

Case Report

Lantern on Dome of St. Paul's Cathedral – An Apt Metaphor for a Challenging Leiomyoma

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ABSTRACT

Fibroids are ubiquitous in women of the reproductive age group more so in midlife. The cervical fibroids are challenging to operating surgeons because it distorts the surgical anatomy of the pelvis and urogenital system. The metaphor given historically to this condition is apt as the uterus appears like a lantern sitting on the dome of cervical fibroid similar to the dome of the cathedral. Here, we report two cases of cervical fibroid in perimenopausal age group of different sizes managed by following specific steps.

KEYWORDS: Cervical fibroid, leiomyoma, St. Paul's Cathedral lantern

INTRODUCTION

Uterine fibroids are known to be ubiquitous in reproductive age group, especially in midlife. They are common benign tumors which arise from the smooth muscle cells of the uterus and contain a large amount of extracellular matrix for which they are also called leiomyoma. In women with more than 30 years, the overall incidence of having uterine fibroid is 20%–50%. Most of them arise from the body of the uterus. To begin with, fibroids are intramural, eventually becoming submucous or subserous with an increase in size. Among all fibroids, cervical fibroids are rare, with the reported incidence being as low as 1%–2%.^[1] The reason is the sparsity of smooth muscles in the cervical stroma making leiomyomas uncommon in the cervix. The presence of isolated fibromyoma in the cervix with normal body of the uterus with excessive growth is infrequent. A central cervical fibroid usually arises from the supravaginal portion of the cervix, thereby the cervix gets expanded equally in all directions. Such types of fibroids are mostly either interstitial or subserous type. This type of fibroid needs a thorough understanding of distorted pelvic anatomy, especially anatomy of the ureter, and requires great surgical expertise to operate.

On laparotomy, it is recognized easily, as it fills the pelvis, with uterus on the top of tumor looking like “Lantern on dome of St. Paul's Cathedral”^[1,2] where lantern is compared to the uterus and dome is compared to the cervical fibroid.

The management of cervical fibroid is quite challenging due to its location, size, and the effect it has on the surrounding structures. Here, we present a series of two cases of cervical fibroids of different sizes with different clinical presentations, mainly because such cases are rare and require clinical experience and expertise for anticipating and managing the complications during the surgery.

CASE REPORTS

Case 1

A 47-year-old nulliparous unmarried woman came with complaints of huge abdominal mass for 2 years, gradually increasing in size, associated with dull-aching pain. The patient also had symptoms of intermittent dribbling of urine and incomplete bladder voiding with increased frequency of micturition in the preceding 4–5 months. It was not associated with any menstrual dysfunction. Her previous cycles were regular, with an average flow of 4–5 days. There was no family history of leiomyoma. On examination, her general condition was good. On per abdomen examination, there was an abdominopelvic mass occupying whole of the abdomen extending into the pelvis, corresponding to 36-week

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size of the gravid uterus. It was firm in consistency, immobile, nontender, and had a smooth surface. There was no free fluid. On per speculum examination, the vagina and cervix were healthy. Although she was not sexually active, vaginal examination could be done. On per vaginum examination, the mass was felt continuous with the cervix, the uterus could not be felt separate from the mass, and it was felt through all fornices.

Her abdominopelvic sonography suggested a huge uterine fibroid as the uterus was enlarged to 32.4 cm × 18 cm × 15.4 cm size; both the ovaries could not be identified separately. Computed tomography (CT) of the abdomen showed bulky uterus with enhancing mass lesion of size 33.9 cm × 19 cm × 17.3 cm occupying the fundus, body, and cervix with the displacement of the endometrium anteriorly and possibility of polyp extending into the vagina. The cervical length was elongated to 11.2 cm, appearing heterogeneously hypodense. Both the ovaries appeared normal. The ureters were displaced laterally. It was suggestive of huge cervical fibroid with elongated cervix. A tumor marker CA-125 level was 5.5 IU.

Exploratory laparotomy was done through Maylard incision for good surgical exposure. Laparotomy revealed a huge cervical fibroid of around 35 cm × 26 cm × 15 cm occupying the whole of the pelvic and abdominal cavity, almost reaching up to xiphisternum. The uterus was sitting on top of the colossal fibroid exactly as described as a lantern sitting on the dome/top of St. Paul Cathedral [Figure 1]. Uterine vessels were stretched enormously along the length of fibroid, and ureters were displaced laterally. Bilateral uterine arteries were ligated at their origin after dissecting retroperitoneum. A longitudinal incision was made over the myoma, and enucleation was done, followed by total hysterectomy. Integrity of the bladder and ureters was checked and was found normal. Histopathology showed elongated smooth muscles with eosinophilic or occasional fibrillar cytoplasm and distinct cell membranes [Figure 2]. Postoperative period was uneventful. The patient was discharged in good condition on the 7th postoperative day.

