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CASE REPORT

A Giant Suppurative Nabothian Cyst Presenting as a Prolapsing Cervical Mass: Diagnostic Pitfalls and Surgical Management: A Case Report

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ABSTRACT

Background: Nabothian cysts are benign mucous retention cysts of the uterine cervix, typically small and asymptomatic. Giant variants are uncommon and may mimic cervical fibroids or malignancy when they present as large prolapsing masses.

Case presentation: A 36-year-old Para 1+1 woman presented with a 2-year history of a progressively enlarging mass per vaginam, abnormal uterine bleeding and offensive vaginal discharge. Examination showed a dark, malodorous, partially cystic, reducible polypoid mass measuring approximately 10 × 5 cm, attached by a long pedicle to the anterior cervical lip. Pelvic ultrasonography excluded uterine and adnexal masses but did not definitively characterise the cervical lesion. The mass was completely excised under subarachnoid block with a 1-cm cuff of cervical tissue and treated with peri-operative broad-spectrum antibiotics. Histopathology confirmed an acutely infected suppurative Nabothian cyst without atypia, dysplasia or malignancy. Recovery was uncomplicated, and symptoms had resolved at four-week follow-up.

Conclusion: Giant infected Nabothian cysts may mimic cervical fibroids, polyps and malignancy. Histopathological examination of excised cervical tissue is essential for definitive diagnosis. Short-term outcome after conservative excision was favourable in this patient, although longer follow-up is required to assess recurrence.

INTRODUCTION

Nabothian cysts are benign mucous retention cysts that arise when endocervical gland openings become occluded, often following squamous metaplasia within the cervical transformation zone. They are common incidental findings and are usually small, asymptomatic and managed expectantly.[1,2]

Large or giant Nabothian cysts are uncommon. Reported lesions may produce pressure symptoms, prolapse or obstruction and, importantly, may resemble cervical leiomyoma or malignant glandular lesions on clinical examination and

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imaging.[3-7] Published reports of similarly unusual giant or prolapsing presentations from West Africa appear very limited.

We report a giant acutely infected Nabothian cyst presenting as a prolapsing polypoid cervical mass in a reproductive-age woman managed at a tertiary centre in South-East Nigeria. The case highlights diagnostic uncertainty, the role and limitations of imaging, conservative surgical management of an accessible pedunculated lesion, and the importance of histopathological confirmation.

CASE PRESENTATION

A 36-year-old para 1+1 woman with one living child presented to the gynaecology outpatient clinic of Federal Medical Centre, Umuahia, with a 2-year history of a mass per vaginam that progressively enlarged until it protruded beyond the vaginal introitus on straining. She also reported abnormal uterine bleeding and vaginal discharge, initially watery but becoming frankly offensive in the days before presentation. Her last menstrual period was 13 days before presentation and had been prolonged. The available clinical record did not further quantify the bleeding or document whether intermenstrual or postcoital bleeding occurred.

There were no urinary or bowel symptoms, chronic cough or habitual heavy lifting, and no personal or family history of gynaecological malignancy. She had one previous uncomplicated vaginal delivery and one pregnancy loss, no previous surgery, no regular medications and no known drug allergies.

General examination showed an alert, fully oriented woman who was afebrile (36.8°C) and haemodynamically stable: blood pressure 137/78 mmHg, pulse 78 beats/min, respiratory rate 18 breaths/min and oxygen saturation 99% on room air. She was not pale, icteric, cyanosed or oedematous. Cardiovascular, respiratory and neurological examinations were unremarkable. The abdomen was soft and non-tender, with no palpable organomegaly or mass.

Vaginal examination revealed a dark, malodorous, polypoid mass protruding beyond the introitus on Valsalva manoeuvre. It was partially cystic and soft, measured approximately 10 × 5 cm clinically, was reducible and had a long pedicle attached to the anterior lip of the cervix. The external cervical os was closed; the uterus was normal-sized, anteverted, mobile and non-tender, and both adnexae were free. Offensive discharge stained the examining gloves. The available record does not document whether the entire cervix could be visualised on speculum examination or whether contact bleeding, surface ulceration/necrosis or regional lymphadenopathy was specifically assessed. A clinical diagnosis of an infected cervical polyp was made, with cervical fibroid polyp and cervical malignancy as important differential diagnoses.

