Case Reports in Women's Health 24 (2019) e00141

Contents lists available at ScienceDirect

Case Reports in Women's Health

journal homepage: www.elsevier.com/locate/crwh

Symptomatic vulvar mucinous cyst: A case report and review of the literature

Kendrick Campbell [a,*], Joseph Panza [b], Carl Zimmerman [b]

[a] Vanderbilt University School of Medicine, United States
[b] Vanderbilt University Medical Center, Department of OBGYN, Division of Female Pelvic Medicine and Reconstructive Surgery, United States

ARTICLE INFO

Article history:
Received 10 August 2019
Received in revised form 26 August 2019
Accepted 3 September 2019

Keywords:
Mucinous cyst
Vulvar mass
Vulva

ABSTRACT

Background: Vulvar mucinous cysts are rare, benign, noninvasive masses. They can be mistaken for cysts of Bartholin gland, Skene gland, vestibular, or canal of Nuck. Generally, they may be left untreated, but observed. However, if symptomatic, they may require surgical removal.
Case: We report a large vulvar mucinous cyst in a 29-year-old woman with no contributory medical history. Excision of the mass was performed because its size had begun to cause symptoms. The diagnosis of a mucinous cyst was based on radiological and clinicopathologic features. The patient developed a post-operative vulvar hematoma and was discharged 2 days after the surgery with a Foley catheter in place. Continued follow-up was maintained for the hematoma, which drained spontaneously and resolved without incident. There has been no recurrence of the cyst after completion of short-term surgical follow-up.
Conclusion: Vulvar mucinous cysts are rare masses. We present the diagnosis and treatment of a large vulvar mucinous cyst. The cyst was completely removed during surgery, but long-term surveillance for recurrence is currently being conducted.

1. Introduction

In the last few decades, gynecological visits for vulvar conditions have increased [1]. Although most are not for benign vulvar masses, it is important to consider a comprehensive differential diagnosis. Their etiology can by classified into embryonic and non-embryonic origins. Cysts of embryonic origin are more common and arise from structures like the Mullerian duct, the mesonephric duct, and the urogenital sinus. They are Mullerian cysts, mesonephric or Gartner's duct cysts, Bartholin's duct cysts, vestibular mucous cysts, Skene's duct cysts, and canal of Nuck cysts. Cysts of non-embryonic origin are epidermal inclusion cysts, vaginal endometriosis, and vaginitis emphysematosa [2].

Benign vulvar tumors have no official clinical classification scheme, but can be divided into mucosal, cystic, and solid [1]. When compared with other vulvar lesions, mucosal masses are relatively uncommon, and their specific embryologic structures remain controversial [3]. Here, we report a case of a large vulvar mucinous cyst, describe the surgical treatment, and present a literature review on vulvar cystic masses. The case reported here did not align well with any of the mucosal cystic categories: Bartholin, epidermoid inclusion, canal of Nuck, Skene, and vestibular mucous cysts. To the authors' knowledge, a similar entity has not been reported. Written consent to report this case was attained from the patient.

2. Case

A 29-year-old woman, gravida 0, para 0, presented with a left vulvar mass which had been growing slowly in size for a year. She reported that it had recently become red, enlarged and painful. She denied history of trauma, unusual activities, urinary symptoms, dysmenorrhea, abdominal pain, difficulty with defecation, or any other relevant symptoms. There was no pertinent medical, surgical, family, or social history. On the initial visit to a clinic, the location of the mass did not suggest a Bartholin gland cyst, as it was originating from a left lateral position on the vulva. Pelvic exam was otherwise normal. An incision was made and a thick, clear, amber, and odorless fluid was drained. Cytology was not performed. The next month, the mass recurred, though this time without inflammation or tenderness. On exam, a diffusely enlarged left labia majora was seen with a non-reducible cystic mass 2.5 cm by 4 cm in size (Fig. 1). The origin of the cyst was unclear.

A vulvar and pelvic ultrasound examination was performed at this time with referral to female pelvic medicine and reconstructive surgery. The right labia, uterus, fallopian tubes and ovaries, and cul-de-sac were unremarkable. The left side of the vulva revealed a complex cyst (Fig. 2a) containing internal echoes and at least one septation with internal vascularity (Fig. 2b). It measured 6.2 cm by 2.6 cm by 2.0 cm.

* Corresponding author at: Vanderbilt University Medical Center, OB/GYN Department, 1161 21st Ave., South, B1100 MCN, Nashville, TN 37232-2521, United States.
E-mail address: Kendrick.m.campbell@vanderbilt.edu (K. Campbell).

