

## Pre-induction Jerky limb movements on operation table – Is it transient ischemic attack

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### ABSTRACT

Transient ischemic attack (TIA) is a diagnostic challenge for all physicians due to the temporariness of symptoms and the absence of any definitive diagnostic test. There is a very high risk of TIA being followed by an ischemic stroke, hence require urgent investigation and preventive strategies. At the same time, it is also important to distinguish TIA from other close differentials, to avoid wrong diagnoses leading to harmful, misdirected medical management. In this report, we will discuss the case of a middle-aged male patient with stable pre-operative vitals who was posted for total parotidectomy and suddenly developed jerky movement of the upper limb and transient aphasia on the operation theater table along with raised blood pressure. This is a very rare presentation of TIA that needs to be differentiated from other close differentials as this form is mostly associated with severe carotid occlusive disease and, hence, carries a high risk of stroke.

**Keywords:** Ischemic stroke, Jerky limb movement, Transient ischemic attack

**T**ransient ischemic attack (TIA) is a transient neurologic dysfunction episode that occurs due to focal brain, spinal cord, or retinal ischemia without any acute infarction or tissue injury. This tissue-based definition was given by the American Heart Association in 2009 [1]. Although TIA lasts only for a few minutes, full clinical resolution occurs within an hour [1-3]. It is one of the most important risk factors for an impending stroke, the highest risk being within 48 h [2]. Hence, it is a medical emergency and needs urgent evaluation and management. Parotid tumor surgery has been rarely complicated by cerebral vascular accidents, and the occurrence of a stroke after an operation of the parotid gland for the removal of a tumor seems to be a very unusual complication, having been reported in the literature only once so far [4].

Here, we present the case of a middle-aged patient scheduled for parotidectomy who suddenly developed abnormal jerky movement of the left upper limb with a brief period of unconsciousness and slurred speech; as soon as, the patient was transferred to the operation theater (OT) table and monitors were put. Through this report, we want to highlight how the diagnosis of TIA was made and the importance of proper pre-anesthetic check-ups and optimization of comorbidities if any, to avert such medical emergencies to happen.

### CASE REPORT


A 50-year-old male came with a chief complaint of swelling on the right side of the neck which was progressively increasing in size. The patient was asthmatic since childhood, on metered-dose inhaler (MDI) seroflow (salmeterol and fluticasone) 2 puffs twice daily, MDI tiotropium 2 puffs twice daily, and tab montelukast + levocetirizine once daily. He is also a newly diagnosed case of hypertension which is controlled with a tablet amlodipine 10 mg once daily. Furthermore, the patient is a chronic smoker for 30 years (one pack per day).

His general examination was within normal limits. Blood pressure recorded was 135/80 mm Hg and pulse was 80/min regular in rhythm. No focal neurological deficit or speech disturbances were present. His blood investigations showed positive Hepatitis C antigen status (not on any antiretroviral drugs). An electrocardiogram suggested left ventricular hypertrophy. 2D-echocardiography showed ejection fraction 55–60%, concentric left ventricular hypertrophy, and mild aortic regurgitation. The pulmonary function test showed an FEV1/FVC ratio of 69%. The last acute episode of status asthmaticus was 1 month back.

Fine-needle aspiration cytology report suggested of warthins tumor of the right parotid gland and the patient was subsequently posted for total right side parotidectomy. On the day of surgery,

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the patient was wheeled into the OT. The standard monitors were attached and an intravenous line was secured. Suddenly, the patient became unconscious, GCS = E1V1M2. After that, abnormal jerky movements were noticed in the left upper limb and the patient went into apnea. Blood pressure recorded at that time was 200/110 mmHg (second reading of 186/101 mmHg). He was hand ventilated with a face mask with 100% oxygen. Random blood sugar was 110 mg/dl.

