Laparoscopic Excision of an Unusual Presentation of a Nabothian Cyst: Case Report and Review of the Literature

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ABSTRACT

Nabothian cysts are mucinous retention cysts formed through the accumulation of cervical mucus inside blocked cervical crypts leading to non-neoplastic mucinous cystic lesion in relation to the uterine cervix. The formation of Nabothian cysts is a common gynecological benign condition in women of reproductive age. While the presence of small-sized Nabothian cysts is usually clinically asymptomatic and requires no treatment or intervention, the diagnosis of larger Nabothian cysts can be mistaken with malignant tumors, including mucin producing carcinomas such as Adenoma malignum.

In this study, we report the case of a large Nabothian cyst that was correctly diagnosed preoperatively using ultrasonography and magnetic resonance imaging (MRI), and successfully treated through laparoscopic excision, avoiding the performance of unnecessary hysterectomy.

A 44-year old Lebanese patient presented with chronic dyspareunia and pelvic pain. An ultrasound was performed and revealed an 8cm multiloculated anechoic pelvic cystic lesion with no solid components. An

MRI was performed and showed an 8cm mass lateral to the right vaginal wall, suggestive of a Nabothian cyst. The patient was scheduled for laparoscopic removal of the Nabothian cyst. The patient tolerated the procedure well and was discharged under stable condition a few hours after the operation.

Careful preoperative examination, including the use of imaging methods such as ultrasonogoraphy 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. Use of laparoscopy as a minimally-invasive technique to excise such cysts is considered a valid option, allowing for a fast recovery for the patients.

INTRODUCTION

Nabothian cysts are mucinous retention cysts formed through the accumulation of cervical mucus inside blocked cervical crypts leading to non-neoplastic mucinous cystic lesion in relation to the uterine cervix. The formation of these cysts often result from the proliferation of squamous cells from the ectocervix, covering the columnar epithelium of the endocervix.[1]

The formation of Nabothian cysts is a common gynecological benign condition in women of reproductive age.[2] Nabothian cysts are often a few millimeters in size, but may reach up to 4cm or more in diameter based on some reported cases.[3] While the presence of small-sized Nabothian cysts is usually clinically asymptomatic and requires no treatment or intervention,[4] the presence of larger Nabothian cysts may impose significant enlargement and inflammation of the cervix resulting in pelvic pain.[2,5] Symptomatic Nabothian cysts may also appear as a late complication of supra-cervical hysterectomy due to the internalization of the transformational zone and blockage of the cervical canal leading to accumulation of cervical mucus.

For diagnosis, magnetic resonance imaging (MRI) has been adopted as an accurate technique to distinguish benign Nabothian cysts from malignant tumors, including mucin producing carcinomas, such as Adenoma malignum where different signal intensity on T2-weighted imaging inside the cervical stroma exists for each of the two conditions.[6,7] Some studies suggest that Nabothian cysts are incidentally detected in up to 12% of routine MRI scans.[1,8] Careful preoperative examination, including the use of imaging methods such as ultrasonogoraphy 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.

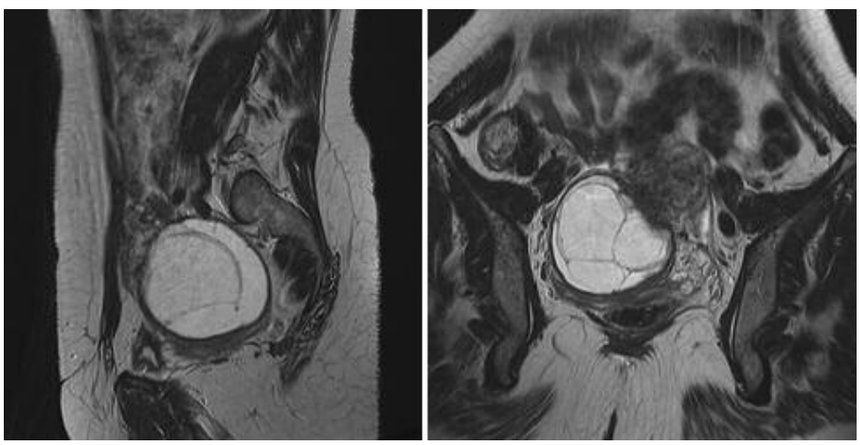

Figure 1. Preoperative sagittal and coronal MRI cuts showing an 8cm mass lateral to the right vaginal wall.

In this study, we report 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.

CASE PRESENTATION

A 44-year old Lebanese patient (G3 P2 A1) presented to the clinic with chronic dyspareunia and pelvic pain. Her pelvic exam showed a normal looking vagina and cervix. A large pelvic mass located behind the cervix in the midline, and shifted to the right side, was detected upon bimanual examination. Rectovaginal exam was within normal limits. An ultrasound was performed and revealed an 8cm multiloculated anechoic pelvic cystic lesion with no solid components. The origin of the mass could not be located. To locate the origin of the mass, an MRI was performed and showed an 8cm mass lateral to the right vaginal wall, suggestive of a Nabothian cyst (Fig. 1). Laboratory tests showed that tumor markers were within normal limits. Complete blood count (CBC), prothrombin time (PT), partial thromboplastin time (PTT), Cal25, carcinoembryonic antigen (CEA), and Ca19-9 were all normal. Satisfactory Pap smear was negative for intra-epithelial lesion or malignancy. The patient's past medical and surgical history was significant as she had two cesarean sections and an appendectomy.

