

A Proposed CT Classification of Progressive Lung Parenchymal Injury Complicating Paediatric Lymphobronchial Tuberculosis – from reversible to irreversible lung injury

Savvas Andronikou¹, Susan Lucas², Andrea Zouvani³, and Pierre Goussard⁴

¹The Children’s Hospital of Philadelphia

²University of the Witwatersrand

³University of Glasgow

⁴Stellenbosch University

November 23, 2020

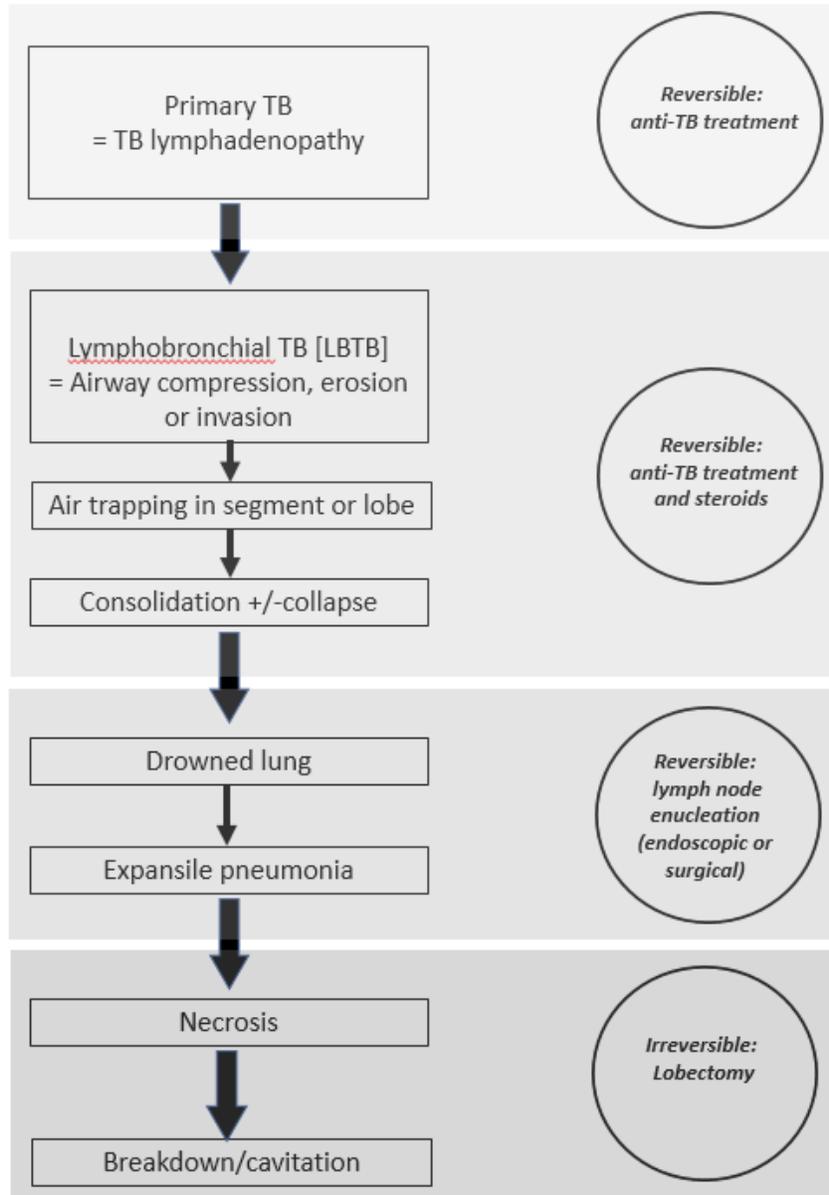
Abstract

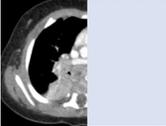
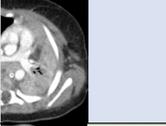
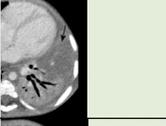
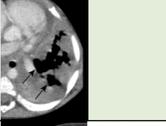
Abstract Lymphobronchial tuberculosis (LBTB) is tuberculous lymphadenopathy affecting the airways, which is particularly common in children with primary TB. Airway compression by lymphadenopathy causes downstream parenchymal pathology, which may ultimately result in irreversible lung destruction, if not treated timeously. CT is considered the “gold standard” for detecting mediastinal lymph nodes in children with TB. CT is also the best way of imaging the airways of children with LBTB. The CT findings of the parenchymal complications and associations of LBTB on CT have been described, but no severity classification was provided to aid management decisions. Identifying the parenchymal complications of LBTB and recognising their severity has clinical relevance. Using prior publications on LBTB and post obstructive lung injury we have used an image bank of CT scans in children with pulmonary TB, presenting with airway symptoms, to create a CT severity staging of lung injury in LBTB. The staging focuses on distinguishing non-salvageable destruction [non-enhancing or cavitated lung] from salvageable lung parenchymal disease [enhancing and non-cavitated] to inform the management decisions, which range from bronchoscopic airway clearance to surgical decompression of the compressing nodes.

Hosted file

V2 Proposed CT classification of lung injury in lymphobronchial TB.pdf available at <https://authorea.com/users/378131/articles/494688-a-proposed-ct-classification-of-progressive-lung-parenchymal-injury-complicating-paediatric-lymphobronchial-tuberculosis-from-reversible-to-irreversible-lung-injury>





CT Severity classification of parenchymal complications in Lymphobronchial TB						
Stage	Parenchyma	Density	Volume	Contrast	Other	CT scanning
0	Normal	Air - Normal	Normal	n/a	Hilar / sub-carinal Lymphadenopathy causing airway compression (arrows)	
I	Air trapping	Air - decreased	Increased	n/a	Hyperinflation	
II	Consolidation +/- collapse	Soft tissue density	Normal*/decreased	Enhancing	+/-Air-bronchograms Displacement towards collapse	
III	Drowned lung	Soft tissue density = fluid-filled bronchi	*	Enhancing	Fluid-bronchograms	
IV	Necrosis	Fluid density	*	Non-enhancing		
V	Cavitation	Air	Variable	Non-enhancing	Irregular air-filled cavities (arrows)	
*If any of groups III, IV and V demonstrate a bulging fissure (arrow) and increased volume, it would be termed AN expansile pneumonia						