

UNDESCENDED TESTICLE

ALGORITHM

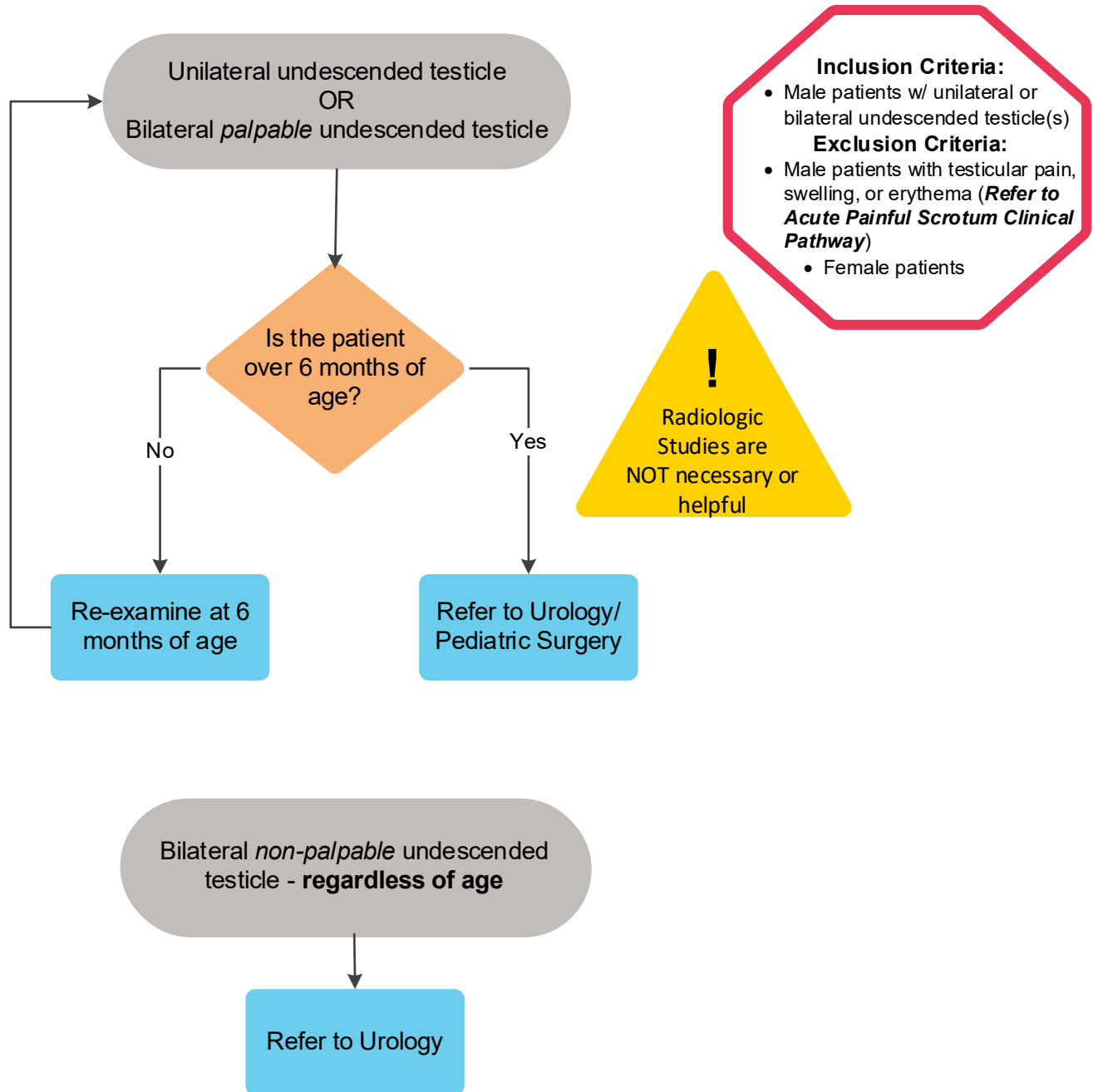


TABLE OF CONTENTS

[Algorithm](#)

[Target Population](#)

[Background | Definitions](#)

[Initial Evaluation](#)

[Clinical Management](#)

[Laboratory Studies | Imaging](#)

[Therapeutics](#)

[Patient | Caregiver Education](#)

[Follow-up](#)

[References](#)

[Clinical Improvement Team](#)

TARGET POPULATION

Inclusion Criteria:

- Male patients with unilateral or bilateral non-palpable testicle(s) on scrotal or inguinal examination.