The patient was scheduled for laparoscopic removal of the Nabothian cyst. Intraoperatively, a vertical uterus that

was pushed by the mass anteriorly was noted. Lysis of adhesions was performed. The visualization of the pelvic mass showed its adherence to the upper posterior wall of the vagina and cervix (Fig. 2). The pelvic mass was consequently intentionally perforated to induce seepage of the mucus material from the mass that was suctioned. After extensive dissection, the cyst wall was peeled off the surrounding mucosa. An intentional opening of the vagina at the level of insertion of the cyst was performed. The mass was consequently delivered vaginally, followed by interrupted suturing of the vaginal opening. The procedure was free of complications, and postoperative course was smooth. The patient tolerated the procedure well and was discharged under stable condition nine hours after the operation.

An official pathology report of the mass showed a multiloculated cyst lined by benign endocervical-like mucinous epithelium, consistent with large and deep Nabothian cysts, in the absence of any evidence of malignancy (Fig. 3).

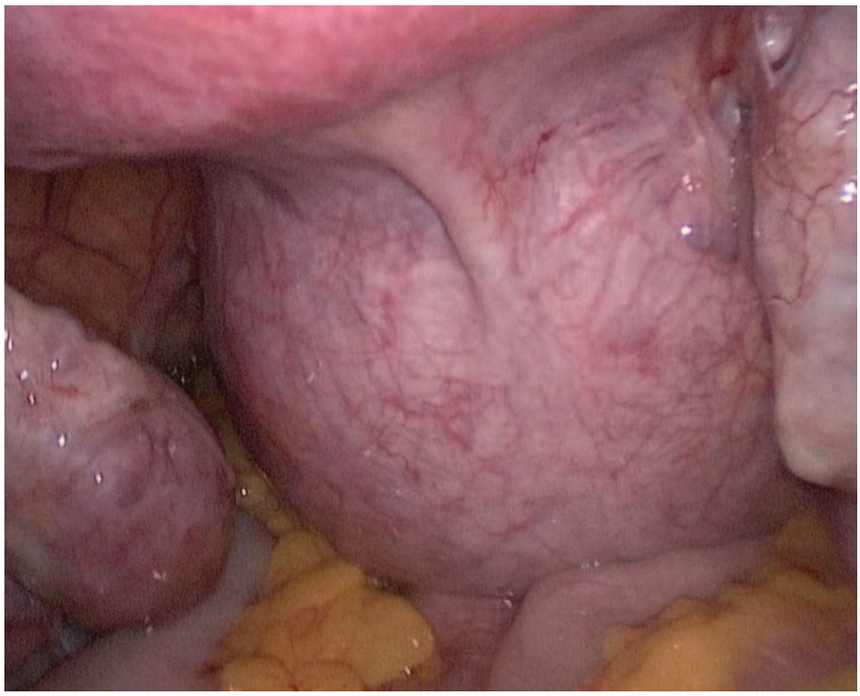

Figure 2. Intraoperative imaging showing the uterus on top, the mass below the uterus, and both ovaries from each side of the mass.

DISCUSSION

This report presented the case of a large Nabothian cyst, and its diagnosis could have been mistaken with other glandular malignant cervical lesions that can mimic Nabothian cysts.[2] Multiloculated cystic lesions of the cervix differential diagnosis include Nabothian cysts, adenoma malignum, also known as minimal deviation carcinoma, in addition to other benign tumors of the cervix and well-differentiated adenocarcinoma.[9] Adenoma malignum is a subtype of mucinous adenocarcinoma of the cervix, with a relatively low prevalence ranging from 1% to 3% of all cervical adenocarcinomas.[10,11] It has been recognized in the literature that benign-looking tumors can mimic multiple Nabothian cysts.[12,13] Adenoma malignum occurs in women of reproductive age, but more particularly during the post-menopausal period with a peak of prevalence at the age of 42–44 years.[14] In our case, the patient was 44 years old, falling within the age range of both pathologies (i.e., Nabothian cysts and Adenoma malignum). The clinical manifestations of Adenoma malignums are bleeding (menometrorrhagia or post-menopausal bleeding), watery vaginal discharge, pelvic pain, and discomfort.[15] Along the same line, symptoms of large Nabothian cysts can be very similar, mainly as a result of its compression on different organs, such as the rectum, resulting in tenesmus, pelvic pain, and discomfort.[7]

Use of imaging techniques, including ultrasonography and MRI, were reported as useful tools to differentiate between Nabothian cysts and Adenoma

