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Unusual Stroke Presentations: A Review of Reported Cases

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ABSTRACT

Stroke is a major cause of death and disability, primarily due to ischemic events. While common symptoms are well-known, stroke can present atypically, making diagnosis difficult. Early recognition of these uncommon presentations is crucial, as delays in diagnosis can lead to permanent damage or death, highlighting the importance of thorough evaluation in emergency situations. This study explores the challenges of recognizing stroke with atypical initial manifestations. A literature review of case reports revealed that stroke patients may present with atypical complaints, including acute hearing loss, isolated ptosis, continuous cough, foreign-body sensation in the throat, sleep disturbance, chest pain, limb pain, foot drop, psychosis, and others. These unusual presentations can misdirect the diagnostic process, leading to delayed stroke diagnosis and potentially serious consequences. By examining these cases, the importance of maintaining a high index of suspicion for stroke is emphasized, even in the absence of classic neurological signs. Early recognition and timely intervention, supported by thorough neurological assessments and appropriate imaging, are essential for improving patient outcomes and reducing neurological damage.

Keywords: Stroke, Stroke chameleons, Diagnostic challenges, Neurology review

INTRODUCTION

Stroke constitutes a significant global health burden, ranking as the leading cause of acquired physical disability in adults and the second leading cause of mortality in middle- to high-income nations. [1] Strokes arise from an interruption of blood supply to the brain, consequently resulting in neurological impairments. Atherosclerosis within cerebral arteries constitutes a primary etiological factor in ischemic strokes. [2] Typical neurological deficits associated with stroke include sudden-onset unilateral weakness or numbness, facial palsy, aphasia, ataxia, confusion, and visual disturbances. [3] Early stroke recognition is essential to minimize the time it takes for a patient to receive proper treatment, as the effectiveness of treatments that restore blood flow to the brain is highly time-sensitive. [4]

Stroke diagnosis may not always be straightforward. Sometimes patients present with uncommon symptoms that make recognition of stroke challenging. Stroke chameleons are strokes with atypical, vague, or subtle symptoms. This often leads to underdiagnosis and false-negative assessments, delaying critical treatment. Missing a stroke diagnosis is more serious than a false-positive diagnosis, as it can lead to permanent damage or even death. [5,6] Acute ischemic stroke is mostly underrecognized in younger individuals

with a lower perceived risk of cerebrovascular disease, potentially leading to delayed diagnosis due to atypical presentation and the presence of other concurrent medical conditions that may obscure stroke symptoms. [7]

In 2021, the global incidence of stroke was approximately 142 per 100,000 persons. [8] Studies suggest that stroke chameleons constitute a significant proportion of stroke evaluations in the emergency department, with estimates ranging from 2% to 26%. [9] Recognizing stroke in atypical presentations can prevent devastating outcomes. This study aims to review reported cases of stroke where the initial symptoms could have been mistaken for other conditions.

REVIEW

Acute bilateral hearing loss

Sudden sensorineural hearing loss (SSNHL) can result from various pathologies affecting the cochlea or neural structures, and it presents as an acute decline in hearing, often without a clear cause. While most cases are idiopathic, SSNHL can occasionally signal a cerebrovascular event, especially when bilateral. In particular, SSNHL can precede ischemic stroke, including vertebrobasilar occlusion and hemorrhagic transformation, which is rarely considered in the acute setting due to the absence of other neurological symptoms. Bilateral SSNHL, though uncommon, is more likely to be associated with underlying systemic diseases like diabetes, hypertension, and cardiovascular conditions, and can act as a prodrome to severe neurologic events, including acute cerebrovascular accidents. [10]

Vaughn, et al. report a case that involves a 60-year-old male with a history of diabetes, hypertension, and atrial fibrillation, who presented with acute bilateral SSNHL. Despite his lack of typical stroke symptoms (weakness, headache, dizziness, visual disturbances or speech changes), further investigation revealed a small hemorrhagic stroke in the left temporal lobe, likely due to ischemic events in the bilateral temporal regions. [11] This case underscores the importance of considering neurologic causes of SSNHL, particularly in patients with risk factors for stroke, even in the absence of other neurological findings. In these cases, a thorough neurological workup, including MRI, is crucial to avoid missing emergent pathologies such as stroke. [12]

