

Stroke Complicated: When Lesions Coexist

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ABSTRACT

The phrase "space-occupying lesion" or "intra-cranial space-occupying lesion" refers to any primary or secondary neoplasm, whether benign or malignant, as well as any parasite or inflammatory mass located inside the cranial cavity. Because of the restricted expandability within the cerebral cavity, severe ischemic stroke with progressive edema formation is often accompanied with a poor prognosis and life-threatening circumstances. A brain lesion that occupies space is typically caused by cancer, although it can also result from other pathologies like an abscess or a hemorrhage. Advances in brain imaging have made it possible to detect intracranial lesions with reasonable accuracy, allowing us to focus on the cause of these space-occupying lesions. Here we present a case of a 65-year-old man presenting with slurring of speech and deviation of angle of mouth to the right side. Where the patient already undergone s/p percutaneous transluminal coronary angioplasty. The physician advised magnetic resonance imaging [Brain-Plain & Contrast], which shows a well-defined heterogenous lesion in the left frontal lobe measuring 1.9x1.7 cm with moderate vasogenic edema-space-occupying lesion with the possibility of metastasis, including glioma.

Keywords: Neoplasm, Abscess, Haematoma, Vasogenic edema, Metastasis, Glioma.

INTRODUCTION

The phrase "intracranial space-occupying lesion" refers to a mass lesion in the skull that can have a variety of causes, such as an arteriovenous malformation, an inflammatory or parasitic lesion, a benign or malignant tumor, or a hemorrhage¹. Intracranial space-occupying lesion (ICSOL) is additionally recognized as intracranial mass lesions². Space-occupying lesions (SOLs) of the Central Nervous System (CNS) are a major source of neurological morbidity and death. Cyst, cerebrovascular diseases, infections, and tumours are all potential causes of ICSOLs. ICSOL can be divided into neoplastic and non-neoplastic lesions³. Common non-neoplastic causes of ICSOL are infectious cerebral abscess (pyogenic, toxoplasma, etc.), tuberculoma, cysticercosis, echinococcosis (ashydatid cyst), schistosomiasis, traumatic subdural haematoma, extradural haematoma; vascular-intracerebral haematoma; inflammatory sarcoid mass; and others—arachnoid cyst, colloid cyst, embryonic dysplastic lesions. Astrocytoma, meningioma, schwannoma, and pituitary adenoma are common primary neoplastic lesions, but systemic cancer metastases to the brain and vertebra are significantly more common. The diagnosis and treatment of ischemic stroke, as well as space-occupying lesions with mass impact, remains a difficult issue due to the brain's ambiguous symptoms and limited diagnostic sensitivity⁴. Physical symptoms include headaches, nausea, vomiting, and weakness, while neurological symptoms include seizures and focal neurological

impairment. Behavioral alterations include sadness (15-20%), anxiety (30-50%), psychosis (<5%), and personality changes (16-76%)⁵. Diagnostic imaging in patients with suspected intracranial masses aims to detect the presence of the mass, localize its extent, and assess secondary changes such as edema, herniation, and hemorrhage. Radiological examination aids in determining the presence of an ICSOL, its location, and nature—whether benign or malignant—as well as changes in the lesion such as necrosis, intratumoral hemorrhage, surrounding edema, and the mass effect generated by the ICSOL⁶.

CASE PRESENTATION

A 65-year-old male patient was referred to the neurology department with primary symptoms of slurred speech and mouth deviation to the right. The patient had a previous medical history of coronary artery disease, for which PTCA was performed 5 months ago. The patient is on Ecosprin and Atorvastatin for CAD. The patient has a history of hypertension and is currently taking Telmisartan on a daily basis. The patient is a known smoker, although he stopped 5 months ago. The patient has been provisionally diagnosed with an ischemic stroke. Based on the patient's subjective evidence, the physician formerly recommended lab tests such as an MRI, which indicated vasogenic oedema, space-occupying lesions, ischemic foci in brain stem, lacunar infarct in right lentiform nucleus, mild bilateral ethmoidal, maxillary, and frontal sinusitis age related cerebral atrophy with small vessel white matter. ischemic changes and contrast studies suggested the possibility of metastasis and glioma. On examination, the Glasgow coma scale was E4V5M6, which indicates a normal level of consciousness. Carotid doppler detected atherosclerotic plaque in the right carotid bulb, which resulted in 20–30% luminal constriction. Atherosclerotic alterations include diffuse IM thickening and wall calcifications in bilateral CCA that extend into bilateral ICA. An ultrasound examination of the abdomen indicated left grade-1 renal parenchymal abnormalities associated with RFT, which demonstrated a rise in serum creatinine levels. Other laboratory tests were conducted, such as a complete blood count, renal function tests, and serum electrolytes. The patient was ultimately diagnosed with space-occupying lesions.