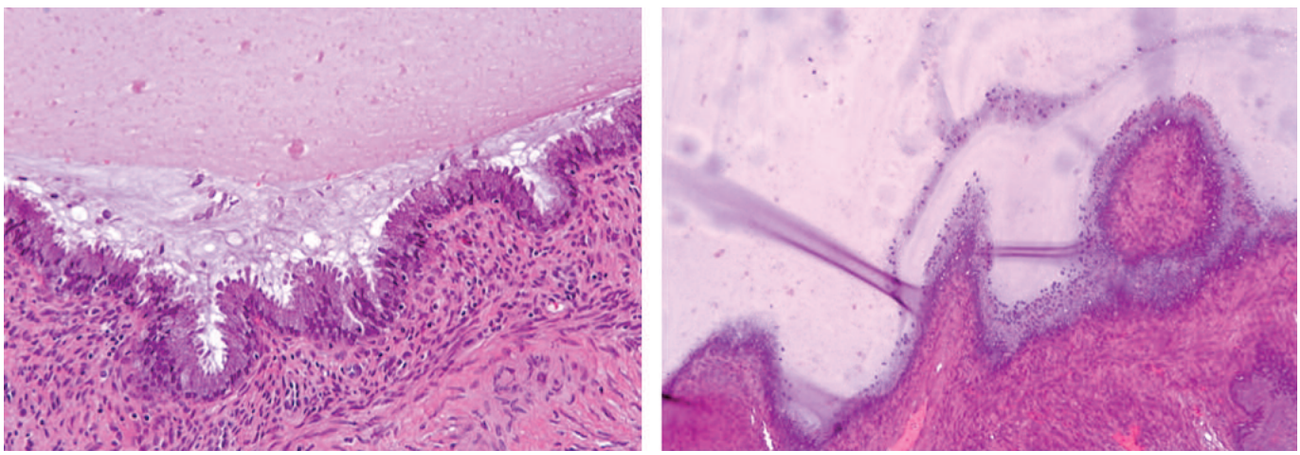

Figure 3. Pathology slides showing benign endocervical-like mucinous epithelium, consistent with large and deep Nabothian cyst.

malignum.[6] Ultrasound shows multilocular cystic lesions with or without solid components or predominantly solid lesions with heterogeneous echogenicity and a moderate or high positive color Doppler flow in the cases of adenoma malignum. In contrast, sonographic features of large Nabothian cysts are usually anechoic, are well circumscribed cystic lesions in relation to the endocervix, and exhibit a negative color Doppler flow. MRI, on the other hand, shows multiloculated cystic lesions with solid components of different sizes extending from the endocervical gland to the cervical stroma in the adenoma malignum. Opposingly, well circumscribed single or multiple purely cystic lesions within the cervical stroma are seen in the case of Nabothian cysts.[7] Signal characteristics of MRI in both conditions are the following:

T1: iso-intense to slightly hyper-intense versus iso-intense to hypo-intense relative to the uterus in adenoma malignum and Nabothian cysts respectively.

T2: markedly hyper-intense versus hyper-intense relative to the uterus in adenoma malignum and Nabothian cysts respectively.

T1 + gadolinium: contrast enhancement of solid components versus no enhancement in adenoma malignum and Nabothian cysts respectively.

Besides ultrasonography and MRI, other examinations, including colposcopy, CT scan, and ultrasound, are recommended to determine the nature of the cysts.[16] Yet, it remains difficult, in some cases of complex large Nabothian cysts, to differentiate between it and the adenoma magnum merely from clinical presentation and radiologic features with a high level of certainty preoperatively. Thus, pathological diagnosis is crucial for detecting cancerous infiltrations, revealing irregular distorted glands in different shapes and sizes with a pathognomonic hairpin shape, lined with mucin containing columnar epithelial cells with basal nuclei, in cases of adenoma malgnum. These histologic features were, however, absent in the pathological diagnosis of the Nabothian cyst seen in our specimen. Finally, Pap smear should be performed as a way of detection of cervical carcinoma, which helps narrow the diagnosis preoperatively.

Regarding the intervention and treatment of large Nabothian cysts, vaginal approach can be performed. However, laparoscopic approach is a viable option as well. This is especially favorable in case of large Nabothian cysts with critical location deep within the cervix, behind the uterus, and in front of the rectum, which can lead to major anatomical changes, favoring the use of the laparoscopic approach for its better exposure of the pelvic area.

CONCLUSION

In conclusion, meticulous pelvic examination, as well as ultrasonographic imaging and MRI, are necessary preoperative steps for patients presenting with large Nabothian cysts. In addition, large Nabothian cysts diagnosis should be confirmed by histology. These techniques allow the identification of atypical presentation of benign, but large and complex, Nabothian cysts and its differentiation from other malignancies, consequently avoiding unnecessary hysterectomy. From this case report, we recommend considering Nabothian cysts as a potential differential diagnosis of pelvic masses. Use of laparoscopy as a minimally-invasive technique to excise such cysts is considered a valid option allowing a fast recovery for the patients. STI

AUTHORS' DISCLOSURES

The authors have no conflicts of interest to disclose.

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