Isolated bilateral ptosis

Pure midbrain infarctions, which involve isolated midbrain tissue without affecting surrounding structures, are rare, accounting for only 0.6% to 2.3% of cerebral infarctions. The midbrain is primarily supplied by branches from the posterior cerebral circulation, including the basilar, superior cerebellar, and posterior cerebral arteries, with complex vascular anatomy at key levels such as the inferior and superior colliculi. Midbrain infarctions typically result in a variety of neurological deficits, depending on the location and extent of the lesion, including oculomotor abnormalities, ataxia, hemiparesis, and sensory disturbances. [13] Isolated bilateral ptosis, however, is an exceedingly rare manifestation of midbrain infarctions and may mimic other conditions like myasthenia gravis, which makes it an easy diagnosis to miss. [14]

James, et al. report a case that involves an 89-year-old man with a history of hypertension and diabetes who presented with acute bilateral ptosis, initially thought to be due to myasthenia gravis. However, after further investigation, he was diagnosed with a small acute perforator infarct in the midbrain, specifically in the periaqueductal white matter, as confirmed by MRI. Despite presenting with bilateral ptosis, the patient had no other significant neurological deficits, such as ophthalmoplegia or pupillary abnormalities, which helped rule out myasthenia gravis. After treatment with aspirin and clopidogrel, the patient later developed right-sided weakness, and a repeat MRI revealed a lacunar infarct in the left corona radiata. [15] This case highlights the importance of considering midbrain

infarction in the differential diagnosis of isolated ptosis, as early identification and treatment can potentially prevent further neurological deterioration, emphasizing the need for careful monitoring and timely intervention in suspected stroke cases.

Continuous cough

Posterior circulation strokes, which affect the vertebrobasilar system, account for nearly 30% of strokes and can cause a variety of neurological symptoms, particularly those related to the brainstem. One notable subtype is lateral medullary infarction, or Wallenberg syndrome, which results from ischemia in the posterior inferior cerebellar artery or its branches. This condition can present with a range of symptoms including dizziness, ataxia, dysphagia, dysarthria, Horner's syndrome, and nystagmus, but it may also cause atypical presentations such as isolated dysphagia or even respiratory symptoms like cough. [16] These strokes often lead to neurological deficits due to impaired swallowing and aspiration, which can then result in complications like aspiration pneumonia. [17] During the COVID-19 pandemic, respiratory symptoms such as cough have become a key red flag for viral infection, but it is important to recognize that neurological diseases, including stroke, can also present with similar symptoms, complicating diagnosis.

Warraich, et al. reported a case in 2020, during the COVID-19 pandemic, of a 19-year-old man with no significant medical history who presented with a two-week history of continuous cough, followed by acute dizziness, nausea, and difficulty swallowing. Initially suspected of having COVID-19 due to his cough, he tested negative on two occasions. Further investigation revealed a lateral medullary infarction on brain MRI, confirming the diagnosis of posterior circulation stroke. The patient also developed aspiration pneumonia, likely due to silent aspiration from dysphagia, which is a known complication of brainstem strokes. Following appropriate treatment for aspiration pneumonia, the patient made a full recovery and returned to his normal activities. [18] This underscores the need for healthcare providers to thoroughly investigate such cases to rule out serious conditions like stroke, particularly when neurological signs are present alongside respiratory symptoms.

Foreign-body sensation in the throat

Cerebrovascular disease is a major cause of morbidity and mortality in patients with end-stage renal disease (ESRD), particularly those with diabetes, hypertension, and hyperlipidemia, which promote accelerated atherosclerosis and increase the risk of stroke. [19] In diabetic patients, the presentation of cerebrovascular disease may be atypical due to factors such as neuropathy and the altered patterns of atherosclerosis seen in these individuals. Atypical symptoms may arise when sensory pathways are affected by stroke, leading to unusual manifestations. For example, infarctions in regions of the brain involved in sensation and reflexes can cause altered perceptions, such as the sensation of a foreign body in the throat. Additionally, the loss of reflexes like the gag reflex can result in thick secretions accumulating in the pharynx, which may be perceived as a foreign object. [20] These factors complicate the diagnosis of cerebrovascular events in this high-risk population, where symptoms may not align with typical stroke presentations.

