**Whui Whui Lim**  
Department of Obstetrics and  
Gynaecology, Singapore  
General Hospital, Singapore

**Andy Wei Keat Tan**  
SMSC Dr Andy Tan Clinic for  
Women, Singapore

## Externally visible umbilical transabdominal dumbbell parasitic fibroid after laparoscopic myomectomy

**Aimee Chuin Ai Teong, Whui Whui Lim and Andy Wei Keat Tan**

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### Abstract

Parasitic fibroids are rare ectopic implantations of fibroids outside of the uterus. Unintentional seeding of fibroid fragments can occur during laparoscopic myomectomy or hysterectomy. This unique case report depicts an externally visible, transabdominal, dumbbell shaped parasitic fibroid at the umbilical site.

A 53-year-old lady was referred to our center for a growing umbilical mass. Her imaging workup revealed the mass likely to be a dumbbell shaped umbilical parasitic fibroid. This was likely due to a remnant growth from her previous laparoscopic myomectomy done years ago. She underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, and resection of the rectus sheath fibroid. Histology confirmed the findings of benign fibroids.

Most parasitic fibroids over port sites are benign, but they are a long-term complication of laparoscopic gynaecological surgery, with some patients requiring surgical excision for symptomatic relief. To reduce the risk of port site implantation, we should ensure careful contained morcellation, extraction of specimen, inspection, and closure after laparoscopic surgery.

**Keywords:** Parasitic, laparoscopic, umbilical, port, benign, rectus

### Introduction

Parasitic fibroids are variants of uterine fibroids occurring outside the uterus. One of the first few iatrogenic parasitic fibroids post-laparoscopic surgery were described in 1997 <sup>[1]</sup>. The reported incidence of parasitic fibroids after laparoscopic morcellation is 0.12-0.95% <sup>[2]</sup>. In Singapore, although only a few cases have been published, the incidence of parasitic fibroids is expected to increase due to the use of specimen morcellation during minimally invasive gynaecologic surgeries <sup>[3, 4]</sup>. It is hypothesized that parasitic fibroids may happen iatrogenically, due to direct contamination and incomplete removal of morcellated fibroid tissue. The retrieval of uterine fibroids after laparoscopic myomectomy through a small abdominal wall incision requires fragmentation, presenting an opportunity for particles of fibroid to be inadvertently implanted into live, healthy tissue, providing nourishment for fibroid fragments <sup>[1, 2, 3]</sup>.

This study reports the case of a 53-year-old woman with umbilical port site implantation of a dumbbell-shaped parasitic fibroid across multiple layers of the anterior abdominal wall after laparoscopic myomectomy.

### Case presentation

A 53-year-old healthy post-menopausal woman, para 2, was referred to our gynaecological outpatient department for an umbilical mass. Her past surgical history included a previous caesarean section and laparoscopic myomectomy done 13 years ago. She noticed the presence of this umbilical mass a year after her laparoscopic myomectomy, and that it was slowly enlarging over the past 4 years. On examination, a 14-week uterus was palpable as well as a 3 cm firm lump over the umbilicus. Cough impulse for the lump was negative, and the impression was that of a fibroid protruding out of the umbilicus.

A pelvic ultrasound was organised with a report as follows:

- An augmented uterus (76x90x78 mm) with multiple intramural myomas (The largest measuring 47 mm).
- A lobulated hypoechoic mass in the anterior abdominal wall at the level of the umbilicus measuring 56x41x45 mm, herniating through the muscle layer, bulging into the abdominal cavity and extending into the subcutaneous layer.
- An 11 mm hypoechoic mass in the right rectus abdominis muscle layer.

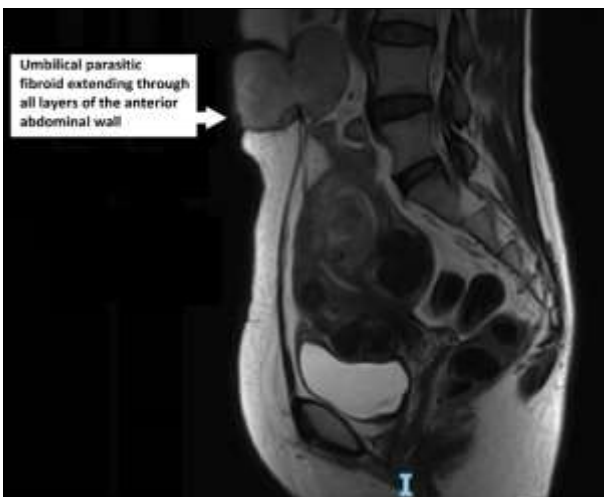
**Corresponding Author:**  
**Aimee Chuin Ai Teong**  
Department of Obstetrics and  
Gynaecology, Singapore  
General Hospital, Singapore

- A 13 mm hypoechoic mass adjacent to the right ovary.

