



Interim Bulletin

Management of acute onset testicular pain

23 August 2018

This interim bulletin contains facts which have been determined up to the time of issue. It is published to inform the NHS and the public of the general circumstances of events and incidents and should be regarded as tentative and subject to alteration and correction if additional evidence becomes available.

Notification of event and decision to investigate

The Healthcare Safety Investigation Branch (HSIB) was notified by the mother of a 20-year-old man who had a testicle removed (an orchidectomy) due to a lack of a blood supply through the spermatic cord. This cord normally provides a flow of oxygen and essential nutrients to the testicle. In this instance, the testicle was twisted for a prolonged period.

This is a condition known as testicular torsion, which causes the blood supply to be reduced or stopped completely. The cells and tissue in the testicle then die (necrosis). If the testicle is not removed, it can cause other complications such as infection and an alteration in the function of the sperm produced by the remaining testicle.

Experts state when a testicular torsion occurs, the time between the onset of symptoms and treatment is critical. Testicular cell and tissue death can occur as little as four hours after the torsion takes place when the twist is greater than 360 degrees.

The investigation has also been informed that a clinician should suspect a testicular torsion if a patient presents with 'acute' or 'immediate-onset' as opposed to 'gradual' pain. The diagnosis of a testicular torsion can also only be reliably confirmed by a scrotal examination.

Testicular torsion is a common condition in newborn or adolescent males. It can however occur in all ages. In 2013/2014 there were 3304 cases across England, of which 75% were in children (Health and Social Care Information Centre, November 2015).

The initial information provided by the mother to HSIB identified possible safety issues in the diagnostic and treatment pathway for testicular torsion and a preliminary investigation was carried out to determine the potential for national learning.

The outcome was presented to the HSIB, and the Chief Investigator authorised a full investigation as it met the following criteria:

Outcome Impact – What impact has a safety issue had, or is having, on people and services across the healthcare system?

There are many physical, social, psychological and financial impacts of a delay in the treatment of testicular torsion. They include, but not exclusively, the following:

- The prolonged experience of intense pain directly arising from the torsion
- Poor sperm production because of chemical changes in the blood due to tissue death and/or physical damage to the remaining testicle
- The experience and recovery from the removal of a testicle, insertion of a cosmetic replacement (known as a prosthetic) and additional outpatient treatment to improve the ability to have a child naturally
- Paying directly for some of the above procedures and NHS funding on surgical procedures
- Prolonged hospital stays, mental health care for psychological distress and legal claims.

Systemic Risk - How widespread and how common a safety issue is this across the healthcare system?

The annual incidence in males under 25 years is 1 in 4000¹. In one clinic, over a ten-year period (1998-2008), it was found there were 173 suspected cases of testicular torsion, and of those, nearly one in five males (17%) had an orchidectomy because of delay in diagnosis and/or treatment.² A similar incidence was reported in 2017 from another study of 656 cases

¹ Barada JH, Weingarten JL, Cromie WJ. *Testicular salvage and age-related delay in the presentation of testicular torsion*. J Urol 1989; 142:746-8.

² Somani, K., Watson, G. & Townell, N. (2010) *Easily Missed? Testicular Torsion*. British Medical Journal, Vol. 341, Jul 27

referred to one NHS children's tertiary centre over an eight-year period (and excluding procedures in newborns). The rate of removal of testicle due to torsion was 18% overall.³

A review of the NHS National Reporting and Learning System (NRLS) over a two year period (April 2016 to March 2018) revealed 251 reports relating to delays in diagnostics to treatment for torsion.

Testicular torsion is a condition that different healthcare providers would be expected to advise on, detect or treat. This includes General Practices, Urgent Care Helplines (e.g. 999, 111), Ambulance Service, Emergency Departments, Urgent Care/Minor Injury/Walk-In Centres, Emergency and Radiology Departments, Urgent Urology Clinics/Wards in around 135 General and Specialist (i.e. Tertiary) Hospitals.

Learning Potential – What is the potential for an HSIB investigation to lead to positive changes and improvements to patient safety across the healthcare system?

There is potential for HSIB to develop a greater understanding of both the variation, and the level of success the current diagnostic and treatment pathway has for testicular torsion in adults and children. The investigation can also determine the impact this has on patients, their family, carers and clinicians involved in the diagnosis and treatment.