Mattana, et al. report a case of a 67-year-old diabetic woman with ESRD who presented to the emergency room with an unusual complaint of a foreign body sensation in her throat, without any visible abnormalities on initial investigations. Neurologic examination revealed absent sensation in the maxillary division of the fifth cranial nerve and a diminished gag reflex, prompting further imaging. Magnetic resonance imaging revealed infarcts in the left corona radiata and right pons. Despite an initial delay in diagnosis due to the atypical

presentation, she was treated with aspirin and did not experience any new neurological deficits. [21] This case emphasizes the importance of maintaining a high index of suspicion for cerebrovascular disease in diabetic dialysis patients, especially when symptoms are atypical. Just as cardiac disease in diabetics warrants careful evaluation, cerebrovascular disease should be considered in such patients with unusual or unexplained symptoms to avoid delayed diagnosis and adverse outcomes.

Sleep disturbance

Thalamic strokes can present with a diverse range of symptoms depending on the location, volume, and side of the lesion. Hypersomnia, an uncommon manifestation of these strokes, has been particularly associated with unilateral paramedian thalamic ischemic lesions. [22] The thalamus, a key subcortical structure, has extensive connections with the cortex and other brain regions, and lesions in the paramedian thalamic nucleus can disrupt the regulation of wakefulness and sleep. This disruption can result in various sleep-wake disorders, with hypersomnolence arising from impaired arousal mechanisms. [23] Understanding the pathophysiology is crucial for recognizing hypersomnia as a possible symptom of thalamic infarction, especially when initial imaging, such as CT, may not reveal acute ischemia.

Fernandes, et al. report a case of a 41-year-old male with a history of hypertension and obesity who presented with sudden onset hypersomnolence and transient dysarthria. Initial CT showed no acute ischemic changes, but follow-up imaging 24 hours after thrombolysis revealed a hypodense lesion in the left ventromedial thalamus and mesencephalon, confirming an ischemic stroke. The patient's hypersomnolence persisted for several days but improved rapidly, and by two months, he reported normal sleep patterns. [24] This case highlights the importance of considering thalamic infarcts in the differential diagnosis of acute hypersomnia, particularly when initial imaging is unremarkable.

Chest pain

One such rare presentation of acute ischaemic stroke involves chest or epigastric pain, which may initially suggest an acute coronary syndrome (ACS). This type of presentation occurs when stroke-related central pain, often due to damage in the spinothalamic pathway, is mistaken for a cardiac issue. [25] These patients may also exhibit subtle neurological deficits, such as nausea, vertigo, or focal sensory loss, which can easily be overlooked, especially when chest pain dominates the clinical picture. Ischemic stroke in these cases is often diagnosed only after a delay, leading to potential undertreatment, as timely revascularization therapies may be missed. [26]

Rebordão, et al. identified five stroke patients who presented with chest or epigastric pain, initially misdiagnosed as ACS, between 2002 and 2014. Despite the patients' neurological signs, cardiac work-ups were prioritized, delaying the stroke diagnosis by hours to days. Four of the patients had vertebrobasilar stroke, and none received acute stroke revascularization therapy, even though some were within the time window for treatment. [27] The report emphasizes the importance of considering central causes of chest pain, especially when other subtle neurological symptoms are present. Raising awareness of such atypical stroke presentations and lowering the threshold for neurological evaluation could reduce diagnostic delays and improve patient outcomes.

Acute foot drop

Foot drop syndrome is a neurologic condition characterized by weakness in the dorsiflexor muscles of the foot, typically resulting from peroneal nerve damage. However, in rare cases, foot drop can be caused by central nervous system lesions, such as cortical infarctions. [28] Central lesions generally affect the upper motor

neurons, but there are exceptions where a cortical infarction can present with symptoms mimicking peripheral nerve damage. High cortical surface lesions are particularly prone to cause isolated leg monoparesis, in contrast to deeper lesions that typically result in hemiparesis. Anterior cerebral artery infarctions are a common cause of cortical lesions leading to leg monoparesis. [29]

Figueiredo, et al. report a case of a 43-year-old previously healthy man who developed acute right foot drop, with weakness in the dorsiflexor muscles. Imaging revealed a small infarction in the left frontal cortex, and after three months of treatment with aspirin, his motor deficit fully resolved. [30] The case underscores the importance of considering central nervous system causes in patients presenting with acute foot drop, even when typical signs of upper motor neuron damage are absent.

