2015

Commissioning guide:

Management of Paediatric Torsion

SECOND DRAFT FOR NATIONAL CONSULTATION

Commissioned and facilitated by

East Midlands Clinical Networks

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Contents – To be finalised

Introduction

The acute scrotum is defined as sudden pain of the scrotum or its contents, accompanied by local signs such as swelling, skin changes or systemic symptoms. In a boy presenting with an acute scrotum, it is imperative to rule out testicular torsion, which is a surgical emergency. The acute scrotum should be rapidly assessed and assumed to be testicular torsion until proven otherwise.

There is a bimodal distribution of testicular torsion with peaks in the first year of life and in early adolescence[1]. Torsion of the appendix testes occurs over a wider age range.

Other causes of acute scrotal pain are trauma, infection, hydrocoele, inguinal hernia, idiopathic scrotal oedema and systemic disease (e.g. Henoch-Schönlein purpura)[2-5]. Whilst there are features in the clinical assessment that may point to a specific diagnosis[6 7], suspicion of testicular torsion demands immediate surgical exploration[2 8-13]. The sequelae of non- operative management are well documented[14-18] and include testicular loss and possible impairments to fertility. Torsion has an annual incidence of approximately 3.8 per 100,000 males younger than 18 years[19 20] and accounts for approximately a third of acute paediatric scrotal disease[21]. Even with apparently successful testicular salvage fertility can be impaired[18].

In 2013/2014, there were 3304 finished consultant episodes (FCE's) for Torsion of the testis, of which 2501 were in children (Health and Social Care Information Centre, November 2015).

This is not intended as a guide for the clinical management of paediatric patients presenting with the acute scrotum. Neonatal Torsion is not included in this guide.

Diagnosis

Physical examination is unreliable in either diagnosing or ruling out torsion of the testis. If there is suspicion, an immediate referral to secondary care is mandatory.

The classical clinical presentation of torsion is the sudden onset of severe, unilateral testicular pain, often accompanied by nausea and vomiting[6 7 21-23]. The pain may be intermittent but in established torsion it is often continuous. There may be a history of previous attacks of pain representing intermittent torsion/ detorsion. The physical examination should encompass the abdomen, inguinal region and scrotum. Clinical features depend upon the duration of the torsion, and may include localised swelling/ induration of the surrounding skin with erythema and tenderness. The testis may be high riding, the cord thickened by the twists or the epididymis may be located anteriorly. Diagnosis of testicular torsion cannot be reliably excluded by location of pain, imaging, positive urine

dip for infection, or presence of pyrexia. In many cases it is not possible to determine the cause of acute scrotum *without exploration* based on history and physical examination alone[1 2 7 9 10 19 22 24].

Secondary Care:

Investigations

In patients with a history and physical examination suggestive of torsion, imaging studies should not be performed as they may delay treatment, therefore prolonging the ischaemic time. Negative surgical exploration is preferable to a missed diagnosis as all imaging studies have a false-negative rate.

The literature suggests a high degree of sensitivity and specificity can be attained with doppler ultrasound[24-27]. Doppler ultrasound may nevertheless be falsely reassuring in the early phase of torsion and in partial or intermittent torsion: ***present arterial flow does not exclude testicular torsion***[28-30]. Imaging may be considered for a small number of children ***under the guidance of a senior clinician*** in late presenters.

Surgery

Considering the time- critical nature (NCEPOD Code 2- Urgent)[31] of the condition, patients and their families will benefit from assessment and surgery performed locally wherever possible with selected appropriate referral to a tertiary paediatric surgery centre, i.e. in the very young where there may not be anaesthetic support. Inter-hospital transfer is likely to prolong the period of ischaemia and consequently reduce the likelihood of testicular salvage. Children should receive surgery in a safe, appropriate environment, which is as close to their home as possible[32 33].

The present evidence indicates that early surgery is crucial to prevent the development of permanent ischaemic changes after testicular torsion. The two most important determinants of testicular salvage are the time between onset of symptoms and detorsion, and the degree of cord twisting[8 12]. Severe testicular atrophy can result after torsion for as little as 4 h when the turn is > 360°[12].

During exploration, if torsion or the propensity towards it ('bellclapper testis') is encountered, fixation of the contralateral testis is also performed. If the infarcted testis is unsalvageable it is removed. The possibly viable testis is detorted, warmed and fixed.

Non absorbable suture material and 3 point fixation is commonly used[34].

1. High Value Care Pathway for the acute scrotum

1.1 Initial and Primary care

- Examination of the testes should be performed in all male patients presenting with abdominal pain.
- Acute testicular pain, often with abdominal pain and sometimes vomiting has a high predictive value for testicular torsion. The patient should be kept fasted and a surgical referral should be made without delay.
- Where there is a suspicion of testicular tumour (preceding mass or chronic history >24 hours), referral should be made to a tertiary paediatric surgical service for assessment.

1.2 Secondary and Tertiary Care

Global Requirements[32]

- There should be local clinical guidelines for management.
- Care should be provided within a clinical network of secondary/tertiary care providers.
- Triage and measurement of vital signs should be completed on arrival in an appropriate setting.
- The senior surgical decision maker should assess all children on admission to agree and action appropriate management with the on call consultant surgeon.
- There must be 24 hour access to a named Consultant Paediatrician.
- Appropriate radiology and Laboratory facilities should be available.
- Children must be cared for in an appropriate child friendly environment.
- Trusts must ensure they have protocols and procedures in place to identify a deteriorating child and alert appropriately trained personnel.
- All staff who come into contact with children and young people are trained in safeguarding to an appropriate level as defined in the intercollegiate framework: Safeguarding Children and Young people: roles and competences for health care staff[35].
- There should be defined arrangements for emergency transfer if required.
- Appropriate information in a range of formats and support must be available to parents/children to enable them to fully participate in decisions about the care of their child including fasting in case surgery is required.

