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10th International Workshop on Surgical Exploration of the Mediastinum and Systematic Nodal Dissection



NEUROPLASTY OF THE PHRENIC NERVE FOR DIAPHRAGM PARALYSIS SECONDARY TO PARSONAGE-TURNER SYNDROME

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Introduction Parsonage-Turner Syndrome is a disorder in which the body's immune system attacks the peripheral nerves. The trigger can be a viral illness, surgery, or trauma, but often the cause is unknown. Involvement of the phrenic nerve can cause diaphragm paralysis, leading to shortness of breath, an elevated diaphragm, and decreased pulmonary function tests. MR neurography and high-resolution ultrasound will often show an hourglass constriction of the nerve. The condition often resolves with non-operative management, but occasionally surgery is indicated. This video depicts the surgical management of Parsonage-Turner Syndrome. **Indication** The patient is a 64-year-old man who presented with dyspnea after a fall. A workup revealed an elevated diaphragm, positive Sniff test, decreased FEV1, and an hourglass constriction of the phrenic nerve. When non-operative management failed, phrenic neuroplasty was recommended as a combined case with neurosurgery. **Description of Technique** We performed a supraclavicular exposure of the phrenic nerve as it runs across the surface of the anterior scalene muscle. We identified the fascicle involved in the hourglass constriction. Using high magnification, we incised the epineurium. We then incised the perineurium, which decompressed the involved fascicle, which herniated and expanded, indicating complete decompression. The incision was closed in multiple layers. A year later, the patient's symptoms and diaphragm elevation resolved and his FEV 1 improved significantly. **Conclusion** Phrenic neuropathy is a presentation of Parsonage-Turner Syndrome. When non-operative management fails, surgical decompression of the nerve can relieve the constriction. Improvement in symptoms, PFT's and imaging are usually seen in about a year.