Alien hand syndrome

Alien Hand Syndrome (AHS) is a rare neurological condition characterized by involuntary, purposeless movements of a limb, typically without any associated motor dysfunction. It most commonly results from damage to specific brain regions involved in motor control, including the frontal lobe, corpus callosum, and posterior brain regions. [31] AHS is often seen in patients with stroke, particularly those affecting the non-dominant parietal lobe, which can disrupt motor planning and control. In the context of stroke, AHS can manifest as disinhibited movements of one hand, which may grasp, slap, or perform other actions without the patient's intention or control. [32] The syndrome is classified into three variants based on the location of the brain damage: frontal, callosal, and posterior. In stroke-related cases, the posterior variant is often linked to infarctions in the parietal or temporal cortices, leading to deficits in motor control and proprioception. [31,32]

Le, et al. report a case of an 88-year-old right-handed male who developed involuntary movements in his left forearm and hand, alongside weakness and numbness, just hours before presenting to the hospital. Brain MRI revealed acute infarctions in the right temporal lobe, right parietal cortex, and right parietal subcortex, with the parietal cortex damage being the likely cause of his AHS. The pattern of infarcts, along with the patient's history and subsequent findings of a probable patent foramen ovale and non-sustained atrial flutter, suggested an embolic source for the stroke. The patient's AHS symptoms improved spontaneously during hospitalization, and he was discharged on anticoagulation and cardiovascular management. [33] This case underscores the importance of considering AHS as an early sign of underlying cerebrovascular pathology, particularly in older patients, and highlights the need for prompt evaluation to address potentially serious underlying conditions like embolic stroke.

Parkinsonism

Parkinsonism, a condition marked by motor symptoms like bradykinesia, rigidity, and gait disturbances, is typically associated with Parkinson disease (PD) but can also arise from various non-neurodegenerative causes, such as vascular parkinsonism (VP). VP results from cerebrovascular events, often affecting deep brain structures like the basal ganglia, and presents with similar motor symptoms to PD, though with key differences such as early postural instability, lower body predominance, and a limited response to levodopa. [34] VP can present acutely, especially after strokes, and is often difficult to distinguish from other causes of parkinsonism. It is essential to evaluate patients with acute parkinsonism and a history of cerebrovascular disease to identify VP, as it demands different management strategies, including controlling vascular risk factors to prevent further deterioration. [35]

Al-Sibahee, et al. report a case of a 54-year-old male with a history of cerebrovascular disease developed acute parkinsonism following a stroke, presenting with

agitation, mutism, drooling, rigidity, and immobility. Imaging revealed acute infarctions in the left cortical parieto-occipital region, caudate nucleus, and putamen, confirming VP. Despite treatment with levodopa and anticoagulation, the patient showed minimal improvement over six months. [36] This case highlights the importance of recognizing VP in patients with cerebrovascular disease and acute parkinsonism. Diagnosis relies on clinical presentation, MRI findings, and ruling out other conditions, while treatment focuses on managing vascular risk factors and using medications like levodopa, although its efficacy is limited.

Isolated shoulder weakness

Stroke typically results in motor and sensory deficits due to ischemia in specific brain regions, often following damage to the primary motor cortex, which controls movement through a somatotopic organization. Distal muscle weakness, particularly in the hand, is a common presentation in stroke due to the larger cortical representation of the hand and fingers. [37] In contrast, isolated weakness of proximal muscles, such as the shoulder, is exceptionally rare. This unusual pattern of presentation challenges clinicians, as it may be mistaken for other conditions such as brachial plexopathy. [38]

Arora, et al. report a case of a 60-year-old man with acute ischemic stroke manifesting as isolated left shoulder muscle weakness, which was initially suggestive of brachial plexopathy. The patient had no prior history of neurological deficits, and his initial examination revealed hypotonia and significant weakness in the left shoulder muscles, while distal hand and lower limb functions remained intact. MRI confirmed ischemia in the right precentral gyrus, corresponding to the shoulder region of the motor cortex, along with stenosis in the right internal carotid artery. The patient was treated with antiplatelet therapy and statins, and significant improvement was noted during follow-up. [39] Key messages from this case include the recognition that isolated shoulder weakness can be an unusual but possible manifestation of stroke, distinguishing it from other conditions like upper brachial plexopathy.

