



Cohere Medical Policy – Magnetic Resonance Imaging (MRI), Chest

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diagnostic Imaging

Guideline Name: Cohere Medical Policy - Magnetic Resonance Imaging (MRI), Chest

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Type: Adult (18+ yo) | Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Magnetic Resonance Imaging (MRI), Chest

Recommended Clinical Approach

Imaging analysis utilizing magnetic resonance imaging (MRI) of the chest can be performed based on clinical suspicion of disease presence or exclusion to direct value-based care. Contrast may or may not be necessary depending upon the clinical indication at the referring physician's request and the discretion of the supervising radiologist. Staging, presurgical planning, and screening are recommendations for a clinical approach.¹

Medical Necessity Criteria

Indications

→ **Magnetic resonance imaging (MRI), chest** is considered appropriate if **ANY** of the following is **TRUE**:

- ◆ MR-preferred indications, including **ANY** of the following:
 - Brachial Plexus pathology, suspected due to anatomic (e.g. cervical rib) or clinical symptoms (e.g. positive EMG results, symptoms related to scalene muscles, symptoms that worsen with arm overhead), including but not limited to trauma, neurogenic thoracic outlet syndrome, neuropathies affecting brachial plexus (e.g. chronic inflammatory demyelinating polyneuropathy [CIDP]), or suspected or known mass; **OR**
 - Evaluation of non-bony musculoskeletal abnormalities, congenital or acquired, such as muscle tear, tendon or cartilage injury¹; **OR**
 - Inflammatory myopathies (e.g. polymyositis); **OR**
 - Fetal lung or chest wall anomaly is needed to determine further management; **OR**
- ◆ CT is contraindicated or inconclusive, chest radiographs were inadequate for diagnosis or determination of management, and **ANY** of the following is **TRUE**:
 - Chest wall abnormalities including **ANY** of the following:
 - Anatomic abnormalities, congenital or acquired, such

- as pectus excavatum or rib abnormalities; **OR**
- Palpable chest wall mass with non-diagnostic or indeterminate radiograph or ultrasound; **OR**
- Chest wall mass identified on prior imaging when further information is needed to determine the need for biopsy or surgery; **OR**
- Suspected or known chest wall abscess and further evaluation is needed; **OR**
- Congenital pulmonary malformations such as pulmonary sequestration, when MRA/CTA is contraindicated or cannot be done; **OR**
- Persistent lymphadenopathy for initial evaluation; **OR**
- Neoplastic conditions, Initial staging, treatment planning, response assessment, and surveillance²⁻⁴; **OR**
- Screening for thymoma in myasthenia gravis; **OR**
- Herniation into thorax of abdominal contents including diaphragmatic hernias, and hiatal hernias; **OR**
- Hoarseness, dysphonia, and vocal cord weakness/paralysis after laryngoscopy completed with **ANY** of the following:
 - Findings suggest recurrent laryngeal nerve dysfunction; **OR**
 - Suspicious lesion identified and needs further evaluation; **OR**
 - Symptoms persisting longer than 1 month which are unexplained by laryngoscopy; **OR**
- Preoperative, postoperative, and pre-treatment evaluation for procedure, surgery, radiation, or chemotherapy; **OR**
- ◆ Repeat imaging (defined as repeat request following recent imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**:
 - New or worsening symptoms, such that repeat imaging would influence treatment; **OR**
 - One-time clarifying follow-up of a prior indeterminate finding; **OR**
 - In the absence of change in symptoms, there is an established need for monitoring which would influence management.

Non-Indications

→ **Magnetic resonance imaging (MRI), chest** may not be considered appropriate if **ANY** of the following is **TRUE**:

- ◆ The patient has undergone advanced imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms⁵; **OR**
- ◆ If contrast is used, history of anaphylactic allergic reaction to gadolinium contrast media with detailed guidelines for use in patients with renal insufficiency; **OR**
- ◆ The patient has metallic clips on vascular aneurysms; **OR**
- ◆ Incompatible implantable devices (e.g., pacemakers, defibrillators, cardiac valves); **OR**
- ◆ Metallic foreign body in orbits/other critical area(s) or within the field of view and obscuring area of concern.

*NOTE: MRI in patients with claustrophobia should be requested at the discretion of the ordering provider.

**NOTE: MRI in pregnant patients should be requested at the discretion of the ordering provider and obstetric care provider.

