What are chest wall anomalies?

Chest wall anomalies are atypical configurations of the chest that result from abnormally growing rib cartilage. There are two primary anomalies:

- **pectus excavatum** – the chest appears sunken, often called “funnel chest”
- **pectus carinatum** – an outward protrusion of the chest

These anomalies occur in about 1 in 400 people. They can be mildly present at birth and may worsen as a child grows.

A common misconception is that pectus abnormalities are merely a cosmetic issue. As a result, people frequently go untreated. In severe cases, the condition may compromise heart and lung function. Many patients experience shortness of breath and fatigue upon attempting exercise.

A third anomaly of the chest wall is Slipping Rib Syndrome. Slipping Rib is an often unrecognized cause of upper quadrant abdominal pain due to weakened ligaments and ‘slipping’ lower rib cartilages which can irritate and damage nerves under the ribs. Many times, this syndrome is misdiagnosed due to normal readings from ultrasound, chest xray, and MRI. Symptoms include severe pain and clicking under the ribcage that increases with movement, deep breathing, coughing/sneezing, or exercise.

results

“I didn’t grow up with pectus, but over the past 10 or 15 years I developed palpitations and chest pains. A scan showed that pectus had pushed my heart way over to the left, smashing my left lung. I was told by another medical center that they would never operate on someone my age. I was frightened and my life expectancy may not have been that great. I was so thankful that we found Dr. Dawn Jaroszewski, especially after I was told I just had to live with this. I flew to Arizona on a Sunday, had the surgery on Tuesday, and was discharged on Saturday—7 days, just like Dr. Jaroszewski said. She stood by her word and everyone at Mayo Clinic was wonderful.”

*Michele K., avid runner, tennis player, yoga enthusiast*

“The surgery was a great success! My daughter can breathe normally and can perform all activities without restrictions and that was the goal of the surgery – my compliments to Phoenix Children’s Hospital, Dr. David Notrica, and also the health insurance company who was able to provide the surgery for her.”

*Brenda J., mother of Melissa, 17 years old*

Most major insurance plans are accepted. Please contact the appropriate office for further information. Referring providers or patients can contact the clinic at the following locations:

**treating patients under 18 years old**

1920 E. Cambridge Avenue, Suite 201
Phoenix, AZ 85006
602.254.5561

**treating patients 18 years old and over**

5777 E. Mayo Blvd., Phoenix, AZ 85054
Referring Providers:
480.301.6539 or 866.629.6362
Patients: 480.301.1735
Surgical Options for Chest Wall Anomalies

Two procedures are commonly used to correct chest wall anomalies:

- **Ravitch Procedure** – surgical treatment that involves making an incision across the chest and removing abnormal rib cartilages

- **Nuss Procedure** – minimally invasive surgery for pectus excavatum that involves reshaping the chest wall by passing a strong metal bar across the chest and under the sternum

Criteria for Surgical Repair of Pectus Excavatum

- Patient is between 6 and 16 years of age
- Ideal age is between 10 and 15 years of age
- Willing to be compliant with bracing
- Pectus index greater than 3.25
- Severe deformity with symptoms (symptoms include exercise intolerance, chest pain, lack of endurance, shortness of breath, asthma-like symptoms, frequent upper respiratory infections)
- Cardiac compression, displacement with mitral valve prolapse, murmur, or conduction abnormalities
- Restrictive or obstructive lung disease on Pulmonary Function Tests
- Pulmonary compression on CT scan
- Failed previous repair

Non-Surgical Options for Pectus Carinatum

Options for non-surgical treatment include anti-inflammatory medicine, massage, rest, ice/heat, and/or repeated injections of local steroids.

Surgical Options for Slipping Rib Syndrome

Options for surgical treatment include removal of the affected costal cartilage and if necessary, correction of the flared rib.

Non-Surgical Options for Slipping Rib Syndrome

Options for non-surgical treatment include anti-inflammatory medicine, massage, rest, ice/heat, and/or repeated injections of local steroids.

Criteria for Non-Surgical Treatment of Pectus Carinatum

- Patient is between 6 and 16 years of age
- Ideal age is between 10 and 15 years of age
- Willing to be compliant with bracing
- Pectus index greater than 3.25
- Severe deformity with symptoms (symptoms include exercise intolerance, chest pain, lack of endurance, shortness of breath, asthma-like symptoms, frequent upper respiratory infections)
- Cardiac compression, displacement with mitral valve prolapse, murmur, or conduction abnormalities
- Restrictive or obstructive lung disease on Pulmonary Function Tests
- Pulmonary compression on CT scan
- Failed previous repair

Dr. Egan is board certified in General Surgery, Pediatric Surgery, and Critical Care Surgery. He joined Pediatric Surgeons of Phoenix in 2008 and also serves as the Co-Director of the Trauma/Critical Care Program at Phoenix Children’s Hospital. In 2000, Dr. Egan published a paper in the Journal of Pediatric Surgery citing the results of bracing v. surgery in certain patients diagnosed with pectus carinatum. He has worked with chest wall anomaly patients for over 15 years.

Jae-O Bae, MD, FACS, FAAP

Dr. Bae is board certified in General Surgery and Pediatric Surgery. He joined Pediatric Surgeons of Phoenix in 2009 and also serves as the Medical Director for Pediatric Surgery at HonorHealth/Scottsdale Healthcare Shea. He is active in several research projects studying the effectiveness of alternate securing methods for pectus bars. Dr. Bae has been working with pectus excavatum and pectus carinatum patients for more than 8 years.

Ramin Jamshidi, MD

Dr. Jamshidi is board certified in General Surgery and Pediatric Surgery. He joined Pediatric Surgeons of Phoenix in 2012 and he also serves as the Medical Director of Pediatric Trauma at Maricopa Medical Center. Dr. Jamshidi has investigated biomedical devices designed to improve chest wall anomaly surgery and has been part of the pectus team since his arrival in Phoenix.

Mark Molitor, MD

Dr. Molitor is board certified in General Surgery, Pediatric Surgery, and Critical Care Surgery. He is an Arizona native who joined Pediatric Surgeons of Phoenix in 2013 and he also serves as the ECMO Director for Phoenix Children’s Hospital. Dr. Molitor received extensive pectus training at Primary Children’s in Salt Lake City Utah and has been providing individualized care for pectus patients for over 5 years.

Jason D. Fraser, MD

Dr. Fraser is board certified in General Surgery and Pediatric Surgery. After completing his General Surgery training at Mayo Clinic Arizona and his pediatric surgery fellowship at Children’s Mercy Hospital in Kansas City, MO, he joined Pediatric Surgeons of Phoenix in 2014. He has been caring for chest wall anomaly patients for more than 7 years and has been an active part of the Pectus team since his arrival.