Congenital unilateral absence of vas deferens with contralateral testicular atrophy

Turki A. Alferayan, Saad M. Abumelha, Mazen S. Al Subayyil, Bader M. Al Asmari, Talal M. Al Nahas

College of Medicine, King Saud Bin Abdulaziz University for Health Sciences, 1Department of Surgery, Ministry of National Guard Health Affairs, King Abdulaziz Medical City, 2College of Medicine, Al-Imam University, Riyadh, Saudi Arabia

INTRODUCTION

Renal embryological development takes place at the 5th week of gestation. The ureteral bud branches out and penetrates the metanephric blastema. Many problems can arise from any insult threatening the metanephric ducts, such as abnormal development of kidneys, ureters, seminal vesicles, vas deferens, and epididymides.1,2 Congenital unilateral absence of vas deferens (CUAVD) is estimated to occur in 1% of men.3 It is the result of a developmental defect of the Wolffian duct. In total, 26% of patients with CUAVD present with unilateral renal agenesis.4,5 Congenital absence of the vas deferens (CAVD) can be either unilateral (CUAVD) or bilateral (CBAVD), and it is responsible for 1% of male infertility. Most of these cases are bilateral (1%–6%), and only 0.4% of male infertility cases are unilateral. This case report signifies the clinical improvement after crossover transseptal vasoepididymostomy in a case infertility with CUAVD and contralateral testicular atrophy.

CASE REPORT

We report a case of a 25-year-old man complaining of primary infertility for 2 years. He had a history of two failed attempts of intracytoplasmic sperm injection (ICSI) utilizing surgically retrieved sperms through testicular sperm aspiration. The patient was known to have asthma; otherwise, no significant medical history was reported. Examination revealed that he was obese with a body mass index of 41.29 kg/m². He had a normal-sized left testis (18 mL) but no vas deferens. He had an atrophied right testis (10 mL) with a palpable vas deferens.

Investigations

Renal ultrasound showed left renal agenesis. Semen analysis showed low semen volume (0.5 mL) with azoospermia. Hence, a scrotal exploration and a crossover transseptal vasoepididymostomy to relocate the vas deferens were done. After 6 months, the sperm concentration reached 5 × 10⁶/mL with good motility (40%) and volume (1.5 mL).

KEYWORDS: Congenital unilateral absence of vas deferens, infertility, semen analysis

Address for correspondence: Dr. Turki A. Alferayan, King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia.
E-mail: alferayant@gmail.com
Received: 10.11.2018, Accepted: 16.07.2019, Published: 07.11.2019.
was performed, which showed low semen volume (0.5 mL) with azoospernia.

**Course of management**

To increase the sperm count, we planned scrotal exploration and a transseptal vasoepididymostomy[8] to relocate the vas deferens to the left testes with intraoperative sperm retrieval. During the scrotal exploration, the left testis was exposed, it was normal in size with no vas deferens, and the epididymis was hypoplastic. The left mini-microsurgical sperm retrieval was performed, and the specimen was sent to the in vitro fertilization laboratory; the specimen was positive for the presence of sperms. The right testis was then exposed, which was small in size with a small epididymis, and was detached (dissociated from the testis). The vas deferens was palpated and transacted at the area of the straight vas deferens. We pulled the vas through the right-sided tunica vaginalis, through the dartos intertesticular septum, and through the left tunica vaginalis as we opened the window using the diathermy.

The patient was then discharged home after 24 h in good and stable. He was prescribed augmentin 1 g tablet every 12 h orally for 7 days and acetaminophen 1 g orally every 6 h for the pain for 10 days. After 3 months, semen analysis showed a picture of cryptozoospernia and the sperms were utilized in a cycle of ICSI. After 6 months, the sperm concentration reached $5 \times 10^6$/mL with good motility (40%) and volume (1.5 mL). Twelve months later, the patient had his first child.

**DISCUSSION**

A 25-year-old Saudi married man complained of 2 years of primary infertility with an absent left vas deferens, left renal agenesis, and normal left testis. On the contrary, the presence of the right vas deferens and atrophied testis was noted. CUAVD is well described in the literature. CAVD association with cystic fibrosis transmembrane conductance regulator gene mutations has been reported, and many studies have focused on this association in recent years.[7] However, the absence of vas deferens on the one side with atrophied testis on the other side is extremely rare. Hence, we believe that this is the first case reported in the literature. This case report is important to shed light on the possibility of reintroducing the vas deferens to the contralateral testis.[8] A study was made on 150 patients showing that CUAVD is more frequently associated with renal agenesis (73.3%), compared to the bilateral form (11.8%).[9] After extensive search in literature, there were no documented cases of CUAVD with contralateral testicular atrophy without a history of previous surgery or intervention.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Financial support and sponsorship**

Nil.

**Conflicts of interest**

There are no conflicts of interest.

**REFERENCES**

1. Doroshow LW, Abeshouse BS. Congenital unilateral solitary kidney: Report of 37 cases and a review of the literature. Urol Surv 1961;11:219-29.
2. Donohue RE, Fauver HE. Unilateral absence of the vas deferens. A useful clinical sign. JAMA 1989;261:1180-2.
3. Miller S, Couture S, James G, Plourde S, Rioux J, Labrecque M, et al. Unilateral absence of vas deferens: Prevalence among 23,013 men seeking vasectomy. Int J Urol 2016;42:1010-7.
4. Mieusset R, Fauquet I, Chauveau D, Monteil L, Chassaing N, Daudin M, et al. The spectrum of renal involvement in male patients with infertility related to excretory-system abnormalities: Phenotypes, genotypes, and genetic counseling. J Nephrol 2017;30:211-8.
5. Schlegel PN, Shin D, Goldstein M. Urogenital anomalies in men with congenital absence of the vas deferens. J Urol 1996;155:1644-8.
6. Sabanegh E Jr., Thomas AJ Jr., Effectiveness of crossover transseptal vasoepididymostomy in treating complex obstructive azoospernia. Fertil Steril 1995;63:392-5.
7. Chillon M, Casals T, Mercier B, Bassas I, Lissens W, Silber S, et al. Mutations in the cystic fibrosis gene in patients with congenital absence of the vas deferens. N Engl J Med 1995;332:1475-80.
8. Daudin M, Bieth E, Bujan L, Massat G, Pontonnier F, Mieusset R, et al. Congenital bilateral absence of the vas deferens: Clinical characteristics, biological parameters, cystic fibrosis transmembrane conductance regulator gene mutations, and implications for genetic counseling. Fertil Steril 2000;74:1164-74.
9. Weiske WH, Süßler N, Schroeder-Prinzten I, Weidner W. Clinical findings in congenital absence of the vasa deferentia. Andrologia 2000;32:13-8.