Table 1: Lab Investigations Showing Abnormal Values

COMPLETE BLOOD PICTURE	ABNORMAL RANGE	NORMAL RANGE
DIFFERENTIAL LEUCOCYTE COUNT		
Polymorphs	79%	50-70%
Lymphocytes	14%	25-40%
RENAL FUNCTION TEST		
Serum creatinine	1.44mg/dl	0.6-1.1mg/dl
SERUM ELECTROLYTES		
Sodium	132mmol/l	136-146mmol/l

CAROTID -DOPPLER

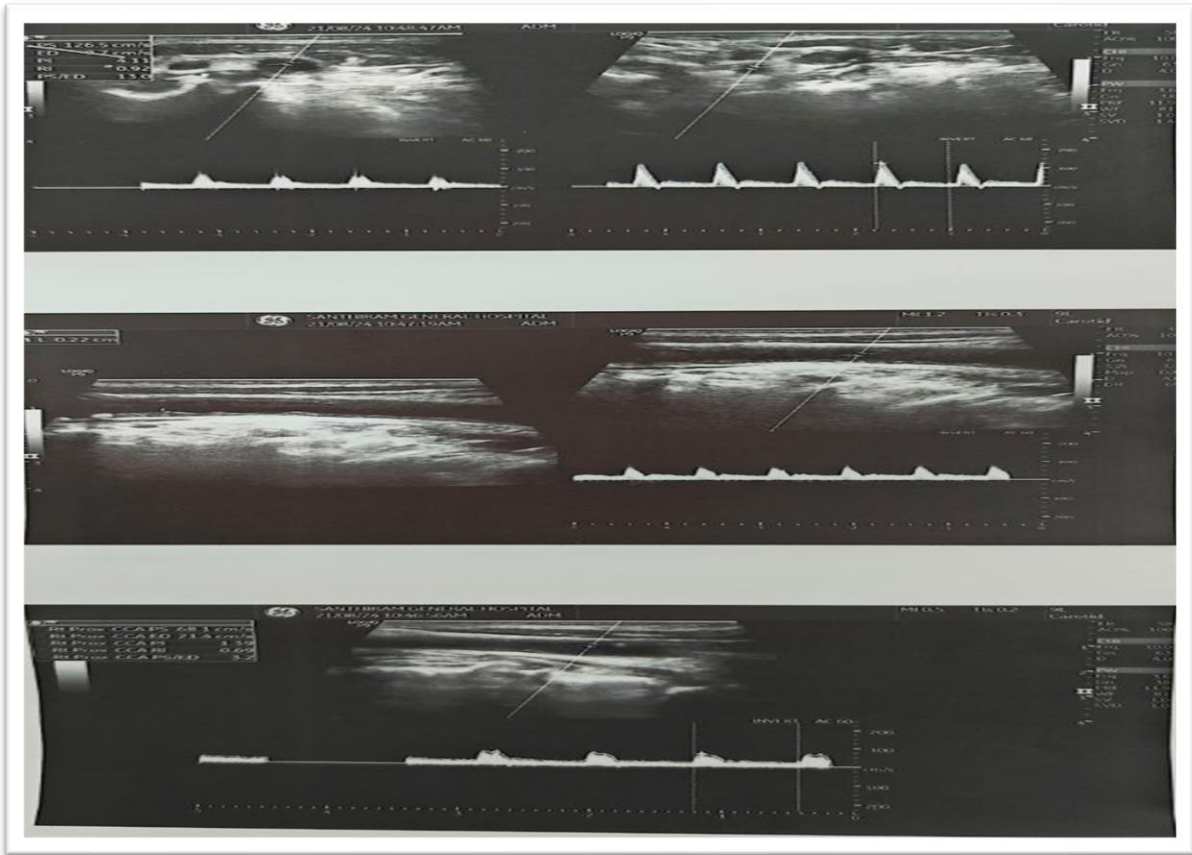


Fig: 1- (a)

