



Testicular Torsion

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What is a Clinical Pathway?

An evidence-based algorithm that decreases unnecessary variation and helps promote safe, effective, and consistent patient care.

Objectives of Pathway

- To document and standardize the current-state for testicular torsion care at Connecticut Children's
- To prevent delays of care when ultrasound is unavailable
- To encourage use of the TWIST score to triage testicular torsion when appropriate

Why is Pathway Necessary?

- Testicular torsion is an organ threatening diagnosis that requires prompt diagnosis and treatment
- Connecticut Children's currently provides excellent care for testicular torsion, as tracked by NSQIP metrics, but this is done without a standardized pathway
- Testicular torsion protocols are known to improve both time to OR and orchiectomy rate

Considerations for torsion pathway

- Recent update to UK NHS approach to testicular torsion
 - Helpful review of the literature and ability to compare their pathway to our standard of care



The poster features the NHS England logo and the GIRFT logo (GETTING IT RIGHT FIRST TIME) in the top left. The main title is "NEW Best practice pathway for testicular torsion" in large white and yellow text. To the right of the title is a hand icon pointing to a checkmark in a box, with an 'X' in a box above it. Below the title is a photograph of a woman and a man smiling. At the bottom left is a photograph of people working at a desk. The GIRFT logo is repeated at the bottom right. A small note at the bottom left states "Version 2, updated January 2026" and another at the bottom center states "GIRFT is part of an aligned set of programmes within NHS England".

NHS
England

GIRFT
GETTING IT RIGHT FIRST TIME

NEW
Best practice
pathway for
testicular torsion

GIRFT Children and Young
People: Testicular torsion
pathway

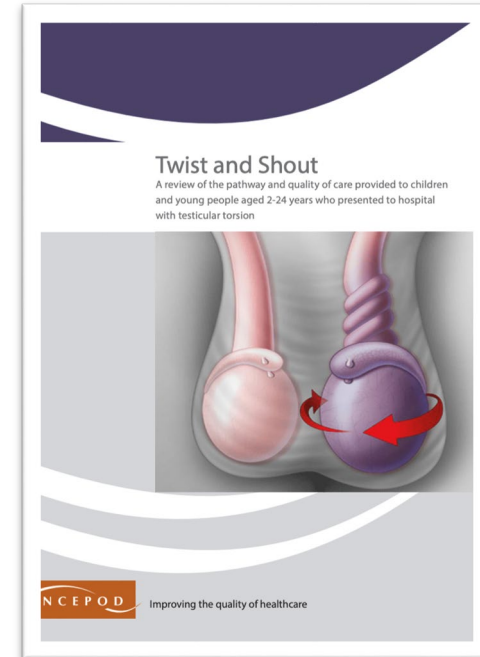
Version 2, updated January 2026

GIRFT is part of an aligned set of programmes within NHS England

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Two major differences to the UK

- Orchiectomy rate in UK outside of a pathway is 40%
 - Our is 23% (NSQIP 25%)
- Prior UK guideline did not recommend ultrasound; only added in 2024



Current NHS commissioning guidance on the management of testicular torsion states that *"In patients with a history and physical examination suggestive of torsion, imaging studies should NOT be performed."*^[5]

Ultrasound has continually shown food

- Color doppler ultrasound has continually shown good diagnostic accuracy for testicular torsion

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available at www.sciencedirect.com
journal homepage: www.europeanurology.com/eufocus



Review – Pediatric Urology

Ultrasound for the Diagnosis of Testicular Torsion: A Systematic Review and Meta-analysis of Diagnostic Accuracy

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- The TWIST score is a clinical score that can help to risk-stratify patients, especially if ultrasound is not immediately available

TWIST Score for Testicular Torsion

Finding	Points
Hard testis	2
Swelling	2
Nausea / Vomiting	1
Absent cremasteric reflex	1
High-riding testicle	1

0-2 points: Low risk; 3-4 points: Intermediate risk; 5-7 points: High risk.