Table 1. Clinical timeline

Time	Clinical event
Approximately 2 years before presentation	Onset of a vaginal mass, with progressive enlargement.
Days before presentation	Vaginal discharge, previously watery, became offensive.
Presentation	Prolapsing dark malodorous polypoid cervical mass, approximately 10 × 5 cm, identified; infected cervical polyp, cervical fibroid polyp and malignancy considered.
Pre-operative assessment	Routine laboratory investigations and pelvic ultrasonography performed; ultrasound excluded uterine and adnexal masses but did not definitively characterise the cervical lesion.
Operation	Pedunculated mass excised under subarachnoid block with a 1-cm cervical cuff; specimen submitted for histopathology.
Post-operative day 3	Discharged in stable condition after uncomplicated recovery.
Four-week follow-up	Complete symptom resolution reported; benign histopathological diagnosis discussed and return advised if symptoms recur.

Diagnostic Assessment

Pre-operative investigations are summarised in Table 2. Full blood count showed mild leucocytosis (white blood cell count 12.3 × 10□/L); packed cell volume was 34% and platelet count was 210 × 10□/L. Serum electrolytes, urea and creatinine and random blood glucose were within normal limits. Pelvic ultrasonography reported a normal anteverted uterus, no uterine or adnexal mass and a cervical polyp.

The available case record does not document the route of pelvic ultrasonography, lesion dimensions on ultrasound, internal solid/cystic architecture, Doppler vascularity or detailed relationship of the lesion to the cervix. Likewise, documentation was not available regarding cervical cytology/Pap smear history, high-risk human papillomavirus (HPV) testing, visual inspection with acetic acid (VIA), colposcopy or a pre-operative pregnancy test. No pre-operative biopsy was obtained because the lesion was considered readily amenable to complete excision, which was intended to be both diagnostic and therapeutic.

No cervical/vaginal swab or culture of the purulent/cyst contents was obtained. Consequently, the causative organism and route of infection could not be established microbiologically. These omissions are acknowledged as limitations rather than inferred as negative test results.

Table 2. Investigations

Investigation	Result	Comment
Full blood count	Packed cell volume 34%; white blood cell count 12.3 × 10□/L; platelets 210 × 10□/L	Mild leucocytosis
Serum electrolytes, urea and creatinine	Na^+ 138, K^+ 4.0, Cl^- 100, $HCO3^-$ 24 mmol/L; urea 4.4 mmol/L; creatinine 76 µmol/L	Within normal limits
Random blood glucose	89 mg/dL (4.9 mmol/L)	Normal range
Blood group / genotype	O Rhesus D positive; Hb AA	—
Hepatitis B surface antigen / HIV screening	Non-reactive / Non-reactive	—
Pelvic ultrasonography	Normal anteverted uterus; no uterine or adnexal mass; cervical polyp reported	Further lesion characterisation not documented
Chest X-ray (posteroanterior)	Normal cardiothoracic ratio; clear lung fields	Normal
12-lead electrocardiogram	Normal sinus rhythm; rate 78 beats/min; normal axis; no ST/T-wave abnormality	Normal

Therapeutic Intervention

The procedure was performed under subarachnoid block using 15 mg hyperbaric bupivacaine. Intraoperative haemodynamics remained stable and recovery from anaesthesia was uneventful.

Intraoperatively, a malodorous, partially collapsed polypoid mass was identified, with a distinct pedicle arising from the anterior cervical lip at the 1 o'clock position. The mass was excised with a 1-cm cuff of cervical tissue at the pedicle attachment. Haemostasis was satisfactory and the remaining cervix was macroscopically normal. No other pelvic pathology was identified.

The pathological specimen measured 7.0 × 4.5 × 2.5 cm and weighed 25 g, smaller than the approximately 10 × 5 cm clinical measurement. The difference is plausibly explained by partial collapse of the cystic lesion after excision and loss of cyst contents. The available operative record does not provide a quantified estimated blood loss, the specific haemostatic/suture technique, or documentation of consent for more extensive surgery should malignancy have been encountered.
Peri-operative antibiotic therapy consisted of ceftriaxone 1 g intravenously every 12 hours and metronidazole 500 mg intravenously every 8 hours for 3 days. Thereafter, treatment was changed to oral amoxicillin-clavulanate 1 g once daily and oral metronidazole 400 mg every 8 hours for a further 5 days. No intraoperative or immediate postoperative complication was documented.