Exclusion Criteria:

- Male patients with pain, swelling or erythema – please refer to the [Acute Painful Scrotum](#) pathway
- Female patients

BACKGROUND | DEFINITIONS

Epidemiology

Undescended testicle occurs in approximately 1% of term boys and up to 5% of premature or small for gestational age (SGA) boys (1). Up to 25% of testicles will descend spontaneously by 4 months of age. It is very rare to see spontaneous descent after 6 months of age (2). Approximately 2% of boys in the first 10 years of life will develop an ascending testicle (3).

Knowledge Base

- Undescended testicle (cryptorchidism) is defined as the failure of the testicle to descend into the scrotal position. This is frequently congenital. Undescended testicle can also be acquired and is referred to as an ascending testicle.
- A retractile testicle is one where the testicle is initially extra scrotal but can be manually placed into the scrotum where it stays at least temporarily without tension.

Risk Factors

- Prematurity
- Small for gestational age

Prevention

- There is no known method of prevention.

Consequences of Undescended Testicles

- Testicular Malignancy - Men with a history of an undescended testicle have an increased risk of malignancy. This is most common in the undescended testicle, but the contralateral testicle also has a slight increase in risk. With up to 1% of men getting malignancy, this is roughly twice the risk of men without an undescended testicle.
- Fertility - There is an association between undescended testicles and infertility.
 1. Bilateral descended: Approximately 8% are infertile
 2. Unilateral undescended testicle: Approximately 10% are infertile
 3. Bilateral undescended testicle: Approximately 38% are infertile

Differential Diagnosis

- Undescended Testicle
- Retractable Testicle
- Vanished or absent Testicle
- Disorder of Sex Development (DSD)

Value of Treatment

- Reduces malignancy risk if the testicle is brought into the scrotum before 10 years of age
- Enables easier self-examination of testicle
- Potentially improves fertility
- Normal appearing male genitalia

INITIAL EVALUATION

Telephone Triage

- Patients with pain, swelling or erythema of the scrotum should be referred immediately to the Emergency Department or on-call Urologist (or Pediatric Surgery if in Colorado Springs) for emergent evaluation.
- Patients over 6 months of age, who have seen their PCP, should be referred to Pediatric Urology/Pediatric Surgery with the aim of having a successful surgery by 12 months of age.

History

- Has the testicle been seen/felt in the scrotum, (especially when bathing as this may indicate a retractile testicle)?
- Were the testicles noted at birth?
- Does the testicle go up or down?
- Is a hernia ever noticed?
- How many gestational weeks was the patient when born?
- Is there a family history of undescended testicles, hernia or hydrocele?

Whom to refer

- Patients over 6 months of age (corrected for gestational age) with a testicle that cannot be brought into the scrotum without tension.
- Patients under 6 months of age with bilateral non palpable testicles – to evaluate for Disorders of Sex Development (DSD).

- Patients over 6 months of age with bilateral non palpable testicles - to evaluate for Disorder of Sex Development (DSD).
- If bilateral non palpable undescended testicles, the patient should be evaluated for Disorder of Sex Development. This could be in the multidisciplinary SOAR clinic.
- Patients with an undescended testicle and hypospadias to evaluate for a DSD.
- Patients under 6 months of age with a testicle that cannot be brought into the scrotum without tension, when there is an early request to see a Urologist/Pediatric Surgeon.

CLINICAL MANAGEMENT

- A thorough history and physical examination are essential to making the correct diagnosis.

Examination - Condition Specific

- Is the scrotum symmetrical and full?
- Can a testicle be seen in both sides of the scrotum? If not,
 - Can the testicle be felt at any point from the internal ring of the inguinal canal to the scrotum?
 - Can the testicle be felt in an ectopic location (femoral canal, lateral to the scrotum, perineum, close to the penis, on the contralateral side)?
- Are the two testicles equal in size and consistency?
- Is there a hernia or hydrocele?
- Is the penis normal or is there hypospadias? If hypospadias present, consider DSD in the differential diagnosis.

