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Case Report

Cervical leiomyoma associated with cervical elongation and pelvic organ prolapse in a nulliparous woman: a uterine-preserving surgical approach

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ABSTRACT

Cervical leiomyomas are rare and may present with unusual clinical manifestations. Cervical elongation secondary to cervical leiomyoma is uncommon and may be associated with pelvic organ prolapse (POP). We present a 40-year-old nulliparous woman with a 4×3 cm cervical leiomyoma associated with marked cervical elongation and POP. She underwent surgical management with a Manchester–Fothergill procedure combined with sacrospinous hysteropexy. The leiomyoma was removed en bloc during cervical amputation, followed by cardinal ligament plication and sacrospinous hysteropexy. At 3- and 6-month follow-up, the patient remained asymptomatic with no evidence of recurrent prolapse. This case highlights the potential association between cervical leiomyoma, cervical elongation, and POP and demonstrates a uterine-preserving surgical approach that addresses both the elongated cervix and apical support defect.

Keywords: Cervical elongation, Cervical leiomyoma, Manchester procedure, Manchester-Fothergill, Pelvic organ prolapse, Sacrospinous hysteropexy

INTRODUCTION

Cervical leiomyomas represent a rare form of uterine leiomyoma, accounting for approximately 1–2% of all cases.¹ The relative paucity of smooth muscle within the cervical stroma may contribute to their low incidence.² These tumors may manifest with abnormal bleeding, pelvic pain, or pressure symptoms. In uncommon cases, cervical leiomyomas may be associated with cervical elongation and pelvic organ prolapse (POP), particularly when they are large or pedunculated.³

Cervical elongation has been defined using various criteria, including a cervical length ≥ 5 cm. In addition, an increased C-D distance on POP-Q assessment may support the diagnosis of cervical elongation.⁴ It has been reported in approximately 40% of women with POP and is associated with the degree of uterine descent.⁵ Cervical elongation and POP are commonly associated with alterations in pelvic support and connective tissue characteristics. However, mechanical traction from a cervical mass, such as a leiomyoma, may also contribute to cervical elongation and prolapse, particularly in chronic cases.^{6,7}

Although several case reports have described POP associated with cervical leiomyomas, the relationship between leiomyoma size and the development of cervical elongation and prolapse remains unclear.^{3,6,7} Published reports describe considerable variation in tumor size, and no specific size threshold has been established at which a cervical leiomyoma may contribute to cervical elongation of POP.⁸

We present a rare case of a nulliparous woman with a relatively small cervical leiomyoma associated with marked cervical elongation and POP, successfully managed with a combined Manchester-Fothergill procedure and sacrospinous hysteropexy.

METHODS

A 40-year-old nulliparous woman presented with a two-year history of a progressively enlarging vaginal mass associated with increasing discomfort and interference with daily activities. On examination, an elongated cervix was noted to protrude beyond the vaginal introitus. A firm, broad-based, 4 × 3 cm leiomyomatous mass arising from the anterior cervical lip was identified, with associated hypertrophy of the cervical lip (Figure 1).



Figure 1: Preoperative appearance of prolapsing elongated cervix associated with a cervical leiomyoma and cervical lip hypertrophy.

Pelvic Organ Prolapse Quantification (POP-Q) examination demonstrated significant apical and anterior prolapse, with point C at +5 cm and point D at 0 cm. The 5-cm difference between points C and D (C-D=5 cm) supported the presence of significant cervical elongation. Transvaginal ultrasonography demonstrated a cervical length of 6.7 cm, further supporting the diagnosis of cervical elongation. Point Ba was +4 cm and point Bp was 0 cm, with a genital hiatus (GH) of 5 cm, a perineal body (PB) of 2 cm, and a total vaginal length (TVL) of 7 cm.

In view of the patient's young age and nulliparous status, uterine preservation was preferred. Given the coexistence of marked cervical elongation and significant apical

prolapse, a combined Manchester-Fothergill procedure and right sacrospinous hysteropexy was planned.

The surgical procedure was performed vaginally. The sacrospinous sutures were pre-placed before cervical amputation to facilitate surgical exposure and allow subsequent restoration of apical support with appropriate tension. The elongated cervix, including the cervical leiomyoma, was amputated en bloc. The cardinal ligaments were subsequently plicated, and the cervical stump was reconstructed. The pre-placed sacrospinous sutures were then secured to restore apical support. An anterior colporrhaphy was performed concurrently to address the associated anterior compartment prolapse. The cervical leiomyoma attached to the cervical lip was included in the amputated elongated cervical segment and sent for histopathology (Figure 2).



Figure 2: Surgical specimen following cervical amputation. The elongated cervical segment and associated leiomyoma were removed en bloc during the Manchester-Fothergill procedure. A surgical ruler is provided for size reference. Histopathological examination confirmed a benign leiomyoma.

