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Surgical Management of Inflammatory Myofibroblastic Tumors in Children with Bronchopulmonary Localization: A Single-Center Experience

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Purpose To analyze the clinical characteristics, diagnostic approaches, and treatment strategies for bronchopulmonary inflammatory myofibroblastic tumors (IMTs) in children treated at our center, with the aim of optimizing patient outcomes

IMT is a mesenchymal neoplasm with intermediate malignant potential (rarely metastatic). It consists of collagen, inflammatory and spindle-shaped cells belonging to myofibroblasts

Prevalence 0.04-0.7%

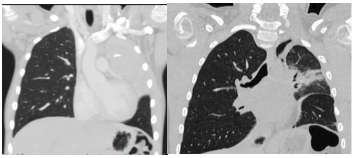

Fig.1 CT images of IMT of the left upper lobe before and after chemotherapy

Retrospective analysis
Histopathologically confirmed IMT
8 patients
8-17 years
M:F=7:1

№	Reason for hospitalization	Localization	Surgical treatment	Invasion	Reduction volume
1	Fever, nonproductive cough	Left upper lobe (Fig.1)	Not performed. **Conservative treatment strategy chosen**	Pericardium, left atrium, pulmonary artery	-
2	Incidental finding during examination	Left upper lobe	**Thoracoscopic** lobectomy	-	Complete
3	Incidental finding during examination	Left upper lobe	**Thoracotomy** lobectomy with preservation of the root segment on the major bronchi and vessels	Upper lobe bronchus, upper lobe vessels	Partial
4	Fainting	Left lower lobe (Fig.1)	**Thoracoscopic** anatomical segmentectomy	-	Complete
5	Fever, cough	Left main bronchus	Lateral **thoracotomy**, anterior and posterior **mediastinotomy**. Circular resection of the left main bronchus, interbronchial anastomosis formed	-	Complete
6	Dry cough for 4 months	Right upper lobe	**Thoracoscopic** anatomical segmentectomy	-	Complete
7	Fever, cough, mixed dyspnea, cachexia	Right middle lobe	**Thoracoscopic** lobectomy	-	-
8	Shortness of breath throughout the year	Trachea (Fig.3)	**Colotomy.** Resection of the trachea and tracheoplasty, formation of a laryngotracheal anastomosis	-	Complete

Fig.2 3D model of IMT of the left lower lobe - thoracoscopic anatomical segmentectomy (S10)

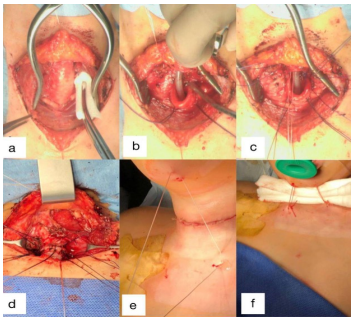

Fig.3 IMT of the trachea:
a-c - resection of the trachea, stages of formation of the laryngotracheal anastomosis;
d - the final type of anastomosis; e,f - fixation of the chin

Conclusion Inflammatory myofibroblastic tumor is a rare pathology that warrants further attention and investigation. Currently, there are no standardized diagnostic or treatment algorithms. Although **targeted therapy can help reduce tumor volume**, **radical surgical excision with clear margins remains the most effective treatment**. Minimally invasive techniques, facilitated by advanced imaging, offer a safe and effective approach for resection