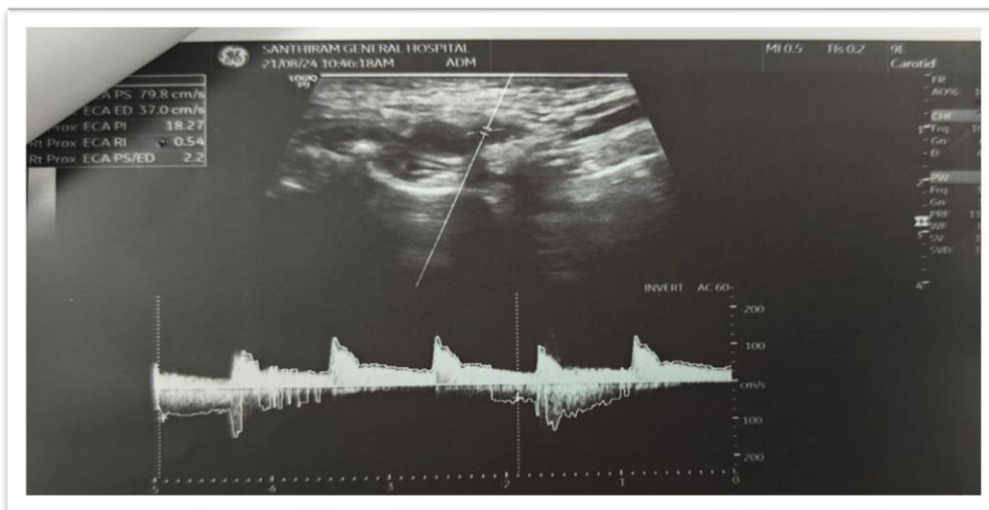


Fig :1-(b)

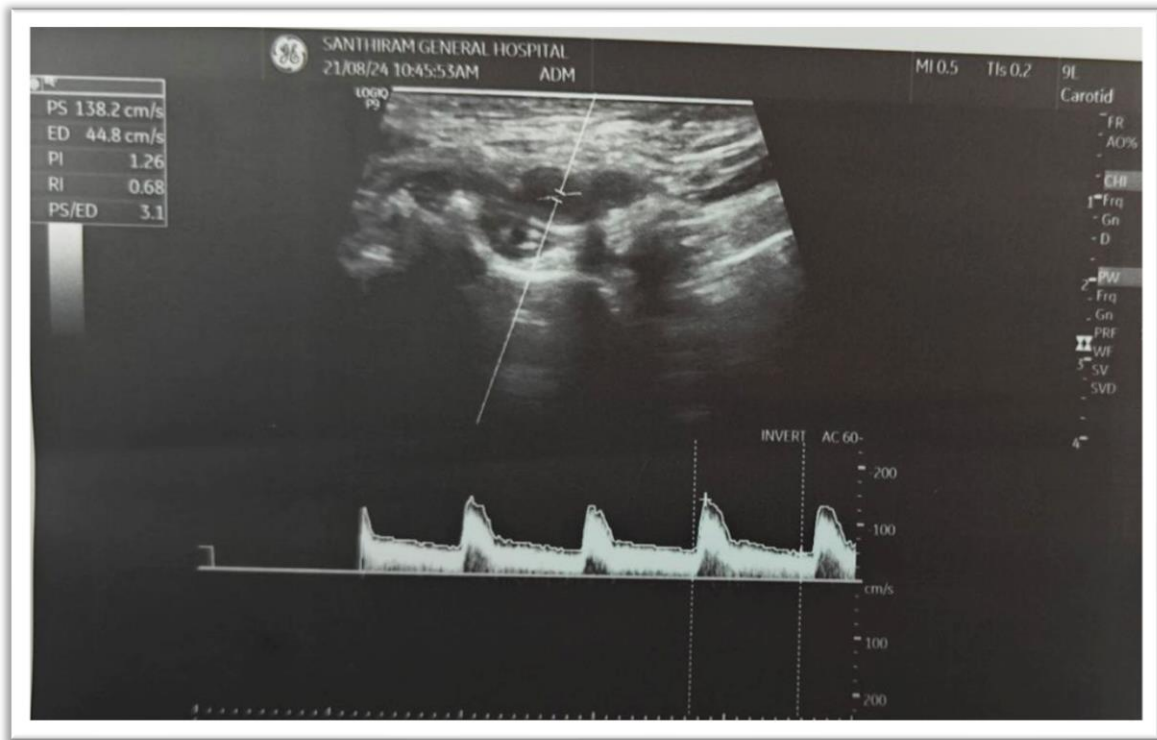


Fig:1-(c)

Fig:1 (a) & (b) & (c):

CAROTID -DOPPLER

- Atherosclerotic plaque in right carotid bulb, causing 20-30% luminal narrowing.
- Atherosclerotic changes in the form of diffuse IM thickening with wall calcification in bilateral CCA extending into bilateral ICA.