Unilateral lower extremity pain

While pain is not a typical first symptom of stroke, central neuropathic pain can arise from lesions in areas such as the thalamus or cerebral cortex. Stimulation of specific regions within the parietal cortex, such as the pre- and post-rolandic sulci and the parietal operculum, can evoke pain sensations, likely due to altered sensory processing in the brain. [40] In the context of ischemic stroke, pain may result from disconnections between the somatosensory cortex and deeper brain structures or changes in neurotransmitter activity and glial cell activation. [41]

Saucedo, et al. report a case of an 82-year-old woman who presented with acute, severe pain in her left lower limb as the initial manifestation of an ischemic stroke. Despite having risk factors such as hypertension and diabetes, her peripheral vascular examination showed no abnormalities, and Doppler ultrasound was normal. MRI revealed a small ischemic lesion in the right parasagittal parietal cortex. The patient had a good recovery following treatment with aspirin and statins, achieving a modified Rankin Scale score of 0. [42] The case highlights the rarity of pain as the first symptom of cortical ischemic stroke and emphasizes that central pain, although unusual, can be an important but often overlooked presentation. Early recognition is crucial to avoid diagnostic confusion and delay in initiating appropriate therapies such as reperfusion treatment.

Psychosis

Posterior circulation stroke, accounting for 20-25% of all ischemic strokes, occurs within the vascular territory supplied by the vertebrobasilar system and can result in a wide range of neurological deficits. These deficits may include visual disturbances,

vertigo, dysphagia, dysarthria, motor weakness, and altered consciousness, which help in localizing the infarct. [43] Although the classic presentation is primarily neurological, psychiatric symptoms, including psychosis, have been rarely reported. The pathophysiology behind this is related to infarcts affecting areas of the brain responsible for perception and cognition, with lesions in the posterior circulation potentially leading to disturbances in emotional and cognitive function. [44]

Nafisa, et al. report a case of a 36-year-old woman who initially presented with anxiety, fearfulness, and vomiting, without any obvious neurological deficits. Despite normal systemic examinations, including echocardiography and chest X-ray, the patient showed signs of psychosis, including delusions of persecution and hallucinations, prompting a psychiatry consultation. CT imaging revealed an acute infarct in the left posterior cerebral artery territory. The patient had no prior psychiatric history, and risk factors for stroke were absent, making the diagnosis challenging. Following neurology consultation and confirmation of the infarct, the patient was treated with risperidone and anti-platelet therapy, showing improvement. [45] This case highlights the importance of considering posterior circulation stroke in patients presenting with psychiatric symptoms, even in the absence of typical neurological deficits.

CONCLUSION

This review highlights the importance of recognizing uncommon stroke presentations, which can often mimic other medical conditions or present with atypical symptoms. While strokes are typically associated with classic signs such as hemiparesis or aphasia, several unusual manifestations, such as acute bilateral hearing loss, isolated ptosis, continuous cough, foreign-body sensation in the throat, and psychosis, can pose significant diagnostic challenges. The reviewed cases emphasize the necessity of maintaining a high level of suspicion for cerebrovascular events, especially in patients with known vascular risk factors, even when classic stroke symptoms are absent. Early recognition through appropriate imaging and clinical evaluation is crucial to avoid misdiagnosis, ensure timely intervention, and improve patient outcomes. Further research into these atypical stroke manifestations is warranted to enhance diagnostic accuracy and clinical management.

