

Misdiagnosis of a primary vaginal stone leading to a suspicion of sexual assault in a heavily disabled woman

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Background

- Vaginal foreign bodies can be found in patients of various age groups and the nature of the foreign body is often age-related (toys in infants vs. tampons in women)^{1,2}
- In most of the cases, patients are symptomatic (abdominal pain, foul-smelling vaginal discharge, vaginal bleeding)³
- Aside from infectious risks, patients with chronic vaginal foreign bodies encounter other complications (rectovaginal or vesicovaginal fistulas for example)^{1,3}
- Vaginal stones are rare findings and thus often mistaken for exogenous foreign bodies
 - Risk of misdiagnosis
 - Risk to suspect sexual assault which will lead to a series of unnecessary investigations
- Vaginal stones can be divided into two types⁴
 - Primary or endogenous vaginal stones secondary to urine stasis in the vagina, leading to deposits of inorganic salts. There is no preexisting foreign body.
 - Secondary or exogenous vaginal stones due to inorganic salt deposits accumulating around the surface of a foreign body (such as surgical material)

Case Report

- A 26-year-old female patient, suffering from severe intellectual disability due to a chromosomal abnormality, was hospitalized because of a bilateral pulmonary infection.
- Two days prior, she was allegedly involved in a non-declared car-accident with a medical transport having caused dental injuries and a zygomaticomaxillary complex fracture.
- Short after admission, her medical condition worsened and she was put on ventilator support. On the Whole-Body Scan, a pear-shaped foreign body of the size of an avocado seed was incidentally discovered in her vagina.
- The object was removed upon gynaecological examination, which also showed two ecchymotic areas at 03h00 and 09h00 on the inside of the labia minora. A small laceration of the hymen was described as well.
- Sexual assault was suspected and the case was reported to the authorities. The expertise of a medical examiner was subsequently required.
 - A forensic examination of the patient on ventilator support was performed two days after the admission, including a sexual assault kit on the prosecutor's insistent request



Figure 1: Macroscopic aspect of the vaginal stone before (A) and after section (B)

