

RARE CASES OF VAGINAL AND CERVICAL CYST MIMICKING PELVIC ORGAN PROLAPSE IN YOUNG WOMEN - A REVIEW META ANALYSIS

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ABSTRACT

Pelvic organ prolapse is defined as the descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix) or the apex of the vagina (vaginal vault or cuff scar after hysterectomy). It usually involves the uterus and cervix and is an issue of major health concern commonly seen in postmenopausal and multiparous women mainly due to defects in pelvic support. The prevalence of prolapse in nulliparous and young women is rare (only around 2%) [5]. Here, we have found two patients with rare cases mimicking pelvic organ prolapse in young women, large cervical cyst in the first case and large vaginal cyst in the second case. In these two cases aetiogenesis of prolapse of cyst through introitus could be attributed to the weight of large cysts.

The first case report was of a 21-year-old female G2P1L1 with 12 weeks 3 days gestation with complaints of something coming out of vagina on straining. On examination it was found to be a large cervical cyst of about 5 cm diameter. The swelling was fragile and boggy in consistency seen to be arising from the posterior lip of the cervix. Cervical cyst drainage with marsupialisation of the cyst walls was done where fluid and tissue were sent for cytology and histopathological examination. Histopathology confirmed a large Nabothian cervical cyst of inflammatory origin. This case outlines the rare, asymptomatic nature of giant Nabothian cysts which can rarely mimic cervical prolapse.

Second case was a similar case wherein a large cystic swelling was seen prolapsed from the introitus in a 25year old P1L1 woman. However, on per-speculum examination, it was seen arising from the posterior vaginal wall and was diagnosed as a posterior vaginal cyst for which marsupialisation was done and tissue sent for histopathology and cytology. This case although similar to the previous one, had different etiology yet highlighting another rare case mimicking prolapse in young women.

Keywords: Nabothian cyst, Prolapse, pregnancy, cervical cyst, vaginal cyst.

INTRODUCTION

Whenever one thinks of the prolapse through the genital introitus or something coming out of vagina, pelvic organ prolapse comes first in the mind. Although, there has been found some pathologies which were not typical pelvic organs protruding through introitus but other structures which mimicked pelvic organ prolapse (POP). There have been instances when POP has been misdiagnosed with these alternative pathologies. These pathologies include vaginal cysts, cervical polyps, elongation of cervix, tumors of urethra or bladder, large urethral diverticulum and skene gland cysts.[1]

Unusual presentation of a large Nabothian cyst and a vaginal cyst mimicking pelvic organ prolapse found in extremely rare cases is discussed here.

Nabothian cysts are benign mucus filled cysts found commonly on the uterine cervix and are frequently seen in reproductive age women [2]. They are also called as mucinous retention cyst or epithelial cysts and are visible on the surface of cervix as small, nodule like bumps, which may be single or in groups [3, 4]. They are mostly asymptomatic, frequently resolve on their own and do not require any medical or surgical intervention. Very rarely, they can grow into large cysts that may produce symptoms related to mass effect like compression of surrounding viscera or can prolapse outside the vagina on increasing intra-abdominal pressure like coughing, sneezing, squatting, defecation and sometimes even on standing and walking [5]. The following case, reports the findings of a giant nabothian cyst in a pregnant woman which presented like a prolapse.

In a second case, mass seemed protruding just out of the introitus when patient was asked to strain and mimicked cystocele whereas it was a large vaginal cyst. Vaginal cysts usually are unusual and small in size which present as dyspareunia, voiding problem, vaginal discharge and sometimes pain. A large vaginal cyst mimicking a prolapse is rare.

CASE REPORT 1:

A 21-years-old married G2P1L1A0 with 12weeks 4 days pregnancy presented to the obstetrics Out Patient Department, with complaint of something coming out of vagina for last 20-25 days, associated with white discharge per vaginum. The mass gradually increased in size over the last 20 days and protruded out of vaginal introitus on coughing, squatting, straining and lifting weights. It was associated with thick white discharge per vaginum. There were no urinary or bowel complaints and no history of chronic cough, constipation and heavy weight lifting. Menstrual history was normal and obstetrical history was uneventful. On per abdomen examination uterus was of 12 weeks size with no other mass felt. Local genital examination revealed a large cystic mass protruding just outside the introitus and appeared to increased on straining. The primary diagnosis was a cystocele, but on closer examination, it was found to be a large cervical cyst of 5 × 4 cm, arising from posterior cervical lip.



