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 $4 \times 3 \times 1$ cm and $2.1 \times 0.8 \times 0.4$ 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).
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).


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.

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...
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References