Histopathology

Grossly, the specimen was greyish-tan, soft-to-firm and partly cystic. The cut surface showed a unilocular cyst with a regular wall approximately 0.5 cm thick and an empty lumen. Microscopically, the lesion comprised orderly, well-differentiated endocervical glandular epithelium over fibromuscular stroma. A retention cyst within the stroma was lined by flattened endocervical epithelium and contained mucin admixed with degenerate neutrophils. The cyst wall and adjacent stroma showed dilated congested vessels and stromal oedema, consistent with acute inflammation. No atypia, dysplasia or malignancy was identified. The final diagnosis was an acutely infected (suppurative) Nabothian cyst of the uterine cervix.

Follow-up and Outcomes

Post-operative recovery was uncomplicated. The offensive vaginal discharge resolved following excision and antibiotic therapy. The patient was discharged on post-operative day 3 in stable condition. At four-week outpatient follow-up she reported complete symptom resolution. The benign histopathological diagnosis was explained, and she was advised to return for reassessment if vaginal discharge, bleeding or a prolapsing mass recurred. Subsequently, the patient was contacted by telephone for an updated assessment. She reported no recurrence of the vaginal mass, no complaints related to the condition, and satisfaction with the treatment received.

Patient Perspective

At subsequent telephone follow-up, the patient reported that she was satisfied with the treatment and outcome. She reported no recurrence of the vaginal mass and no complaints related to the condition since treatment.

DISCUSSION

Nabothian cysts are benign mucus-retention cysts of the endocervical glands that are usually small and asymptomatic.[1,2] When they become unusually large, however, their clinical importance changes because they may produce pressure symptoms, vaginal discharge, cervical obstruction, prolapse-like symptoms or a mass that clinically resembles a cervical neoplasm.[3–6,8,9] The present case extends this spectrum: the patient had a large pedunculated cervical lesion prolapsing into the vagina, accompanied by offensive discharge and abnormal bleeding, while histopathology demonstrated an infected suppurative Nabothian cyst. The combination of size, prolapse and acute suppurative inflammation made the presentation diagnostically challenging despite the benign underlying pathology.

The principal diagnostic concern with a large or atypical Nabothian cyst is its potential to mimic other benign and malignant cervical lesions. Complex Nabothian cysts have previously been described as a diagnostic dilemma,[3] while giant lesions have been mistaken clinically for a huge cervical fibroid[4] and have presented in association with uterine prolapse.[5] More recent reports further illustrate the breadth of misleading presentations: giant Nabothian cysts have mimicked a genitourinary fistula,[8] and deep obstructive cysts in pregnancy have mimicked cervical adenocarcinoma on magnetic resonance imaging.[10] These reports support maintaining a broad differential diagnosis when a cervical lesion is unusually large, deeply situated, multicystic or clinically atypical. In the present patient, the prolapsing pedunculated appearance required consideration of a cervical polyp, leiomyoma and neoplastic disease until excision and histopathological examination established the diagnosis.

Imaging has an important role in defining the site and extent of cervical cystic lesions and in identifying features that warrant further evaluation. Ultrasonography is usually the first-line modality, whereas magnetic resonance imaging (MRI) can provide superior soft-tissue characterisation in large, deep or complex lesions. Shroff and Bhargava demonstrated the value of MRI in characterising giant Nabothian cysts,6 while Naik et al. showed that even MRI appearances may create concern for adenocarcinoma in a deep obstructive lesion.10 Similarly, a recent report of giant cervical Nabothian cysts associated with infertility used transvaginal ultrasonography, MRI and biopsy to establish their benign nature before treatment.9 Thus, imaging can substantially narrow the differential diagnosis but may not always definitively distinguish such lesions from malignant glandular lesions. In our case, ultrasonography excluded a uterine or adnexal mass and suggested a cervical polyp, but the available

imaging record did not provide detailed cyst morphology or Doppler findings and MRI was not performed. Histopathology therefore remained central to definitive diagnosis.

