

## BIFURCACIÓN DEL CONDUCTO DEFERENTE: UNA RARA E INTERESANTE MALFORMACIÓN. A PROPÓSITO DE UN CASO Y REVISIÓN DE LA LITERATURA

### Bifurcation of vas deferens: a strange and interesting malformation. A case report and up-date literature

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#### RESUMEN

Las malformaciones congénitas del conducto deferente son raras y de diferentes tipos: unilateral, bilateral, completa, incompleta, segmental y variable. Presentándose de forma aislada o asociada a otras anomalías del sistema genitourinario.

Varón sano de 35 años, dos hijos y demanda contracepción quirúrgica. Exploración testes y cordones dentro de límites normales. Tras trámites pertinentes, en junio 2018 se realiza vasectomía bilateral bajo anestesia local, con el hallazgo incidental intraoperatorio de bifurcación de conducto deferente izquierdo. Se realiza sección, ligadura y remisión de muestra al Servicio de Anatomía Patológica, informando de segmentos deferenciales normales. Describimos tal anomalía. Aportamos iconografía. Revisamos y actualizamos bibliografía.

Se insiste en la importancia de una detallada exploración física y disección quirúrgica en la cirugía de vasectomía, por eventuales malformaciones deferenciales que, aunque raras, se asocian a anomalías urológicas. Por lo cual deben ser descritas y conocidas en la literature especializada.

**PALABRAS CLAVES:** Conducto deferente. Bifurcación. Vasectomía

#### SUMMARY

Congenital anomalies of vas deferens are rare and may be unilateral, bilateral, complete, segmental and variable. These may be isolated or associated with others genitourinary malformations (renal anomalies).

Clinical case of 35-year-old male without record of interest, stable partner, two children, who demands surgical contraception. Testes and deferens within normal limits. After information and consent, on June 2018 the bilateral vasectomy procedure is conducted under local anesthesia with the finding of left vas deferens bifurcation, carrying out section and ligation. Referral of samples to our Pathology Department, which inform of normal deferens segments, without histological alterations. Characteristics of anomaly are shown, iconography is given, and bibliography is updated.

We emphasize the importance of a careful physical exploration and dissection undergoing the vasectomy, by the existence of malformations, although rare, can still be present and associated to urological anomalies. And it must be described and known in specialized literature.

**Key words:** Congenital anomalies. Bifurcation vas deferens. Vasectomy

## INTRODUCTION

Congenital anomalies of urinary and genital tracts are associated for embryological reasons. The male reproductive ductal system, ureter and kidney are closely related, the Wolf ductus connects mesonephros with urogenital sinus and it is source for the ductal system (ureter) which connects with metanephros (kidney) 1. Congenital anomalies of vas deferens are rare and may be unilateral or bilateral, complete or segmental and variable (agenesis, atresia, duplication, ectopic, etc). These may be isolated or associated with others genitourinary malformations (renal agenesis and others renal anomalies), which must discover either by male genital careful clinical examination, ultrasounds or radiologically2-4.

## CASE REPORT

We report a case of a 35-year-old male without relevant medical history stable partner, two children, who demands surgical contraception. General genital examination was normal with palpation both vas deferens at spermatic cord level. After relevant paperwork, information and consent, on June 2018 the bilateral vasectomy procedure is conducted under local anesthesia. We finding a bifurcation of the left deferens, from epididymis-deferens junction to spermatic cord portion, 3-4 cm length, carrying out section and ligation (Figure 1). Removal deferens segment was referred to Pathology Service, informed like normal left deferens bifurcation segments without histological alterations (Figure 2).



Fig. 1a



Fig. 1b

Figure 1.-

1a. - procedure detail: dissection of left vas deferens. Bifurcation of vas deferens can be observed.

1b. - Bifurcation

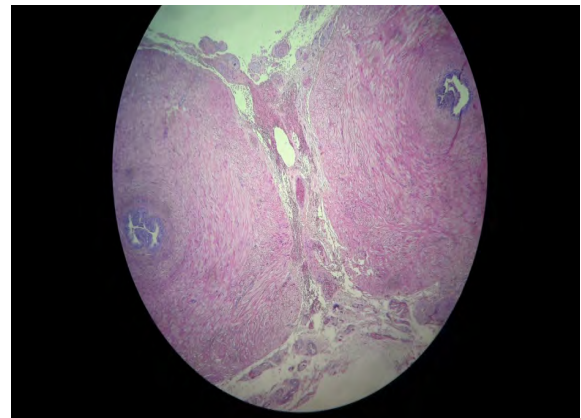


Figure 2. Detailed microscopic view of bifurcation area of the abnormal vas deferens. Hematoxylin and Eosin staining.

During the 3-month post-surgery review, the patient is asymptomatic, without signs of complications and shows seminogram with azoospermia. Needless to say, a urinary tract ultrasound scan was done and as evidence it shows normal kidneys, no obstructive uropathology; normal bladder; normal prostate and seminal vesicles. (Figure 3).



Fig. 3a.

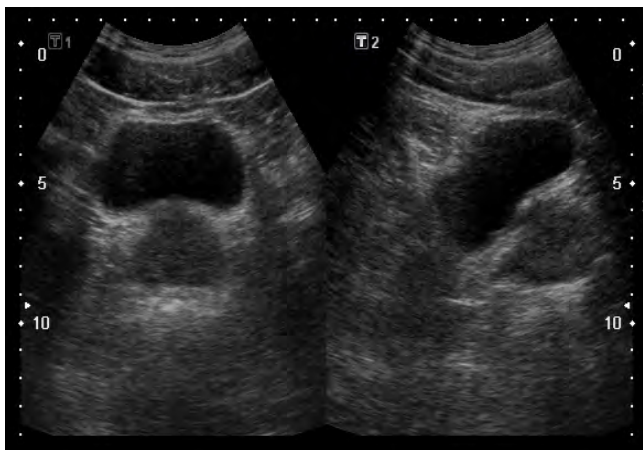


Fig. 3b.

