CORRESPONDENCE

The Undescended Testis: Diagnosis, Treatment and Long-Term Sequelae

by Dr. med. Michael J. Mathers, PD Dr. med. Herbert Sperling, Prof. Dr. med. Herbert Rübben, Prof. Dr. med. Stephan Roth in volume 33/2009

Clinical Remarks

Surgeons who operate on patients with congenital undescended testis are often confronted with a complex picture of obvious developmental delay. In such cases, the spermatic funiculus is usually sheathed by a patent vaginal process—to the point of an “intraperitoneal” position. Testes and epididymides are occasionally dystrophic and often dissociated. We think that this explains why hormone therapy has not fulfilled the hopes that were invested in this treatment.

On the other hand it is obvious that surgical treatment requires substantial surgical experience and skill because of the delicate structures. The worry is therefore whether the benefit of surgery before the first year of life is completed—which is thus far only hypothetical and not quantitatively defined—is not canceled out by a higher rate of testicular atrophy. Further developments in this respect need to be monitored closely and carefully.

We cannot emphasize enough the necessity of a careful examination of the position of the testes. Too often, retractile (hypermobile) testicles are misdiagnosed as gliding testicles.

The focus on congenital cryptorchidism does not take into account the not so rare patients with secondary ascended testis. Their parents are often confused by the available information—gleaned, for example, on the internet—with regard to the perceived risk of infertility and later degeneration, especially because their sons have usually exceeded the given age limit by some margin. In these cases, a differentiated and reassuring consultation should be offered, because no “primary damage” exists (guidelines).

In view of the long term sequelae and the treatment delivered by doctors from different specialties and institutions, better interdisciplinary cooperation would be desirable to help answer the outstanding questions.

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REFERENCES

1. Mathers MJ, Sperling H, Rübben H, Roth S: The undescended testis: diagnosis, treatment and long-term sequelae. *Dtsch Arztebl Int* 2009; 106: 527-32.

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Morphological Findings

The pathogenesis of cryptorchidism is not known and likely to be multifactorial. On one hand, the extent of testicular changes—for example, the reduced number of spermatogones per tubular cross section, the reduced diameter of the tubuli, the fibrosis of the testes—depends on the position of the gonads. Intra-abdominal testicles have the most severe lesions. On the other hand, the patients’ age at the time of the operation is important. The older the boys are at the time of their surgery the more pronounced the changes. The unphysiological position of the gonads impairs normal testicular development in adolescence and results in an increase of existing lesions. The decrease in spermatogones is crucial as it may impair fertility at a later stage.

Patients with unilateral cryptorchidism may also develop impaired fertility or even infertility. In unilateral testicular retention, the scrotal testicle will be affected by the same severe changes as the retained gonad in one third of cases.

The “increase” in spermatogones after GnRH therapy probably only seems like an increase, because these cells are stimulated by hormone therapy and are thus more clearly visible.

In so called testicular aplasia, no genuine aplasia is present; the term may be established but is erroneous. The primary embryonic gonads are subsequently partially or completely scarred, and the cause of this is usually not found.

The cause of the increased incidence of germ cell tumors in cryptorchidism remains unexplained. The presence of atypical germ cells in retained prepubertal testicles has not been confirmed as far as we are aware.

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REFERENCES

1. Städtler F, Helpap B: In: Remmel W (eds.): *Pathologie. Männliches Genitale*. Berlin, Heidelberg, New York: Springer, 2nd edition, 1997; 1–94.
2. Mathers MJ, Sperling H, Rübben H, Roth S: The undescended testis: diagnosis, treatment and long-term sequelae. *Dtsch Arztebl Int* 2009; 106: 527-32.

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In Reply:

I can only agree with Becker’s comments. The development of the epididymis arises from the so called Wolff canal. When this connection is lacking the result is different degrees of testicular-epididymal dissociation that are the more pronounced the less the testicle descends in a caudal direction (1). It therefore seems correct to conclude that, due to these anatomical misplacements, hormone therapy is less successful—among other

things—than originally expected. In the context of expected fertility, epididymal-testicular dissociation also plays a part. In cases of severe dissociation, sterility is highly likely (2).

Becker is certainly right in saying that retractile (hypermobile) testicles are often misdiagnosed as sliding testicles requiring surgery. Vice versa, the same is bound to be true. Sliding testicles requiring surgery are often misdiagnosed as retractile testicles that do not need treatment. Again, this just emphasizes the urgent need for collaboration of colleagues from different specialties and disciplines.

Unquestionably, substantial surgical experience and skill is required to operate on patients with cryptorchidism. In this regard, the results should be monitored internally as well as externally.

I cannot but agree with Städtler's comments, especially his skepticism regarding hormone therapy. Histological findings of inflammation and increased apoptosis in children who were given HCG after their first birthday have resulted in a general rejection of hormone treatment in other countries (3, 4). However, because of methodological weaknesses in these studies, the current S2 guideline on cryptorchidism recommends hormone therapy during the first year of life

only, since this seems to benefit the maturation of the germ cell epithelium.

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REFERENCES

1. Koff WJ, Scaletsky R: Malformations of the epididymis in cryptorchidism. *J Urol* 1990; 143: 340–3.
2. Gill B, Kogan S, Starr S, et al.: Significance of epididymal and ductal anomalies associated with testicular maldescent. *J Urol* 1989; 142: 556–8.
3. Ritzen EM, Bergh A, Bjerknes R, et al.: Nordic consensus on treatment of undescended testes. *Acta paediatrica* 2007; 96: 638–43.
4. Dunkel L, Taskiran S, Hovatta O, Tilly JL, Wikström S: Germ cell apoptosis after treatment of cryptorchidism with human chorionic gonadotropin is associated with impaired reproductive function in the adult. *J. Clin Invest* 1997; 100: 2341–6.
5. Mathers MJ, Sperling H, Rübner H, Roth S: The undescended testis: diagnosis, treatment and long-term sequelae. *Dtsch Arztebl Int* 2009; 106: 527–32.

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Conflict of interest statement

The authors of all contributions declare that no conflict of interest exists according to the guidelines of the International Committee of Medical Journal Editors.

Erratum

In the clinical practice guideline “Colorectal Carcinoma,” by Wolff Schmiegell and colleagues, which appeared in *Deutsches Ärzteblatt International* on 21 December 2009 (Issue 51–52), there was an error in the left column of *Table 1*. The two entries “Age < 70” and “Age > 70” should both have read, “Age > 70.

Erratum

Professor Schmiegell, Dr. Pox, and Professor Rödel, three of the authors of the clinical practice guideline “Colorectal Carcinoma,” which appeared in *Deutsches Ärzteblatt International* on 21 December 2009 (issue 51–52), have corrected their Conflict of Interest Statement, as follows:

Professor Schmiegell has received lecture honoraria from the Merck, Roche, Abbott, Amgen, Astra-Zeneca, Pfizer, and Falk companies. He has also received reimbursement of travel expenses from the Roche, Merck, and Astra-Zeneca companies and has served as a paid consultant to the Roche, Amgen, and Astra-Zeneca companies.

Dr. Pox has received lecture honoraria from the Falk, Astra-Zeneca, and Hitachi companies and reimbursement of travel expenses from Roche.

Professor Rödel has received lecture honoraria from the Roche and Sanofi-Aventis companies and support for research projects from Merck.