

PRIMARY VAGINAL STONE IN A YOUNG ACTIVE WOMAN

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Vaginal stones are rare. Most gynecologists may never see a vaginal stone case throughout their career. The earliest reported case was in 1900, in which a stone formed in a vaginal cystocele [1]. Most vaginal stones are derived from the deposition of urinary salt. Stones consisting of phleboliths in the venous plexus of the vaginal wall [1] and primary vaginal calculus of hematic origin in an unmarried woman with a congenital vaginal septum [2] were reported. They were classified as primary and secondary stones. Primary vaginal stones are believed to originate from the stasis of urine in the vagina without an obvious nidus, whereas secondary vaginal stones are the result of crystallization of urinary constituents around a foreign body in the vagina [3].

A 24-year-old unmarried woman visited our gynecologic clinic because of dyspareunia. She had undergone surgery for imperforate anus shortly after her birth, and she had regular menstruation during her adolescence. Pelvic examination found a transverse vaginal septum at the middle portion of the vagina with a central perforation of approximately 1 cm in diameter. Her urethra opening was about 1 cm below the usual site. It became part of the vagina, close to the vaginal orifice. This condition is so called hypospadias in female patients. Magnetic resonance imaging showed a double uterus, bilateral hydrosalpinx, and two vaginal stones in the upper part of the vagina (Figures 1 and 2). The perforated hole on the transverse vaginal septum was dilated using a Hegar dilator and finger. Two smooth surfaced, darkish stones with offensive odor measuring 4×3×1 cm and 2.1×0.8×0.4 cm were found behind the septum and were removed using ring forceps (Figure 3). Stone analysis was performed at the



Figure 1. Axial T2-weighted magnetic resonance image of the pelvis demonstrates a hypointense septum extending into the cervix, with a convex uterine fundus (arrow) representing complete septated uterus. An oval lesion about 3 cm in length with very low signal intensity within right aspect of upper vagina suggests stone formation (arrowhead).

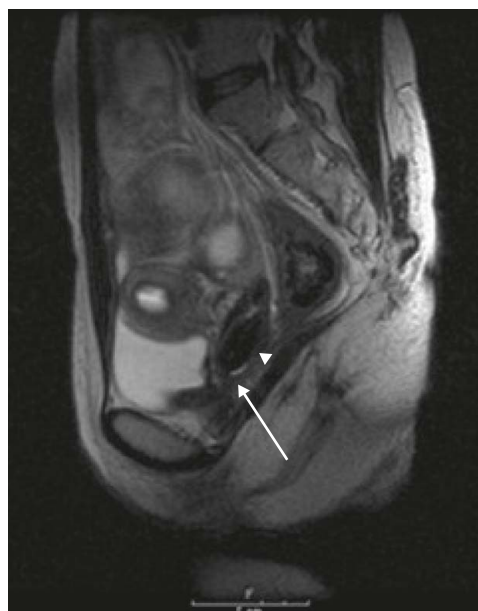


Figure 2. Sagittal T2-weighted image shows minimal fluid, inferior to the stone (arrowhead) and probably superior to the vaginal septum (arrow).



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Chi-Mei Medical Center using infrared spectroscopy. The stone consisted of a whitish core, blackish shell, with a brown layer between them. They were composed of carbonate apatite (Figure 4).

Vaginal stones are rare, because the normal anatomy and physiology of a vagina under normal hygienic conditions does not facilitate stone formation. After reviewing reports in the literature, we found that every case of vaginal stones reported had various causative factors. In 1932, Esau reported a vaginal stone formed by a vesical calculus causing decubitus ulceration into the vagina [1]. In 1946, Dexeus reported that a vaginal stone developed after traumatic amputation of the lower third of the urethra and cicatricial narrowing the vaginal introitus [1]. In 1953, Youngblood [4] reported a vaginal calculus in a child with urinary incontinence due to a neurogenic bladder. In 1956, Hill [5] reported a vaginal stone found in a post-hysterectomy case with vesicovaginal fistula, and Eaton [6] reported a vaginal stone in a 7-year-old child with an ectopic vaginal ureter. In 1964, Savel [2] reported a primary vaginal stone of hematic origin in a 33-year-old woman with a congenital vaginal septum. In 1983, Bissada and Hanash [7]

