nonneurofibromatosis type 1 are not different per se, and data suggest that the choice of treatment should be independent of neurofibromatosis type 1 status [2]. Improved survival is expected after pulmonary metastasectomy for sarcoma. Tumor resectability, disease-free interval, and number of metastases seem to be important factors in determining patient selection for curative surgical intervention [7].

References

Extracellular Matrix Pleural Tent for Persistent Air Leak and Air Space in a Child After Upper Lobectomy
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Creation of a pleural tent is effective in reducing persistent air leaks after pulmonary resection. I report a case of a pleural-like tent being created out of extracellular matrix to treat a persistent air leak in child after upper lobectomy for a large congenital pulmonary airway malformation type II. Over the next year, ipsilateral lung expansion and growth occurred with near complete resolution of the apical air space.


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Dr McConnell discloses a financial relationship with CorMatrix Cardiovascular.
A cautery scratch pad, and an apical pleurectomy was performed to promote chest wall adhesions. Final pathology was consistent with CPAM type II, demonstrating small, variably sized cysts lined with ciliated columnar epithelium.

Postoperatively, the child was managed on the regular ward; daily chest roentgenograms demonstrated residual apical air space, and a small residual air leak became intermittent, allowing the angle chest tube to be removed on postoperative day 2. On postoperative day 5, the apical chest tube was removed, as the chest was stable on waterseal without obvious air leak for more than 24 hours despite a persistent apical air space. Shortly after removal of the chest tube, the child had subcutaneous emphysema and a significant asymptomatic pneumothorax developed and prompted semiurgent chest tube replacement, confirming a new air leak.

The patient was returned to the operating room for management of his persistent apical air space and control of the air leak. Control of the apical air space was accomplished after the prior pleural stripping by suturing an appropriate sized patch of ECM circumferentially at the fourth intercostal space with a running absorbable suture to create an apical ECM pleural tent or thoracic partition. A chest tube was placed below the ECM tent, and the chest was closed. A small intermittent air leak resolved by postoperative day 2, and the chest tube was removed on postoperative day 6 after the chest was stable without air leak on waterseal for 72 hours (Fig 2). The child returned home by car rather than by airplane 9 days after pleural tent. A chest roentgenogram at 1 year (Fig 3) demonstrated progressive expansion of the left lung.

Comment
I believe this is the first reported case of any artificial material being used to create a pleural tent for dealing with persistent air leak or issues of residual air space in either adults or children. Alternative approaches to deal with this persistent air space and air leak were considered. Specific anatomic concerns with this patient were dextrocardia and pectus excavatum as they negatively impacted the normal compliance and spatial relationships of the left chest. Temporary maneuvers to help control the air space such as pneumoperitoneum or prolonged intubation with paralysis, or both, would not address chronic chest space issues. Therefore, permanent strategies for dealing with the space were considered to be more appropriate for this child. Tissues utilized for dealing with infected pleural spaces in adults such as muscle flaps (latissimus and serratus muscle) can be less attractive in children owing to lack of volume, limited mobility, and permanent loss of function [6]. Therefore, it
was my decision to attempt pleural tent creation using an ECM patch, with potential muscle flap advancement if that approach would have proven unsuccessful.

The choice of ECM as a pleural substitute was considered a way to avoid a nonbiologic patch because of risk of infection in the setting of a persistent air leak. The CorMatrix ECM formulation is approved for pericardial repair and was a reasonable choice in comparison with other biologic materials such as AlloDerm Tissue Matrix (LifeCell, Bridgewater, NJ) because of its approved indication and lower cost (approximately $1,000 versus >$15,000 for AlloDerm). Extracellular matrix may have advantages in infected surgical fields, and it has remained free of calcification for longer-term implants, perhaps owing to the material being replaced by the patient's own tissues [7, 8]. Rather than restricting or "fixing" the size of the apical left chest, the ECM tent allowed for the normal growth and development of the remaining ipsilateral lung segments over the next year.

Extracellular matrix was an effective substitute for the native pleura in the process of creating a pleura-like tent to control a persistent air leak and apical pneumothorax in a 21-month-old child after resection of a complex airway malformation with concomitant dextrocardia and pectus excavatum. Over the first year, the ECM apical tent allowed for the normal growth and development of the remaining ipsilateral lung segments. The use of ECM as a pleural substitute may also be a reasonable alternative when a pleural tent cannot be created because of the destruction of the apical pleura by tumor or when the dissection of dense apical adhesions compromises the integrity of the apical pleura.

References


Right Lower Lobe Autotransplantation for Locally Advanced Central Lung Cancer

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A 44-year-old man with locally advanced central lung cancer was treated by right lower lobe lung autotransplantation after pneumonectomy using an extracellular phosphate-buffered solution for cold lung preservation. The advantage of the ex vivo operation made it possible to perform safe and definitive cancer resection without massive bleeding. Cold lung preservation brought some advantages, such as reducing the risk of ischemia–reperfusion injury compared with warm ischemia and allowing enough time to achieve microscopically negative