TWIST score has good predictive value

	Sensitivity	Specificity
TWIST 3-7 vs TWIST 0-2	95%	78%
TWIST 5-7 vs TWIST 0-4	67%	98%
TWIST 5-7 vs TWIST 0-2	96%	98%
Ultrasound (in studies performed after 2010)	96%	96%

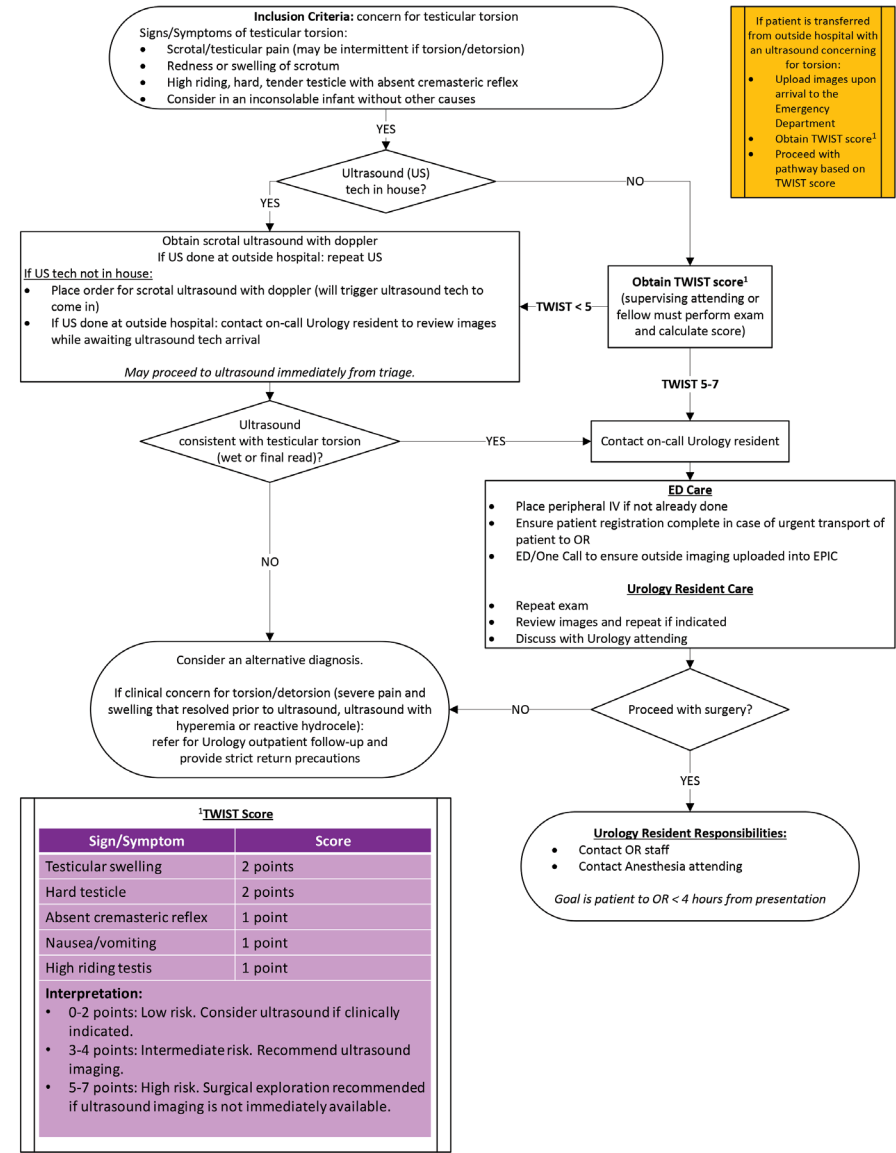
GIRFT Children and Young People: Testicular torsion pathway. Published online January 2026. <https://gettingitrightfirsttime.co.uk/wp-content/uploads/2025/12/Paediatric-testicular-torsion-pathway-guide-FINAL-V2-January-2026.pdf>

CLINICAL PATHWAY:
Testicular Torsion

THIS PATHWAY
SERVES AS A GUIDE
AND DOES NOT
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JUDGMENT.

This is the Testicular Torsion Clinical Pathway

We will be reviewing each component in the following slides



CONTACTS: COURTNEY ROWE, MD | ERIC HOPPA, MD | NICHOLAS DAVIS, DO

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Inclusion Criteria: concern for testicular torsion