The histological findings also explain the infective features in this patient. The excised lesion contained a retention cyst with mucin and degenerate neutrophils, acute inflammatory changes and no atypia, dysplasia or malignancy. Clinically, these findings were accompanied by malodorous discharge and mild neutrophilic leucocytosis, supporting superimposed infection of the cyst. Nevertheless, no swab or cyst-content culture was obtained. The responsible organism and route of infection therefore cannot be established, and an ascending or polymicrobial mechanism should be regarded only as a possible explanation rather than a proven cause. This distinction is important because suppuration is an unusual feature in an otherwise benign retention cyst and microbiological confirmation would have strengthened the aetiological interpretation.

Management of giant Nabothian cysts should be individualised according to symptoms, lesion anatomy, diagnostic uncertainty, reproductive considerations and the feasibility of conservative treatment. Small asymptomatic cysts generally require no intervention,[1] whereas reported management of giant or symptomatic lesions has included aspiration, local excision and hysterectomy.[4,5,9] In the report by Balasubramaniam et al., a lesion mimicking a huge cervical fibroid was managed surgically in the setting of hysterectomy,[4] whereas Maharjan and Tiwari described a huge cyst associated with uterine prolapse.[5] Hosseini et al. reported aspiration of obstructive giant Nabothian cysts during assisted reproductive treatment, illustrating that a less invasive approach may be appropriate when anatomy and clinical objectives permit.[9] In the present case, the lesion had a long accessible pedicle arising from the anterior cervical lip, allowing complete local excision with a small cervical cuff and preservation of the uterus. This anatomy made conservative surgery appropriate while simultaneously providing adequate tissue for diagnosis.

Histopathological examination is particularly important in atypical cervical cystic lesions because benign Nabothian cysts and malignant glandular processes can overlap in clinical and radiological appearance.[3,6,7,10] Lee et al. described cervical adenocarcinoma initially misdiagnosed as a Nabothian cyst,[7] underscoring the risk of assuming benignity solely from a cystic appearance. Conversely, unnecessary radical treatment should also be avoided when a benign diagnosis can be established. The absence of atypia, dysplasia or malignancy in the present specimen, together with the characteristic retention-cyst morphology and inflammatory contents, confirmed the benign diagnosis and supported the adequacy of conservative excision.

The postoperative course provides further support for the selected management in this patient. The offensive discharge resolved following excision and antimicrobial therapy, and she had complete symptom resolution at the four-week clinic review. On subsequent telephone follow-up, she remained satisfied with the treatment, reported no condition-related complaints and reported no recurrence of the vaginal mass. These observations are reassuring but should be interpreted in the context of the limited duration of documented follow-up; they do not establish that recurrence is impossible. The patient should therefore continue routine gynaecological care and seek reassessment if a cervical or vaginal mass, abnormal discharge or other related symptoms recur.

Overall, this case reinforces three practical points. First, a giant Nabothian cyst may present as a prolapsing cervical mass and imitate both common benign lesions and cervical malignancy.[3–8,10] Second, imaging is useful for anatomical assessment, but histopathological examination is required when the diagnosis remains uncertain or malignancy cannot be confidently excluded.[3,6,7,10] Third, conservative excision can be an effective uterus-preserving approach when a symptomatic lesion is pedunculated, accessible and completely resectable. Published reports demonstrate diverse presentations including fibroid-like masses, prolapse, fistula-like symptoms, reproductive obstruction and malignant mimicry,[4,5,8–10] while the suppurative prolapsing presentation in this patient adds a less commonly documented clinical pattern. To the authors' knowledge, comparable published reports from West Africa remain very limited.

LIMITATIONS

This report has several limitations. MRI was not performed, limiting detailed pre-operative tissue characterisation. The available record did not document several elements relevant to exclusion of cervical malignancy, including cervical cytology/screening history, HPV testing, VIA, colposcopy and detailed ultrasonographic morphology. Microbiological culture of the cyst contents was not obtained, so the infecting organism and route of infection remain unknown. As a single case report, the findings are not generalisable and causal inferences regarding pathogenesis cannot be made. Although the patient subsequently reported no recurrence or related complaints during telephone follow-up, longer-term recurrence cannot be excluded.