ULTRASOUND SCAN OF ABDOMEN

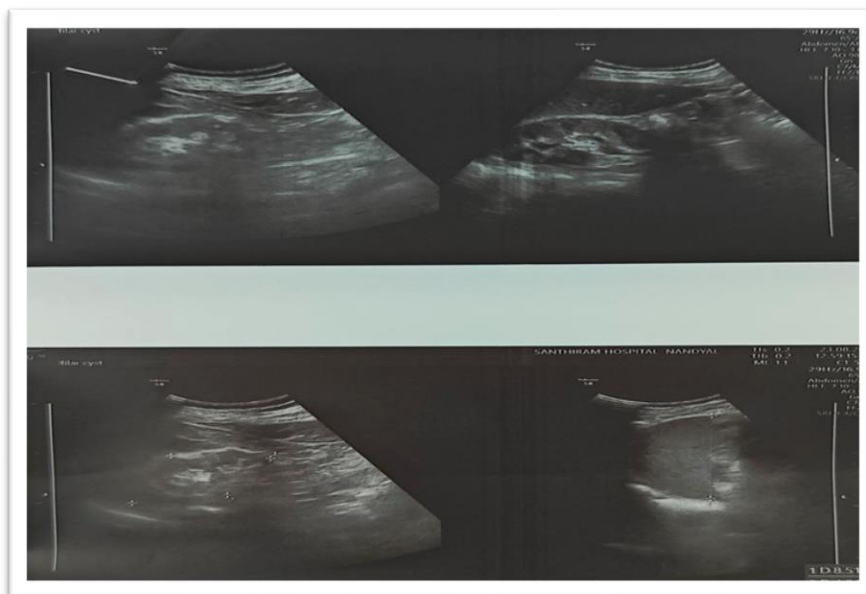


Fig:2-(a)



Fig:2-(b)

Fig:2 (a) & (b): Left Grade 1 Renal parenchymal changes -Correlate with RFT

MRI-BRAIN PLAIN & CONTRAST

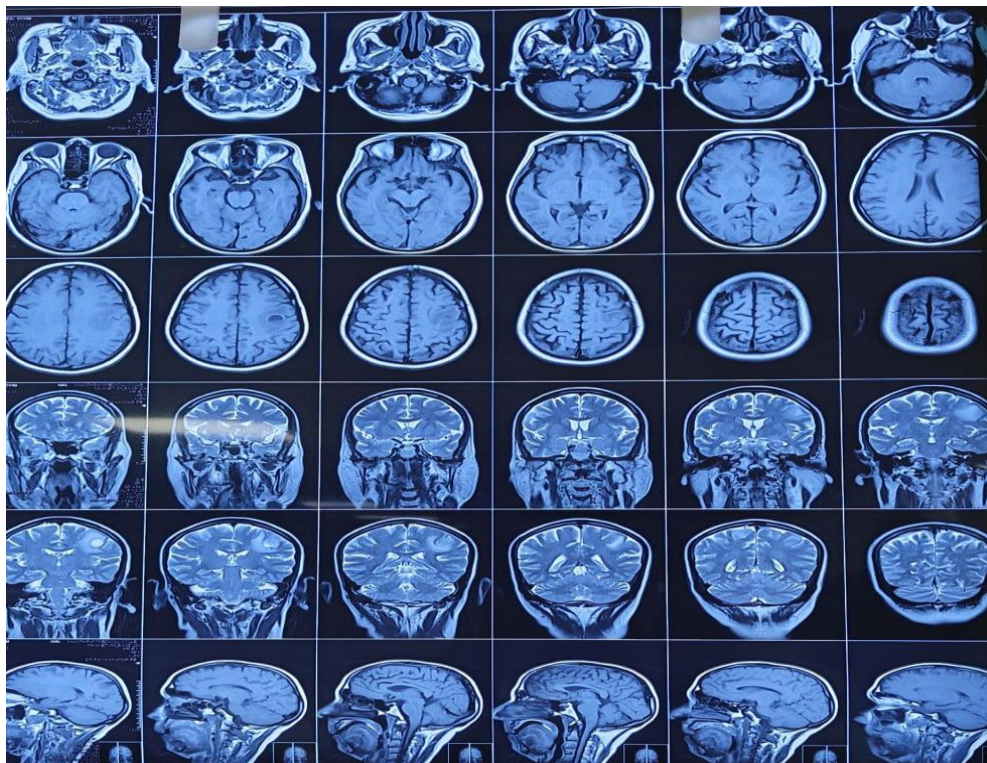


Fig: 3 (a)

