Evaluation of the Paralyzed Diaphragm: Review of 30 Consecutive Cases

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Rationale: Evaluating patients with diaphragm paralysis or weakness can be a complex process. It is often, but not always, driven by the clinical history. We reviewed our experience at the Diaphragm Center at Columbia University Medical Center with respect to the evaluation process for this disorder in our last 30 patients and identified characteristics that drove the selection of testing.

Methods: The charts of 30 consecutive patients with either unilateral or bilateral diaphragm paralysis or weakness were reviewed with respect to patient characteristics, clinical history, and diagnostic findings.

Results: Overall patient characteristics included: age (mean): 65.7 years, sex: male - 23 (77%), paralyzed diaphragm type: unilateral - 26 (left:12, right:14), bilateral - 4. Twenty one (70%) of the patients had a clearly defined initial event, 9 (30%) of patients were idiopathic. Defined causes of diaphragm paralysis include: cervical spine disease: 3, atrial fibrillation ablation: 2, surgical trauma: 3, Parsonnage-Turner Syndrome: 4, scalene block 2, ALS: 1, idiopathic 9, other: 6. Evaluations were driven by the clinical history. Imaging included: inspiratory/expiratory chest x-rays: 30, CT scan of the chest: 30, MRI of the cervical spine: 15, ultrasound of the cervical phrenic nerve: 12, and EMG of the phrenic nerve: 6. Site of the phrenic nerve injury was established in 16 (53%) of patients.

Conclusions: Unilateral and bilateral diaphragm paralysis is due to a variety of causes. Evaluations must be directed by the clinical history and may encompass evaluation for injury to the phrenic nerve anywhere along its course. Prognosis and treatment ultimately is guided by the nature, reversibility, and duration of the phrenic nerve pathology.

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