Case 2

A 45-year-old multiparous woman presented with mass per abdomen for 7–8 months increasing gradually in size. The patient also complained of menorrhagia for 1 year but exaggerated in preceding 2–3 months. It was also associated with dysmenorrhea and passage of clots. There was no family history of leiomyoma. General examination revealed anemia. Abdominal examination revealed a large mass of around 14–16-week size, firm to cystic in consistency having sideways mobility. On per

speculum examination, the vagina and cervix appeared flush with the vagina. On per vaginum examination, the cervical movements were transmitted to mass which was cystic, nontender, and smooth in outline, and the mass was felt in all fornices. The uterus was not felt separate from the mass. These findings were suggestive of fibroid uterus.

Her laboratory investigations confirmed moderate anemia. Abdominopelvic sonography showed a large, well-defined heterogeneous hypoechoic lesion in the anterior wall of the cervix and uterus, with multiple areas of cystic degeneration within suggestive of fibroid uterus. The lesion measured 15 cm × 14 cm × 10 cm in size. Both ovaries appeared normal. At exploration, a solitary myoma was identified on the anterior wall of the cervix, extending into the anterior wall of the uterus [Figure 3]. In this case too, bilateral uterine arteries were ligated at origin, and enucleation of the myoma was done before proceeding to panhysterectomy. Postoperative period was uneventful. Histopathology confirmed muscle bundles separated by well-vascularized connective tissue suggestive of fibroid in the cervix [Figure 4].

DISCUSSION

Fibroid is the most common benign solid tumor of the uterus arising from the neoplastic single smooth muscle cell of the myometrium. Cervical fibroids can arise from the supravaginal or vaginal portion of the cervix. Supravaginal cervical fibroids can be of interstitial or subperitoneal and rarely polypoidal type. Depending on the position, they may be anterior, posterior, lateral, and central. Interstitial growth can displace the cervix or expand it so much that the external os can be sometimes difficult to recognize. Excessive growth of cervical fibroid can disturb the anatomy of the pelvis and the ureter.^[3] Posterior cervical fibroid fills up the pouch of Douglas backward and compresses the rectum against the sacrum. Anterior fibroid bulges forward and compresses the bladder against the pubic symphysis. The uterine arteries and ureters are always extracapsular, lateral, and posterior to the cervical fibroid,^[1] knowing these facts can avoid injuries to these structures. Anterior cervical fibroid produces symptoms such as increase in the frequency or even pressure on the urethra can lead to the retention of urine. Posterior cervical fibroid causes more of rectal symptoms such as constipation. Vascular obstruction is more common in lateral cervical fibroid which may lead to hemorrhoids and edema of legs which are quite rare.

A cervical fibroid can present with abdominal mass, postcoital bleeding, dyspareunia, and menstrual abnormalities and sometimes sensation of something

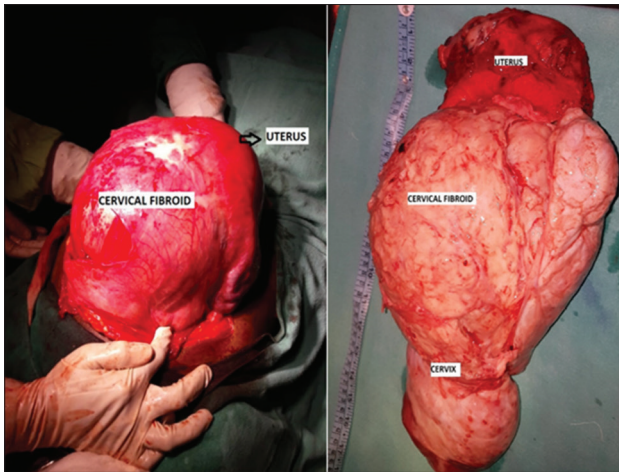


Figure 1: Specimen of huge cervical fobroid (dome) and small uterus (latern) on top of it

