

Pectus Bar Surgery for Pectus Excavatum

Pectus Bar insertion is a procedure to correct Pectus Excavatum. This information sheet will give some information about the procedure and what to expect during your stay in hospital and when you return home.

What is Pectus Excavatum?

Pectus excavatum is a condition where the breast bone (sternum) is "sunken" so that the middle of the chest looks caved in instead of being level with the ribs. This is usually genetic and seems to run in families.

Pectus excavatum affects about one in 1,000 children and is four times as common in boys as it is in girls. This surgery is usually suggested when a child's ribcage problem is affecting his or her breathing or heart function. It may also be suggested if it is causing serious concerns related to body image.

The Nuss Procedure

The Nuss Procedure is a minimally invasive approach to correcting pectus excavatum. The procedure is performed whilst your child is under a general anaesthetic. The surgeon inserts a curved metal bar under the ribs and sternum to reshape the chest wall.

During the operation, the sternum is elevated using the sternal crane. A bar is inserted through an incision on the side of the chest and advanced across the chest under the sternum. A "bar flipper" is used to rotate the bar 180 degrees, to hold the sternum in place when the crane is removed, correcting the deformity. Once the bar is positioned and the chest has taken the correct shape, the bar is attached to the ribs to prevent the bar from slipping.

On average, the bar remains in place for two years, at which point it is surgically removed.

What happens before the operation?

Before the operation some tests will need to be done to assist with diagnosis and planning for surgery. They will include breathing tests to show the effect of the ribcage problem on your child's breathing. Your child will be asked to wear a stainless steel watch or pendant as metal testing prior to surgery check for any allergies to metal. You will have a minimum of two appointments with your surgeon to discuss the surgery itself, complications, pre and post-operative care, test results and investigations. You will also have an appointment with an Anaesthetist who will discuss the process of putting your child safely to sleep. They will also discuss pain relief options after the operation.

A blood test will be done leading up to the operation.

For 10 days leading up to the operation it is recommended that your child does not have any fish oil or Non-Steroidal Anti Inflammatory Drugs (NSAIDs) such as aspirin or ibuprofen (Nurofen®). If you are unsure, check with a pharmacist what you can or cannot give.

It is also important that your child showers/washes the day of surgery. They are to wash their body with soap and their hair with shampoo.

Day of Surgery

You will have been provided with information related to fasting from food and fluid leading up the procedure.

These instructions must be followed. If the instructions are not followed there will be



delays or your child's surgery will be cancelled. On the day of your child's surgery, arrive at Day of Surgery Admissions (DOSA) at the time requested in your pre-operative letter.

The nursing staff will complete checklists to ensure your child is ready for theatre and the doctors and anaesthetist will see you to go over any last minute questions.

When it is your child's turn, you will go to the Surgical Holding Bay. One parent can go into Theatre with the child while they are anaesthetised. Parents will then be escorted to a waiting area until their child comes out of theatre.

Post-Operative Care

You can expect your child to be in hospital for four to five days.

After the surgery your child will be taken to the Paediatric Intensive Care Unit (PICU) where they will spend the next 24 – 48 hours. During this time your child may feel quite sleepy due to the pain relief medication. After this time your child will be transferred to the ward.

Your child can sit out of bed and begin walking with the help of a physical therapist from the morning following surgery.

Intravenous drip (IV)

Your child will have an IV drip into their arm or hand, so that medications can be given. Medication to help with nausea after surgery can be given through the IV as well as pain relief.

Pain relief

Each day your child will be seen by the Surgical Team and the Acute Pain Service (APS) who will assess your child's pain levels and adjust their pain relief as necessary.

Your child may have significant pain in the beginning, however each day the pain will become easier to manage.

Urinary catheter

A thin tube is placed into your child's bladder while they are in surgery. This tube drains urine into a bag. The catheter is usually removed one to two days after surgery.

Wound drains and dressings

Patients will sometimes have drains in place in their chest to help remove fluid after the surgery. These are removed on the ward with pain relief once the amount of fluid has reduced. The wound will be covered with a water resistant dressing after surgery. These dressings will be checked regularly by nursing staff. It is normal for some blood to ooze under the dressing. Stitches and dressings will be removed by the Surgical Team at the clinic follow up appointment.

Deep breathing and coughing

As your child will be in bed resting, it is important for them to do deep breathing and coughing exercises to prevent chest infections. This will start on the day of surgery when they are in the intensive care unit. Nursing staff and a physiotherapist will teach your child deep breathing exercises using a device called a triflow. They will show your child how to cough using their arms for support which will make a cough less painful and help keep the lungs healthy. They will also show them ways of safely moving in and out of bed.

Pain killers and a general anaesthetic affect how deeply you breathe. When you are in pain and lying still in bed you take smaller breaths and have weaker coughs than normal. This is why the breathing and coughing exercises with pain killers are important.

The physiotherapist will also get you to do some ankle and knee exercises to keep your legs moving while you are resting in bed.

The next day you will continue your breathing exercises that you learnt on the first day. The nurses will assist with pain management to keep you feeling comfortable, especially before physiotherapy. The back of your bed will be lifted up to get your body used to sitting up again. If you are feeling up to it, the physiotherapist will help you sit out of bed and you may even go for a short walk. You may feel a little dizzy or nauseous at first but this will quickly improve.

Each day your child will be able to do more such as short walks and sitting out of bed.

Leaving hospital

Once discharged, your child is expected to slowly resume normal, but restricted, activity. Most children are able to return to school at four weeks after surgery, with exercise restrictions for six weeks (i.e., no physical education, no heavy lifting, etc.). Once your child is fully recovered, he or she may return to regular activity.

An appointment will be made with the surgeon before your child is discharged approximately 2 weeks after your child's surgery

Exercises for home

Posture

Straighten your back, pull your shoulders back and push your chest out. Try to keep this position when sitting and standing for most of the day.

Chest stretching

Take as big a breath as you can, pulling your shoulders back as you breathe in. Hold for three to five seconds with your chest pushed out before breathing out. Do this five times in a row, have a rest and do the same exercise five more times.

For more information

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When to seek medical review by your GP or Surgeon

- > Fever (temperature greater than 38 °C)
- > Persistent coughing (does not stop)
- > Chest pain, especially with deep breaths
- > Signs of infection on the incision sites under the arms - redness, ooze or swelling
- > Any breathing difficulties
- > Any injury to the chest that could have caused the bar to move
- > Lethargy or weakness developing within one month of surgery