Treatment

- If a retractile testicle is diagnosed, a provider should reexamine the patient annually, as there is a risk of an ascending testicle developing.
- If an undescended testicle is diagnosed and the child is over 6 months of age, then surgical intervention is warranted, as hormonal therapy has low success and long-term efficacy has not been documented.
- Surgery
 - In prepubertal boys with palpable, undescended testicles a qualified surgical specialist should perform a scrotal or inguinal orchidopexy. Ideally this should be performed within a year of making the diagnosis (4).
 - Boys with a non-palpable undescended testicle should undergo an examination under anesthetic, if palpable, then an orchidopexy is performed, and if not, then the testicle or the absence of a testicle should be ascertained either by laparoscopy or surgical exploration.
 - In post pubertal males with an undescended testicle and normal contralateral testicle, an orchiectomy is a reasonable surgical option because of the increased risk of cancer.

LABORATORY STUDIES | IMAGING

- No laboratory or radiological investigations are necessary (unless bilateral non-palpable undescended testicles are present in which case, Mullerian Inhibiting Substance can be measured and its absence indicative of anorchia.)
- For boys with bilateral non palpable undescended testicles, the consulting team may consider measuring Mullerian inhibiting substance to evaluate for anorchia, where both testicles have not developed.

THERAPEUTICS

- No pharmacologic interventions are necessary.

PATIENT | CAREGIVER EDUCATION

- Patients and families should be taught testicular self-examination by PCP or specialist at follow-up, so that any future malignancy can be detected.

FOLLOW UP

- Patients should be reevaluated 3 months after surgery to assess:
 - If the testicle is correctly placed (surgery results in a 3-5% failure rate, usually due to the testicle slowly being pulled up out of the scrotum).
 - If the testicles are equal in size, as testicular damage can occur with surgery.
 - To ensure adequate healing from surgery.

References



1. Sijstermans K, Hack WW, Meijer RW et al. The frequency of undescended testis from birth to adulthood: a review. *Int J Androl* 2008 31: 1.
2. Wenzler DL, Bloom DA, Park JM. What is the rate of spontaneous testicular in infants with cryptorchidism: *J Urol* 2004; 171: 849.
3. Acerini CL, Miles HL, Dunger DB et al. The descriptive epidemiology of congenital and acquired cryptorchidism in a UK infant cohort. *Arch Dis Child* 2009.
4. American Urological Association Guideline: Evaluation and treatment of cryptorchidism: AUA Guideline
5. Swerdlow A, Higgins C, Pike M. Risk of testicular cancer in a cohort of boys with cryptorchidism. *BMJ* 1997; 341 1507.
6. Gilhooly PE, Meyers F, Lattimer JK. Fertility prospects for children with cryptorchidism. *Am J Dis Child* 1984; 138: 940.
7. Pettersson A, Richiadi L, Nordenskjold A, Kaijser M, et al. Age at surgery for undescended testis and risk of testicular cancer. *NEJM* 2007; 356: 1835-1841.

CLINICAL IMPROVEMENT TEAM MEMBERS

- Duncan Wilcox, MD | Urology
- Mayra Dawkins, BSN, RN | Urology
- Sarah Hecht, MD | Urology
- Brian Caldwell, MD | Urology
- Brian Miller, PA | Urology
- Ann Kulungowski, MD | Pediatric Surgery
- David Bliss, MD | Pediatric Surgery
- Lalit Bajaj, MD, MPH | Emergency Medicine
- David Listman, MD | Emergency Medicine
- Irina Topoz, MD | Emergency Medicine
- Kevin Carney, MD | Emergency Medicine
- Ali Wiersma, MD | Emergency Medicine
- Kelly Rothman, MS RN-BC CPN | Ambulatory
- David Fox, MD | Special Care Clinic
- Katie DeGroat | Clinical Effectiveness

APPROVED BY

Clinical Care Guideline and Measures Review Committee – June 16, 2020
Pharmacy & Therapeutics Committee – n/a

MANUAL/DEPARTMENT	Clinical Care Guidelines/Quality
ORIGINATION DATE	October 11, 2016
LAST DATE OF REVIEW OR REVISION	July 2, 2020
COLORADO SPRINGS REVIEWED BY	 Mike DiStefano, MD Chief Medical Officer, Colorado Springs
APPROVED BY	 Lalit Bajaj, MD, MPH Medical Director, Clinical Effectiveness

REVIEW | REVISION SCHEDULE

Scheduled for full review on July 2, 2024.

Discrimination is Against the Law. Children’s Hospital Colorado complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex. Children’s Hospital Colorado does not exclude people or treat them differently because of race, color, national origin, age, disability, or sex.