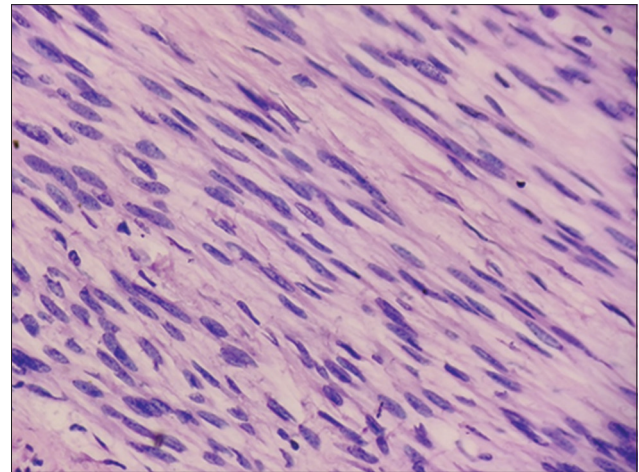


Figure 2: Histopathology showing smooth muscle cells separated by connective tissue

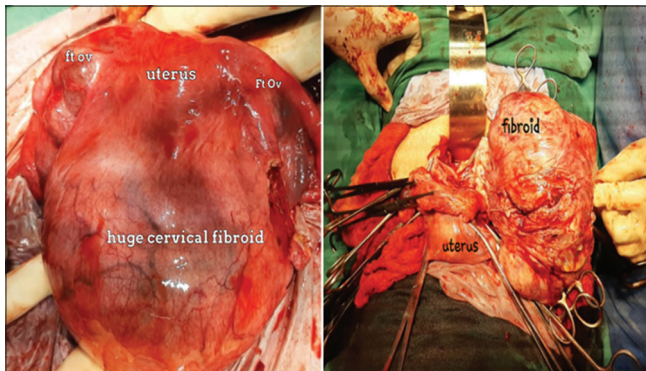


Figure 3: Specimen of large cervical fobroid (dome) and uterus (latern)

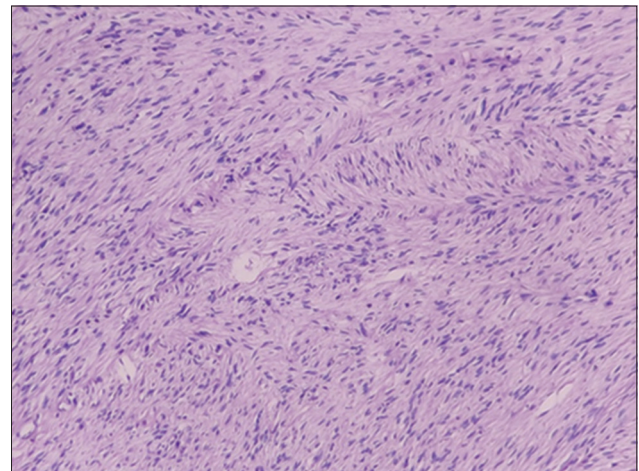


Figure 4: Histopathology showing smooth muscle bundles separated by well vascularized connective tissue

coming out of the vagina. Cervical myoma rarely causes infertility. Severe cervical displacement may affect the deposition of sperm at the cervical os.^[4]

Sonography is the most easily available and cost-effective imaging technique to differentiate fibroids from any other pathology of the pelvis. Magnetic resonance imaging scan helps in the evaluation of the type, number, size, and position of fibroids, and it also helps in evaluating their proximity to the ureter, bladder, rectum, and endometrial cavity.^[5] Ideally, intravenous pyelography before the operation is advisable to reduce the risk of urologic complications. However, performing this test in all patients is not cost-effective.^[6]

In the two cases, both the women had completed childbearing and were perimenopausal, and hence, hysterectomy was done. The standard treatment of symptomatic leiomyomas is hysterectomy, and for women who wish to preserve fertility, myomectomy can be done with minimally invasive surgical techniques.^[7] For patients who are symptomatic, treatment whether medical, surgical, or minimally invasive should depend on the size, number, and position of the fibroid.

A central cervical fibroid is usually a difficult case, and standard hysterectomy technique is not appropriate for the same;^[1] therefore, it is more prone to complications such as hemorrhage and urological injuries. Distortion of ureters as ureters get displaced and overhang the vaginal vault makes them prone to injury. Furthermore, highly elevated uterine arteries due to the fibroid may be lying very close to the ureters causing injury to the ureters.

