When one of your patients presents with a mild to severe chest wall deformity, you may question when to monitor the patient and when to refer the child’s family to a specialist. While severe cases are often noticed at birth, these deformities can worsen as children develop; especially through puberty. Here’s what you need to know to discuss the issue with a patient’s family and make an appropriate diagnosis and referral.

**Types of Deformities**

*Pectus excavatum*, the most common chest deformity, is characterized by a concave depression of the sternum, resembling a funnel chest. While the concavity can be symmetric, it often can be asymmetric, with the right side usually more depressed than the left. The severity can range from a mild depression to a deep indentation. *Pectus excavatum* can be associated with Marfan Syndrome and Poland Syndrome. The deformity occurs in an estimated one out of 300 to 400 live births, predominately in males and Caucasians.

*Pectus carinatum*, a less common chest deformity, is sometimes called pigeon chest because of the protrusion of the sternum. This deformity occurs in approximately one out of every 1,000 live births and also predominately affects males.

**Treating the Deformities**

For both types of chest wall deformities, you can simply monitor minor cases in your practice through a patient’s puberty. Usually no medical treatment is needed, although
some families may ultimately opt for cosmetic procedures.

For moderate to severe cases, you should refer your patient to a specialist with extensive experience in surgical procedures for these deformities.

With pectus excavatum, surgery may be needed to improve breathing, posture and heart function. There are two types of surgery: For pectus carinatum, treatment options include non-surgical bracing and surgery. Surgery could involve removing portions of the sternum and rib cartilage to reconstruct the chest wall or placement of a steel bar, similar to the Nuss Procedure.

**Referrals**

Referring your patient to a specialist while the child is young may help ease parents’ concerns and facilitate the planning of a potential course of action.

A complete health history, a thorough physical exam, chest measurements and photographs are the first course of action. Once these are completed, a child whose condition is considered severe enough to warrant surgery may have additional tests, including a CT scan, to evaluate the condition of the heart and lungs, as well as the severity of the deformity.

Unless there is a severe deformity, physical therapy or bracing would not be recommended until the child is older than six years of age. Surgery is more likely during the teen years after most growth spurts have ended.

- The Ravitch Procedure involves removing extra rib cartilage and inserting two steel bars into the chest, which are removed at a later time.
- The Nuss Procedure, the most common surgery performed today, involves the placement of a single steel bar and usually does not involve any cartilage removal. Patients remain in the hospital for four or five days. Afterward, they can return to school in two or three weeks and resume exercise in about six weeks. Once they fully recover (in about three months), they can resume all normal activities. The bar remains in place for two to four years and then is removed in an outpatient procedure. Data from long-term follow-up (over 15 years) show the Nuss Procedure provides excellent results with less than 5 percent of the deformity reappearing.

For more information, visit [iuhealth.org/rileyspeaks/physicians](http://iuhealth.org/rileyspeaks/physicians).