The potential for learning may be attained through the examination of other, successful pathways for time critical conditions. The findings may provide further knowledge and improvement for other health problems that require immediate diagnosis and treatment.

³ Peeraully, R., Dawes, S., Green, S., Jancauskaite, M. & Fraser, N. (2017) *Does the source of referral affect the findings in emergency scrotal explorations?* Abstract presented to the British Association of Paediatric Surgeons (BAPS) International Congress

History of the event

The young man involved in this case was 19 when he experienced a testicular torsion. He was a first year university student.

On a Friday morning, around 02:00, he woke with intense pain in his right testicle and took some painkillers. He had experienced similar symptoms a few years previously and was diagnosed with an infection (epididymal-orchitis) and prescribed antibiotics that had been effective. Approximately four hours later, with no improvement in the pain, he rang 111⁴ and was advised to contact his GP within two hours.

Despite several calls to his local GP service, a technical problem meant it was 11:02 before his calls were returned. The GP suspected a testicular torsion and advised he attended the local Emergency Department (ED) as quickly as possible. The GP recalled explaining that his testicle may be twisted although the patient does not remember this.

He arrived at ED at 11:30 and described his symptoms to the 'navigation nurse'⁵. who asked him to wait in the 'minors'⁶ waiting area.

At 14:04, 12 hours after symptom onset, he was examined by the ED GP and diagnosed with a possible infection (orchitis). He was referred to a sexually transmitted disease clinic and prescribed antibiotics.

The following day (Saturday) he travelled by train to his family home and due to the pain, spent the rest of the weekend in bed. On Monday, he rang the family's GP surgery where one of the

⁴ 111 is an NHS urgent care advice line

⁵ A navigation nurse makes sure on arrival to the Emergency Department, patients are allocated to the appropriate healthcare professional and physical location to treat their illness or injury.

⁶ Minors is usually an area within the Emergency Department that is designated for less serious illnesses or injuries that can be treated by more junior doctors, nurses or GPs.

GP's, assuming he had been seen by a specialist at ED, advised that he should continue with the prescribed antibiotics.

Two days later and still in pain he was examined by the family's usual GP who noted an 'apple-sized' swelling in his testicle. He was referred to the local urology 'hot clinic'⁷ where he was booked for an emergency scrotal surgical examination for suspected testicular torsion with a possible orchidectomy and/or orchidopexy (an operation to prevent twisting of the remaining testicle)

In the early hours of the following morning, a surgical scrotal examination, a right sided orchidectomy (due to necrosis of the testicle tissue) and a left sided orchidopexy was performed.

National context

Publications

There are many articles published in health journals, both nationally and internationally about the diagnosis and treatment for suspected testicular torsion. There are publications raising awareness of the importance of considering testicular torsion before other conditions and recognising it is a time critical condition. The topic features in recognised text books for core medical training for all doctors. It is a key area of educational focus for those who wish to pursue a career in emergency medicine, obstetrics (pregnancy and birth), paediatrics (child illness and disease), general surgery and urology.

Guidance

The National Institute of Health and Care Excellence (NICE) has accredited the 'Commissioning Guide – Management of Paediatric Torsion' (commissioned by the East

⁷ A hot clinic is an outpatient clinic usually in a hospital that accepts direct and urgent referrals from a range of healthcare professionals.

Midlands Clinical Network 2016 and sponsored by BAPS and BAPU). There are at least five other published guidance documents from recognised organisations that also cover the topic.

National schemes for improvement

The patient safety team at NHS Improvement shared information with the investigation on improvement schemes. However, these are focused on the paediatric healthcare sector and on treatment, rather than diagnostic pathway. These will be discussed further in the final report.

Identified safety issues

During the HSIB's initial review, the following safety issues were identified and will form the basis of the ongoing investigation:

- The diagnostic and treatment pathway for time critical conditions
- The diagnostic process

Next steps

The HSIB investigation will continue to explore the identified safety issues and welcomes further information that may be relevant, regardless of source. The HSIB will report any significant developments as the investigation progresses.



HEALTHCARE SAFETY
INVESTIGATION BRANCH