



Pectus Deformity Repair

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Purpose:

To provide pectus deformity repair guidelines for Population Health and Provider Alliances associates to reference when making benefit determinations.

Additional Information

- Pectus excavatum is often a cosmetic defect, but it may have varied anatomic and symptomatic presentations. CT scans can be used in Members being evaluated for surgery to document more clearly the severity of the degree of lung compression and clarify the need for operation.
- Another etiology of chest asymmetry is Poland's Syndrome. This consists of absence or hypoplasia of the pectoralis major and minor muscles, hypoplasia or absence of nipple and breast, hypoplasia of subcutaneous fat, absence of axillary hair, and partial absence of the upper costal cartilages and portions of ribs.

Coverage Guidelines

- A. Surgery to correct the functional disorders associated with Pectus Excavatum will be considered when ALL of the following criteria are met:
1. Member is at least seven (7) years old;
 2. Cardiac displacement or pulmonary compromise demonstrated by ANY ONE (1) of the following:
 - a. CT scan of the chest with a CT index (Haller index) > 3.2;
 - b. Serial chest x-rays showing atelectasis;
 - c. Pulmonary Function testing demonstrating restrictive lung disease;
 - d. Echocardiogram showing MVP or other valvular abnormalities;
 - e. EKG showing A-V conduction delays.
- B. Surgery to correct the functional disorders associated with Poland Syndrome will be considered when ALL of the following criteria are met:
1. Member is at least seven (7) years old;
 2. Poland Syndrome has been definitely diagnosed by all of the following:
 - a. Absence of the sternal head of the pectoralis major muscle;
 - b. Ipsilateral hypoplasia and/or aplasia of breast or nipple;
 - c. Ipsilateral deficiency of subcutaneous fat and axillary hair;
 - d. Ipsilateral abnormalities of rib cage;



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- e. Ipsilateral upper extremity anomalies including short upper arm, forearm, or fingers;
- f. Additional features might include:
 - i. Hypoplasia or aplasia or serratus, external oblique, pectoralis minor, latissimus dorsi, infraspinatus and supraspinatus muscles;
 - ii. Total absence of anterolateral ribs and herniation of lung;
 - iii. Syndactyly and hypoplasia or aplasia of the middle phalanges.

C. Photodocumentation will be required to substantiate the above findings.

Exclusion Criterion

- Surgery to correct Pectus Carinatum is considered cosmetic and not a covered benefit because this deformity does not cause physiologic disturbances from compression of the heart or lungs.

References:

1. Morshuis W, Folgering H, Barentsz J, et al. Pulmonary function before surgery for pectus excavatum and at long-term follow-up. *Chest*. 1994;105(6):1646-1652.
2. Actis Dato GM, De Paulis R, Actis Dato A, et al. Correction of pectus excavatum with a self-retaining seagull wing prosthesis. Long-term follow-up. *Chest*. 1995;107(2):303-306.
3. Morshuis WJ, Mulder H, Wapperom G, et al. Pectus excavatum: A clinical study with long term postoperative follow up. *Eur J Cardiothorac Surg*. 1992;6(6):318-328; discussion 328-329.
4. Kaguraoka H, Ohnuki T, Itaoka T, et al. Degree of severity of pectus excavatum and pulmonary function in preoperative and postoperative periods. *J Thorac Cardiovasc Surg*. 1992;104:1483-1488.
5. Haller JA Jr, Scherer LR, Turner CS, et al. Evolving management of pectus excavatum based on a single institutional experience of 664 patients. *Ann Surg*. 1989;209(5):578-582.
6. National Institute for Clinical Excellence (NICE). Minimally invasive placement of pectus bar. *Interventional Procedure Guidance 3*. London, UK: NICE; July 2003.
7. Schalamon J, Pokall S, Windhaber J, Hoellwarth ME. Minimally invasive correction of pectus excavatum in adult patients. *J Thorac Cardiovasc Surg*. 2006;132(3):524-529.
8. Guntheroth WG, Spiers PS. Cardiac function before and after surgery for pectus excavatum. *Am J Cardiol*. 2007;99(12):1762-1764.
9. Kelly RE Jr, Shamberger RC, Mellins RB, et al. Prospective multicenter study of surgical correction of pectus excavatum: Design, perioperative complications, pain, and baseline pulmonary function facilitated by internet-based data collection. *J Am Coll Surg*. 2007;205(2):205-216.



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10. Jasonni V, Lelli-Chiesa PL, Repetto P, et al. Congenital deformities of the chest wall. Surgical treatment. *Minerva Pediatr.* 1997;49(9):407-413.
11. Wilhelmi BJ, Cornette PB. Breast, Poland syndrome. *eMedicine Plastic Surgery Topic 132.* Omaha, NE: eMedicine.com; updated August 5, 2002..
12. Freitas Rda S, Tolazzi AR, Martins VD, et al. Poland's syndrome: Different clinical presentations and surgical reconstructions in 18 cases. *Aesthetic Plast Surg.* 2007;31(2):140-146.
13. Kobayashi S, Yoza S, Komuro Y, et al. Correction of pectus excavatum and pectus carinatum assisted by the endoscope. *Plast Reconstr Surg.* 1997;99(4):1037-1045.
14. Fonkalsrud EW, Beanes S. Surgical management of pectus carinatum: 30 years' experience. *World J Surg.* 2001;25(7):898-903.

Disclaimer Information:

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Coverage Issues Guidelines and Medical Technology Assessment Recommendations are developed for selected therapeutic or diagnostic services found to be safe, but proven effective in a limited, defined population of patients or clinical circumstances. They include concise clinical coverage criteria based on current literature review, consultation with practicing physicians in the AvMed service area who are medical experts in the particular field, FDA and other government agency policies, and standards adopted by national accreditation organizations.

Treating providers are solely responsible for the medical advice and treatment of Members. This guideline may be updated and therefore is subject to change.