

Pulmonary Landmarks: Part 1^{1,2}

Narrative Section

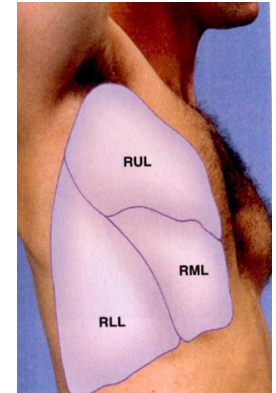
HISTORICAL VIGNETTE - An enduring medical mystery among physical exam eponyms is who is the real Louis for whom the sternal angle is named? Known to most medical students learning the pulmonary exam, the Angle of Louis lies atop major thoracic landmarks, yet the original Louis is uncertain. One candidate is French physician Pierre-Charles-Alexandre Louis, a nineteenth physician known not only for his studies of pulmonary infections (pneumonia & TB) but also for his scientific approach to epidemiology and trials, leading the way to modern evidence-based medicine. Others have credited Antoine Louis with affixing his name to the anatomic landmark. As a practicing French surgeon in the eighteenth century, Antoine Louis also made a name for himself by inventing the *louisette*, a forerunner to the guillotine. Even if the eponymous physician remains lost to history, the importance of the landmark to the pulmonary exam remains undisputed.



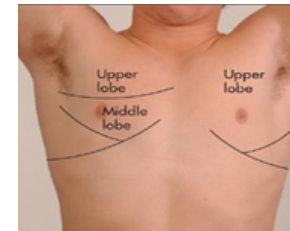
CONTEXT AND USEFULNESS - A focused physical exam aids in precise diagnosis. By identifying the Angle of Louis on the chest wall, the examiner can more specifically appreciate the topography of the structures underlying the hands and stethoscope. Identifying the sternal angle (which is also the insertion point of the 2nd rib) affords the clinician an opportunity to observe the chest wall and assess respirations.

Physical Maneuver

Model Proper (And Improper) Technique - The **anterior landmarks** of the right lung can be identified by counting down from the Angle of Louis (2nd rib) to the 4th rib. Note its location in the mid-clavicular line. Track the 4th rib posteriorly to the mid-axillary line. This area between the 4th and 6th rib overlies the *minor fissure*, boundaries outlining the right middle lobe. (Similar landmarks on the left outline the lingua.)



The **posterior landmarks** of the right lung can be identified when the patient places the right hand atop the head, elbow out, which positions the inferior edge of the scapula along the *major fissure*. Superior to the scapula is the *right upper lobe*. Inferior to the scapular edge is the *right lower lobe*. Trace a virtual line from the inferior scapular edge toward the 6th rib in the mid-axillary line to mark the posterior edge of the *right middle lobe*.



INTERPRETATION - By clearly identifying the anatomic landmarks overlying the major fissure and the minor fissure, clinicians can more specifically locate pathology observed or auscultated. It is helpful for clinicians to recall that large areas of the lungs lie anteriorly and in the mid-axillary line, and to only auscultate posteriorly is to miss an opportunity to appreciate clinically significant pathology.

CAVEAT AND COMMON ERRORS - A covered patient may conceal clinical concerns. Examining the exposed chest wall in a patient helps to clearly identify the landmarks. Any condition which alters the expected volume of the lungs (collapse, pneumonectomy) or imposes pressure from below the diaphragm (hepatomegaly) may alter the expected landmarks.

¹ Chi J *et. al.* "The Five Minute Moment." *Am J Med.* 2016 Aug; 129 (8): 792-795.

² McGee, Steven. *Evidence-Based Physical Diagnosis*, 3rd ed. Philadelphia, PA: Elsevier; 2007.