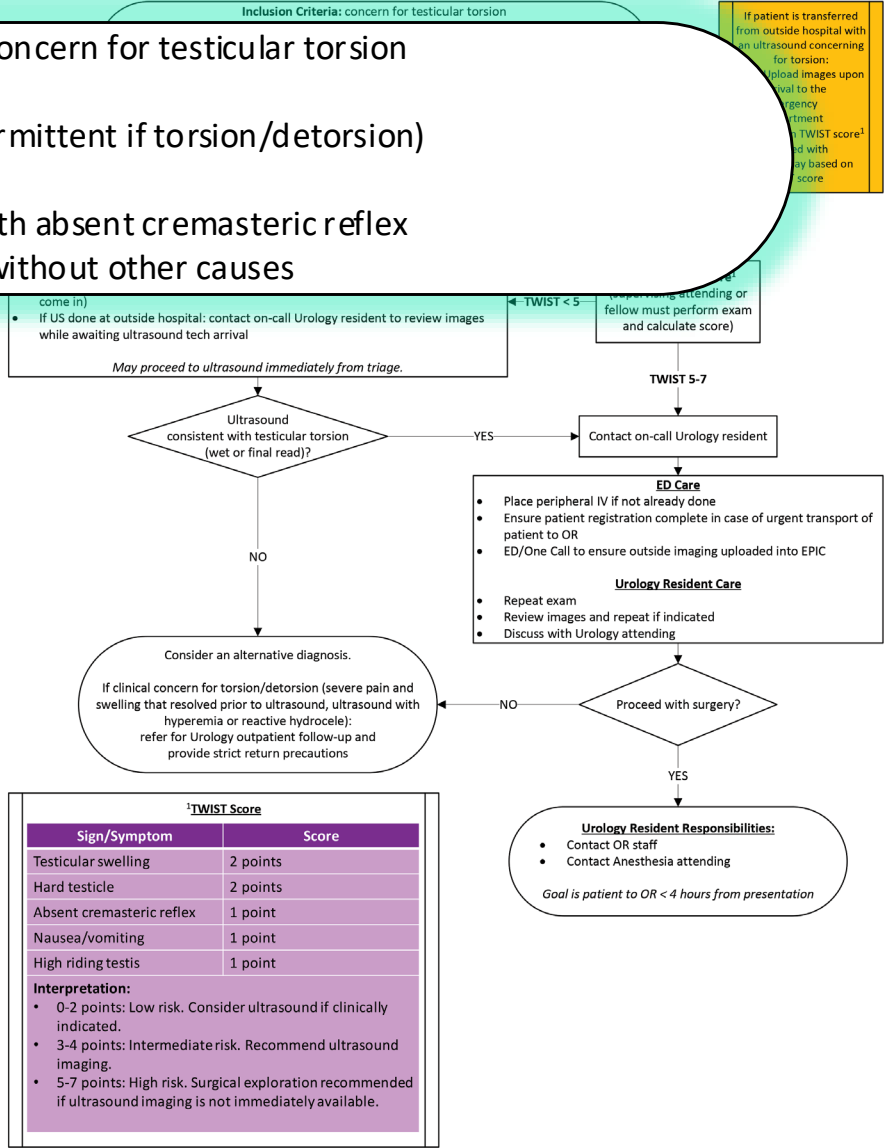
Signs/Symptoms of testicular torsion:

- Scrotal/testicular pain (may be intermittent if torsion/detorsion)
- Redness or swelling of scrotum
- High riding, hard, tender testicle with absent cremasteric reflex
- Consider in an inconsolable infant without other causes

If patient is transferred from outside hospital with an ultrasound concerning for torsion: upload images upon arrival to the emergency department. TWIST score¹ calculated with images based on score.

Testicular torsion is a surgical emergency, and there should be a high index of suspicion if any of the following are present:

- Scrotal/testicular pain
- Redness or swelling of scrotum
- High riding, hard, tender testicle with absent cremasteric reflex
- Inconsolable infant without other causes



¹TWIST Score

Sign/Symptom	Score
Testicular swelling	2 points
Hard testicle	2 points
Absent cremasteric reflex	1 point
Nausea/vomiting	1 point
High riding testis	1 point

Interpretation:

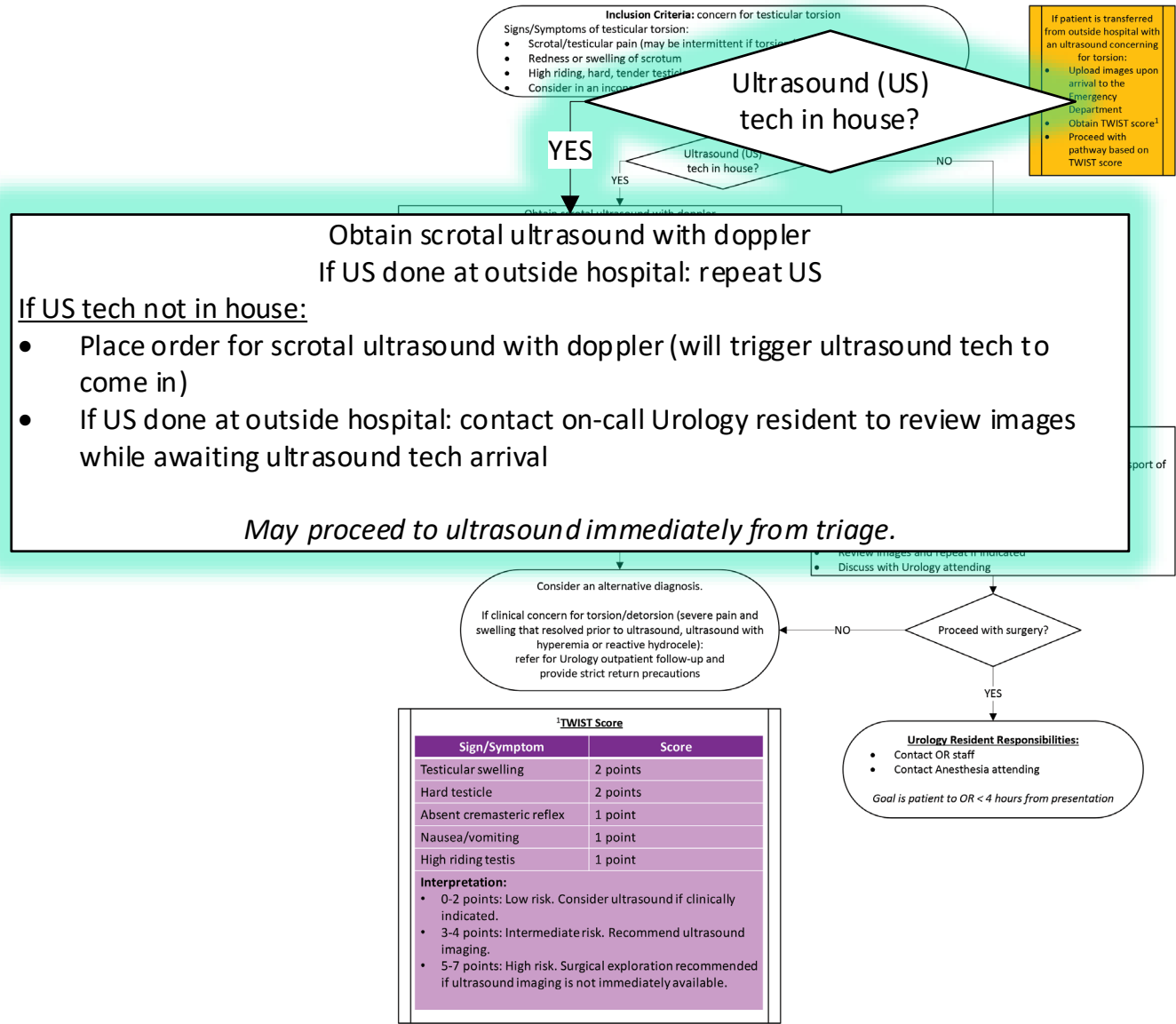
- 0-2 points: Low risk. Consider ultrasound if clinically indicated.
- 3-4 points: Intermediate risk. Recommend ultrasound imaging.
- 5-7 points: High risk. Surgical exploration recommended if ultrasound imaging is not immediately available.

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Rapidly obtaining color doppler ultrasound (US) is key to diagnose testicular torsion, and patient may go directly from triage to US

Even if this study was already completed at an outside hospital, it is important to repeat the US