Ideally, enucleation of fibroid should be done followed by hysterectomy in order to minimize the injury to the ureters and other surrounding structures. Preoperatively, gonadotropin-releasing hormone (GnRH) analogs can be given 3 months before the surgery, in order to reduce the vascularity and the size of the fibroid.^[8] Intracapsular enucleation of fibroid is a better approach than GnRH analog as GnRH causes destruction of the plane of cleavage.^[1] Although the GnRH usage preoperatively leads to less frequent vertical incisions while doing myomectomy, the cost of GnRH overweighs its benefits.^[9]

Intraoperatively, vasopressin can be used to reduce intraoperative blood loss during myomectomy.^[7] Misoprostol, a prostaglandin E2 analog, has also shown a significant reduction in blood loss, by causing contraction of uterine muscles.^[9] There can be aberrant blood supply to the cervical myoma that can cause unexpected bleeding, especially in lateral cervical myoma. In large cervical myomas (especially large lateral myomas), uterine artery ligation can be difficult, as pelvic sidewall dissection cannot be done sufficiently; therefore, bipolar coagulation of the pedicular vessels is preferred. Modifications in the standard laparoscopic myomectomy technique enable the efficient performance of the procedure.^[10]

Alternative to standard open myomectomy and laparoscopic myomectomy, minilaparotomy myomectomy is a minimally invasive procedure that can be done. In minilaparotomy uterine arteries, ligation can be done in the same way as it is done in open myomectomy and advantage is that it is a daycare procedure.^[11]

CONCLUSION

The simile given to the cervical fibroid and uterus is apt as in large cervical fibroid uterus seems like a lantern (uterus) sitting on dome of cathedral (fibroid). The anatomy of surrounding structures gets altered, and there are increased chances of injuries to the ureter bladder as they lie in close proximity with the fibroid. A detailed knowledge about the anatomy and surgical techniques is important to prevent complications during surgery.

Investigations such as transvaginal sonography, CT scan, and intravenous urogram can help in the diagnosis and can improve the knowledge of the anatomy of the surrounding structures mainly ureters. An extensive preoperative workup, exclusion of a concurrent adnexal mass, informed written consent for probable hysterectomy, anticipation of blood loss and Maylard incision for huge fibroids, and enucleation of fibroid before hysterectomy are main operative points to be

taken into consideration while performing hysterectomy for such huge fibroid of cervical origin.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Monaghan JM, Lopes T, Naik R. Bonney's Gynaecological Surgery. Eleventh Edition: John Wiley and Sons; 2010.
2. Mandal TK, Garain P, Deb D, Halder SS, Dewangan P. A rare case of huge central cervical fibroid with characteristic "Lantern on Top of St. Paul's Cathedral" appearance. *Obstet Gynecol* 2018;28:5.
3. Kumar P, Jeffcoate N, Malhotra N. Jeffcoate's Principles of Gynaecology. New Delhi: Butterworths; 2008.
4. Wallach EE, Vlahos NF. Uterine myomas: An overview of development, clinical features, and management. *Obstet Gynecol* 2004;104:393-406.
5. Dueholm M, Lundorf E, Hansen ES, Ledertoug S, Olesen F. Evaluation of the uterine cavity with magnetic resonance imaging, transvaginal sonography, hysterosonographic examination, and diagnostic hysteroscopy. *Fertil Steril* 2001;76:350-7.
6. Lee JS, Choe JH, Lee HS, Seo JT. Urologic complications following obstetric and gynecologic surgery. *Korean J Urol* 2012;53:795-9.
7. Kongnyuy EJ, Wiysonge CS. Interventions to reduce haemorrhage during myomectomy for fibroids. In: The Cochrane Collaboration, editors. *Cochrane Database of Systematic Reviews*. Chichester, UK: John Wiley and Sons, Ltd.; 2011. p. CD005355. Available from: <http://doi.wiley.com/10.1002/14651858.CD005355.pub4>. [Last accessed on 2019 Sep 19].
8. Lethaby A, Vollenhoven B, Sowter M. Efficacy of pre-operative gonadotrophin hormone releasing analogues for women with uterine fibroids undergoing hysterectomy or myomectomy: A systematic review. *BJOG* 2002;109:1097-108.
9. Farquhar C, Brown PM, Furness S. Cost effectiveness of pre-operative gonadotrophin releasing analogues for women with uterine fibroids undergoing hysterectomy or myomectomy. *BJOG* 2002;109:1273-80.
10. Chang WC, Chen SY, Huang SC, Chang DY, Chou LY, Sheu BC. Strategy of cervical myomectomy under laparoscopy. *Fertil Steril* 2010;94:2710-5.
11. Glasser MH. Minilaparotomy myomectomy: A minimally invasive alternative for the large fibroid uterus. *J Minim Invasive Gynecol* 2005;12:275-83.