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REFERENCES

1. Murphy SJ, Werring DJ. Stroke: causes and clinical features. Medicine. 2020 Sep 1;48(9):561-6.
2. Ciarambino T, Crispino P, Mastrolorenzo E, et al. Stroke and etiopathogenesis: what is known?. Genes. 2022 May 30;13(6):978.
3. Walter K. What is acute ischemic stroke?. Jama. 2022 Mar 1;327(9):885-.
4. McClelland G, Burrow E. Ambulance service call handler and clinician identification of stroke in North East Ambulance Service. British Paramedic Journal. 2021 Sep 1;6(2):59-65.
5. Moulin S, Leys D. Stroke mimics and chameleons. Current opinion in neurology. 2019 Feb 1;32(1):54-9.
6. Fernandes PM, Whiteley WN, Hart SR, et al. Strokes: mimics and chameleons. Practical neurology. 2013 Feb 1;13(1):21-8.
7. Richoz B, Hugli O, Dami F, et al. Acute stroke chameleons in a university hospital: risk factors, circumstances, and outcomes. Neurology. 2015 Aug 11;85(6):505-11.
8. He Q, Wang W, Zhang Y, et al. Global, Regional, and National Burden of Stroke, 1990–2021: A Systematic Analysis for Global Burden of Disease 2021. Stroke. 2024 Dec;55(12):2815-24.
9. Ramadan SM, Rayessa R, Esisi B. Diagnostic challenges of focal neurological deficits during an acute take-is this

vascular?: Clinical hints, pearls and pitfalls. Clinical Medicine. 2024 Apr 5:100037.
10. Lee H, Baloh RW. Sudden deafness in vertebrobasilar ischemia: clinical features, vascular topographical patterns and long-term outcome. Journal of the neurological sciences. 2005 Jan 15;228(1):99-104.
11. Vaughn AS, Rech MA, Lovett S. Acute bilateral hearing loss as a rare presentation of acute stroke. The American Journal of Emergency Medicine. 2022 Jan 1;51:429-e1.
12. Huang MH, Huang CC, Ryu SJ, et al. Sudden bilateral hearing impairment in vertebrobasilar occlusive disease. Stroke. 1993 Jan;24(1):132-7.
13. Kim JS, Kim J. Pure midbrain infarction: clinical, radiologic, and pathophysiologic findings. Neurology. 2005 Apr 12;64(7):1227-32.
14. Kim SY, Park HK, Song DH, et al. Management of severe bilateral ptosis in a patient with midbrain infarction: a case report. Annals of Rehabilitation Medicine. 2013 Dec;37(6):891.
15. James S, Thozhuthumparambil KP. Brainstem stroke presenting as isolated bilateral ptosis. BMJ Case Reports CP. 2021 Jul 1;14(7):e243220.
16. Floßmann E, Rothwell PM. Prognosis of vertebrobasilar transient ischaemic attack and minor stroke. Brain. 2003 Sep 1;126(9):1940-54.
17. Polkey MI, Lyall RA, Moxham J, et al. Respiratory aspects of neurological disease. Journal of Neurology, Neurosurgery & Psychiatry. 1999 Jan 1;66(1):5-15.
18. Warraich M, Bolaji P, Das S. Posterior circulation stroke presenting as a new continuous cough: not always COVID-19. BMJ Case Reports CP. 2021 Jan 1;14(1):e240270.
19. Tsuruya K, Fujisaki K. Cerebrovascular disease in end-stage kidney disease. Renal Replacement Therapy. 2016 Dec;2:1-7.
20. Roy P, Akpoigbe O, Akanmode AM, et al. Food Stuck in the Throat in a Newly Diagnosed Diabetes Mellitus Patient: An Atypical Presentation of Wallenberg's Syndrome. Cureus. 2023 Apr;15(4).
21. Mattana J, Effiong C, Myssiorek D. Atypical presentation of stroke in a diabetic hemodialysis patient. The American journal of the medical sciences. 1997 Apr 1;313(4):252-4.
22. Hansen PN, Krøigård T, Nguyen N, et al. Severe hypersomnia after unilateral infarction in the pulvinar nucleus–a case report. BMC neurology. 2020 Dec;20:1-4.
23. Gent TC, Bandarabadi M, Herrera CG, et al. Thalamic dual control of sleep and wakefulness. Nature neuroscience. 2018 Jul;21(7):974-84.
24. Fernandes AA, Vedor S, de Carvalho S, et al. An atypical stroke manifestation: Sleep disturbance in unilateral thalamic lesion. Brain Disorders. 2024 Sep 1;15:100150.
25. Vartiainen N, Perchet C, Magnin M, et al. Thalamic pain: anatomical and physiological indices of prediction. Brain. 2016 Mar 1;139(3):708-22.
26. Gorson KC, Pessin MS, DeWitt LD, et al. Stroke with sensory symptoms mimicking myocardial ischemia. Neurology 1996; 46: 548–551.
27. Rebordão L, Nannoni S, Strambo D, et al. Stroke chameleons: acute central pain mimicking acute coronary syndrome. European journal of neurology. 2020 Nov;27(11):2312-7.
28. Ku BD, Lee EJ, Kim H. Cerebral infarction producing sudden isolated foot drop. Journal of Clinical Neurology (Seoul, Korea). 2007 Mar;3(1):67.
29. Paciaroni M, Caso V, Milia P, et al. Isolated monoparesis following stroke. Journal of Neurology, Neurosurgery & Psychiatry. 2005 Jun 1;76(6):805-7.
30. Figueiredo MM, Ricarte IF, Fukuda TG, et al. Acute foot drop syndrome mimicking peroneal nerve injury: an atypical presentation of ischemic stroke.
31. Sarva H, Deik A, Severt WL. Pathophysiology and treatment of alien hand syndrome. Tremor and Other Hyperkinetic Movements. 2014;4.
32. Assal F, Schwartz S, Vuilleumier P. Moving with or without will: functional neural correlates of alien hand syndrome. Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society. 2007 Sep; 62(3):301-6.
33. Le K, Zhang C, Greisman L. Alien hand syndrome–a rare presentation of stroke. Journal of Community Hospital Internal Medicine Perspectives. 2020 Mar 3;10(2):149-50.