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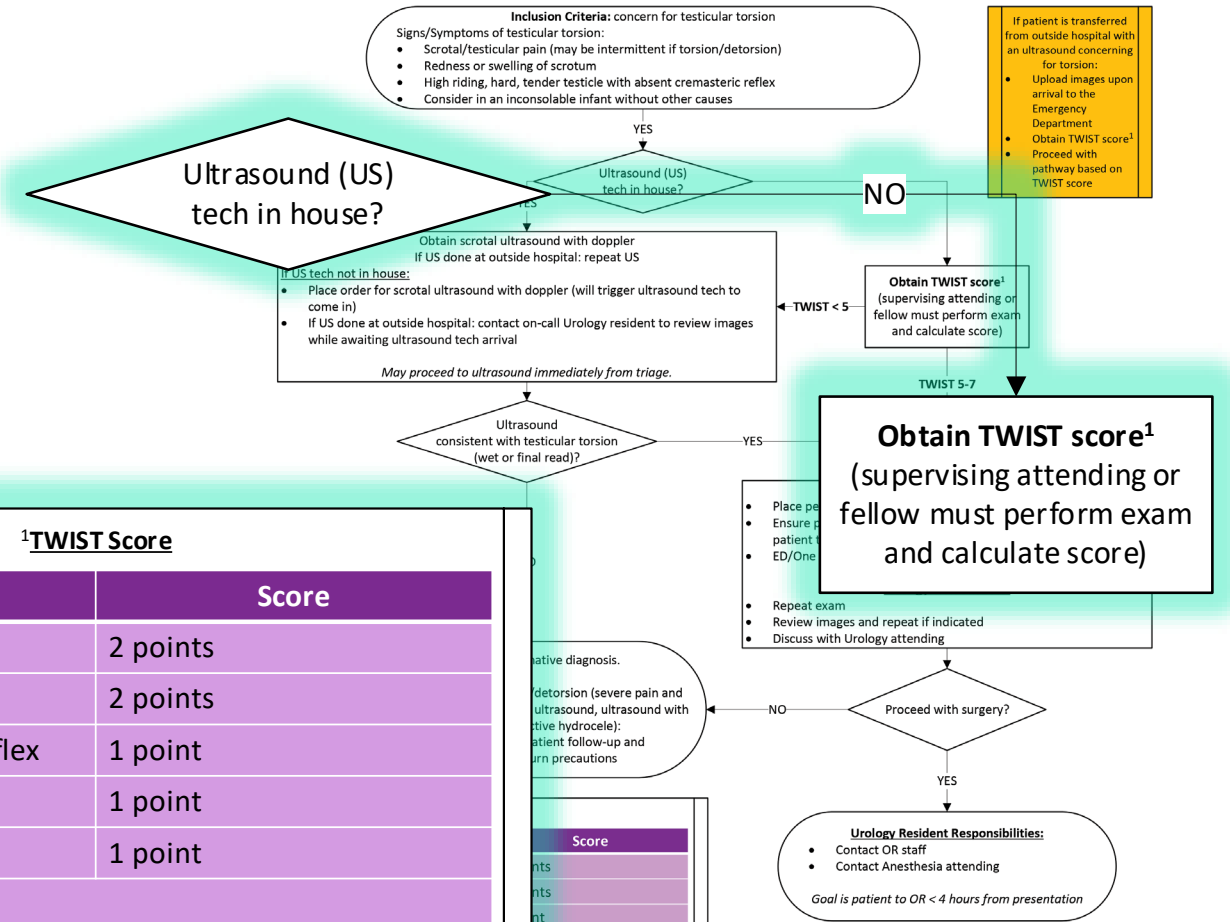
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If patient presents during hours in which US tech is not in house, an **attending or fellow** should obtain a TWIST score