The post-operative course was uneventful. Histopathological examination confirmed benign cervical leiomyoma. At three months postoperatively, the patient was asymptomatic, with well-supported vaginal apex and normal-appearing cervical remnant. Repeat POP-Q examination demonstrated point BA at -3 cm, point BP at -3 cm, point C at -5 cm, and point D at -7cm. The patient did not attend further clinical follow-up; however, telephone follow-up at six months confirmed that she remained asymptomatic and reported no recurrent vaginal bulge or prolapse symptoms.

DISCUSSION

This case demonstrates an uncommon presentation of cervical leiomyoma associated with marked cervical elongation and pelvic organ prolapse (POP) in a nulliparous woman. The diagnosis of cervical elongation

was supported by both clinical and objective measurements, with a cervical length of 6.7 cm on transvaginal ultrasonography and a 5-cm difference between POP-Q points C and D. Although there is no universally accepted definition of cervical elongation, cervical length exceeding 5 cm and an increased C–D distance has been used as indicators of cervical elongation in women with POP.^{4,8} The coexistence of a relatively small cervical leiomyoma, cervical elongation, and significant apical descent in a nulliparous woman makes this case clinically unusual.

Previous reports have described cervical leiomyomas associated with uterine prolapse, including large tumors that may exert downward traction on the uterus and cervix.^{3,6,7} However, the relationship between leiomyoma size and cervical elongation or prolapse remains unclear, and the available literature does not establish a minimum tumor size that predicts these complications.⁸ In our patient, the leiomyoma measured only 4 × 3 cm and was broad-based, arising from the anterior cervical lip. The chronic presence of the mass may have contributed to localized cervical distortion and downward traction, potentially contributing to cervical elongation and apical descent. However, the contribution of other factors, including individual variation in pelvic support and connective tissue characteristics, cannot be excluded.

The coexistence of cervical elongation and significant apical prolapse has implications for surgical planning. Simple excision of the cervical leiomyoma would not have addressed the underlying cervical elongation or the associated apical support defect. The Manchester–Fothergill procedure was selected to address the elongated cervix through cervical amputation and cardinal ligament plication, while sacrospinous hysteropexy was added to provide additional level I apical support. This combined strategy therefore addressed both the anatomical abnormality of the elongated cervix and the associated apical descent while preserving the uterus.

The Manchester–Fothergill procedure is an established uterine-preserving procedure for cervical elongation and uterine prolapse. A recent systematic review highlighted the importance of preoperative assessment of cervical elongation and reported favorable outcomes following Manchester repair.⁸ Sacrospinous hysteropexy is also an established uterine-preserving procedure for apical prolapse.¹⁰ However, evidence comparing the two procedures does not demonstrate equivalent outcomes in all populations; a randomized clinical trial found higher two-year composite surgical success following the Manchester procedure than sacrospinous hysteropexy in women with uterine descent not extending beyond the hymen.⁹ Therefore, the rationale for combining these procedures in our patient was not to suggest that either procedure is universally superior, but rather to address two distinct anatomical components: cervical elongation and significant apical descent.

The operative sequence was also important in this case. Sacrospinous sutures were pre-placed before cervical amputation, allowing adequate exposure and facilitating subsequent restoration of apical support after cervical shortening. Following en bloc removal of the elongated cervical segment and leiomyoma, the cardinal ligaments were plicated and the cervical stump reconstructed before the sacrospinous sutures were tied. This sequence provided a practical means of combining cervical shortening with apical suspension while maintaining appropriate support of the shortened cervix.

Uterine preservation was particularly relevant in this patient because of her young age and nulliparous status. The combined approach allowed treatment of the cervical pathology and prolapse without hysterectomy. At three months, she was asymptomatic with satisfactory anatomical correction, with point C improving from +5 cm preoperatively to –5 cm and points Ba and Bp improving to –3 cm. Although she did not attend further clinical assessment, telephone follow-up at six months confirmed that she remained asymptomatic and reported no recurrent prolapse symptoms. These findings indicate favorable short-term clinical and anatomical outcomes; however, longer clinical follow-up is required to determine the durability of the repair.

CONCLUSION

Cervical leiomyoma may be associated with cervical elongation and pelvic organ prolapse, even when the leiomyoma is relatively small. In patients with cervical elongation and significant apical descent, careful preoperative assessment of both the cervix and apical support is important for appropriate surgical planning. A combined Manchester–Fothergill procedure and sacrospinous hysteropexy can provide a uterus-preserving approach that addresses both cervical elongation and apical support in appropriately selected patients. Although our patient had favorable short-term outcomes, longer follow-up is necessary to assess the durability of this combined approach.

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