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

| CPT/HCPCS Code | Code Description |
|----------------|---|
| 71550 | Magnetic resonance imaging (MRI) (e.g., proton), chest; without contrast material(s) |
| 71551 | Magnetic resonance imaging (MRI) (e.g., proton), chest; with contrast material(s) |
| 71552 | Magnetic resonance imaging (MRI) (e.g., proton), chest (e.g., for evaluation of hilar and mediastinal lymphadenopathy); with contrast material(s), followed by contrast material(s) and further sequences |
| C9791 | Magnetic resonance imaging with inhaled hyperpolarized xenon-129 contrast agent, chest, including preparation and administration of agent |

Medical Evidence

Archer et al. (2023) reviewed the utilization of cross-sectional imaging techniques such as computed tomography (CT) or magnetic resonance imaging (MRI) is essential for assessing mediastinal pathologies. Precisely localizing lesions within specific compartments and analyzing their morphology, density/intensity, enhancement patterns, and any mass effect on adjacent structures can significantly aid in narrowing down diagnostic possibilities. While CT is readily available and fast, MRI does not use radiation and can delineate soft tissue contrasts. Precise imaging allows for identifying masses across tissue planes (e.g., chest wall, diaphragm) and the involvement of neurovascular structures. MRI also provides dynamic sequences that enable the assessment of mass motion relative to neighboring structures during free-breathing or cinematic cardiac gating. Finally, MRI can distinguish between cystic and solid lesions and detect fat, which aids in differentiating thymic hyperplasia from thymic malignancy.⁶

Cavanna et al. (2022) conducted a literature review on thoracic outlet syndrome (TOS). Plain chest and cervical region radiographs often exclude anatomical anomalies and structural irregularities (e.g., cervical ribs, clavicular fracture malunion, elongated transverse processes, or thoracic cavity tumors). Conditions such as compressive effects on the brachial plexus need imaging beyond ultrasound, which may overlook regional pathologies (e.g., Pancoast tumor, cervical spondylopathy). Non-contrast MRI may help diagnose neurogenic TOS (nTOS). However, MR or CT angiography is preferred for confirming venous or arterial TOS.⁷

Bueno et al. (2018) reviewed MR imaging of primary chest wall neoplasms, representing a rare and diverse array of lesions. MR imaging allows detailed insights into tissue composition, disease extent, and the integrity of surrounding structures. Utilization of this modality has increased due to its superior contrast resolution versus CT scans, which are free of radiation. MR imaging allows clinicians to distinguish tumors, identify infectious and inflammatory conditions, and visualize internal components (e.g., fat, fluid, soft tissue, vascularity post-intravenous contrast administration).⁸

References

1. American College of Radiology (ACR). ACR practice parameter for performing and interpreting magnetic resonance imaging (MRI) - resolution 8. Updated 2022. Accessed February 13, 2024. <https://www.acr.org/-/media/ACR/Files/Practice-Parameters/MR-Perf-Interpret.pdf>.
2. Ackman JB, Chung JH, et al. ACR appropriateness criteria - imaging of mediastinal masses. *J Am Coll Radiol*. 2021;18(5S):S37-S51. doi: 10.1016/j.jacr.2021.01.007. PMID: 33958117.
3. de Groot PM, Chung JH, et al. ACR appropriateness criteria - noninvasive clinical staging of primary lung cancer. *J Am Coll Radiol*. 2019;16(5S):S184-S195. doi: 10.1016/j.jacr.2019.02.008. PMID: 31054745.
4. Raptis CA, Goldstein A, et al. ACR appropriateness criteria - staging and follow-up of esophageal cancer. *J Am Coll Radiol*. 2022;19(11S):S462-S472. doi: 10.1016/j.jacr.2022.09.008. PMID: 36436970.
5. Wasser EJ, Prevedello LM, Sodickson A, Mar W, Khorasani R. Impact of a real-time computerized duplicate alert system on the utilization of computed tomography. *JAMA Intern Med*. 2013;173(11):1024-1026. doi: 10.1001/jamainternmed.2013.543. PMID: 23609029.
6. Archer JM, Ahuja J, Strange CD, et al. Multimodality imaging of mediastinal masses and mimics. *Mediastinum*. 2023 May 8;7:27. doi: 10.21037/med-22-53. PMID: 37701642; PMCID: PMC10493620.
7. Cavanna AC, Giovanis A, Daley A, et al. Thoracic outlet syndrome: A review for the primary care provider. *J Osteopath Med*. 2022;122(11):587-599. doi: 10.1515/jom-2021-0276. PMID: 36018621.
8. Bueno J, Lichtenberger 3rd JP, Rauch G, et al. MR imaging of primary chest wall neoplasms. *Top Magn Reson Imaging*. 2018;27(2):83-93. doi: 10.1097/RMR.000000000000164. PMID: 29613963.

Clinical Guideline Revision History/Information

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| Review History | | |
| Version 2 | 8/20/2024 | Annual review and policy restructure. |
| Version 3 | 10/30/2024 | Edited repeat imaging criteria language. |
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