34. Holm H, Gundersen V, Dietrichs E. Vascular parkinsonism. Tidsskrift for Den norske legeforening. 2023 May 8.
35. Udagedara TB, Alahakoon AM, Goonaratna IK. Vascular parkinsonism: a review on management updates. Annals of Indian Academy of Neurology. 2019 Jan 1;22(1):17-20.
36. Al-Sibahee E, Al-Obaidi MN, Al-Sharee A. Acute Ischemic Stroke Presenting as Hemiparkinsonism: A Case Report. The Neurohospitalist. 2024 Oct 10:19418744241290847.
37. Yousry TA, Schmid UD, Alkadhi H, et al. Localization of the motor hand area to a knob on the precentral gyrus. A new landmark. Brain: a journal of neurology. 1997 Jan 1;120(1):141-57.
38. Entezami P, Hopper JA. Isolated shoulder weakness as a result of a cortical infarction in the precentral gyrus. Journal of Community Hospital Internal Medicine Perspectives. 2015 Jan 1;5(2):26220.
39. Arora T, Velayutham SS, Sowmini PR, et al. Isolated Shoulder Weakness as a Manifestation of Acute Ischemic Stroke: A Rare Presentation. Neurology India. 2024 Nov 1;72(6):1267-9.
40. Watson JC, Sandroni P. Central neuropathic pain syndromes. InMayo clinic proceedings 2016 Mar 1 (Vol. 91, No. 3, pp. 372-385). Elsevier.
41. Rossetti AO, Ghika JA, Vingerhoets F, et al. Neurogenic pain and abnormal movements contralateral to an anterior parietal artery stroke. Archives of neurology. 2003 Jul 1;60(7):1004-6.
42. Saucedo MA, De Francesco L, Chertcoff A, et al. Pain as the first manifestation of an acute ischemic parietal stroke: A case report. Current Journal of Neurology. 2020 Jan 1;19(1):40.
43. Nouh A, Remke J, Ruland S. Ischemic posterior circulation stroke: a review of anatomy, clinical presentations, diagnosis, and current management. Frontiers in neurology. 2014 Apr 7; 5:30.
44. Stangeland H, Orgeta V, Bell V. Poststroke psychosis: a systematic review. Journal of Neurology, Neurosurgery & Psychiatry. 2018 Aug 1;89(8):879-85.
45. Nafisa D, Nayak KP, Safeekh AT. Posterior Circulation Stroke presenting as Psychotic disorder. Kerala Journal of Psychiatry. 2019 Oct 17;32(1):46-8.

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