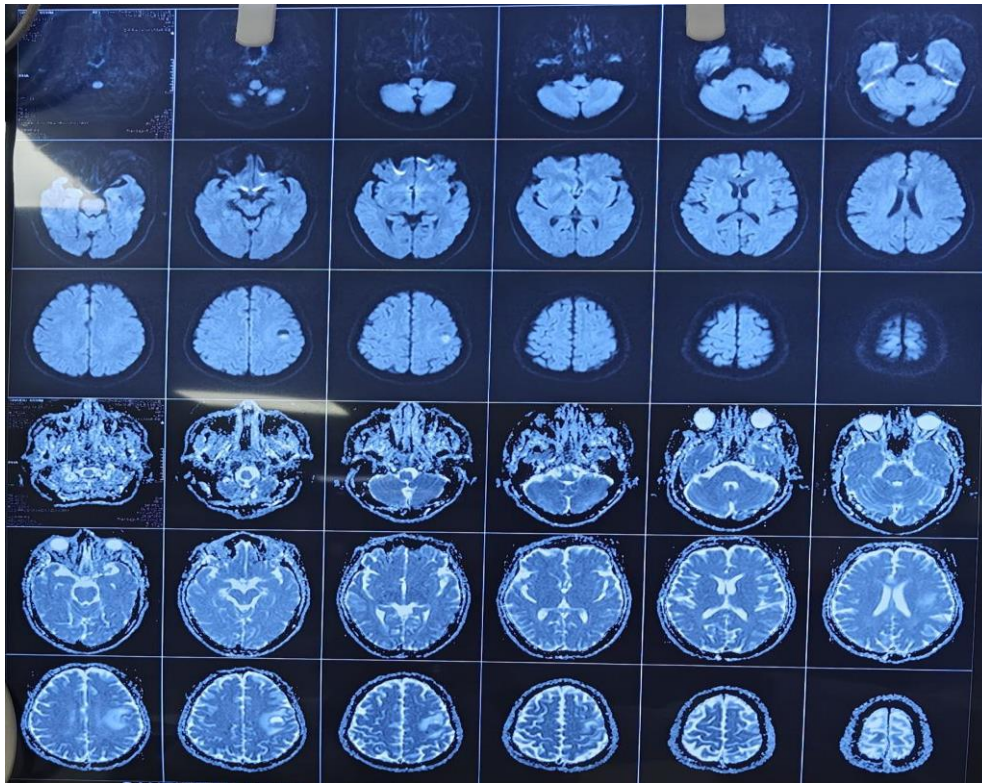


Fig:3 (b)

