Two pedigrees with congenital bilateral anorchia in one sibling and testicular torsion at adolescence in another: a shared genetic predisposition?

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INTRODUCTION

In bilateral anorchia or testicular regression syndrome, testicular function is normal during the embryonic period, as shown by the absence of Müllerian remnants and absence of hypospadias. Although normally differentiated, the penis may be small due to decreased testosterone secretion during the foetal period. In a normally virilised boy with non-palpable testes, with or without micropenis, the diagnosis is established by undetectable plasma anti-Müllerian hormone (AMH) and absent Müllerian structures. The syndrome could in some cases result from vascular obstruction and/or torsion.

AIM

We report two unrelated families in which one sibling presented with bilateral anorchia diagnosed in infancy and one sibling with testicular torsion at adolescence.

METHOD

Patients and Methods: retrospective case series.

Setting: paediatric endocrinology units of two academic hospitals (HUDERF, Bruxelles, Belgium and Sainte-Justine, Montreal, Quebec, Canada).

RESULTS

Family 1 (HUDERF, Belgium): A 10-month-old boy was referred for bilateral cryptorchidism. His parents are healthy, non-consanguineous, of Spanish and Congo-Brazzaville origin. There was a family history of cryptorchidism in the paternal uncle and his son. The mother had taken paroxetine during pregnancy. The index case was born at term (38 weeks, 3240g, 47cm). Very small testes had reportedly been palpated in the neonatal period. At 10 months of age, physical examination was normal except for non-palpable testes. Plasma AMH level was undetectable and gonadotrophins were very elevated (FSH 125 mU/L, LH 34 mU/L, respectively). At 14 years of age, an older brother presented with bilateral scrotal oedema (confirmed by ultrasound) and was initially treated with antibiotics. A right testicular torsion developed and bilateral orchidopexy was performed.

Family 2 (Sainte-Justine, Canada): The index case, a boy referred at 3-days of age for micropenis, has been reported previously (Stoppa-Vaucher et al, Clin Biochem 43: 1373, 2010). Subsequent to this publication, we learned that one of his brothers presented at age 15 years with three episodes of left testicular torsion that led to bilateral orchidopexy.

	Family I		Family II	
	Sibling 1	Sibling 2	Sibling 1	Sibling 2
Age at diagnosis	10 months	14 years	3 days	15 years
Condition	Bilateral anorchia	Bilateral scrotal edema, right testis torsion	Bilateral anorchia	Left testis torsion (3 episodes)
Laboratory results LH (IU/L) FSH(IU/L) AMH (ng/ml)	 34 125 0		(at 6 weeks of age) 31 85 0	
Surgery	-	Bilateral orchidopexy	-	Bilateral orchidopexy

DISCUSSION, CONCLUSIONS

In some cases, congenital anorchia is thought to result from an prenatal testicular torsion.
The present report of two families with congenital anorchia in one sibling and testicular torsion at adolescence in another suggests that both conditions represent a spectrum with a shared genetic predisposing factor.
Familial testicular torsion has been reported and a meta-analysis by Shteynshlyuger et al.[4] found that
-up to 10% of patients with testicular torsion have an affected first degree relative.
-family history is missed in at least 27% of affected families.
-37% had bilateral torsion
-the authors rejected the null hypothesis that the observed prevalence of familial testicular torsion is due to chance ($p < 0.001$).
A whole exome sequencing of several informative families could help delineate the etiology of this condition.

REFERENCES

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