Figure 1: Cystic swelling arising from posterior lip of cervix



Figure 2: Cyst arising from posterior lip of the cervix lip filling the posterior fornix but could be separated from the posterior fornix

Swelling was fluid filled, cystic in appearance, fluctuant and boggy in consistency and was non reducible. PAP smear was taken and a gentle bimanual per vaginal examination revealed a 12week sized anteverted uterus with bilateral adnexa free and nontender. The posterior fornix was filled by the cystic swelling but could be separated from it. Patient was planned for cystectomy and called the next day for further investigations and USG. The next day patient came back to the OPD with complaint of watery clear discharge per-vaginum a night before coming to the hospital. On per-speculum examination, it was seen that the cyst was ruptured, the walls of the cyst were collapsed and clear fluid was seen coming out of the collapsed cyst.



Figure 3: Recurrence of cervical cyst at the same site (1 week after spontaneous rupture)

A high vaginal swab was taken and the fluid was sent for culture and sensitivity. Ultrasound done, showed a uterus of 12 weeks size with a single live intrauterine fetus and placenta completely covering the internal os. No fluid filled cyst could be appreciated on ultrasound. On high vaginal swab, a growth of *Enterococcus faecalis* was found. PAP smear report was negative for CIN and patient was treated symptomatically. Two weeks later, patient presented with the same complaints and on per speculum examination, a cyst of 3×4cm was noted at the same site (the cyst recurred at the same site). An ultrasound was done which showed a hypointense fluid filled mass of 3×4cm originating from the posterior cervix.



Figure 4: Hypoechoic cyst over posterior cervical lip on TVS



Figure 5: marsupialisation of cervical cyst

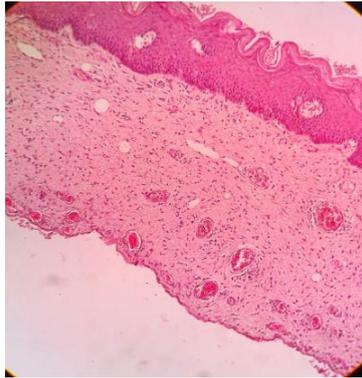


Figure 6: Histopathology report of cervical cyst wall

CASE REPORT 2:

A 25years old female PIL1 came to gynaecology OPD with the complaints of something coming out of vagina since last 6 months. It was associated with dyspareunia and the mass protrudes out of vaginal introitus on coughing, squatting, walking, straining and lifting weights. It was associated with white thick discharge per vaginum since last 10 days. Past Menstrual cycles were normal and previous pregnancy was uneventful normal vaginal delivery. Abdomen was soft and local genital examination revealed a large cystic mass protruding just out of the introitus when patient was asked to strain and appeared to be a cystocele.

On per speculum examination, a large cystic mass of 3 cm × 4 cm size, arising from posterior wall of vagina and protruding till introitus, was seen. Cervical erosion with thick white infective (candidal) vaginal discharge was present. Swelling was fluid filled, cystic in appearance, fluctuant and boggy in consistency and was non reducible.



Figure 7: Large vaginal cyst

PAP smear was taken and a gentle bimanual pervaginal examination revealed a normal sized anteverted uterus with bilateral adnexa free and nontender.

Transvaginal ultrasound also showed a large vaginal cyst.



Figure 8: Ultrasonographic image of the large vaginal cyst.

Patient was planned for marsupialisation and tissue sent for histopathological examination which revealed stratified squamous epithelium suggesting vaginal epithelial origin.

