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Posterior cervico-vaginal myomectomy: a laparoscopic technique

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ABSTRACT

Objective. Uterine myoma is considered the most common gynaecological benign neoplasm occurring in 50-60% of women. Generally, the patients are asymptomatic, but almost a third of women with leiomyomas will require treatment due to symptoms such as heavy uterine bleeding, severe pelvic pain, bulk symptoms, dyspareunia or infertility. Cervical myomas are uncommon, with a prevalence of only 0.6%. Vaginal approach is the classical option for their removal, but when it is impossible, in some cases laparoscopy may be an alternative.
This article aims to describe a safe laparoscopic technique for a complete removal of a large cervico- vaginal myoma, the removal of which was impossible with a classical vaginal approach due to its size.
Description of the technique. In consideration of the myoma's size, location, characteristics and the impossible vaginal approach, the patient was considered eligible for a laparoscopic myomectomy. Followings are the main surgical steps: set up of surgical view of the intervention field; vertical posterior colpotomy; myoma's peduncle identification and incision; reduction of myoma's size with power morcellation within the vagina; extraction of the fibroid from the vagina to the peritoneal cavity through the colpotomy; completion of the power morcellator and extraction of the whole specimen; colporrhaphy; peritoneal washing.
Conclusions. When the vaginal approach is not practicable, laparoscopic management of large myomas in difficult locations such as the cervico-vaginal region seems to be a feasible and a safe surgical option.

INTRODUCTION

Uterine myoma is considered the most common gynaecological benign neoplasm occurring in 50-60% of women, rising to 70% by the age of 50 [1]. Generally, the patients are asymptomatic, but almost a third of women with leiomyomas will require treatment due to symptoms such as heavy uterine bleeding, severe pelvic pain, bulk symptoms, dyspareunia, obstetric complications or infertility. These are major indicators to practice a treatment [2]. Actually, in 2018, the Global Congress on Hysteroscopy Scientific Committee drew up the recommendations on management even for asymptomatic submucous myomas in patients on reproductive age; interventions were recommended mainly when immediate fertility was a priority [3].
The influence of pregnancy on uterine fibroid size still remains an unsolved dilemma. Uterine fibroids seem to be subject to a non-linear trend of modifications during pregnancy and puerperium, which may vary from myoma to myoma. Adequate evidence supports uterine fibroid systematic enlargement during the first trimester of pregnancy, while inconsistent evidence is available about the changes of uterine fibroids during second and third trimesters. In addition, the overall modifications of myomas during pregnancy and puerperium remain unclear [4]. It can be useful to treat the myoma preventively, in order to avoid their enlargement during pregnancy and cause obstetric complications or in order to avoid infertility at all.
Myomas are usually classified according to the degree of intramural extension. The fibroid classification adopted by the ESGE (European Society for Gynecological Endoscopy) for example consider G0 a pedunculated intrauterine myoma, G1 with its largest part (> 50%) in the uterine cavity, and G2 with its largest part (> 50%) in the myometrium.
More recently, the FIGO classification was published, describing eight types of fibroids as well as a hybrid class (association of two types of myomas). As different types of fibroids are often present at the same time (depending on the site), this classification offers a more representative 'map' of fibroid distribution on the uterine wall [5]. Diagnosis can be obtained from pelvic examination, which may reveal an enlarged uterus, ultrasonography, hysteroscopy, and magnetic resonance imaging (MRI). Ultrasonography is the gold standard test to identify the presence of uterine fibroids. Its widespread availability enables easy and cheap confirmation in almost all cases. Moreover, after saline infusion into the uterine cavity, ultrasonography can identify submucous myomas and trace the intramural myoma's proximity to the endometrial cavity [6].
Hysteroscopy may be required to differentiate intracavitary myomas and large endometrial polyps [7].
MRI can provide information regarding the number of fibroids, size, vascularization, their relationship with the endometrial cavity and serosal surface, and boundaries with normal myometrium.
Finally, histopathologic confirmation is the "gold standard" of diagnosis of fibroid tumours, as it is the only way to exclude malignancy with certainty [8].
Current management strategies involve mainly surgical interventions, but the choice of treatment is usually driven by the patient's age and their desire to preserve fertility avoiding radical surgery like hysterectomy. Surgical and non-surgical approaches include myomectomy by hysteroscopy even without the myoma's extraction [9] or its direct morcellation [10]; vaginal myomectomy; myomectomy or hysterectomy by laparotomy, laparoscopy oVNOTES technique [11, 12]; uterine artery embolization; hormonal therapy, recently with new GnRH antagonist like Lizagolix [13]; or other interventions performed under radiologic or ultrasound guidance [14, 15].
Cervical myomas (CM) account for less than 5% of uterine myomas [16]. They are mainly classified into subserosal lesions (extracervical type) and those that occur within the cervix (intracervical type).
Cervical or vaginal myomas (VM) management depends on their size, position and also the hymen preservation in virgo patients, a priority in certain cultures [8]. Large cervico-vaginal fibroids can distort the anatomy of the pelvis, diverting the ureters, and engorging the uterine artery and vein rendering the surgical approach much more difficult [17].
Regardless of the surgical approach chosen, during CM myomectomy, additional care must be considered in order to avoid injuries to neighbouring structures in the pelvic cavity: the bladder in front of the cervix, the rectum behind the cervix, and the uterine arteries and ureters on both sides. In addition, their position increases surgical challenges such as poor operative field, difficult suture repairs, and blood loss [18]. To reduce the bleeding risk in laparoscopy, several preventive measures have been developed in different studies such as temporarily blocking uterine artery blood flow with the use of vessel clips or vasopressin injection into the posterior cervix [19, 20].
The vaginal approach is the classical and the optimum option [8]: if size is small, a speculum can be used to visualize and thus remove the prolapsed