Figure 3.-

3a.- Ultrasound scan of urinary tract showing normal left kidney (RI-LK)

3b.- Ultrasound scan of urinary tract showing normal bladder (B), prostate (P) and normal seminal vesicles (SV).

## DISCUSSION

Vasectomy is the most common sterilization procedure widely used among males. It is estimated that a total of 50 million vasectomies are conducted per year; technique that is highly demanded due to the low rate of immediate complications and that holds minor post-surgical consequences (hematoma, pain, and local infection), high success rate and very low rate of failure (0,3-1,2%)<sup>5-7</sup>. Failure is understood as the persistency of sperm found after ejaculation, generally caused by spontaneous rechanneling of the vas deferens<sup>8</sup>.

The anomalies of the vas deferens is extremely rare<sup>4-7,9</sup>, such as bifurcation or doubling, complete or by segments, isolated or associated with other anomalies of the urinary tract <sup>1-4</sup>. Duplication is usually encountered occasionally during inguinal herniorrhaphy, radical prostatectomy, orchidopexia, varicocelectomy and vasectomy<sup>10-11</sup>. Nevertheless, we must be conscientious about them during the procedure, to avoid unwanted results, as persistence of sperm post-vasectomy in an uncomfortable situation for the patient and urologist. Although we emphasize the correct and detailed exploration of the vas deferens by the best method in the protocol, however palpation at spermatic cord could be normal because epididymis proximal level as in our case report.

Some authors recommend to send every removal vasectomy segment for pathology microscopy confirmation, in our opinion it is mandatory in anomalies cases<sup>11</sup> and special relevancy associated by the high percentage of claims and indemnities<sup>5-7</sup>.

Finally, according Mohammad I et al<sup>12</sup> whom reviewed in PubMed founded 13 cases. In consequence, plus their one, this case report will be the 14th reported in the world literature

## CONCLUSION

We emphasize the importance of a careful physical exploration and dissection undergoing the vasectomy, by the existence of malformations, although rare, can still be present and associated to urological anomalies. And it must be described and known in specialized literature.

## REFERENCES

1. Vohra S, Morgentaler A. Congenital anomalies of the vas deferens, epididymis and seminal vesicles. *Urology*. 1997; 49: 313-321. DOI: 10.1016/S0090-4295(96)00433-5
2. Dominguez Freire F, López Bellido D. Agenesia unilateral de conducto deferente, un signo clínico util en el diagnóstico de malformaciones genitourinarias. *Actas Urol Esp*. 2001; 25: 770-773. DOI: 10.1016/S0210-4806(01)72716-7
3. Chintamani, Khandelwal R, Tandon M, Kumar Y. Isolated unilateral duplication of vas deferens, a surgical enigma: a case report and review of the literature. *Cases J*. 2009; 2: 167. DOI: 10.1186/1757-1626-2-167
4. Saadeldin OA, Abd El Salam MA, Azzazi OA, Mohamed AY. A rare case of duplicated vas deferens discovered accidentally during varicocelectomy. *Andrología*. 2018; 50: 21-24. DOI: 10.1111/and.13108
5. Dhole GR, Diemer T, Kopa Z, Krausz C, Giwercman A, Jungwirth A. European Association of Urology guidelines on vasectomy. *Eur Urol*. 2012; 61:159-

63. DOI: 10.1016/j.eururo.2011.10.001

6. Sharlip ID, Belker AM, Honig S, Labrecque M, Marmar JL, Ross LS et al. Vasectomy AUA guideline. AUA guidelines, 2012. J Urol. 2012; 188(6 suppl): 2482-2491. DOI: 10.1016/j.urol.2012.09.080
7. Jungwirth A, Diemer T, Kopa Z, Krausz C, Tournaye H. Guidelines on male infertility. European Association of Urology. 2017. J Eur Uro. 2012; 62: 324-332. DOI: 10.1016/j.eururo.2012.04.048
8. Gutiérrez P, Gutiérrez R, Valladares F, Bañares F, Diaz-Flores L. Reparation of ductus deferens. An experimental study. Proceedings of IV International Congress of Andrology. pp. 381 - 386. Florencia(Italia): Monduzzi Editore, 1989.
9. Valdepeña Estrada R, Córdoba Basulto DI, Sapién López JS, Flores Tapia JP, Patiño Osnaya SP. Duplicidad bilateral de conductos deferentes: comunicación de un caso y revisión de la bibliografía. Rev Esp Med Quir 2010; 15 (3): 177-179. DOI: <http://www.redalyc.org/articulo.oa?id:47316054013>
10. Breitinger MC, Roszkowski EH, Bauermeister AJ, Rosenthal AA. Duplicate vas deferens encountered during inguinal hernia repair: a case report and literature review. Case Rep Surg. 2016; 2016:8324925. DOI: 10.1155/2016/8324925
11. Torres Gómez FJ, Poyato Galán JM, Fernández Machín P. The study of vasa deferentia is important. Editor letter. Arch Esp Urol. 2009; 62: 159-160
12. Mohammad I, Abdullah S, Maged E, Bader M. Duplicated vas deferens as an incidental finding during indirect inguinal hernia repair: A case report and literature review. Qatar Med J. 2020; Art 12: 1-4. DOI: <https://doi.org/10.5339/qmj.2020.12>