Evaluation and Treatment of Cryptorchidism: AUA Guideline

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Purpose: Cryptorchidism is one of the most common pediatric disorders of the male endocrine glands and the most common genital disorder identified at birth. This guideline is intended to provide physicians and non-physician providers (primary care and specialists) with a consensus of principles and treatment plans for the management of cryptorchidism (typically isolated non-syndromic).

Materials and Methods: A systematic review and meta-analysis of the published literature was conducted using controlled vocabulary supplemented with key words relating to the relevant concepts of cryptorchidism. The search strategy was developed and executed by reference librarians and methodologists to create an evidence report limited to English-language, published peer-reviewed literature. This review yielded 704 articles published from 1980 through 2013 that were used to form a majority of the guideline statements. Clinical Principles and Expert Opinions were used for guideline statements lacking sufficient evidence-based data.

Results: Guideline statements were created to inform clinicians on the proper methods of history-taking, physical exam, and evaluation of the boy with cryptorchidism, as well as the various hormonal and surgical treatment options.

Conclusions: Imaging for cryptorchidism is not recommended prior to referral, which should occur by 6 months of age. Orchidopexy (orchiopexy is the preferred term) is the most successful therapy to relocate the testis into the scrotum, while hormonal therapy is not recommended. Successful scrotal repositioning of the testis may reduce but does not prevent the potential long-term issues of infertility and testis cancer. Appropriate counseling and follow-up of the patient is essential.

Key Words: cryptorchidism, undescended testis, hormone, infertility, testis cancer

Abbreviations and Acronyms

AHRQ = Agency for Healthcare Research and Quality

CT = computerized tomography

DSD = disorder of sex development

FDA = Food and Drug Administration

FS = Fowler-Stephens

FSH = follicle-stimulating hormone

GnRH = gonadotropin-releasing hormone

hCG = human choronic gonadotropin

LH = luteinizing hormone

LHRH = luteinizing hormone-releasing hormone

MIS = müllerian inhibiting substance

MRI = magnetic resonance imaging

UDT = undescended testis

US = ultrasound

The complete guideline is available at http://www.auanet.org/education/guidelines/cryptorchidism.cfm.

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Cryptorchidism or undescended testis is one of the most common pediatric disorders of the male endocrine glands and the most common genital disorder identified at birth. Cryptorchidism is defined as failure of a testis to descend into a scrotal position. This situation most commonly refers to a testis that is present but in an extrascrotal position, but may also lead to identification of an absent testis. In the latter situation, the testis is most commonly referred to as vanishing (or vanished); consistent with evidence suggesting that it was present initially but disappeared during development most likely due to spermatic cord torsion or vascular

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accident. The main reasons for treatment of cryptorchidism include increased risks of impairment of fertility potential, testicular malignancy, torsion and/or associated inguinal hernia. The current standard of therapy in the United States is orchidopexy (orchiopexy is the preferred term), or surgical repositioning of the testis within the scrotal sac, while hormonal therapy has fewer advocates. Successful scrotal relocation of the testis, however, may reduce but does not prevent these potential long-term sequelae in susceptible individuals. The purpose of this guideline is to provide physicians and non-physician providers (primary care and specialists) with a consensus of principles and treatment plans for the management of cryptorchidism (typically isolated nonsyndromic; intensive discussion of disorders of sex development is beyond the scope of this guideline). The panel members are representative of various medical specialties (pediatric urology, pediatric endocrinology, general pediatrics).

METHODOLOGY

The primary source of evidence for this guideline was the systematic review conducted as part of the Agency for Healthcare Research and Quality Comparative Effectiveness Review titled *Evaluation and Treatment of Cryptorchidism (2012)*. That report included systematic searches of MEDLINE®, Cumulative Index to Nursing and Allied Health Literature, and EMBASE® for English-language studies published from January 1980 through February 2012 relevant to cryptorchidism. To capture more recently published manuscripts to augment and broaden the body of evidence provided in the original AHRQ report, the American Urological Association conducted additional supplementary searches of PubMed® and EMBASE for relevant articles published between January 1980 and March 2013 that were systematically reviewed using a methodology developed *a priori*. In total, these searches yielded 704 studies, after exclusions, that were used to inform the statements presented in the guideline as Standards, Recommendations or Options and the accompanying treatment algorithm (see figure). When sufficient evidence existed, the body of evidence for a particular clinical action was assigned a strength rating of A (high), B (moderate) or C (low). In the absence of sufficient evidence, additional information is provided as Clinical Principles and Expert Opinions.

The AUA nomenclature system explicitly links statement type to body of evidence strength and the Panel's judgment regarding the balance between benefits and risks/burdens. For a complete discussion of the methodology and evidence grading, please refer to the unabridged guideline available at http://www.auanet.org/education/guidelines/cryptorchidism.cfm.

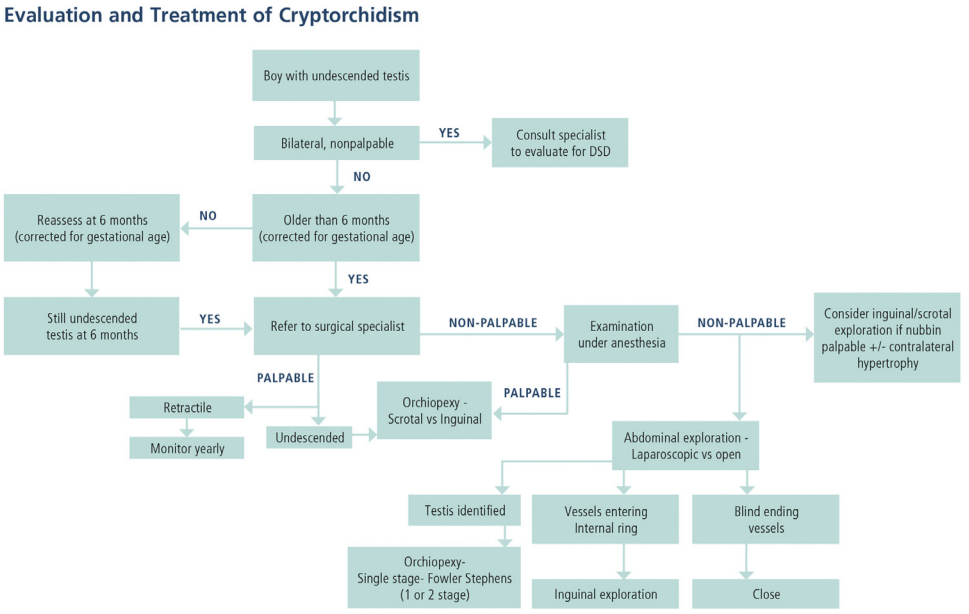

Figure.