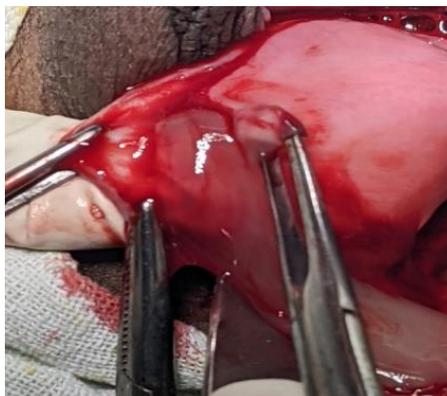


Figure 9: Marsupialisation of vaginal cyst



Figure 10: Large vaginal cyst drainage and marsupialisation being done

REVIEW OF LITERATURE

Prolapse is rare in young women. Most of the cases of pelvic organ prolapse are found in elderly women specially in multipara. Young causes of prolapse are rare accounting 2% of all the prolapse. There are also some rare cases in which the prolapsed tissue was not a pelvic organ but some other pathology mimicking pelvic organ prolapse.

In past years, some cases of large Nabothian cysts have been identified at different parts of the world at different times, reporting the varying symptoms with which large Nabothian cysts can present. Some of the studies reported the pressure symptoms created by large Nabothian cyst over the surrounding structures, some caused infertility, some lead to obstructed labour, whereas some caused obstruction of the cervix and discharge per vaginum.

Neel Shroff and Peeyush Bhargava, in 2021, reported case of a 52-year-old female patient undergoing routine screening for hepatocellular carcinoma and incidentally, the patient was found to have a cystic pelvic mass on initial imaging via Computed Tomography (CT). Subsequent imaging with Magnetic Resonance Imaging (MRI) confirmed findings of two giant nabothian cysts. On T1 hypointense and T2 hyperintense MRI, two similar cystic foci measuring 5.3 ×3.4 cm and 6.3 ×4.5 cm were seen in the anterior cervix and posterior cervix respectively. They both showed thin walls with no complexity, internal septation or enhancement. High signal was seen on Diffusion Weighted Image (DWI). The findings were consistent with the diagnosis of giant nabothian cysts and not supporting the presence of infection or tumour. This case outlined the rare, asymptomatic nature of giant nabothian cysts and emphasizes the efficacy of MRI as a tool for diagnosis of pelvic masses when ultrasound and CT findings are equivocal.[2]

Sushna Maharjan and Mamata Tiwari from Nepal, in the year 2020, reported a case of a huge nabothian cyst in a 52 year old postmenopausal, multiparous woman who presented with complaints of something coming out of vagina suddenly

after mild heavyweight lifting and pain abdomen. Pelvic examination revealed a second degree uterine prolapse with a large lump protruding outside the vagina. Transvaginal ultrasonography demonstrated a multicystic cervical mass of size 9.5 cm × 8.0 cm arising from the posterior lip of cervix that was protruding through the vaginal canal. PAP smear was taken and the report was negative for intraepithelial lesion or malignancy. After excision of mass, prolapse became first degree. Histopathologic diagnosis was a cervical nabothian cyst. Patient had persisting first degree uterine prolapse along with posterior vaginal wall prolapse on subsequent postoperative follow ups. Hence, vaginal hysterectomy with repair of the vaginal wall was performed later.[6]

K Harou et al in the year 2019 reported the case of multiple Nabothian cysts obstructing the cervical canal in a patient with 7 years of primary infertility. The diagnosis was made by MRI. They also emphasised on importance of biopsy and histopathological examination in case of diagnostic doubt and concluded that Nabothian cysts can mimic some benign or malignant pathologies. Treatment is based on simple drainage or excision whenever cyst is symptomatic.[7]

Turan et al, in the year 2017, reported case of a 32 year-old women, G2P1L1 who had a normal birth after around 4 years of secondary infertility. The speculum examination revealed a multiparous enlarged cervix with an appearance of a nabothian cyst approximately 3.5 centimetres, completely closed the entrance of the cervix. Transvaginal ultrasonography showed normal ovaries and the endometrial thickness was 6 mm. Pap smear test was performed and no pathology was detected. There was no abnormality in the laboratory tests including hormone profile, anti müllerian hormone was 3.2. Her husband's semen analysis was normal. Cervical dilatation was done for the patient as treatment. The patient was discharged on the same day, regular sexual intercourse was recommended after which she conceived spontaneously within 2 months of the treatment given. Thus, they concluded that large Nabothian cysts can also block the cervical opening and be a cause of infertility in some patients. [3]