¹TWIST Score

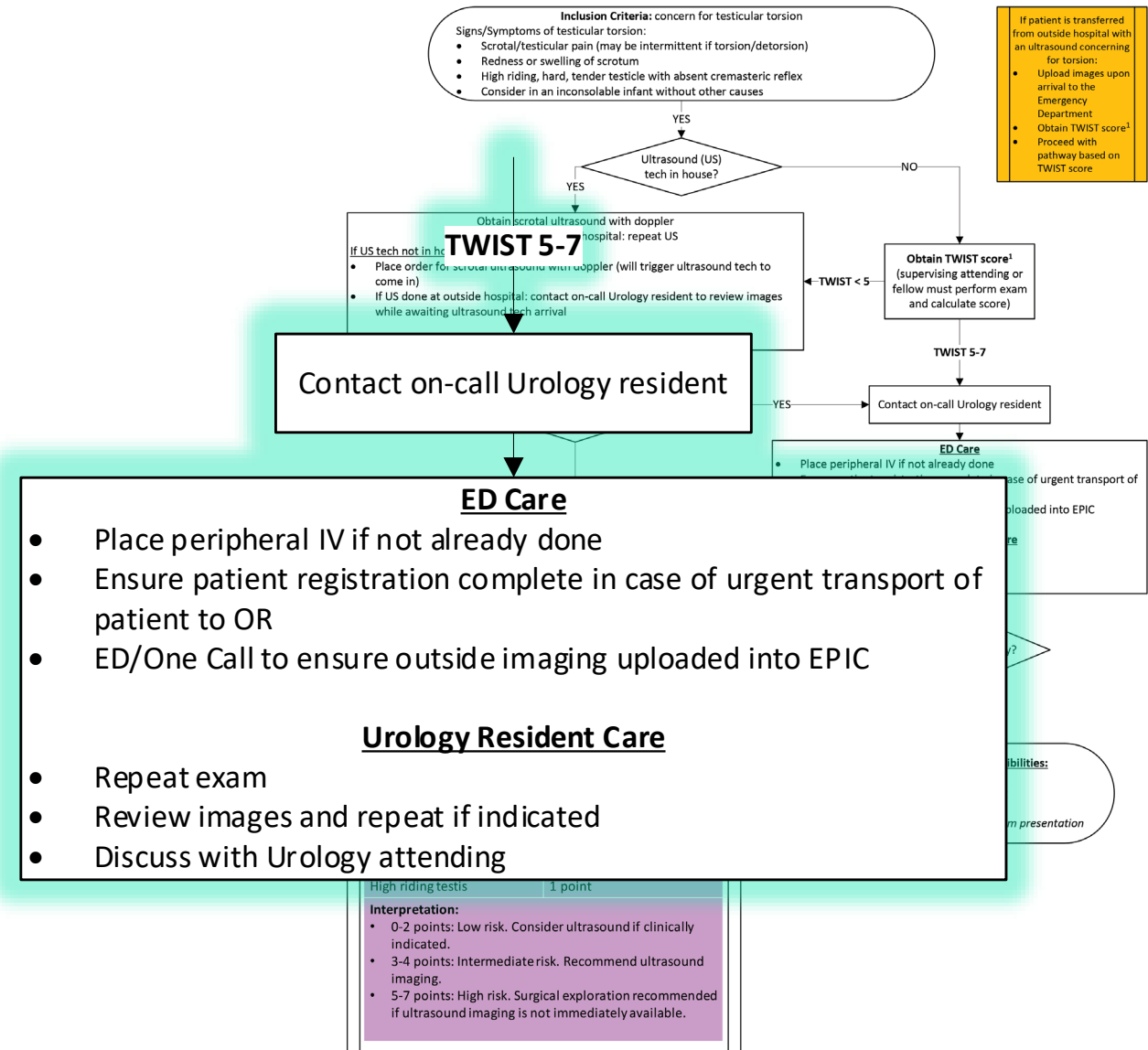
Sign/Symptom	Score
Testicular swelling	2 points
Hard testicle	2 points
Absent cremasteric reflex	1 point
Nausea/vomiting	1 point
High riding testis	1 point

Interpretation:

- 0-2 points: Low risk. Consider ultrasound if clinically indicated.
- 3-4 points: Intermediate risk. Recommend ultrasound imaging.
- 5-7 points: High risk. Surgical exploration recommended if ultrasound imaging is not immediately available.

An elevated TWIST score (5-7) has high sensitivity and specificity for testicular torsion, and if US tech is not available, should prompt stat Urology consultation to evaluate need for detorsion procedure in the OR

Due to the urgent nature of testicular torsion, with a high TWIST score, the ED provider should ensure rapid placement of PIV, completion of patient registration, and upload of any outside imaging into the medical record



Inclusion Criteria: concern for testicular torsion
Signs/Symptoms of testicular torsion:

- Scrotal/testicular pain (may be intermittent if torsion/detorsion)
- Redness or swelling of scrotum

If patient is transferred from outside hospital with an ultrasound concerning for torsion:

- Upload images upon arrival to the Emergency Department
- Obtain TWIST score¹
- Proceed with pathway based on TWIST score

Obtain scrotal ultrasound with doppler
 If US done at outside hospital: repeat US

If US tech not in house:

- Place order for scrotal ultrasound with doppler (will trigger ultrasound tech to come in)
- If US done at outside hospital: contact on-call Urology resident to review images while awaiting ultrasound tech arrival

May proceed to ultrasound immediately from triage.

TWIST < 5

Repeat exam (calculate score)
 TWIST 5-7
 Call Urology resident

ED Care

- Place peripheral IV if not already done
- Ensure patient registration complete in case of urgent transport of patient to OR
- ED/One Call to ensure outside imaging uploaded into EPIC

Urology Resident Care

- Repeat exam
- Review images and repeat if indicated
- Discuss with Urology attending

Consider an alternative diagnosis.
 If clinical concern for torsion/detorsion (severe pain and swelling that resolved prior to ultrasound, ultrasound with hyperemia or reactive hydrocele): refer for Urology outpatient follow-up and provide strict return precautions

Proceed with surgery?