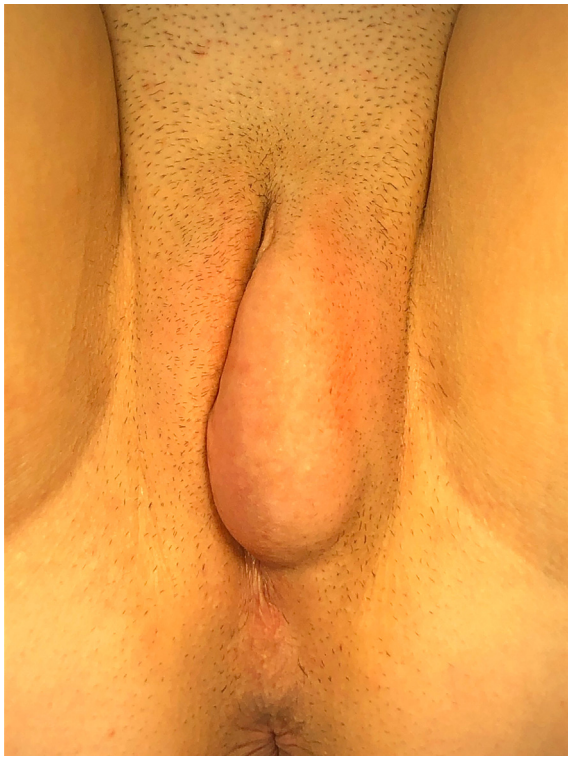

Fig. 1. Image of left vulvar mass.

Similar to the physical exam, the appearance of the cyst on ultrasound was not indicative of any specific cystic mass, and further lowered suspicion of a Bartholin gland, Skene gland, epidermoid, and canal of Nuck cyst. Ultrasound also confirmed that it was not a solid structure, such as a lipoma. Given the cystic nature on exam and ultrasound, it was clear that permanent treatment with no risk of recurrence would require total excision of the cyst and cyst wall.

The patient underwent surgical excision of the mass. The cyst wall was found to be extremely thin, and the cyst was perforated during surgery. Clear mucinous fluid was drained. Total excision necessitated a deep dissection; the clitoris, bulbospongiosus muscle, labial fat pad, and ischioanal fossa were identified. The intraoperative course was uncomplicated, but the patient continued to have a small amount of bleeding prior to skin closure. Deep-layer closure was not practical because of exposure of the above-mentioned structures; therefore, hemostatic agents and a pressure dressing were applied after attainment of maximum hemostasis. A Foley catheter was kept in place post-operatively. Her post-operative course was complicated by a left labial hematoma that stabilized in size. She was discharged two days after surgery, after her hemoglobin had stabilized. The patient was discharged with a Foley catheter given the swelling around the urethra and concern for urinary retention.

Pathology results, similar to physical exam and ultrasound, were unable to completely categorize the cyst. The differential diagnoses included Bartholin gland, Skene gland, and mucinous cyst and clinical correlation was advised. The pathology diagnosis read, “fibroadipose tissue with focal squamous and mucinous epithelial lining and associated mucus glands consistent with vulvar cyst wall.” Serial follow-up visits were performed to monitor the hematoma. It continued to shrink and spontaneously drained from a skin defect medial to the incision on post-operative day eight. Labial size had reduced enough by post-operative week 2 to discontinue the Foley catheter. Repeat visits since have been unremarkable and anatomy has normalized. Longer-term visits will continue to check whether the cyst returns.

3. Discussion

This case of a large vulvar mucinous cyst was challenging to diagnose and excise. On physical exam, the cyst was larger than most common vulvar cysts. The location was not that of a typical vulvar cyst, being too anterior for a Bartholin gland cyst, too lateral and posterior for a Skene gland cyst, and too lateral for a vestibular mucinous cyst [2]. It did not have the discoloration of a hemangioma, was too fluctuant to be a lipoma, and was not pedunculated like a giant angiomyxoma or giant fibroepithelial polyp of the vulva [4,5].

The cyst also fit no common descriptors on ultrasound. On ultrasound, Bartholin gland and epidermal cysts are anechoic and simple, generally without septations. Bartholin gland abscesses may have septations and will also exhibit overlying inflammation. A canal of Nuck cyst will show continuation into the peritoneum and will fluctuate with perineal fluid. Hemangiomas show tortuous vessels on doppler, and lipomas model whorl-shaped lobular tissue without vascularization [6].

Histologically many cysts can look very similar. For example, the mucinous epithelium of a mucous cyst is identical to Bartholin glands [3]. Indeed, the pathology on this case was indeterminate between a Bartholin gland, Skene gland, and mucinous cyst. Of note, all of these cysts are embryologic, which points us to the conclusion that this unidentifiable cyst was also embryologic. Regardless, clinical correlation and a good physical exam are imperative. In this case, the Bartholin and Skene gland openings were identified ipsilaterally, and were completely normal.