CONCLUSION

Giant Nabothian cysts should be considered in the differential diagnosis of large prolapsing cervical masses, particularly when a lesion is cystic. Although benign, they may mimic cervical fibroids, polyps and malignancy. Histopathological examination is essential for definitive diagnosis. Conservative excision can be effective for an accessible pedunculated lesion; in this patient, symptoms resolved and no recurrence or related complaints were reported at subsequent telephone follow-up.

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INFORMED CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical information and images.

ETHICS APPROVAL

Institutional ethics approval was waived for this case report in accordance with the policy of the institutional ethics committee.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

ECO: Conceptualization, Investigation, Data curation, Writing – original draft, and Visualization. ISI (Corresponding Author): Conceptualization, Methodology, Investigation, Writing – original draft, Writing – review & editing, Supervision, and Project administration. CCM: Investigation, Data curation, Writing – review & editing, and Visualization. DII: Investigation, Writing – review & editing, and Validation. ISC: Investigation, Writing – review & editing, and Validation. SAK: Investigation, Writing – review & editing, and Validation. All authors reviewed and approved the final manuscript and agree to be accountable for their respective contributions.

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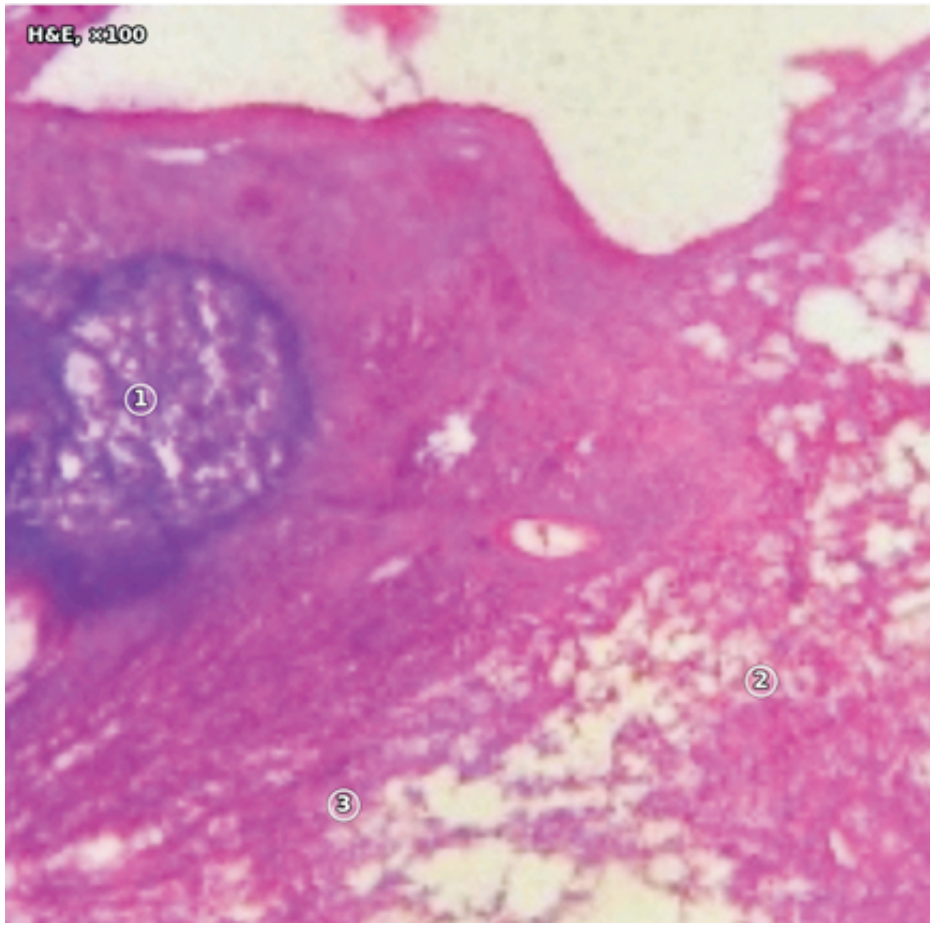

Figure 1. Photomicrograph of the excised cervical lesion (haematoxylin and eosin [H&E], ×100 original magnification) showing cyst epithelial lining focally eroded by inflammation (1), inflammatory/necrotic debris (2), and surrounding fibrous stroma (3), consistent with an infected Nabothian cyst.