CASE REPORT

Unusual Sites of Uterine Leiomyoma:A Common Gynecological Entity — A Diagnostic Dilemma

Monal Trisal, Shaan Khetrapal, Alka Solanki, Nida Jalal, Zeeba S Jairajpuri, Sujata Jetley

Abstract

Uterine leiomyoma are the most prevalent benign smooth muscle tumors, affecting 20–30% of women of reproductive age. Despite their frequency, leiomyomas outside the uterine corpus, such as in the vaginal vault or cervix are exceedingly rare accounting for 5% of all cases posing diagnostic and management challenges due to nonspecific symptoms and proximity to critical pelvic structures. Leiomyomas in atypical locations require a high index of suspicion for accurate diagnosis. Histopathology and advanced imaging modalities are pivotal in differentiating these from other pelvic pathologies. We report two rare cases of leiomyoma in unusual sitesdiscussing the diagnostic difficultiesand management strategies.

Key Words

Cervical Fibroid, Vaginal, Fibroid, Vaginal Leiomyoma

Introduction

Leiomyomas, commonly referred to as fibroids, myoma, or fibromyoma are the most common benign smooth muscle tumor affecting 20-30% of women of reproductive age.[1] These mesenchymal tumors are believed to arise from mullerian smooth muscle cells beneath the epithelium of the vagina. Nearly 95% of leiomyomas are found in the uterine corpus; leiomyomas occurring primarily in the vagina and cervix are extremely rare, with the first case of vaginal leiomyoma described in 1733[2] and 1-2% are seen in the cervical region, specifically in the supravaginal portion.[3] The anatomical location of a leiomyoma in the vagina is the anterior vaginal wall most commonly. They increase during reproductive years and gradually regress after menopause. These benign, estrogen-dependent growths are primarily composed of smooth muscle cells from the myometrium.[4] Diagnosing vaginal and cervical fibroids can be challenging, as they often mimic other gynecological conditions or present atypically, such as with a polypoid vaginal mass, incarcerated prolapse, chronic uterine inversion, uterocervical descent, ovarian mass, acute urinary retention, or even cervical cancer.[5] We hereby present two unsual sites of Leiomyoma with a clinical presentation ofmass coming out from vagina.

Case1- Vaginal Vault Leiomyoma

A 35-year-old woman (gravida 3, para 3) presented with complaints of urinary incontinence and a sensation of a mass protruding from the vagina for 3–4 months. She had undergone vaginal hysterectomy for cervical descent, vault prolapse, and adenomyosis. Intra operatively revealed a circumscribed mass at the vaginal vault.**On Gross**: Firm, grey-white, partially encapsulated tissue was received measuring 4 × 2 × 0.8 cm.Cut section showed whorled appearance **(Figure 1a, b) Microscopic Examination**: Well-demarcated lesion with intersecting fascicles of bland spindle cells, eosinophilic cytoplasm, and inconspicuous nucleoli. A focallining by stratified squamous epithelium was also seen. **(Figure 1c, d)** Histopathological examination confirmed a vaginal vault leiomyoma.

Case 2- Cervical Leiomyoma

A 39-year-old woman (P3L3A2) presented with

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Figure 1 (a, b): Gross image of Vaginal Leiomyoma with cut section showing whorled appearance. (c): Photomicrograph of well-demarcated lesion with intersecting fascicles of bland spindle cells with a focal lining by stratified squamous epithelium. (10x, H&E) (d): Photomicrograph revealing the tumor to be composed of interlacing bundles of smooth muscle cells separated by vascularized connective tissue. No atypia, mitosis or necrosis seen. (40x, H&E)

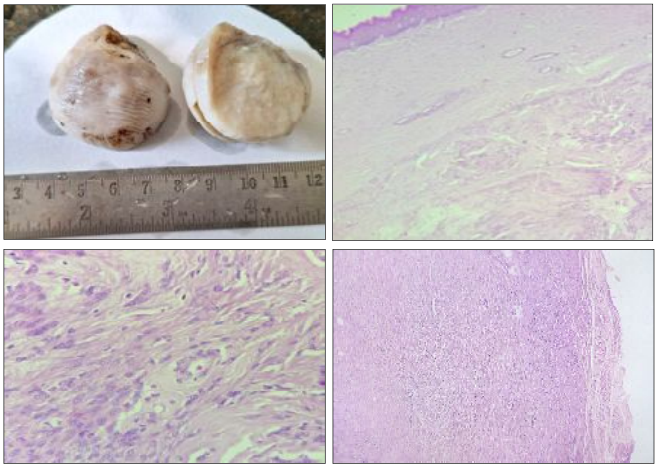

Figure 2(a): Gross image of Cervical Leiomyoma showing gray-white, homogenous, well-capsulated tissue measuring 5 × 4 × 2.5 cm. Cut section showed smooth, whorled pattern with no necrosis and hemorrhage.(b): Photomicrograph showing ectocervical tissue lined by keratinised stratified squamous epithelium and subepithelium showing a well circumscribed partially encapsulated lesion. (10x, H&E). (c): Photomicrograph of the lesion comprising of intersecting fascicles of spindle cells with eosinophilic cytoplasm, elongated end bland nuclei. Hyaline change seen along with dilated and congested blood vessels. (40x, H&E). (d): High power view comprising of intersecting fascicles of spindle cells with hyaline change seen in abundancy. (40x, H&E).

increased urinary frequency for five days and a sensation of a mass descending through the vagina for one year. She had a history of hypertension and hypothyroidism.