Children’s Hospital Colorado provides free aids and services to people with disabilities to communicate effectively with us, such as: Qualified sign language interpreters, written information in other formats (large print, audio, accessible electronic formats, other formats). Children’s Hospital Colorado provides free language services to people whose primary language is not English, such as: Qualified interpreters, information written in other languages.

If you need these services, contact the Medical Interpreters Department at 720.777.9800.

If you believe that Children’s Hospital Colorado has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, or sex, you can file a grievance with: Corporate Compliance Officer, 13123 E 16th Avenue, B450, Aurora, Colorado 80045, Phone: 720.777.1234, Fax: 720.777.7257, corporate.compliance@childrenscolorado.org. You can file a grievance in person or by mail, fax, or email. If you need help filing a grievance, the Corporate Compliance Officer is available to help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at ocrportal.hhs.gov/ocr/portal/lobby.jsf, or by mail or phone at: U.S. Department of Health and Human Services 200 Independence Avenue, SW Room 509F, HHH Building Washington, D.C. 20201 1-800-368-1019, 800-537-7697 (TDD) Complaint forms are available at www.hhs.gov/ocr/office/file/index.html.

Children’s Hospital Colorado complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex.

ATENCIÓN: si habla español, tiene a su disposición servicios gratuitos de asistencia lingüística. Llame al 1-720-777-9800.

CHÚ Ý: Nếu bạn nói Tiếng Việt, có các dịch vụ hỗ trợ ngôn ngữ miễn phí dành cho bạn. Gọi số 1-720-777-9800.

주의: 한국어를 사용하시는 경우, 언어 지원 서비스를 무료로 이용하실 수 있습니다. 1-720-777-9800 번으로 전화해 주십시오

注意: 如果您使用繁體中文, 您可以免費獲得語言援助服務。請致電1-720-777-9800。

ВНИМАНИЕ: Если вы говорите на русском языке, то вам доступны бесплатные услуги перевода. Звоните 1-720-777-9800.

ማስታወሻ: የሚናገሩት ቋንቋ ካማርኛ ከሆነ የትርጉም አርዳታ ድርጅቶቹ፡ በነጻ ሊያግዝዎት ተዘጋጅተዋል፡ ወደ ሚከተለው ቁጥር ይደውሉ 1-720-777-9800 (መስማት ለተሳናቸው-

رقم) 720-777-9800-1 اتصل برقم 720-777-9800-1. ملحوظة: إذا كنت تتحدث انكر اللغة، فإن خدمات المساعدة اللغوية تتوفر لك بالمجان.

ACHTUNG: Wenn Sie Deutsch sprechen, stehen Ihnen kostenlos sprachliche Hilfsdienstleistungen zur Verfügung. Rufnummer: 1-720-777-9800.

ATTENTION : Si vous parlez français, des services d'aide linguistique vous sont proposés gratuitement. Appelez le 1-720-777-9800.

ध्यान दनु होस्तपाइले नेपाल बोलनहनछ भन तपाइको निम्त भाषा सहायता सवाहदू नःशलक रूपमा उपलब्ध छ । फोन गनु होस् 1-720-777-9800 ।

PAUNAWA: Kung nagsasalita ka ng Tagalog, maaari kang gumamit ng mga serbisyo ng tulong sa wika nang walang bayad. Tumawag sa 1-720-777-9800.

注意事項: 日本語を話される場合、無料の言語支援をご利用いただけます。1-720-777-9800 まで、お電話にてご連絡ください。

Nti: O buru na asu lbo, asusu aka oasu n'efu, defu, aka. Call 1-720-777-9800.

Clinical pathways are intended for informational purposes only. They are current at the date of publication and are reviewed on a regular basis to align with the best available evidence. Some information and links may not be available to external viewers. External viewers are encouraged to consult other available sources if needed to confirm and supplement the content presented in the clinical pathways. Clinical pathways are not intended to take the place of a physician’s or other health care provider’s advice, and is not intended to diagnose, treat, cure or prevent any disease or other medical condition. The information should not be used in place of a visit, call, consultation or advice of a physician or other health care provider. Furthermore, the information is provided for use solely at your own risk. CHCO accepts no liability for the content, or for the consequences of any actions taken on the basis of the information provided. The information provided to you and the actions taken thereof are provided on an “as is” basis without any warranty of any kind, express or implied, from CHCO. CHCO declares no affiliation, sponsorship, nor any partnerships with any listed organization, or its respective directors, officers, employees, agents, contractors, affiliates, and representatives.