



Congenital bilateral absence of the vas deferens (CBAVD) with bilaterally present seminal vesicles

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ABSTRACT

Congenital bilateral absence of the vas deferens (CBAVD) is a rare obstructive anomaly contributing to male factor infertility. Various congenital anomalies associated with CBAVD involve the seminal vesicles and epididymis. Physical examinations are often not reliable. However, transrectal ultrasonography (TRUS) can distinguish seminal vesicle and epididymal anomalies. In this clinical report, a rare case of CBAVD without seminal vesical anomalies is presented. PE and TRUS revealed no remarkable findings. The patient underwent vaso-epididymal anastomosis for the seminal tract obstruction and was accidentally diagnosed with CBAVD. Although ultrasonography is a reliable approach, surgical methods are critical for the diagnosis of CBAVD.

Introduction

Congenital bilateral absence of the vas deferens (CBAVD) is a rare obstructive anomaly that contributes to male factor infertility. The prevalence of CBAVD in the general population is approximately 1 in 1000, which accounts for most infertile males with cystic fibrosis and 1–2% of all infertile males. Various congenital anomalies can occur during mesonephric duct development, and those associated with CBAVD involve the seminal vesicles and epididymis. Physical examinations, including palpations that distinguish the vas deferens from the other cord-like structures, are often not reliable, especially in obese patients or those with high-riding scrotums. However, transrectal ultrasonography (TRUS) and scrotal ultrasonography can reliably distinguish seminal vesicle and epididymal anomalies in CBAVD patients.

Herein, a rare case of CBAVD without seminal vesical anomalies is presented. Pre-operative physical examinations and TRUS revealed no remarkable findings. The patient underwent scrotal exploration and vaso-epididymal anastomosis for an obstruction in the seminal tract and was accidentally diagnosed with CBAVD.

Case presentation

A 39-year old married male presented with a 12-month history of primary infertility to the outpatient urology clinic. He denied a history of smoking, drug abuse or other systemic diseases. A physical

examination of the scrotum revealed a palpable bilaterally present vas deferens and minimal scrotal enlargement. A digital rectal examination was unremarkable. Semen analysis revealed normal volume fructose-positive azoospermia. A hormonal profile of prolactin, luteinizing hormone (LH) and follicle-stimulating hormone (FSH) levels was normal, except that the serum testosterone level was slightly below the normal range (3.0 ng/ml). TRUS revealed bilaterally present seminal vesicles (Fig. 1). Under the impression of an obstruction in the seminal tract, scrotal exploration + vaso-epididymal anastomosis was performed.

The patient received general anesthesia and was placed in the supine position. A 1-cm longitudinal scrotal incision was made, and the vas deferens was exposed in the left hemiscrotum. The winding testicular artery was normal, but the vas deferens was aplasic with a blindly ending tail (Fig. 2). The caput epididymis on the left side, as well as the obstructed cauda epididymis, was revealed. The right vas deferens were absent after the right hemiscrotum was exposed, but the caput epididymis was identified without corpus and cauda epididymides. The testis biopsy (3 × 3 mm) was obtained and histopathologically examined for the status of spermatogenesis, which revealed the presence of normally developed sperm. After the operation, the patient was sent for abdominal sonography because renal agenesis has been reported to closely associate with vasal agenesis due to the closeness of structures during embryogenesis. However, the findings were unremarkable. The patient recovered after the procedure, and intracytoplasmic sperm insemination was recommended.