Magnetic resonance imaging was considered for preoperative diagnosis, but not deemed necessary. It would have been necessary to

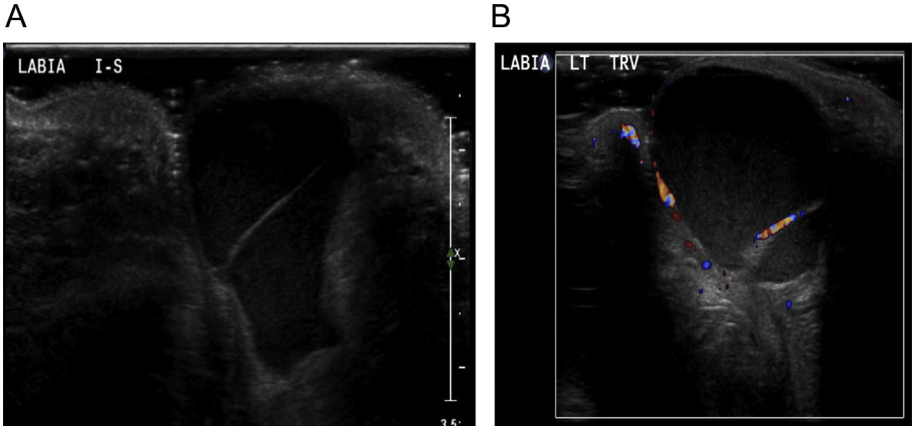

Fig. 2. Left vulvar ultrasound. (A) Coronal view illustrating depth. (B) Transverse view illustrating vascularized septation.

differentiate between a Skene gland cyst and urethral diverticulum [5], both of which this case was not.

If a gland cyst, this lesion could have been treated with marsupialization. If specifically a Bartholin gland cyst, it could have been treated with silver nitrate and CO_2 laser [7]. Excision was chosen for this case, for which the thin nature of the cyst wall proved technically challenging. Although every effort was made to remove the entire cyst wall, follow-up and patient self-observation are needed to document lack of recurrence. Lastly, the hematoma likely occurred due to the anastomotic nature of the vulvar blood supply, exposure of structures not amenable to deep-layered closure, and the large size of the cyst. Use of a hemostatic agent and a pressure dressing are advised in similar circumstances.

In conclusion, large vulvar mucinous cysts are exceedingly rare benign tumors that can be carefully excised if symptomatic. Knowledge of vulvar anatomy is essential in order to completely excise cyst walls in this part of the body. Upon excision, end-operative hemostasis should be ensured with a coagulative agent and a pressure seal dressing. Long-term follow-up for cyst recurrence should be carried out.

Contributors

Kendrick Campbell was first author, researched the literature and drafted the manuscript.

Joseph Panza reviewed and revised the manuscript and obtained patient consent.

Carl Zimmerman was the senior author, reviewed and revised the manuscript.

Funding

No funding was sought or secured in relation to this case report.

Patient Consent

Written informed consent has been obtained from the patient for publication of her ultrasound images, clinical course, and anatomic pictures.

Provenance and Peer Review

This case report was peer reviewed.

Declaration of Competing Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

References

[1] V.A. Maldonado, Benign vulvar tumors, Best Pract. Res. Clin. Obstet. Gynaecol. 28 (7) (2014) 1088–1097, https://doi.org/10.1016/j.bpobgyn.2014.07.014.
[2] Scott R. Anderson, Benign vulvovaginal cysts, Diagn. Histopathol. 23 (1) (2017) 14–18, https://doi.org/10.1016/j.mpdhp.2016.11.003.
[3] R. Rouzier, M. Azarian, F. Plantier, E. Constancis, B. Haddad, B. Paniel, Unusual presentation of Bartholin's gland duct cysts: anterior expansions, BJOG Int. J. Obstet. Gynaecol. 112 (2005) 1150–1152, https://doi.org/10.1111/j.1471-0528.2005.00622.x.
[4] Y. Xie, Y. Qian, B. Zou, A giant aggressive angiomyxoma of vulva in a young woman, Medicine 98 (2) (2019) https://doi.org/10.1097/md.0000000000013860.
[5] M. Rexhepi, E. Trajkovska, F. Besimi, N. Rufati, Giant fibroepithelial polyp of vulva: a case report and review of literature, PRILOZI 39 (2–3) (2018) 127–130, https://doi.org/10.2478/prilozi-2018-0051.
[6] V. Cheung, Ultrasonography of benign vulvar lesions, Ultrasonography (Seoul) 37 (4) (2018) 355–360, https://doi.org/10.14366/usg.18001.
[7] N.M. Speck, K.P. Boechat, G.M. Santos, J.C. Ribalta, Treatment of Bartholin gland cyst with CO2 laser, Einstein (Sao Paulo) 14 (1) (2016) 25–29, https://doi.org/10.1590/S1679-45082016AO3568.