The patient regained complete consciousness within 5 min and transient aphasia followed by slurring of speech was noticed, which also resolved within a few minutes. Surgery was deferred and the patient was shifted to the post-operative room on a simple face mask with oxygen for observation and further workup. Computed tomography scan of the head showed no abnormalities. The patient was discharged on the 2<sup>nd</sup> post-operative day and called for follow-up after 7 days. On the 7<sup>th</sup> day during the follow-up visit, his vitals were found to be completely within normal limits.

## DISCUSSION

The TIA is like an ischemic stroke that occurs due to locally diminished blood flow to the brain leading to focal neurological symptoms such as motor weakness, dysphasia, hemianopia, and monocular visual loss [5]. These symptoms resolve within minutes probably due to spontaneous lysis of the occluding thrombus or embolus, or through collateral circulation which restores perfusion to the ischemic area [6]. They are serious caveat to impending ischemic stroke, the highest risk (50–30%) being within 24 h of the last episode of TIA [3]. Hence, prompt and precise diagnosis with the aid of clinical and radiological examination is very important.

Immediate therapeutic interventions such as aggressive treatment of high blood pressure, control of blood glucose levels, diet control, statins, and antiplatelet therapy should be started. The underlying cause needs to be investigated and treated. All these measures reduce the risk of subsequent strokes by 80% [7,8]. The importance of blood pressure optimization and early initiation of antiplatelet therapy is highlighted by a meta-analysis of randomized controlled trials which were conducted from 1960 to 2009 on secondary stroke prevention strategies. The analysis shows that the annual stroke relapse reduced from 8.7% in 1960 to 5% in 2000 with control of blood pressure and the use of anti-platelet drugs [9].

Part of clinical evaluation includes differentiating it from other conditions mimicking such scenarios. In our case, the patient underwent very unusual neurological symptoms involving involuntary, rhythmic jerky left upper limb movement, and brief loss of consciousness followed by slurred speech. Such limb shaking TIAs are very rare [6]. It was first described by Miller-Fischer in 1962 as an uncommon manifestation of recurring cerebrovascular disease [10]. It needs to be differentiated from conditions with similar clinical presentations which include focal seizures, alcoholism, migraine aura, electrolyte disturbances, and anxiety disorder. Focal seizures which are the closest mimic of this scenario were ruled out by lack of aura; the absence of urine

incontinence; and the absence of tongue bite or a Jacksonian march (very typical of focal seizures) [6]. Isolated complete and brief speech arrest, particularly if recurrent and stereotyped, are probably more commonly related to seizures than TIA [11]. Here, if an electroencephalogram was done, it would have appeared normal and anticonvulsants were ineffective [12,13]. Alcoholism was ruled out as the patient gave no history of alcohol intake in the past 7 days. Migraine aura was ruled out as the visual disturbances are most common but do not involve involuntary limb movements and electrolyte disturbances were ruled as pre-operative serum electrolytes were normal. Arterial blood gas was also done after the incident which was normal for electrolytes.

Common risk factors for TIA include age above 60 years, unhealthy diet, obesity, psychological stress, lack of physical activity, and a history of diabetes, hypertension, smoking, and alcoholism [1]. Among all these risk factors, hypertension is the most important one for the population as well as in an individual [1,3]. Chronic hepatitis C infection has also been shown to be an independent risk factor for cerebrovascular mortality as it causes carotid intima-media thickness and plaques [14]. In our case, the patient had a history of high blood pressure and hepatitis C positive status along with a history of smoking cigarettes which made him vulnerable to cerebrovascular diseases, here comes the role of elaborate pre-operative assessment and optimization of comorbidities.

## CONCLUSION

Involuntary, rhythmic, and jerky limb movements are a rare presentation of TIA, hence a common and important diagnostic challenge for physicians. Pathophysiological difference between TIA and close differentials such as focal seizures, syncope, and migraine makes it very vital to carefully consider the history and clinical features in establishing the diagnosis. Followed by imaging diagnostics such as MRI to detect any ischemia or hemorrhage and carotid artery Doppler as limb shaking TIAs are invariably associated with severe carotid occlusive diseases which can be easily treated with surgical intervention.

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