

	Clinical Protocol: MRI, Chest	
	ORIGINAL EFFECTIVE DATE: 12/28/2011	REVIEWED/REVISED DATE(S): 05/29/2019 08/13/2021 08/05/2022 11/15/2023 07/24/2025
PREPARED BY: Ashley Gonzalez, UM Project Coordinator; Konstantin Yengoyan, Supervisor, Clinical Operations		APPROVED BY: Dr. Shenoda Y.A Abd Elmaseh, Assistant Medical Director

PROTOCOL OVERVIEW

This Clinical Protocol advises on indications and guidelines for Chest MRI.

INDICATIONS

Clinical indications for procedure:

- I. Anatomy or structural vascular defect evaluation needed, as indicated by **1 or more** of the following:
 - a. Aortic arch abnormality
 - b. Coarctation of thoracic aorta
 - c. Follow-up after surgical correction of vascular anomaly
 - d. Patent ductus arteriosus
 - e. Pulmonary arteriovenous malformation
 - f. Pulmonary vein anomaly
 - g. Tumor of pulmonary artery or veins, and CT scan contraindicated or unavailable
 - h. Vascular rings
- II. Brachial plexus disorder, as indicated by **1 or more** of the following:
 - a. Mass involving brachial plexus
 - b. Neurogenic thoracic outlet syndrome signs or symptoms, as indicated by **1 or more** of the following:
 - i. Cervical or anomalous first rib
 - ii. Positive Tinel sign over brachial plexus
 - iii. Scalene muscle hypertrophy
 - iv. Symptoms (eg, pain, fatigue, paresthesia) worse with overhead use of arm
 - v. Symptoms relieved by anterior scalene muscle block
 - vi. Thenar (upper plexus) or hypothenar (lower plexus) atrophy
 - c. Neuropathy, suspected, as indicated by **1 or more** of the following:
 - i. Chronic inflammatory demyelinating polyneuropathy
 - ii. Hereditary hypertrophic motor and sensory neuropathies
 - iii. Inflammatory pseudotumor
 - iv. Multifocal motor neuropathy
 - d. Traumatic injury

- III. Cancer or neoplasm evaluation, staging, or surveillance needed, and
 - a. CT scan contraindicated or not available, or results indeterminate
- IV. Chest wall soft tissue or musculoskeletal pathology, as indicated by **1 or more** of the following
 - a. Abnormality of ribs, scapula, or chest wall noted on plain x-ray
 - b. Chest wall mass and **1 or more** of the following:
 - i. Abscess or malignancy, suspected
 - ii. Calcifications within mass seen on plain x-ray
 - iii. Deep or large in size
 - iv. Pain in chest wall
 - v. Progressive enlargement
 - c. Vascular lesion that is expanding or causing change in color of overlying skin
 - d. Congenital malformation of chest, diaphragm, lungs, mediastinum, or great vessels, known or suspected, when additional imaging required for management
 - e. Fetal chest or lung anomaly, known or suspected, and ultrasound results abnormal or indeterminate
 - f. Intrathoracic herniation of abdominal contents, known or suspected (eg, diaphragmatic hernia, hiatal hernia) and CT scan contraindicated, not available, or results indeterminate
- V. Preoperative or preprocedural planning needed, as indicated by **ALL** of the following:
 - a. Prior to anticipated lung resection to predict postoperative pulmonary function reserve
 - b. Results of nuclear medicine lung perfusion scan indeterminate
 - c. CT scan contraindicated or not available
- VI. Repeat evaluation of specific area or structure with same imaging modality, as indicated by **1 or more** of the following:
 - a. Change in clinical status (eg, worsening symptoms or new associated symptoms)
 - b. Need for interval reassessment that may impact treatment plan
 - c. Need for re-imaging either prior to or after performance of invasive procedure

RECOMMENDED RECORDS

Please submit history and physical or progress notes that show the symptoms, exam findings, and any pertinent diagnostic tests that may have been done. (i.e. X-ray, ultrasound).

NOTES

Inappropriate Use

- a. For evaluation of solitary pulmonary nodule, a meta-analysis found that MRI was comparable with CT in terms of accuracy in distinguishing benign from malignant lesions. However, specialty societies do not recommend MRI for evaluation of solitary pulmonary nodule.

Evidence Summary

- a. Soft tissue tumors and masses of the chest wall are uncommon and include peripheral nerve tumors, lipomas, liposarcomas, hemangiomas, elastofibromas, metastases, lymphomas, and abscesses; many of these tumors have characteristic appearances on MRI. For osteochondromas of the rib, MRI is useful for evaluating cartilage cap thickness in order to differentiate these tumors from chondrosarcoma or to evaluate the tumor's effect on adjacent structures.

- b. For mediastinal masses, CT scan is the preferred imaging modality; however, MRI is helpful for identification of neurogenic tumors of the posterior mediastinum, including gangliomas and neuroblastomas, and to determine spinal cord involvement.
- c. For non-small cell lung cancer, a specialty society recommends that chest MRI should not be used routinely for staging; however, MRI is useful if there is suspicion of superior tumor or spread to the brachial plexus.

CITATION

MCG Care Guidelines 29th Edition, 3/04/2025 [MCG Releases 29th Edition of Guidelines with New Support for the 2025 Medicare Advantage Final Rule - MCG Health](#)

CLINICAL PROTOCOL REVISION HISTORY

Revised By:	Ashley Gonzalez, UM Project Coordinator; Konstantin Yengoyan, Supervisor, Clinical Operation	Date: 07/24/25	
Approved By:	Dr. Shenoda Y.A Abd Elmaseh, Assistant Medical Director	Date: 01/29/2026	Signature Shenoda Abd Elmaseh,
Revised By:		Date:	
Approved By:		Date:	Signature
Revised By:		Date:	
Approved By:		Date:	Signature
Revised By:		Date:	
Approved By:		Date:	Signature