Persistent headaches sometimes concern incidental findings of rare internal jugular vein agenesis rare case in Bangladesh: A case report

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Abstract

Absence of an internal jugular vein at birth is infrequent.A dull headache troubled a 32-year-old man for more than 20 years, which persisted, a diagnosis of left internal jugular vein agenesis was made, which was most likely the cause of the headache.

Introduction:

The internal jugular vein (IJV) is a significant factor leading to venous drainage from intracranial components, draining blood from the head and neck region. The absence of an internal jugular vein (IJV) is an asymptomatic, relatively unusual vascular abnormality (1). In the general community, 0.05%-0.25% of people have developmental venous abnormalities (2).

Vascular tumors (hemangioma, hemangioendotelioma, and angiosarcoma) and vascular malformations (hemangioma, hemangioendotelioma, and angiosarcoma) are two types of vascular malformations (3). Even though developmental venous anomalies (DVAs) are generally thought to be innocuous vascular malformations (4), We have met patients with symptoms of headache as DVAs features.

Internal jugular vein absence is a unique congenital condition. Only a few cases (in the low double digits) of a missing internal jugular vein have been described in English literature to our awareness. Most cases were discovered by chance during a routine check before central venous cannulation in patients who received major surgery. We report a 32-year-old male with left internal jugular vein agenesis who has experienced a dull headache for more than 20 years and who has no family history of the condition. There was not yet a remarkable intervention for this situation.

Case report

On November 25th, 2021, a 32-year-old man with a 20-year history of chronic headaches was referred to the National Institute of Neurosciences & Hospital. Apart from that, the physical checkup was normal. Since 2002, he has had constant and recurring headaches, occurring 2-3 times each week. The headaches were reported as forehead pain that did not extend to his eye or any other body part. The attacks lasted 30 to 45 minutes on average. These headaches frequently occurred in the afternoon and were not characterized by eye redness or weeping. The headaches were so bad that he could not stand it any longer. Except for NSAIDs, which only eased the pain to a minor degree, no therapies were helpful before consulting with a physician. He was previously diagnosed with tension headaches and also treated as migraine for dull on-off headaches. He had previously been prescribed paracetamol, NSAIDs, Propranolol, methysergide, antihistamines anti-anxiety and sedative medication and naproxen sodium were among the earlier ineffectual treatments. A clinical interview, the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), the State-Trait Anxiety Inventory (STAI), and the Beck Depression Inventory (BDI) were all used in a comprehensive psychiatric

assessment. The psychological perception was the situational anxiety resulting from her disease, with no underlying psycho-emotional dysfunction. On numerous occasions, physicians have recommended that he undergo contrast-enhanced computed tomography (CT scan) and magnetic resonance imaging (MRI), but he has always planned to do it later. He experienced acute watery diarrhoea recently on 10 November 2021, and lab tests revealed Hb-15.90 g/dL, WBC-28.93 x 109/L, Platelets-342 x 109/L, ESR-16 mm in the first hour. Sodium 133 mmol/L, potassium 5.4 mmol/L, creatinine 2.3 mg/dl. The electrocardiogram, liver/renal function, clotting profile, chest X-ray, and liver/renal function were normal. But this acute diarrhea period he had associated severe headache so he underwent contrast-enhanced computed tomography (CT scan) (Figure:01) and Magnetic Resonance Venography (MRV) (Figure:02); which revealed the jugular venous system of the left side is not visualized and the right side jugular venous system is prominent and deep veins and dural venous sinuses appear normal which suggestive of congenital agenesis of jugular venous system of left side. Due to financial difficulties, he has not yet undergone an intervention or any other procedure. He still had a persistent headache, but the patient remained constant during the follow-up visit the following week.

Discussion:

Embryological developmental abnormalities cause vascular malformations. Hemangiomas fade away over time. However, vascular abnormalities can grow and last a lifetime. Even though vascular abnormalities are present at birth, they might not have been discovered until adolescence or the elderly (5). Venous abnormalities are generally asymptomatic and typically occur in the head and neck region (6).

Congenital agenesis of the IJV is a very unusual occurrence (3). The CT imaging of an instance of IJV agenesis is described in this article. Early detection can help limit damages during medical therapy of neurological conditions, including headaches, and avoid misdiagnosis and other prevalent diagnoses. The IJVs are the prominent venous outflow veins in the brain. In a patient with congenital agenesis of the IJV, impairment of the alternate pathways of vascular supply from the cranial cavity can have catastrophic repercussions. Embryological developmental abnormalities cause vascular anomalies in the head and neck region, which can persist asymptomatically (7).

IJV passes through the neck's carotid sheath and behind the clavicle's sternal end. It then joins the subclavian vein to form the brachiocephalic vein, which travels through the thorax to reach the superior vena cava. Clinically, knowledge of IJV anatomical differences is critical for venous applications. Central catheters are often used in intensive care units. IJV anomalies may prevent the practitioner from performing the procedure, causing significant consequences. To avoid difficulties, the surgeon should conversate with the anatomy and variations of IJV (3).

Different IJV anomalies have been revealed in the scientific literature: partial or total duplication (8, 9), stenosis, complete occlusion, distortions, and intraluminal structures, such as membranes, webs, and inverted valves (10). These are frequently discovered by chance or during neck diagnostic techniques due to a suspicious tumour and are sometimes the consequence of compensatory contralateral IJV enlargement (3). Our case was slightly different because he identified IJV agenesis based on the headache evaluation. Our patient had no prior history of any other illnesses or thrombosis history. There was no thrombosis on ultrasonography, CT, or neuroimaging, and the IJV was congenitally agenesis.

