

STEREOTACTIC RADIOFREQUENCY THALAMOTOMY

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I. PROCEDURE CODES

61720

II. DESCRIPTION

Thalamotomy with microelectrode mapping is a neurosurgical procedure involving precision placement of a destructive lesion in the thalamus for relief of Parkinsonian resting tremor, intention tremor or dystonia. The patient is taken to radiology where a CT scan, MRI, and a ventriculogram are done. The CT compatible stereotactic headframe is applied to the patient's head under local anesthesia and mild sedation. The patient then undergoes stereotactic CT scanning to establish the approximate position of the subcortical target structures in reference to the stereotactic frame.

The MRI localization system creates reference marks on each image from which stereotactic coordinates are calculated. The precise position of the target structure is established by microelectrode recording and/or subcortical stimulation. The lateral ventricle is tapped stereotactically through a burr hole made 12 cm posterior to the nasion, 2.5 cm from the midline and a contrast ventriculogram is done. The anterior and posterior commissures are identified. The approximate location of the various thalamic subnuclei are determined. A small lesion is made within the ventrolateral thalamic nucleus, an area in the brain which contains tremor-generating circuits. The wound is closed and the patient is removed from the stereotactic frame.

III. POLICY

A. Benefits are covered for unilateral thalamotomy with microelectrode mapping for destructive lesion in the globus pallidus to treat disabling tremor from either Parkinson's disease, intention tremor or dystonia when patients are no longer receptive to other treatments.

B. Indications for a thalamotomy are as follows:

1. Intention tremor:

a. Multiple sclerosis

- b. Post-traumatic
 - c. Familial (Essential)
 - d. Post cerebrovascular accident (stroke)
2. Dystonia of arm or leg (also known as focal dystonias)
 3. Dystonia musculorum deformans
 4. Post-traumatic dystonia
 5. Parkinsonism resting tremor
- C. Contraindications for a thalamotomy are as follows:
1. Dementia, memory or thought disturbance
 2. Poorly controlled high blood pressure
 3. Gait disturbance
 4. Significant speech problems

IV. POLICY CONSIDERATIONS

A. A thalamotomy is performed to relieve hypertonic tremor and akinetic rigidity (often seen in Parkinson's disease and stroke patients).

B. Young patients with a long history of progressively worsening unilateral tremor and without rigidity or bradykinesia do especially well.

C. Certain drugs may induce parkinsonism such as dopamine antagonist neuroleptic agents and antiemetics.

D. The physical manifestation of dystonia consists of sustained contractions of the muscles in one or more parts of the body. There are three types of dystonias, idiopathic torsion dystonia, focal dystonia and tardive dystonia.

1. The onset of idiopathic torsion dystonia begins in childhood and often results in twisting or distortion of that part of the body.

2. Focal dystonia such as writer's cramp, blepharospasm, spasmodic torticollis, oro-facila-mandibular dystonia and spasmodic dysphonia affecting one area of the body is more common in adult-onset dystonia.

3. Dystonia can also be secondary to certain drugs (e.g. tardive dystonia), injuries of the brain or limb, strokes and other insults to the basal ganglia.

E. Tremor is a neurological disorder manifested by rhythmic oscillation of the hands, head, legs, trunk or voice. The common causes of tremor are essential tremor and Parkinson's disease.

1. Tremor without other neurologic signs and symptoms is called essential tremor. Essential hand tremor is typically absent at rest and becomes apparent during sustained posture or activity.

2. Parkinsonian tremor is present at rest but becomes less apparent during activity. Parkinsonian tremor affects the limbs or chin but not the head or voice.

3. Essential tremor can affect persons at any age, gender and race, and in the vast majority of cases, it is inherited.

V. EXCLUSIONS

A. Muscle resection for Parkinsonian tremor, intention tremor, or dystonia. See [Chapter 8, Section 14.1](#).

B. Rhizotomy for Parkinsonian tremor, intention tremor, or dystonia. See [Chapter 8, Section 14.1](#).

C. Selective peripheral denervation for Parkinsonian tremor, intention tremor, or dystonia. See [Chapter 8, Section 14.1](#).

D. Fetal tissue transplants for Parkinsonian tremor, intention tremor, or dystonia. See [Chapter 8, Section 14.1](#).

VI. EFFECTIVE DATE October 1, 1995.

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