Nassif J et al, in the year 2017, reported the case of a large Nabothian cyst that was correctly diagnosed preoperatively using ultrasonography and MRI, and successfully treated through laparoscopic excision, avoiding the performance of unnecessary hysterectomy in a 44-year-old Lebanese patient who presented with chronic dyspareunia and pelvic pain. Both Ultrasound and MRI revealed an 8cm multiloculated anechoic pelvic cystic lesion with no solid components, suggestive of a Nabothian cyst. The cyst was laparoscopically removed and the patient tolerated the procedure well and was discharged under stable condition a few hours after the operation. They concluded that careful preoperative examination, including the use of imaging methods such as ultrasonography and MRI, is crucial for diagnosis and differentiation of atypical presentation of benign, but large and complex, Nabothian cysts from other differential conditions of malignancies, consequently avoiding unnecessary hysterectomy. They proposed the use of laparoscopy as a minimally-invasive technique to excise such cysts, allowing for a fast recovery of the patients.[8]

Kanan A. Yelikar et al, in the year 2015, reported an interesting case of a 43 year female with multiple large nabothian cysts presented with a rare and distressing symptom of continuous, thin & copious watery discharge per-vaginum, mimicking genitourinary fistula. Very rarely nabothian cyst needs hysterectomy as was done in this case.[4]

Vural F et al, in the same year of 2015, reported case of a Primigravida with 38 weeks of gestation who presented to the maternity unit in labour with a cystic mass (6 x7 cm) protruding out of the vagina. Simple drainage was performed to allow the vaginal delivery. She delivered a 4130 grams, male baby, 9-10 Apgar, by spontaneous vaginal delivery. The patient's and the newborn postpartum course were uneventful. In subsequent postnatal follow up visit two months after the delivery, gynaecologic examination revealed a persisting cystic mass in the cervix (40x50 mm) and they performed a total excision of the cyst to confirm the pathologic diagnosis. This case reported obstruction of labour passage by the large nabothian cyst. [9]

Aruna Nigam et al, in the year 2012, at Lady Hardinge Medical College, Delhi, India, reported case of a 21 year old nulliparous woman who presented with giant Nabothian cyst prolapse along with the third-degree cervical descent. Patient underwent cystectomy and removed the large 4 × 5 cm cyst (filled with white mucinous substance) from the cervix which was 35 grams in weight. After the cystectomy the cervical descent became first-degree. Histopathology examination showed cyst wall lined with cuboidal epithelium suggestive of Nabothian cyst. They concluded that the prolapse in this

case appeared to be due to the weight of the large Nabothian cyst on the cervix which could have caused the elongation of the vaginal portion of the cervix.[10]

Keng-Fu Hsu et al, from National Cheng Kung University Hospital, Taiwan in 2012, reported case of a giant (8 cm ×6.5 cm) Nabothian cyst, which was first suspected as malignancy on CT scan but on subsequent thorough pelvic examination and ultrasonographic studies, the cyst was correctly diagnosed as a giant Nabothian cyst before surgery. The patient was then successfully treated with local excision and simple drainage vaginally, without planned hysterectomy. From this case, they recommended that giant Nabothian cysts should be taken into consideration for differential diagnosis of cervical tumors and Ultrasonography is of great value for the diagnosis of giant Nabothian cysts and differentiating it from other benign and malignant cystic growths on the cervix.[11]

Temur et al, in the year 2011, from Turkey, reported a case of a giant nabothian cyst compressing the rectum apparently with the symptoms of pain and difficulty in defecation due to compression on the rectal wall because of the huge size of the cyst. There were no gynecological complaints in the patient. They differentiated it from adenoma malignum (minimal-deviation adenocarcinoma) by using MRI, immunohistochemical and histopathological techniques. They suggested that Nabothian cysts may be identified in 12% of routine pelvic MRI scans. When the rectum is compressed, it may cause abnormal defecation and tenesmus and in this case it required hysterectomy to relieve persisting symptoms caused by nabothian cysts due to compression of rectum.[12]

Sosnovski V et al, in the year 2008, reported case of a woman with two large intracervical cysts which was evaluated using ultrasound and MRI. Hysterectomy revealed Nabothian cysts. They concluded that in rare cases in which the intracervical cysts assume very large dimensions, ultrasound and MRI can aid diagnosis, but may not always prevent the need for excision or hysterectomy.[5]

Thus, Nabothian cysts are benign cystic lesions of the cervix which are mostly asymptomatic when small in size (i.e. few millimeters) and do not require any intervention as they spontaneously resolve on their own. But, when they are large (>4cm) they present with varying mass symptoms and in small no. of cases they can also be malignant which can be easily ruled out by simple tests like ultrasonography, Pap smear, histopathology and less required are CT and MRI. Excision of the cyst is the main stay of treatment.