removed a vaginal stone from a 12-year-old girl with urinary incontinence secondary to spina bifida. In 1994, Dalela et al [8] presented a 13-year-old girl with a vaginal stone which had formed around a cylindrical tin container, which was incidentally left in the vagina during masturbation 2 years previously. In 2000, Plaire et al [9] presented a 4-year-old girl with bladder exstrophy undergoing staged closure. Vaginal stone formation in the girl was due to urinary stasis in the vagina from an anterior, vertically oriented vaginal introitus. In 2005, Lin et al [10] presented a 43-year-old woman with cerebral palsy and urinary incontinence, who had a huge vaginal stone. Long-term recumbent position caused urinary stasis and the formation of the stone in the woman. In 2006, Patankar et al [11] presented a 52-year-old woman with vesicovaginal fistula who had secondary vaginal stones caused by retained gauze.

Our patient was a physically active 24-year-old woman. The perforation hole in the center of the transverse septum was 1 cm in diameter. It was not easy for urine to collect behind the vaginal septum. The special position of the urethra orifice (hypospadias) provided a way for urine to flow back into the vagina, which resulted in chronic pooling of urine behind the transverse vaginal septum. Stasis and infection are important factors in urinary stone formation [12] as well as in vaginal stone formation. In our case, the perforation hole in the vaginal septum had been dilated. After removal of the stones and repair of the perforation, coitus could be performed without difficulty and vaginal stones would have less chance to recur.



Figure 3. Two flat, ovoid, darkish vaginal stones.

Acknowledgments

Stone analysis was performed at the Chi-Mei Medical Center using infrared spectroscopy. We were able to determine the nature of the stones, which provided

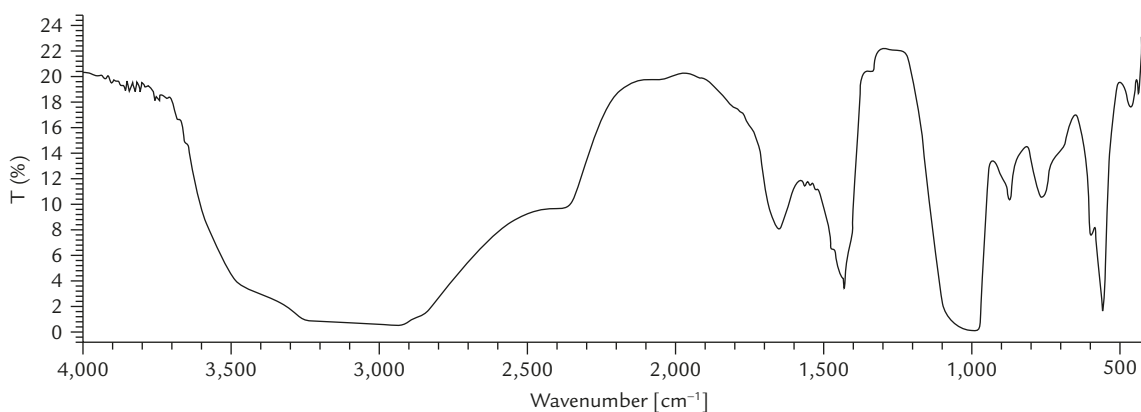


Figure 4. Infrared spectrum served as a fingerprint to identify the molecule. The intensity of the transmitted (T) light absorbs at 580, 1,020, 1,420 and 2,920 in wavenumber. It is characteristic of carbonate apatite.

important information for this report, with the help provided by the medical staff at the center.

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