Clinical History

A 30-year-old G0 was referred by her family physician for a large vulvar mass, which was causing discomfort with sitting or riding a bicycle. She had no complaints of dyspareunia or urinary symptoms. She requested removal due to the size and persistence of this mass of more than 1 year. On examination, there was a golf ball-sized mass medial to the right labia majora that extended medially to the urethral meatus and anteriorly to the clitoris. It was fluctuant to palpation and nontender. There was no erythema or induration of the overlying tissues.
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Additional Evaluations

- Urologic consultation with magnetic resonance imaging (MRI) confirmed the ultrasound finding that there was no connection of the mass with the urethra.

Operative Findings

- A 4.5-cm right-sided cystic mass located under the upper right labia minora, extending to the clitoris superiorly, urethra medially, and bone posteriorly.
- The cyst was not in direct contact with the urethra.
- The cyst ruptured during excision and was filled with a creamy colored fluid with a brown tinge. There was no odor.
Diagnosis

Skene’s gland cyst

Vaginal cysts are common causes of discomfort due to their size and position. They can also become infected, with abscess formation. In our patient, the cyst was located externally within the anterior compartment of the vulvar vestibule in the area between the vulva and the urethra.

The primary differential diagnosis included:
1. Skene’s gland cyst;
2. Urethral diverticulum; and
3. Cyst of the canal of Nuck.
Two other common vaginal cysts are Bartholin’s gland cysts and Gartner’s duct cysts. These were not included in our differential diagnosis because they are found in completely different locations. Bartholin’s gland cysts are located in the posterior and lateral vulvar vestibule. Gartner’s duct cysts are located within the vagina on the posterior or lateral vaginal wall.

Note the location of the Skene’s and Bartholin’s glands on this diagram.
This is a 2-dimensional sagittal transperineal scan between the upper right labia and urethra showing a well-circumscribed cystic mass with homogeneous echoes, consistent with a mucus-filled cyst.
On this 3-dimensional (3D) multiplanar image, the size of the cyst and its relationship with adjacent structures can be determined. With rotation of the images, it was clear that there was no communication between the urethra and the cyst, therefore ruling out a urethral diverticulum. The subsequent MRI confirmed this finding.

The cyst was also well contained and did not extend laterally within the inguinal canal, therefore excluding a canal of Nuck cyst.
Soft tissue rendering of the 3D image was used to enhance the visualization of the anatomy and relationship between the mass, urethra, and surrounding tissues.

This image is a soft tissue volume slice from the coronal image on the multiplanar display. This was obtained by rotating and manipulating the image after the patient encounter with soft tissue postprocessing tools on the ultrasound machine. Soft tissue rendering more clearly defined the perineal anatomy, and by rotating this image on the $|x + y|^2$ axis, the cleavage plane of the cyst and urethra was seen. This confirmed the lack of communication of the cyst with the urethra, excluding a urethral diverticulum. This information also assisted in surgical mapping.
The final diagnosis was a Skene’s gland cyst. It was resected without complications, taking care to dissect prudently near the urethra. The cyst was drained, and the cyst wall was removed and sent to pathology. With removal of the cyst wall, the recurrence rate is very low.

It is important to note that these vaginal masses are difficult to distinguish by pathologic examination of the cyst. By the time these cysts are removed, the pressure within the cyst causes the lining to stretch and atrophy, so the appearance becomes very nonspecific. The final diagnosis of these cysts on pathologic reports will reflect the clinical data reported regarding their location.
References
