P-64

Median Sternotomy Provides Excellent Exposure for Excising Anterior Mediastinal Tumors in Children

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Purpose: Mediastinal tumors (MT) must be completely excised in children to avoid recurrence. When MT are located in the anterior mediastinum (AMT), a lateral thoracotomy can lead to suboptimal resection due to poor visualization. However, median sternotomy (MS) provides excellent exposure, allowing AMT to be dissected completely with minimal risk. We report our experience of AMT resection using MS.

Methods: We used MS to treat 5 children with AMT between 1997 and 2004. Ages at MS ranged from 8 months to 5 years. AMT ranged in size from 5 x 6 x7cm to nearly the entire thoracic cavity. MS were performed in the supine position.

Results: MS was used alone in 3/5 cases. 2/5 cases required additional incisions because of extrathoracic adhesions. All AMT were associated with strong localized adhesions to the anterior pericardium, left phrenic nerve, and pulmonary vessels, but were dissected successfully under direct vision. Blood loss ranged from 1.8mL/kg to 60mL/kg. There was no respiratory or circulatory impairment caused by compression of the healthy lung and mediastinum during MS. The immediate postoperative course was uneventful. Pathological diagnoses were mature teratoma (3/5), immature teratoma (1/5), and pleuropulmonary blastoma (1/5). At mean follow-up of 3.4 years, 4 cases are alive and well, but the case with pleuropulmonary blastoma had massive local tumor recurrence 6 months postoperatively and died from disseminated intravascular coagulation during chemotherapy.

Conclusion Based on our experience, MS allows all aspects of an AMT to be exposed under direct vision, thus, greatly facilitating successful complete resection.