Children's Services

Department of Paediatric Surgery

Extracorporeal shockwave disintegration of stones in children: procedure-specific information

What does extracorporeal shockwave treatment (also called ESWL) involve?

Extracorporeal shockwave treatment (ESWL) involves the administration of shockwaves through the skin to break up urinary tract stones into small enough fragments to pass naturally. The procedure involves either x-ray or ultrasound scanning to localise the stone(s). In children this procedure takes place under general anaesthetic, usually as a day-case procedure.

What are the alternatives to this procedure?

The alternatives are:

- Telescopic surgery
- Open surgery
- Observation and spontaneous passage

What should I expect before the procedure?

Before Admission:

Most children will be reviewed 7 to 14 days prior to admission in our 'pre-operative assessment clinic.' The purpose of the clinic is to:

- Ensure you and your child are fully informed.
- Ensure your child's hospital stay is as straight forward as possible.

Please inform your surgeon in advance of your surgery (during your clinic appointment or during your pre-operative assessment clinic appointment) if your child has any of the following:

- a neurosurgical shunt
- any other implanted foreign body
- a prescription for Warfarin, Aspirin or Clopidogrel (Plavix®)
- a previous or current MRSA infection

If your child has a cold, cough or illness such as chicken pox the operation will need to be postponed to avoid complications. Please telephone us (the Nurse Specialist Team can be contacted on 01223 586973 to discuss this prior to coming to the hospital.

On the day of the procedure:

You will be asked to bring your child to one of our children's wards, usually early in the morning on the day of surgery. Your child will not be able to eat and drink before the operation. Specific advice about this will be given on the day before your child's surgery when you telephone the ward to confirm bed availability.

When you arrive your child will be seen by the nursing staff plus a doctor and an anaesthetist (if not seen by these people at the preoperative assessment clinic). On arrival, an X-ray may be taken to confirm the presence of the stone(s).

A parent will be able to accompany your child when she/he goes to the anaesthetic room to go to sleep for the operation and also be present in the recovery area when she/he wakes. If your child needs to stay overnight (which is uncommon) a bed will be provided for a parent to say next to their child.

What happens during the procedure?

Children need a general anaesthetic for the procedure to ensure that they lie still for the procedure and to ensure they are kept comfortable. Without an anaesthetic the shock waves can cause discomfort in the kidney and a sensation of being flicked with an elastic band on the skin of your back. Treatment normally lasts between 30 and 60 minutes, depending on the size of the stone(s).

What happens immediately after the procedure?

After the treatment your child will be moved from the operating room to the recovery area where you will be called to be reunited with your child. Your child can start to drink and eat again as soon as she/he wants to. Routine post operative checks of your child will be undertaken both in the recovery area and on the children's ward.

As soon as your child has recovered from the treatment, she/he will be able to go home (usually the same day). Antibiotics and painkillers for your child to take at home will be given to you before your discharge.

Are there any side-effects?

Most procedures have a potential for side-effects. You should be reassured that, although all these complications are well-recognised, the majority of patients do not suffer any problems after this procedure.

Common (greater than 1 in 10)

- Bleeding on passing urine for a short period after the procedure.
- Pain in the kidney as small fragments of stone pass after treatment (20%).
- Urinary tract infection due to bacteria released from the stone during fragmentation, requiring antibiotic treatment (10%).
- Bruising or blistering of the skin in the loin (area beneath the ribs) or on the front of the abdomen.
- Need for repeated ESWL treatments (15-20%).
- Failure to fragment very hard stone(s) requiring an alternative treatment (less than approximately 14%).

Occasional (between 1 in 10 and 1 in 50)

- Severe infection requiring intravenous antibiotics (less than 1%) and sometimes drainage of the kidney by a small drain placed through the back into the kidney.
- Stone fragments occasionally get stuck in the tube between the kidney and the bladder requiring hospital attendance and, occasionally, surgery to remove the stone fragments..

Rare (less than 1 in 50)

- Kidney damage (bruising) or infection needing further treatment.
- Recurrence of stones (less than 1%).

What should I expect when I get home?

When you get home, your child should drink twice as much fluid as they would normally to flush their system through and minimise any bleeding or infection. Painkillers should be taken as necessary. Your child must complete the course of antibiotics.

Some blood in the urine is normal for 48-72 hours. If your child develops bruising/blistering on the skin simple skin creams will usually ease any discomfort and the bruising normally resolves within 7 days.

What else should I look out for?

If your child develops a fever, severe pain on passing urine, inability to pass urine or worsening bleeding, you should contact your GP immediately. Small blood clots or stone fragments may also pass down the ureter from the kidney, resulting in renal pain (called renal colic). In the event of renal pain you should contact your GP immediately.

Are there any other important points?

You will be informed before your child's discharge of any follow-up arrangements. This may involve either further ESWL, surgery or a simple follow-up outpatient appointment when a further X-ray or ultrasound will be taken.

If your child has a stent in place, you may be given an appointment for its removal if this is appropriate.

You can prevent further stone recurrence to your child by implementing changes to his/her diet and fluid intake. If you have not already received a written leaflet about this, contact your named nurse, the Specialist Nurse or your Consultant.

Is there any research being carried out in this field at Addenbrooke's Hospital?

There is no specific research in this area at the moment but all operative procedures performed in the department are subject to rigorous audit at a monthly Audit & Clinical Governance meeting.

What is the evidence base for this information?

This leaflet includes advice from consensus panels, the British Association of Urological Surgeons, the Department of Health and evidence-based sources; it is, therefore, a reflection of best practice in the UK. It is intended to supplement any advice you may already have been given by your GP or other healthcare professionals. Alternative treatments are outlined below and can be discussed in more detail with your Urologist or Specialist Nurse.

Who can I contact for more help or information?

Paediatric Surgery Nurse Specialist Team: 01223 586973
(Monday to Friday 08:00 to 18:00)

What should I do with this form?

Thank you for taking the trouble to read this information sheet.

If you decide to proceed with the scheduled procedure for your child, you will be asked to sign a separate consent form which will be filed in your hospital notes and you will, in addition, be provided with a copy of the form if you wish.

We are currently working towards a smoke-free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS Stop Smoking helpline on 0800 169 0 169

Help with this leaflet:

If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or patient.information@addenbrookes.nhs.uk

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