

Asterixis

Aric Parnes, 5th Year Medicine

DEFINITION

First described by Adams and Foley in 1949,¹ asterixis is a clinical sign indicating a lapse of posture and is usually manifest by a bilateral flapping tremor at the wrist, metacarpophalangeal, and hip joints.^{2, 3} It may also be seen in tongue, foot, and any skeletal muscle. Except for the facial muscles, the tremors occur in an asynchronous (i.e. not symmetric) fashion on either side of the body.

The exact mechanism by which asterixis occurs remains unknown. A leading theory suggests interruption of the posture pathway in the rostral reticular formation and abnormal joint proprioception. The lapse of posture has been termed “negative clonus” because during tonic muscle contraction (i.e. posture) a short EMG silent period precedes the tremor.³ In essence, the patient struggles to maintain posture while posture control repetitively vanishes.

TO TEST FOR ASTERIXIS

Extend the arms, spread the fingers, dorsiflex the wrist and observe for the abnormal “flapping” tremor at the wrist. If not immediately apparent, this tremor may be accentuated by asking the patient to keep the arms straight while the examiner gently hyperextends the patient’s wrist with a sweeping motion.

An alternate method of testing for asterixis

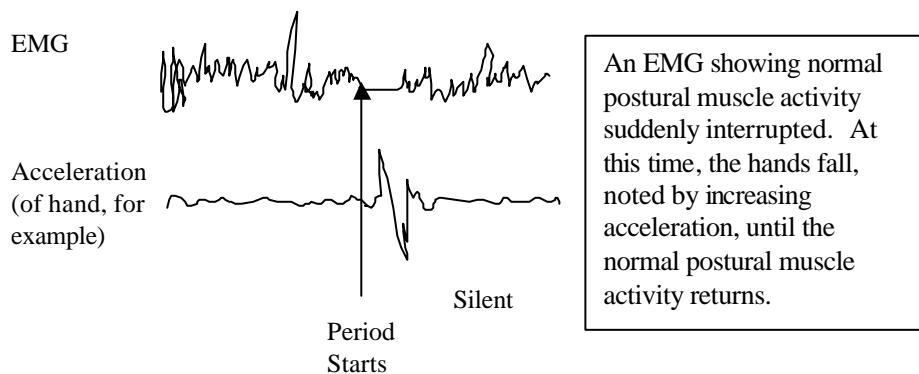
involves having the patient relax his legs while he lies supine with his knees bent. The feet should be kept flat on the table and as the legs fall to the sides, watch for flapping of the legs at the hip joint. This repetitively brings the knees back together.

BILATERAL ASTERIXIS

Metabolic encephalopathies, especially hepatic and renal, are the most common causes of bilateral asterixis. Those caused specifically by hepatic failure are known as “liver (or hepatic) flap”. Other causes of asterixis include cardiac and respiratory disease, electrolyte abnormalities and drug intoxication. Electrolyte abnormalities known to cause asterixis include hypoglycaemia, hypokalaemia and hypomagnesaemia. Drug intoxications include barbiturate intoxication, alcoholism, phenytoin intoxication (“phenytoin flap”) and primidone intoxication. Wilson’s disease and focal brain lesions in the rostral midbrain tegmentum may also cause asterixis.

UNILATERAL ASTERIXIS

These are most commonly due to focal brain lesions in the genu and anterior portion of the *internal capsule* or ventrolateral *thalamus*. Lesions in the midbrain, parietal cortex, and medial frontal cortex may also cause unilateral asterixis.^{3, 4, 5}



REFERENCES

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3. Young RR, Shahani BT. Asterixis: one type of negative myoclonus. *Adv Neurol* 1986; 43: 137-156.
4. Stell R, Davis S, Carroll WM. Unilateral asterixis due to a lesion of the ventrolateral thalamus. *J Neurol Neurosurg Psychiatry* 1994; 57:878-880.
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