Procedure Specific Requirements

- Patient to be fasted at earliest opportunity until assessed by surgical team.
- Immediate surgery should be performed if testicular torsion is suspected, and should not be delayed by imaging studies/ fasting status if the history and physical examination findings are strongly suggestive.
- Surgery should be provided locally where possible to avoid delays caused by referral and transfer.
- Non operative management of a torted testicular appendage (by evidence on clinical examination of a 'blue dot') should be made only by a senior surgical decision maker.
- Doppler USS may be performed in equivocal cases on the direction of the senior surgical decision maker.
- Fixation of the torted testes and the contralateral testes is required.
- A regular audit of processes and outcomes should be performed.

Follow up:

- The patient should be followed up, wherever possible locally, to demonstrate viability of testis at around 6 months. Information should be provided regarding long term outcomes.
- In cases of excision of a non-viable testis, consideration may be made thereafter for testicular prosthesis insertion.

2. Procedures explorer for Paediatric Acute Scrotum

(UNDER DEVELOPMENT)

3. Quality dashboard for Paediatric Acute Scrotum

(UNDER DEVELOPMENT)

4. Levers for implementation

4.1 Audit and peer review measures

The following measures and standards are those expected. Evidence should be able to be made available to commissioners if requested.

Measure	Standard
Member of local GPS Network	Provider can demonstrate participation in the Network
Service Provision	Policy at local and network level about treatment of torsion. On-call rotas ensure surgeon available at all times competent to carry out surgery
Compliance with Network Audits	Involvement and provision of audit data to the Network
Appraisal	General paediatric surgery activity/ training should be included in annual appraisal and revalidation

4.2 Quality Specification/CQUIN (may not be CQUIN)

Commissioners may wish to include the following measures in the Quality Schedule with providers.

Measure	Description	Standard/ Data specification
Timely intervention	Percentage of explorations within 3 hours of decision to operate (excluding those with co-morbidities)	100%
Readmission rates	7 and 30 days	RCS data Tool
Transfer	Provider reports numbers and receiving unit Number of patients transferred for surgery Time between initial assessment (1st receiving unit) and surgery post transfer	
Patient Experience	Provider demonstrates collection and monitoring of parent/carer feedback	Trust

5. Directory

5.1 Patient Information

Name	Publisher	Link
Information for parents	British Association of Paediatric Surgeons (BAPS)	http://www.baps.org.uk/parents/
Exploration for suspected torsion (adult information)	British Association of Urological Surgeons (BAUS)	http://www.baus.org.uk/_userfiles/pages/files/Patients/Leaflets/Torsion.pdf
Torsion of the testis	Patient.co.uk	http://patient.info/health/torsion-of-the-testis
Testicular lumps and swelling	NHS Choices	http://www.nhs.uk/conditions/Testicular-lumps-benign/Pages/Introduction.aspx

5.2 Clinician information

Name	Publisher	Link
Standards for Children's Surgery - 2013	Children's Surgical Forum (RCSEng)	www.rcseng.ac.uk/publications/docs/standards-in-childrens-surgery
Surgery for Children: Delivering a First Class Service- 2011	Children's Surgical Forum (RCSEng)	www.rcseng.ac.uk/publications/docs/CSF.html
Guidance for Provision of Paediatric Anaesthesia	Royal College of Anaesthetists	www.rcoa.ac.uk/gpas2015
Management of pain in children	College of Emergency Medicine	www.collemergencymed.ac.uk/Shop-Floor/Clinical%20Guidelines/College%20Guidelines/
Standards for non-specialist emergency surgical care of children 2015	Children's Surgical Forum (RCSEng)	http://www.rcseng.ac.uk/surgeons/surgical-standards/working-practices/childrens-surgery/documents/standards-for-non-specialist-emergency-surgical-care-of-children.

6. Benefits and risks of implementing this guide

Consideration	Benefit	Risk
Patient outcome	• Ensure access to effective and timely local clinical management • Reduce risk of testicular loss • Protect long term fertility	• Negative explorations
Patient safety	• Patients have access to appropriate surgical care where needed • Reduce risk of complications • Avoid late referrals	
Patient experience	• Improve access to parent/carer information	
Equity of access	• Improve local access to effective procedures	
Resource impact	• Reduce unnecessary referral and investigations • Reduce claims/ complaints for loss of testis	• Resource required to maintain and establish clinical networks • Lack of infrastructure to support secondary care

7. Further information

7.1 Research recommendations

- Does prompt scrotal exploration and fixation < 3hours allow testicular salvage?

7.2 Other recommendations

- Establishment and maintenance of general paediatric surgery (GPS) clinical networks

7.3 Evidence base

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7.4 Guide development group for the management of the paediatric acute scrotum

A commissioning guide development group was established to review and advise on the content of the commissioning guide. This group met twice with additional interaction taking place via email.

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7.6 Conflict of interest statement

Individuals involved in the development and formal peer review of commissioning guides are asked to complete a conflict of interest declaration. It is noted that declaring a conflict of interest does not imply that the individual has been influenced by his or her secondary interest. It is intended to make interests (financial or otherwise) more transparent and to allow others to have knowledge of the interest.

The following interests were declared by group members: TBC