Another cause of prolapse which mimics pelvic organ prolapse, found in young women is large vaginal cysts which are uncommon. Some of the cases which have been reported in the past are discussed as follows:

Kresowik et al reported case of a 33-year-old woman with a 4-year history of a cystic vaginal mass presented after the cyst rapidly enlarged and protruded. The patient complained of discomfort while walking and increased vaginal pressure. A pedunculated, 8-cm cyst was surgically removed and pathology revealed it's mullerian duct origin. They concluded that although mullerian duct cysts are commonly small and located in the anterolateral vaginal wall, they should be included in the differential diagnosis of any large, protruding vaginal mass.[13]

Benlazi et al reported case of a 22-year-old primiparous woman with no previous medical history admitted for delivery. Examination revealed a cystic mass measuring 45x40x35 mm on the anterior vaginal wall confirmed as an independent cyst on perineal ultrasound. The cyst was successfully aspirated, and the patient delivered without complications. At 12 months, the cyst reappeared, requiring vaginal surgical excision. Histological examination identified a Gartner cyst. During follow-up at 6 and 12 months, the patient remained asymptomatic. This vaginal cyst typically presented as small, solitary, and symptomless mass. However, they can grow in size, mimicking other conditions and often being misdiagnosed as cystoceles. Consequently, surgical excision of the vaginal cysts is the preferred treatment option, yielding positive anatomical outcomes and high patient satisfaction levels. They concluded that in this case, a Gartner cyst was found on the anterior vaginal wall. The report also underscores the crucial role of imaging in accurately identifying the cyst's location, assessing its association with adjacent tissues, and guiding the surgeon in devising an effective operative plan.[14] Therefore, vaginal cysts can also present like prolapse.

DISCUSSION

Pelvic organ prolapse (POP) mostly occurs in postmenopausal and multiparous women. There are many risk factors for POP such as multiparity, increased intra-abdominal pressure (eg, bearing heavy weights, exerting physical effort), obesity, advanced age, menopause, past hysterectomies, crouching at labour, prolonged labour, etc. [5]. POP is rare in nulliparous women. The risk factors for POP in the nulliparous include inherent defect in pelvic supports for example Ehler-Danlos syndrome, congenital shortness of vagina, and deep uterovesical and utero-rectal pouches [5]. It may also occur due to spina bifida occulta and split pelvis which result in inherent weakness of pelvic floor support. Family history of prolapse also suggests its congenital nature [5].

Although Nabothian cysts are the most common, benign mass lesion of the cervix, them growing to large sizes and presenting as prolapse is quite uncommon. Nabothian cysts are simple mucous retention cysts formed by the blockage of glands over ectocervix secondarily due to inflammatory and reparative processes involving the transition zone of the cervix, seen in women of reproductive age group [2,6,5,15]. In chronic cervicitis and its reparative processes, or as part of the physiologic metaplasia, the squamous epithelium of the uterine cervix proliferates and covers the columnar epithelium of the endocervical glands which is thought to play role in the pathogenesis of nabothian cysts [6,5]. Mucoïd material continuously secreted from glands of the endocervix can become trapped under the squamous proliferation and form retention cysts in small subdermal pockets over the surface of cervix [2, 3, 4]. Grossly, nabothian cysts will appear as firm bumps on the cervical surface [2, 3]. In contrast to other cystic cervical lesions, nabothian cysts are typically very small (few millimeters in size), resolve on their own, and do not cause symptoms of clinical significance [2, 11]. It is rare for a nabothian cyst to reach a size greater than 4cm [2,11]. Large nabothian cysts may appear as a malignant tumour and cause various symptoms relating to mass effect. The patient may experience various associated symptoms like abdominal pain, pelvic congestion, vaginal bleeding and painful intercourse [2,4,11]. The mass may also compress the rectum and cause abnormal defecation or tenesmus [2,11]. Some cysts may cause significant watery discharge and discomfort [2,15]. In the present case, we found a recurrent giant Nabothian cyst arising from the posterior lip of the uterine cervix mimicking prolapse and on rupture, caused significant watery discharge per vaginum. Cases have been reported of large nabothian cysts also causing obstruction to labour passage or cervical prolapse [2,9].