Urology Resident Responsibilities:

- Contact OR staff
- Contact Anesthesia attending

Goal is patient to OR < 4 hours from presentation

¹ TWIST Score		
Sign/Symptom	Score	
Testicular swelling	2 points	
Hard testicle	2 points	
Absent cremasteric reflex	1 point	
Nausea/vomiting	1 point	
High riding testis	1 point	
Interpretation:		
• 0-2 points: Low risk. Consider ultrasound if clinically indicated.		
• 3-4 points: Intermediate risk. Recommend ultrasound imaging.		
• 5-7 points: High risk. Surgical exploration recommended if ultrasound imaging is not immediately available.		

Lower TWIST scores, < 5, have a lower specificity and should wait for an US

If US tech is not in house, please follow instructions in pathway to call tech in

If there was US at outside hospital, page on-call Urology resident to review images while awaiting US tech

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Ultrasound
consistent with testicular torsion
(wet or final read)?

YES

- Inclusion**
- Signs/Symptoms of testicular torsion
 - Scrotal/testicular pain
 - Redness or swelling of scrotum
 - High riding, hard, tender testis
 - Consider in an inconsolable infant without other causes

Contact on-call Urology resident

patient is transferred
in outside hospital with
ultrasound concerning
for torsion:
Upload images upon
arrival to the
Emergency
Department

ED Care

- Place peripheral IV if not already done
- Ensure patient registration complete in case of urgent transport of patient to OR
- ED/One Call to ensure outside imaging uploaded into EPIC

Urology Resident Care

- Repeat exam
- Review images and repeat if indicated
- Discuss with Urology attending

NO

- Ensure patient registration complete in case of urgent transport of patient to OR
- ED/One Call to ensure outside imaging uploaded into EPIC

Urology Resident Care

Consider an alternative diagnosis
If clinical concern for torsion/detorsion (severe pain, swelling that resolved prior to ultrasound, ultrasound with hyperemia or reactive hydrocele):
refer for Urology outpatient follow-up and provide strict return precautions

Proceed with surgery?

YES

- Urology Resident Responsibilities:**
- Contact OR staff
 - Contact Anesthesia attending

- Urology Resident Responsibilities:**
- Contact OR staff
 - Contact Anesthesia attending
- Goal is patient to OR < 4 hours from presentation*

If US consistent with testicular torsion, Urology should be consulted STAT and patient prepped for the OR

1TWIST Score

Sign/Symptom	Score
Testicular swelling	2 points
Hard testicle	2 points
Absent cremasteric reflex	2 points
Nausea/vomiting	2 points
High riding testis	2 points

Interpretation:

- 0-2 points: Low suspicion, no imaging indicated.
- 3-4 points: Intermediate suspicion, consider imaging.
- 5-7 points: High suspicion, imaging indicated if ultrasound images available.