fibroid after twisting it with a forceps or via hysteroscopy. But when it is impossible because of its size or by the patient's will if she is a virgin, to preserve the integrity of the hymen, in some cases laparoscopy may be an alternative. The laparoscopic technique, moreover, depends on the myoma position and different precautions should be taken if the myomas are anterior, posterior, central, lateral or deep rotated [21].
With this description of technique article we aim to define a safe strategy of a huge cervico-vaginal fibroid laparoscopic myomectomy when the vaginal approach is not feasible.

DESCRIPTION OF THE TECHNIQUE

The main criteria for choosing the laparoscopic approach are the dimensions and localization of the myoma. In this case report the patient treated is a 28-year-old virgin woman, with a cervico-vaginal myoma of approximately 14 cm which fills in the vagina, detected by ultrasound and MRI.
Prior to surgery, informed consent was obtained for a transvaginal removal of the myoma. Due to the myoma's oversize compared to the vagina's reduced dimensions, due also to her nulliparity, the vaginal approach was not achievable. The complete filling effect of the fibroid in the vagina, and the impossibility of reaching its attachment to the cervix, even after episiotomy, a laparoscopic alternative was adopted. Surgery was performed under general anaesthesia by endotracheal intubation in the lithotomy position. Pneumoperitoneum was obtained by the closed method, and a 10-mm trocar was inserted at a point 2-3 cm above the umbilicus for the laparoscope. A 12-mm trocar was inserted in the left lower abdominal region and a 5-mm trocar was inserted in the right lower abdominal region.
At laparoscopy, the uterus was enlarged and showed evidence of fibroid projecting from the posterior wall of the vagina. The adnexa were visualized.
In order to increase the uterus' stability and to obtain a better view of the posterior uterine wall and enough access to the Douglas pouch, the uterine fundus was fixed to the anterior pelvic wall; while the suspension of the bowl occurred on the left, in order to also minimize injury risks.
A posterior colpotomy has been made by a central vertical incision, in caudocranial direction, of about 10 cm through a monopolar needle electrode. The myoma was then identified. Using the laparoscopic forceps with gentle traction and countertraction, the cervical peduncle of the fibroid was identified and cut using the monopolar electrode. Classically, we extract the mass through the posterior colpotomy, and we perform a power morcellation [22]. In this case, this was not possible due to its very large dimension; consequently, and after ensuring that the fibroid was totally free in the vagina, we started the power morcellation through the posterior colpotomy in order to reduce the size enough. In this way we could pull the rest of the myoma into the peritoneal cavity and then complete the morcellation.
The posterior colporrhaphy was performed using vicryl 0 sutures. The risk of myoma's fragment dispersion with the subsequent appearance of pelvic adenomyotic masses and parasitic leiomyomas was described and remains a concern. This complication can be avoided by carefully removing all the fragments and performing extensive peritoneal lavage [23]. The surgery was completed successfully with no post-operative complications.

DISCUSSION

Cervico-vaginal myomas' position in the pelvis close to the bladder, rectum, ureters and uterine vessels, makes the surgery more delicate and challenging, with an increased operative time [17].
A vaginal approach is usually preferred in treating cervico-vaginal myomas, unless other indications arise pushing for an abdominal access. Hysteroscopy is usually very successful, but it is limited to 5 cm fibroids; then, for larger sizes, laparoscopy is an alternative [24]. Hysteroscopy, moreover, as one stop approach for diagnosis and treatment of cervical or intra-cavitary myomas, is achievable in almost 50 % of cases. It is a minimally invasive, low risk, well tolerated and cost and time effective procedure [25].
In order to provide a better lighting and visualization of the myoma, pneumovagina can be induced through The GelPOINT V-Path, a device most often used to perform transvaginal natural orifice transluminal endoscopic surgical procedures [26].
Large fibroids or the patient's will to maintain her hymen's integrity for social concerns are matters that lean toward laparoscopy. In this case, the patient had a large cervical myoma that completely filled the vagina that prevented obtaining an optimal view of its pedicle, even after episiotomy. Therefore, it was decided to convert the surgery to a laparoscopy. The setup of the surgical view of the

intervention field, the posterior colpotomy and the direct myoma's morcellation in the vagina allowed us to entirely extract an approximately 14-cm myoma from vagina. So, the surgery was completed successfully with no post-operative complications.

CONCLUSIONS

Cervico-vaginal myomas have a low incidence in the population. Their location, if the vaginal approach is not feasible, make the laparoscopic approach more critical compared to the other uterine myomas. This description of technique article shows a safe and reproducible laparoscopic technique to afford large cervico-vaginal myomas. Anyway, adequate training and operative skill are mandatory in these peculiar cases.

COMPLIANCE WITH ETHICAL STANDARDS

Authors contribution

Z.S., A.A., C.C.: Conceptualization. S.P., I.A., G.G.: Data curation. Z.S., M.G., G.B: Writing – original draft, writing – review & editing.

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Disclosure of interests

The authors declare that they have no conflict of interests.

Ethical approval

The authors received IRB exemption for this project.

Informed consent

Obtained.

Data sharing

N/A.

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