Pectus Excavatum

Definition

Pectus excavatum or “sunken chest” is a depression in the chest. The depression may be in the center of the chest or more pronounced on one side (asymmetrical). You may also hear the terms, “saucer-shaped,” “horns of steer,” or “elongated” used to describe the condition. A child can be born with a pectus defect or develop it during their pubertal growth spurt. The pectus may become more severe with growth spurts.

Evaluation

A grading system is used to describe the extent/depth of the pectus: mild, moderate or severe. Not all sunken chests require corrective surgery. Mild depressions can often be helped by exercise &/or posture “Figure Eight” brace. These techniques strengthen the chest’s wall muscles and help to improve posture. Moderate to severe depression may require corrective surgery. The pectus depression can squeeze or crowd the heart and lungs. These children may have difficulty catching their breath, tire easily, &/or complain of chest pain during exercise. We can determine the “grade” (severity) of the pectus by calculating the Haller Index from your child’s cardiac/thoracic MRI or CT scan of the chest.
Early evaluation by a pediatric surgeon is beneficial. Bones are softer in young children and more easily reshaped. Specific exercise or use of a brace can be helpful for children with a mild to moderate depression. As the pectus worsens and the child approaches the teenage years, the bones become harder. This can make it more difficult to raise the sternum up allowing more room for the heart and lungs. However, surgery can be successfully performed on patients through adulthood.

**Treatment**

When necessary, your child’s health care provider will refer you to a pediatric surgeon who will carefully evaluate your child’s chest. Photographs, chest measurements, breathing tests, special x-ray studies, and an evaluation by a cardiologist (heart doctor) may be ordered. The surgeon will then discuss with you the best treatment plan for your child.

**The Nuss Procedure**

The Nuss procedure is a minimally-invasive procedure, invented by Dr. Donald Nuss, for treating pectus excavatum. He developed it at Children's Hospital of The King's Daughters, in Norfolk, Virginia. The defect is corrected using 1-2 steel bars that are curved to fit the patient’s chest and inserted under the breast bone and rotated to “pop out” the depression. Two incisions are made on each side of the chest to insert and secure the bar. Additionally, one smaller incision is made for a small camera to allow the surgeons to see inside the chest cavity as they guide the bar in from one side of the chest to the other. The bar remains in place for 2-3 years and then surgically removed most often via an outpatient procedure.

**What to expect during your child’s surgery at AMC**

- You and our staff will schedule a date for surgery that works best for your family. The time of the procedure will be called to you from the surgical scheduler the day prior to surgery.
- A packet will be provide to you and your child describing the eating and drinking instructions, and you will be asked to check into the pre-operative area one hour prior to your scheduled operation time.
- Your child will receive a light sedative prior to entering the operating room.
- Your child will be given general anesthesia (asleep) during the operation.
- Your child will receive pain medications through an intravenous line (IV) during the surgery.
- The IV will remain in place while your child is in the hospital for fluids and medications.

Document inspired by the International Center for Chest Wall Repair at the Children’s Hospital of The King’s Daughters, Norfolk, Va.
Your child will first go to the post anesthesia recovery unit (PACU) after surgery and then to a room on the pediatric intensive care unit (PICU) for one-on-one nursing care.

Your child will receive several different pain medications to keep them comfortable. These medications are given through the IV as well as by mouth. Your child may also be prescribed a “PCA” (patient controlled analgesia) to help with pain control. Drowsiness is a common side effect.

Your child may have ice chips and sips of fluid immediately after the operation. Food will be added to their diet gradually. When their appetite returns and there are no problems with nausea or vomiting, he/she will get a regular food tray.

X-rays may be taken to check your child’s lungs and make sure that the bar remains in good position.

Your child may be able to sit up in bed, as soon as he/she is ready. Remind your child to keep their back straight while sitting.

Constipation is a common problem for patients who are receiving narcotic pain medications. To help prevent this, your child will receive a stool softener and possibly a suppository.

A nurse will help get your child up and walking as soon as possible. He/she will benefit from getting up and out of bed as much as possible and will help them improve quicker.

Your child will need to do a lot of deep breathing and use the incentive spirometer provided for them in order to encourage deep breathing.

Your child will be able to move around a little more every day. As soon as he or she is able to move and walk without problems, and no longer requires IV pain medication, your child will be able to go home. This usually takes 5 days, +/- a day.