Investigations and Findings

Clinical Examination: A 5 × 7 cm mass protruding into the vagina from the cervix. **Ultrasound**: Well-defined, echogenic lesion in the lower cervical canal measuring 3 × 2.3 cm suggestive of endocervical polyp.**On Gross**: Gray-white, homogenous, well-capsulated tissue measuring 5 × 4 × 2.5 cm was received. Cut section showed smooth, whorled pattern with no necrosis/ hemorrhage. **(Figure 2a) Microscopic Examination**: revealed ectocervical tissue lined by keratinised stratified squamous epithelium and subepithelium showing a well circumscribed partially encapsulated lesion **(Figure 2b)** comprising of intersecting fascicles of spindle cells with eosinophilic cytoplasm, elongated end bland nuclei. Hyaline change was seen in abundancy along with dilated and congested blood vessels. **(Figure 2c, d)** A Histopathological diagnosis of Cervical Leiomyoma was given.

Discussion

Leiomyoma is the most commonly encountered benign pelvic tumor arising from smooth muscle cells, with an incidence of about 20% among women of reproductive age, though vaginal leiomyoma is exceptionally rare with fewer than 300 cases reported in the literature and only 1%–2% leiomyoma occur in the cervix.[6]

Uterine leiomyomas are the most prevalent gynecological tumors, predominantly affecting women of reproductive age. While leiomyomas of the uterine corpus are common, atypical sites like vaginal vault and cervix are exceedingly raredue to the limited smooth muscle tissue in the vagina and cervix. Leiomyomas at such rare sites constitute significant clinical challenges due to unusual presentations, non-specific symptoms, mimicking with other pelvic masses, adnexal tumors, endometriosis.[7] Leiomyomas are influenced by estrogen and progesterone. Leiomyomasdevelopment in atypical locations is unclear, theories suggest displacement of smooth muscle cells during embryogenesis may have a significant association.[8] Risk factors for leiomyomas at rare locations include familial history, hormone replacement therapy use, early menstruation onset, late menopause, estrogen-dominant conditions, hypertension, low vitamin D levels, obesity, and a family history of fibroids. Unlike uterine fibroids, these leiomyomas typically present as single mass. Despite its rarity, clinical suspicion is essential for accurate diagnosis and management. Vaginal leiomyoma pose a diagnostic

challenge with non specific symptoms of pelvic discomfort, urinary incontinenceand mimic other benign or malignant vaginal masses and condition such as cysts, prolapseor adenomyosis.Cervical leiomyomas are usually found in the supravaginal region and less oftenvaginal part.

Supravaginal leiomyomas are typically interstitial or subperitoneal and rarely polypoid, while interstitial growth the cervix enough to impact pelvic anatomy and the ureter. Cervical leiomyomas also present with pelvic pressure and obstructive symptoms.Differentiating vaginal leiomyomas from vaginal masses i.e. Bartholin's gland cysts, Gartner's duct cysts or malignant lesions like vaginal carcinoma is essential.[9]

To consider in the differential diagnosis of cervical leiomyomas include cervical polyps, pedunculated submucous fibroids, cervical cancer, chronic uterine inversion, and cervical lymphoma.[10]

Radiology plays a crucial role in the diagnosis, with transvaginal ultrasound being the initial modality of choice for assessing the size and characteristics of the lesion. MRI provides detailed visuals of the lesionalong with its relationship to adjacent structures. Histopathological evaluation confirms by exhibiting interlacing bundles of smooth muscle cells with minimal atypia. Although intraoperative consultation is not always required, it may be considered if malignancy is suspected.

The management of vaginal leiomyoma is typically surgical, with excision being the gold standard for symptomatic or enlarging tumors. Complete removal is vital to prevent recurrence and to ensure that no malignant transformation, such as leiomyosarcoma, is present.

Treatment options for cervical leiomyoma include either myomectomy or hysterectomy. The main challenges in managing cervical leiomyomas are uterine vessels that are displaced upward and outward, a raised bladder and altered ureteral anatomy. These factors increase surgical difficulty due to limited access and close proximity to the bladder, ureters, and uterine vessels. The surgical approach typically involves enucleation followed by hysterectomy. Administering gonadotropin-releasing hormone (GnRH) analogues three months before surgery can reduce fibroid size and vascularity.[11]

Prognosis after surgical removal is excellent with low recurrence rates and minimal risk of malignant transformation. Given the limited number of cases, significant knowledge gaps persist regarding the pathogenesis of such rare sites of leiomyomas, potential genetic factors, and standardized management protocols. Future research should focus on these areas to enhance understanding and optimize care for affected patients.

In conclusion, vaginal leiomyoma, though rare, should remain on the differential diagnosis for vaginal masses. Individualized treatment strategies tailored to the patient's symptoms, tumor characteristics, and preferences are essential for achieving the best outcomes.Cervical leiomyoma often present with atypical symptoms mimicking with other pelvic pathologies, it is critical to recognise and accurately diagnose it. Histopathological examination and Imaging studies, such as ultrasound and MRI, play a critical role in differentiating these tumors from other adnexal masses, while intraoperative techniques, including careful delineation of the ureters and potential preoperative stenting, help minimize complications. Huge cervical fibroids warrant careful evaluation for possible malignancy, as hidden cervical cancers may coexist and complicate treatment decisions.

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