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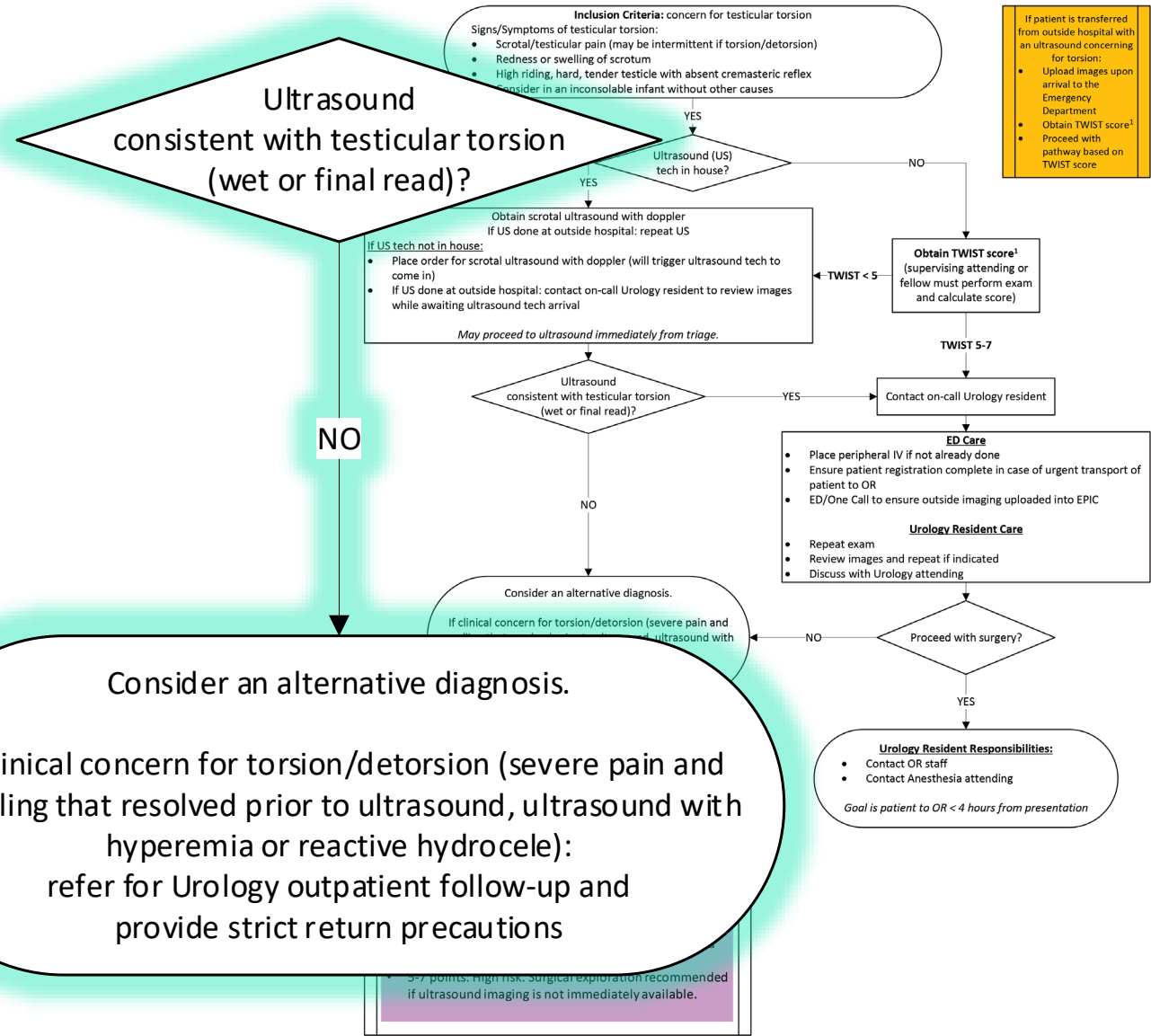


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If US or follow up exam by urologist NOT consistent with testicular torsion, consider alternative diagnosis

Of note, if there is clinical concern for torsion and then detorsion by the time of the ultrasound/exam, ensure referral to Urology ambulatory clinic with clear return to ED precautions



If patient is transferred from outside hospital with an ultrasound concerning for torsion:

- Upload images upon arrival to the Emergency Department
- Obtain TWIST score¹
- Proceed with pathway based on TWIST score

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Review of Key Points

- Testicular torsion outcomes at Connecticut Children's are excellent; a clinical pathway will ensure this high quality is maintained
- Ultrasound has excellent diagnostic accuracy for testicular torsion; the clinical TWIST score provides an opportunity to triage high or low risk patients

- Percentage of patients receiving an ultrasound
- Percentage of patients with a documented TWIST score
- Percentage of patients going to the OR for testicular torsion procedure
- Percentage of patients going to the OR for testicular torsion procedure based on TWIST score alone and no ultrasound

Pathway Contacts

- Courtney Rowe MD
 - Pediatric Urology
- Eric Hoppa, MD
 - Pediatric Emergency Medicine
- Nicholas Davis, DO
 - Pediatric Emergency Medicine

References

- Alexander CE, Warren H, Light A, Agarwal R, Asif A, Chow BJ, Clement K, Chan V, Zimmermann E, Khadhour S, Eyskens PJ, Shah TT, Nathan A, Byrnes K, Bhatt N, Mani N, Yuhong Yuan C, Sidhu PS, Takwoingi Y, Kasivisvanathan V. [Ultrasound for the Diagnosis of Testicular Torsion: A Systematic Review and Meta-analysis of Diagnostic Accuracy](#). Eur Urol Focus. 2026 Jan;12(1):96-108. doi: 10.1016/j.euf.2025.04.026. Epub 2025 May 13. PMID: 40368720.
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Thank You!



About Connecticut Children's Pathways Program

Clinical pathways guide the management of patients to optimize consistent use of evidence-based practice. Clinical pathways have been shown to improve guideline adherence and quality outcomes, while decreasing length of stay and cost. Here at Connecticut Children's, our Clinical Pathways Program aims to deliver evidence-based, high value care to the greatest number of children in a diversity of patient settings. These pathways serve as a guide for providers and do not replace clinical judgment.