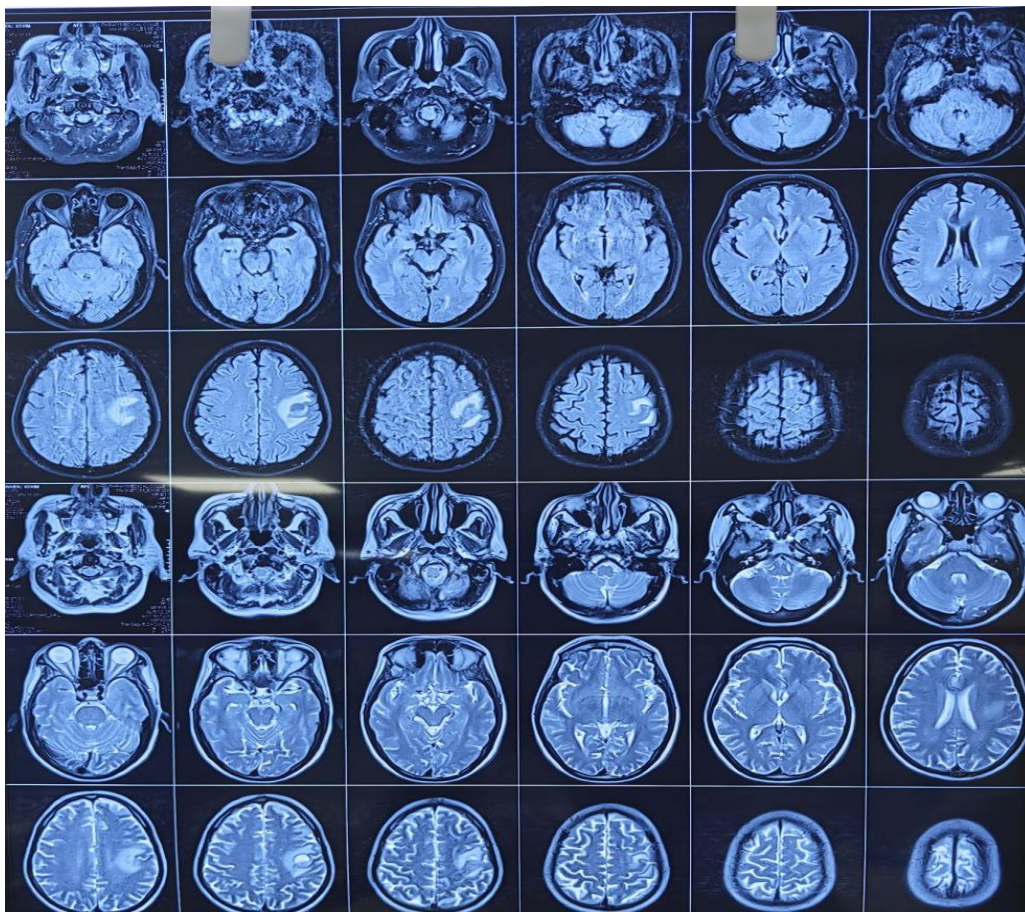


Fig: 3 (c)

Fig : 3 (a) & (b) & (c):

- Well defined heterogenous lesion noted in left frontal lobe measuring measuring 1.9x1.7cm which is T1, FLAIR hypointense, T2 hyperintense in non dependent region and T1 isotense, T2 & FLAIR and intermediate hyperintense in dependent region with fluid-fluid level, with hypointense rim and adjacent vasogenic edema-space occupying lesion
 - -possibility of metastasis has to be considered
 - -other possibilities include glioma
- Ischemic foci in brain stem.
- Local infarct in right lentiform nucleus.
- Mild bilateral ethmoidal, maxillary and frontal sinusitis.
- Age related cerebral atrophy with small vessel white matter ischemic changes.

TREATMENT

The patient was first administered Inj.LEVIPIL 500 mg IV BD, an antiepileptic medication, as preventative therapy to avoid seizures, which are a serious consequence of the condition. Inj.PANTOP 40 mg IV OD is administered, along with intravenous normal saline. Following a review of test results, clinicians added medicines such as Tab. ECOSPRIN 75 mg OD for antiplatelet activity and Tab. ATORVASTATIN, an antihyperlipidemic drug, as CAD maintenance medications. Furthermore, because atherosclerotic alterations were seen in the carotid doppler scan, Tab.TICAGRELOR 90 mg BD, an antiplatelet drug, was prescribed. Since the patient is hypertensive, Tab. TELVAS 40 mg OD is advised. TORSID PLUS 10 mg BD is a diuretic used for the treatment of vasogenic edema. DEXAMETHASONE 4 mg IV BD is used to lower intracranial pressure caused by space-occupying lesions. Following admission, the patient complained of a cough with sputum; therefore, Inj. MUCINAC was recommended.

DISCUSSION

Space-occupying lesions treated conservatively may cause death. Surgical intervention is the best option⁷. MRI is the most effective means of diagnosing the condition since it visualizes important areas such as the brain⁸. In this particular instance, an MRI of the patient revealed space-occupying lesions. The patient's Glasgow coma scale yielded a score of 15 (E4V5M6), indicating normal consciousness. Because of the increased risk of seizures, antiepileptic medicines are used as a preventative measure. The patient has been treated by medical treatment and is currently receiving maintenance therapy for coronary artery disease. According to the MRI results, metastases and gliomas are possible. As a result, patients should return to hospitals on a regular basis for monitoring.

CONCLUSION

While most cerebellar infarctions are benign, it is important to identify those who are at risk of developing space-occupying lesions as soon as possible. Apart from routine patient monitoring and using MRI instead of CT for diagnostic evaluation, it's critical to keep in mind that decline may occur gradually and shouldn't be disregarded. More research is required to determine prognostic indicators since recent studies have revealed that the long-term prognosis following space-occupying cerebellar infarction is more variable than anticipated. However, patients with significant brainstem injuries tend not to respond well to surgery and are therefore not considered excellent candidates. Overcoming these issues and developing well-

planned trials that address the unanswered concerns of space-occupying cerebellar infarction represent a significant challenge for neurologists and neurosurgeons.

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