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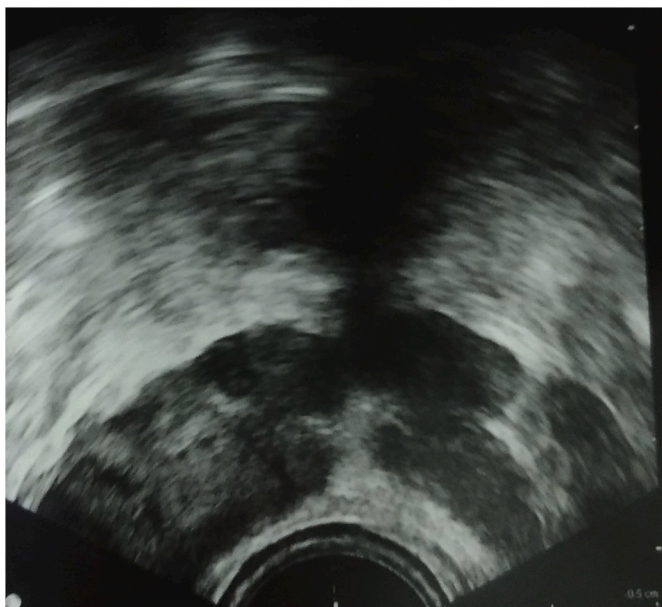


Fig. 1. TRUS showing the presence of bilateral seminal vesicles.



Fig. 2. Aplasia of vas deferens with blindly ending tail.

Discussion

CBAVD is responsible for 1–2% of all cases of male infertility. The seminal tract develops from the mesonephric duct, which is a structure of paired mesonephric tubules that drain into the cloaca. Because the seminal vesicles, epididymis and vas deferens are derived from the same embryological source, CBAVD often associates with seminal vesicle and epididymal anomalies. For instance, studies have suggested that the congenital absence of the vas deferens associates with the absence of ejaculatory ducts and seminal vesicles. Moreover, mesonephric duct development in this cohort of patients was not entirely abnormal. In a study of 84 men with CBAVD, seminal vesicles were present in 55% of cases,¹ whereas in another study of 26 men with CBAVD, only 23% of all cases had bilaterally absent seminal vesicles as determined by computed tomography.² The existence of seminal vesicles in patients with nonexistent vas deferens may be due to the usual nature of the caudal portion but the unusual nature of the rostral portion of the mesonephric duct.

Pre-operative physical examinations that fail to palpate the vas deferens often result in misdiagnosis in patients with aplasia of the vas deferens. A previous study revealed that palpation resulted in misdiagnosis in five out of 47 confirmed cases of CBAVD, with a mistake ratio of

10.6%.³ TRUS is a widely used diagnostic imaging technique. According to the results (seminal vesicle hypoplasia or absence), an impression of CBAVD is usually indicated. However, our case underwent TRUS and bilaterally present seminal vesicles were found. Kuligowka et al. used TRUS to investigate the incidence of various congenital anomalies of the seminal tract in CBAVD patients with azoospermia and low-volume ejaculates. Ninety six out of 276 patients (34%) had CBAVD, and only one patient was found to have bilaterally present seminal vesicles.⁴ In another study that used scrotal ultrasonography, seminal vesical anomalies were identified in all patients with CBAVD. Thus, it is uncommon to encounter patients with bilaterally absent vas deferens but bilaterally present seminal vesicles.

CBAVD patients are often treated by testicular sperm extraction or microsurgical epididymal sperm aspiration combined with intracytoplasmic sperm injection. Sperm development are usually normal in CBAVD patients, revealing that the likelihood of fathering offspring is high. However, in a study of 108 patients that evaluated intracytoplasmic sperm injection outcomes in men with CBAVD, abnormal spermatogenesis was found to negatively affect fertilization rate and embryo status.⁵ These findings suggest that male factors are detrimental to the early phases of embryo development.

Conclusion

CBAVD patients with bilaterally present seminal vesicles are uncommon. Physical examinations involving palpations are often ineffective, and TRUS may lead to misdiagnosis. Herein, we presented a case with an obstruction in the seminal tract and bilaterally present seminal vesicles, and a diagnosis of CBAVD was accidental. Although ultrasonography is a reliable approach, surgical methods are critical for the diagnosis of these patients.

Statement of ethics

Subjects have given their written consent to publish their case (including publication of images).

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Declaration of competing interest

The authors have no conflicts of interest to declare.

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