Vaginal wall cysts are also very uncommon and often an incidental finding. They can be histologically classified as epithelial, inclusion, Müllerian, mesonephric and urothelial. Mullerian cysts typically present in the child-bearing age. Vaginal cysts can also present as dyspareunia, voiding problem, vaginal discharge and pain. Vaginal cysts are mostly asymptomatic but may rarely present as visible or palpable mass when it grows to a large size which has been seen less commonly. [16]

There are other unusual pathologies which mimic prolapse, namely cervical polyps, Bartholin cyst or abscess, large urethral diverticulum and skene gland cysts.

Cervical polyps are common pathology in female adult population, but giant cervical polyps (size greater than 4 cm) are rare. The large sized polyp can mimic a cervical neoplasia and can also mimic prolapse. Bucella et al reported the case of a giant cervical polyp of 5.5 cm in a multiparous 47-year-old woman which clinically presented like genital organ prolapse with vaginal bleeding. The lesion was resected by electrosurgery and on histopathology was confirmed to be a cervical polyp. [17]

Similarly, Bartholin cyst or abscess can also grow to large sizes and can prolapse through the genitalia as was seen in a case described by Varghese Let al. They found a case of a 39-year-old multipara woman who presented with a progressively enlarging vaginal bulge for 6 years, which was misdiagnosed as an enterocele with a unilateral paravaginal support defect. On further examination and imaging, the enterocele was confirmed to be a 10 x 5-cm, thick-walled cystic mass which was resected and histologically confirmed to be a Bartholin gland abscess.[18]

Physicians must also consider possibility of a large urethral diverticulum in women with symptoms suggestive of pelvic organ prolapse. Romero R et al reported case of a 51-year-old woman who presented with complaints of urinary frequency, dyspareunia, and vaginal pain which aggravated after pessary insertion for pelvic organ prolapse for 3 years. On physical examination and trans labial ultrasonographic imaging, a tender 2.7 cm × 1.6 cm multilocular cyst surrounding midurethra

was noted and three-dimensional images clearly visualized urethral lumen surrounded by horseshoe-shaped urethral diverticulum, with opening at 4 o'clock position, exactly same as cystourethroscopic finding. Complete diverticulectomy was performed and at 6-week follow-up after discharge, all symptoms disappeared except urinary frequency. Thus, they concluded that suspicion is most important part in diagnosis of urethral diverticulum. [19]

Skene gland cysts are also very rare. They are usually seen in middle-aged female patients but have also been reported in newborn girls. Karadeniz O et al presented case of a 38 years old P2L2 female with a 3 cm bulge of a submucosal mass originating from the left side of the external urethral meatus, expressing pus, and appearance to be a cystocele. She had a 1-year history of vaginal discomfort accompanied by obstructive voiding symptoms, recurrent urinary tract infections (UTIs) and dyspareunia without resolution after multiple courses of antibiotics and reported feeling of a bulge. On physical examination, initial impression was of a grade 2 cystocele. However, closer inspection with speculum examination revealed that the bulge was closely associated within the vicinity of the external urethral meatus, in the periurethral area. Pre-operative urogynecological examination of the patient demonstrated that the mass caused the external urethral meatus to deviate to the right side. By manual compression of the cystic mass, pus was seen to discharge from the cyst but not from the external urethral meatus. Perineal ultrasound showed that the mass had no connection with the urethra, despite causing compression of the urethral canal to the right side. It was a large, adult-onset Skene gland cyst mimicking cystocele. [20]

ETHICAL CLEARANCE

This project did not involve any research and no ethical clearance was required.

PATIENT CONSENT

A written informed consent was obtained from the patient for the publication of this case report.

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