

# Foot Drop Caused by a Brain Tumor: A Case Report

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**Abstract-** Foot drop is commonly caused by lumbar radiculopathy, peroneal nerve injury, spinal stenosis and other systemic diseases. It is usually thought as peripheral etiology, but it could be attributed to a central lesion, too. However, central lesions are rarely reported. We report a case diagnosed as a left parasagittal parietal tumor, in which drop foot was the only abnormal neurologic finding.

**Key Words:** Drop foot, Parasagittal tumor

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## INTRODUCTION

Foot drop is defined as weakness of dorsiflexion in the ankles and toes. Injury to the peroneal nerve is the major cause. Other etiologies include surgical nerve trauma, stroke, neuropathies, drug intoxication, spinal stenosis, L5 sciatica, muscular dystrophy, and systemic diseases such as connective tissue disorders, vasculitides and diabetes mellitus. However, central lesion especially in the parasagittal area may cause the neurological deficit. We report a patient presenting with right drop foot caused by the left parasagittal parietal oligoastrocytoma.

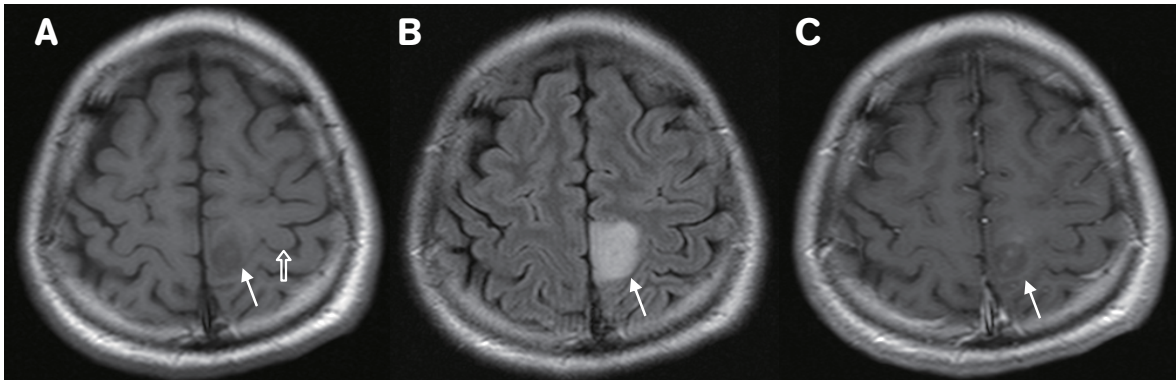
## CASE REPORT

A 35-year-old man without systemic diseases visited our neurologic clinic because that several episodes of

intermittent right lower leg tonic posture, following clonic twitching lasting for 1 minute occurred since September 2001. Afterward the right leg weakness lasted for several minutes. One week prior to outpatient clinic persistent weakness of right foot was noted. The neurologic examination revealed intact mentality, cranial nerves and sensory function. The muscle strength of the four limbs was normal except weakness in the right ankle dorsiflexion, which was 4- rated by Medical Research Council. The deep tendon reflex, including the ankle jerk, was symmetric, and bilateral plantar flexion was noted by eliciting the plantar reflex. He could walk on toe but not on heel over the right side. Magnetic resonance image (MRI) in May 2002 disclosed a left parasagittal parietal tumor with faint contrast enhancement (Fig.). He received operation for tumor removal. The pathology showed anaplastic oligoastrocytoma, WHO grade III.

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**Figure.** (A) T1-weighted image showed a low signal lesion (arrow) medial to the hand knob area (empty arrow). (B) The lesion turned to high signal in T2-weighted image. (C) It showed faint enhancement after contrast.

## DISCUSSION

Most clinicians consider a peripheral nerve lesion in patients with drop foot. However, this is not always true. Several reports had pointed out that central lesions could cause drop foot, including head trauma, cortical dysplasia<sup>(1)</sup>, abscess<sup>(2)</sup>, ischemic stroke<sup>(3)</sup>, metastatic tumor<sup>(4)</sup>, or primary brain tumors<sup>(5-9)</sup>. The primary motor cortex is sided at the dorsomedial surface of the hemisphere and tapers to the thin strip of the precentral sulcus. Spastic foot drop has been called by Guthrie et al.<sup>(9)</sup>. The most common site is parasagittal lesion near the motor strip for the leg area.

Isolated hand weakness could be caused by a lesion over the hand knob area (reverse omega shape) of the primary motor cortex<sup>(10)</sup>. A small lesion over the motor area for the leg, more medial than the knob area, could result in isolated foot drop<sup>(1,3,4,8)</sup>.

Investigation for the central cause of foot drop should be worked out especially when it is associated with Babinski sign, hyperreflexia or headache. In our patient, the preceding recurrent simple motor seizures followed by weakness point to the possibility of a central lesion.

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