A MRI pelvis reported the masses as likely parasitic fibroids. MRI pelvis showing a dumb-bell shaped umbilical mass measuring 5.0x4.3x6.7 cm with smooth lobulated outline, T2W hyper intense with no significant restricted diffusion, likely a parasitic fibroid with red degeneration. There were other small nodules, likely parasitic fibroids, on the anterior peritoneum and close to the right ovary. (Figure 1 and Figure 2). She was counselled for surgical resection at subsequent visits, but declined and was managed conservatively with repeated ultrasound scans.



**Fig 1:** Cross sectional view of MRI abdomen and pelvis with parasitic fibroids arrowed



**Fig 2:** Sagittal view of MRI abdomen and pelvis with umbilical parasitic fibroids traversing through all layers of the abdominal wall

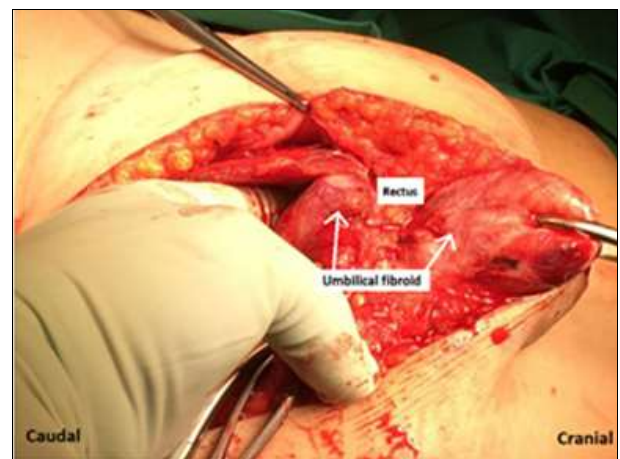
Over a span of 1 year, the umbilical mass grew from 3 to 6cm on abdominal palpation. Ultrasonography showed that the umbilical lobulated mass had increased in size to a dimension of 71x42x46 mm. In view of the rapidly growing mass and fear of malignant transformation, she agreed to surgery.

She underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, resection of the rectus sheath fibroid, and repair of the rectus sheath defect. Surgical examination showed an 8cm dumbbell-shaped fibroid at the umbilicus, extending from the extraperitoneal layer to the

rectus sheath layer and protruding outwards to just the skin overlying it. During the operation, there were findings of seeding of a 2 cm parasitic fibroid on the anterior peritoneum of the right lower abdomen and a 1cm fibroid on the fimbrial end of the right fallopian tube. Other findings included a fibroid uterus, with the rest of the peritoneum clear from parasitic fibroids. The primary repair of the rectus sheath defect and umbilicus was done without mesh by our general surgery counterparts.



**Fig 3:** Visible umbilical mass



**Fig 4:** Intra-operative findings



**Fig 5:** Surgical specimen of umbilical fibroid versus ultrasound findings

Histological examination revealed benign leiomyoma. The patient was discharged postoperatively well. She was followed up till 3 months post operation, with a CT abdomen pelvis done due to vague abdominal discomfort and worry of herniation. This did not show any recurrence of fibroids, abdominal mass, or hernia. It is important to

anticipate this complication with a rectus sheath repair, especially with such a big defect near the umbilicus.

### Discussion

Parasitic fibroids are ectopic implantations of uterine fibroids outside of the uterus, receiving blood supply from other organs such as the omentum, ovarian vessels, and abdominal wall [5]. It can be spontaneous or iatrogenic in origin. Iatrogenic causes are commonly linked to unintentional seeding of fibroid fragments during previous laparoscopic myomectomy or hysterectomy. Iatrogenic parasitic fibroids were first described post-laparoscopic surgery in 1997 by Ostrzenski [1]. The incidence of parasitic fibroids after laparoscopic morcellation is 0.12-0.95% [2], with its incidence increasing due to the rising popularity of minimally invasive gynaecologic surgeries.