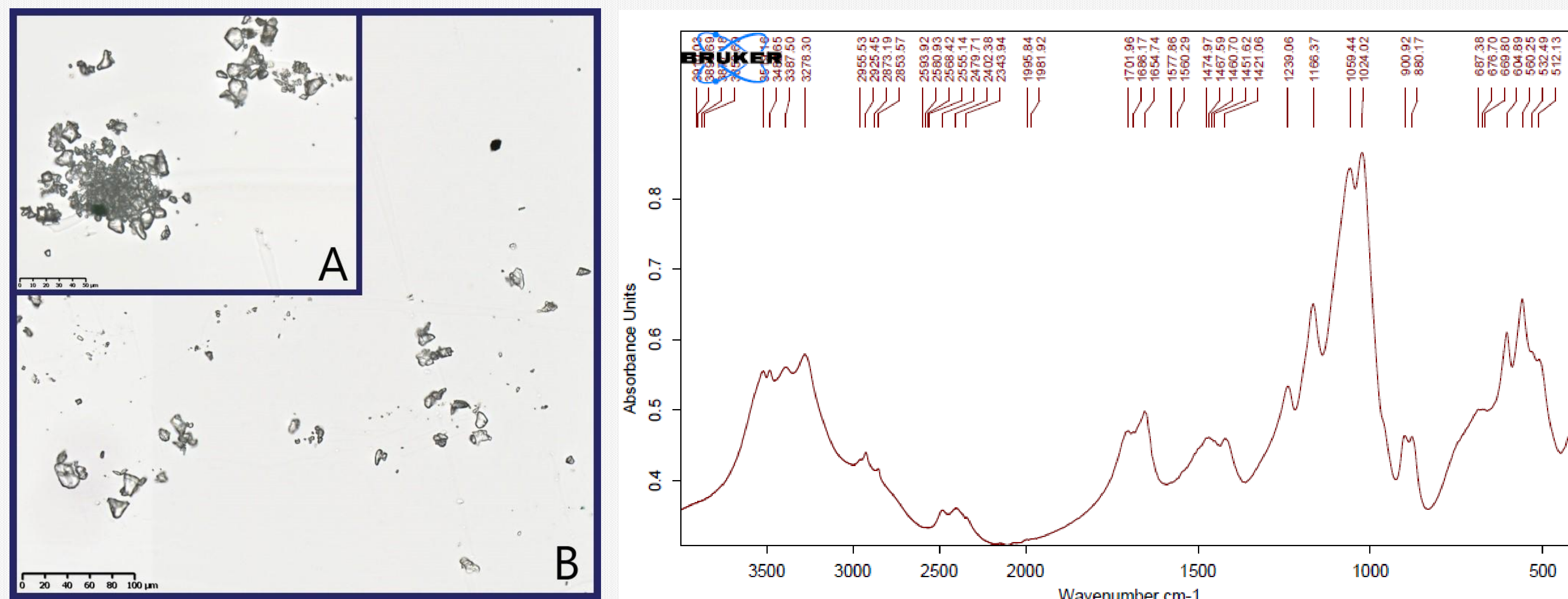


Figure 2 : 400x (A) and 200x (B) magnification of an unstained cytology slide

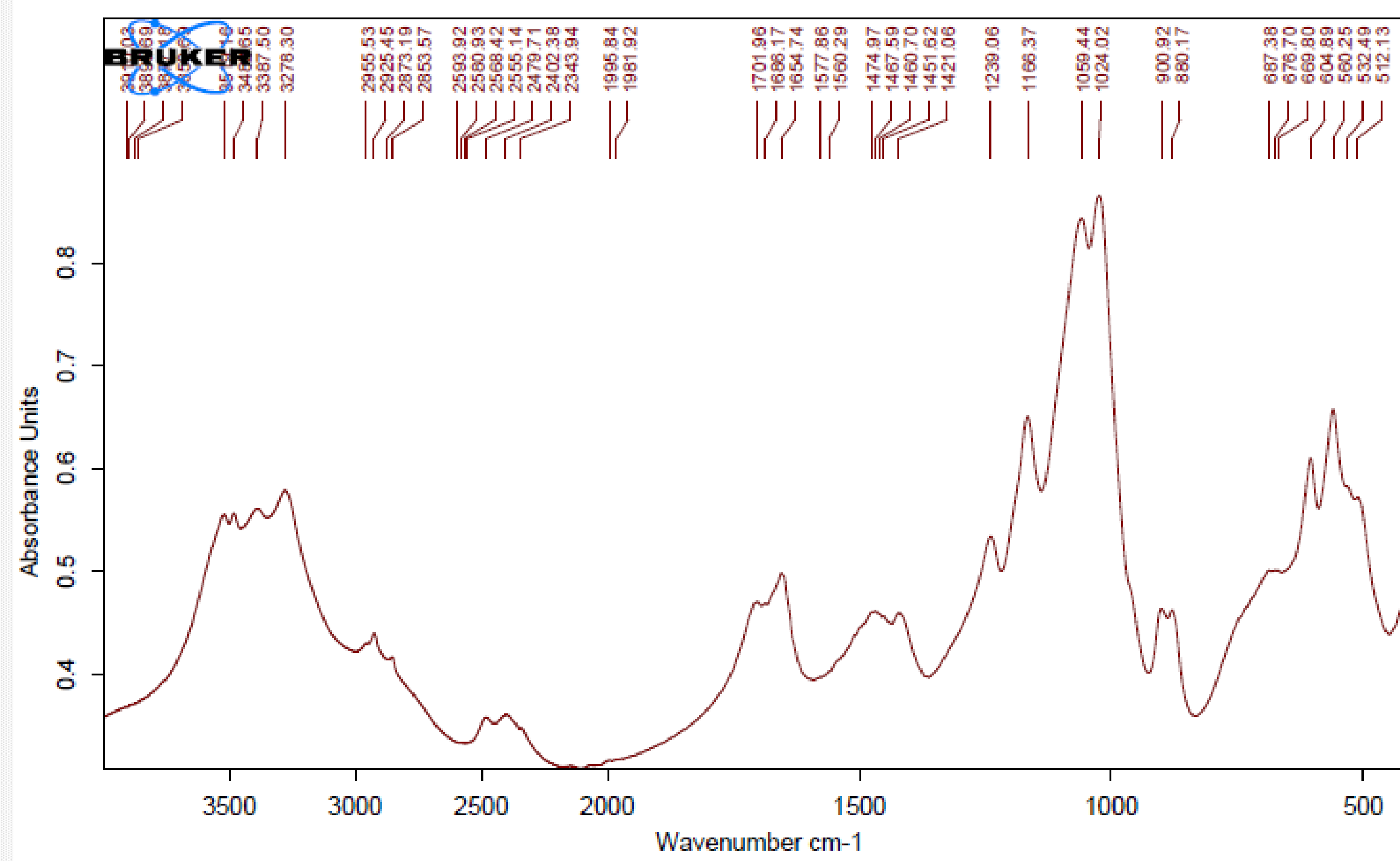


Figure 3: Graph of the spectrophotometric analysis of the vaginal stone

- The non-identified object was sent to the pathology department for further analysis
 - Stone-like structure, rough surface, foul-smelling, brownish in color and the shape of a pear (Figure 1A)
 - Different, concentric layers upon section (Figure 1B) without any exogenous material in the central part
 - Cytological analysis showing crystals of different shapes and sizes (Figure 2)
- Diagnosis of a primary vaginal stone with the expertise of a gyn- and uropathologist
- Samples were sent to the Department of Laboratory Medicine and Pathobiology to analyze the composition
 - Samples taken from the periphery to the center
 - Spectrophotometry showing newberyite, some carbapatite and traces of proteins in all of the samples (Figure 3)

Discussion

- The composition of this primary vaginal stone can be compared to the one of a classical “*infection stone*” or struvite urinary stone^{5,6,7,8}
 - Frequent in the urinary tract (15-20% of all urinary stones)
 - Infection by urease producing bacteria (such as Klebsiella or Proteus mirabilis) that hydrolyze urea to carbon dioxide and ammonium which will eventually lead to an alkalization of urines
 - Leakage of infected urines in the vagina favored by immobilization and incontinence which will cause an alkalization of the vaginal pH, favoring formation and sedimentation of magnesium ammonium phosphate (= struvite)
 - Struvite ↔ newberyite depending on the pH of the environment
 - Subsiding of the infection with a normalization of the vaginal pH favoring the transformation to newberyite

Take Home Messages

- ✓ Be careful when reporting alleged cases of sexual abuse to the authorities, especially in the case of a vaginal foreign body
- ✓ Consider the possibility of a vaginal stone in heavily disabled, bed-ridden patients suffering from incontinence
- ✓ A correct diagnosis can avoid the performance of unnecessary examinations on the patient

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