The anterior abdominal wall is made up of skin, subcutaneous fat, rectus sheath, muscle, transversalis fascia, preperitoneal fat, and peritoneum. The umbilicus is at the midline, with fusion of the fascial layers and devoid of subcutaneous fat. With a defect in the umbilical fascia, any mass can herniate through the umbilicus. Instead of an umbilical hernia, this case study describes a parasitic fibroid implanted on an ex-laparoscopic-port-site, through the umbilicus. It transverses intra-abdominally, from the extraperitoneal layer, through the medial edge of the rectus sheath just surrounding it, and exteriorly with just loose skin overlying it.

Laparoscopic port site implantation has been defined as benign or malignant tumor recurrence developing within the scar tissue of trocar sites or an incision wound in the abdominal wall after laparoscopic surgery. It is neither metastasis nor spread of the primary disease but the development of a residual tumor that was not fully resected during previous surgery [6].

Kai *et al.* published a case series on port site implantation of parasitic fibroids after laparoscopic myomectomy [7]. Four cases in English literature were included, with subcutaneous implantation of parasitic fibroids at ex-accessory-port sites. The described fibroids implanted superficially at the fascia, subfascial or rectus muscle layer [1, 7, 8, 9, 10]. Our case differs as this patient's large parasitic fibroid grew at the umbilical port instead of the commonly reported accessory port. The parasitic fibroid not only grew subcutaneously, but also extended intra-abdominally, just above the peritoneal layer.

Various mechanisms have been discussed in the literature to explain port site implantation. These include inoculation of the trocar site through contact of the laparoscopic instruments with the tumor, contamination of the port sites when resected specimens are extracted through an excessively small incision, the effect of the pneumoperitoneum, and exfoliation or spillage of tumor cells along the trocar caused by a leakage of gas [11].

It is unknown if our patient's previous myomectomy done 13 years ago included bag /power morcellation, bag retrieval, or fascia sheath closure at the port site. Her iatrogenic fibroid implantation may have occurred during removal of the trocar, with fragments of her myoma (Morcellated or not morcellated) scattered at the edges of the equipment. This led to fragments being trapped somewhere along the trocar tract and in the abdominal wall with no sheath closure, therefore extending through all layers of the anterior abdominal wall.

To reduce the risk of parasitic fibroids, multiple strategies

have been described in the literature to reduce direct contamination during laparoscopic myomectomy or hysterectomy:

1. In-bag intracorporeal contained morcellation, visualization of morcellator tip and careful use of power morcellator [2, 4, 7, 9, 13, 14].
2. Contained extracorporeal manual morcellation [12].
3. Reverse trendelenburg position after morcellation [8].
4. Meticulous inspection of the abdominal cavity prior to removal of the trocar to ensure no remnant myoma fragments [8, 9, 13].
5. Copious peritoneal irrigation to reduce seeding of cellular debris [8, 13].
6. Careful removal of the specimen by ensuring the specimen is fully placed within an extraction bag or trocar and removed under direct visualization [8].
7. Retrieval of the specimen through minilaparotomy or colpotomy to avoid an excessively small extraction wound [9].
8. Closure of all layers at port sites > 5 mm diameter [14].
9. Irrigation of trocar sites [15].

These methods may not entirely rule out the occurrence of port-site implantation. Tissue fragments of the fibroid may still be scattered into the peritoneal cavity during myomectomy and hysterectomy before they are bagged. [16] Laparoscopic myomectomy also often entail fragmentation of the fibroid during dissection, followed by placement of the fibroid in the pelvis or abdomen while hemostasis is ensured and suturing is completed. The fibroid is also manipulated into a containment bag. Cells can be dispersed during all these steps prior to morcellation itself. Nonetheless, we should use laparoscopic visualization to our advantage with meticulous checks until all fields are clear before closure [16]. It is after all our duty to perform our best to prevent benign recurrences and reduce risk of dissemination of occult malignancy.

### Conclusion

All in all, parasitic fibroids are a long-term sequela of laparoscopic myomectomy. Patients should be counselled on the risks of laparoscopic surgery and the choice of observation versus alternatives to surgical approaches before proceeding with operation [3]. Implantation and recurrence of parasitic fibroids remains a risk despite the surgeon's best efforts to contain the specimen during laparoscopic surgery. In this case study, we want to bring across the important message of avoiding uncontained morcellation to minimize parasitic seeding. Patients should be informed that if parasitic fibroids occur, extensive and repeated surgery may be required.

### Conflicts of interest

The authors declare no conflict of interest.

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