Patients who report to the emergency department frequently complain of headaches. Most of these headaches are harmless, but others have a more organic severe cause. Patients may present with a chronic headache issue that they cannot manage. The history of headache diagnosis is thoroughly addressed, followed by a discussion of headache patients' emergency presentations. Subarachnoid haemorrhage, meningitis, sinusitis, glaucoma, internal carotid artery dissection, and cerebrovascular illness are the causes for worry and a full explanation of the differential diagnosis. Analgesics, NSAIDs, opioids, and end ergotamine formulations are among the drugs discussed for symptomatic headache treatment. In the emergency service, strategies for treating frequent, chronic headaches keep in mind that agenesis of the jugular venous system can play a role—one of the uncommon causes of headaches that we have seen in our instances. Limitations, more advanced

intervention can be used to rule out any linkage between internal jugular vein agenesis and headaches, as well as surgical treatment for this result.

Conclusion:

The internal jugular vein is crucial in intensive care units and head and neck surgeries. Handling the internal jugular vein without considering anatomical variances is fatal. Early detection of these anomalies allows for necessary measures to avoid patient injury (e.g., discussions with the patient and surgeons about ideal solution anesthetics plans, cannulation sites, monitoring tactics, and thus further inquiry prior to operation). The most common headache symptom is usually caused by that benign, and it can generally be detected after a comprehensive history and targeted neurologic and overall physical tests. Headache caused by cerebral venous abnormalities is a new issue that all health care workers should be aware of this issue.

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Declaration of competing interest

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Consent

The patient's written informed consent for publishing of this case report, as well as images, was acquired.

Ethical approval

The article is about a case study. As a result, our Ethics Committee's consent was not required.

Author contributions

Conceptualization: Mohammad Ashraful Amin.

Supervision: Mohammad Delwer Hossain Hawlader.

Writing – original draft: Mohammad Ashraful Amin, Sabrina Nahin

Writing – review & editing: Mohammad Ashraful Amin, Sabrina Nahin, Mohammad Delwer Hossain Hawlader.

Data availability statement

Data can be shared based on the reader's reasonable re-quest and priority base and some restrictions will apply.

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Figures:

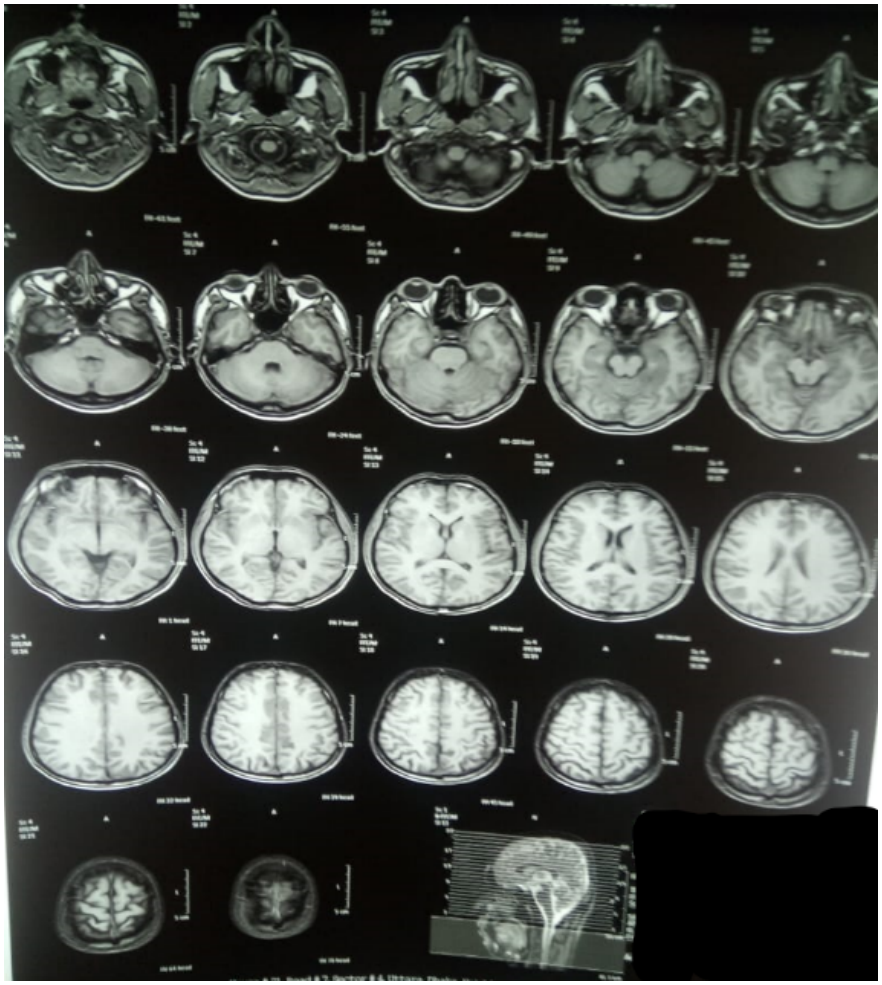

Figure 01: Computed Tomography (CT) scans of the case: CT demonstrated absence of Left IJV.

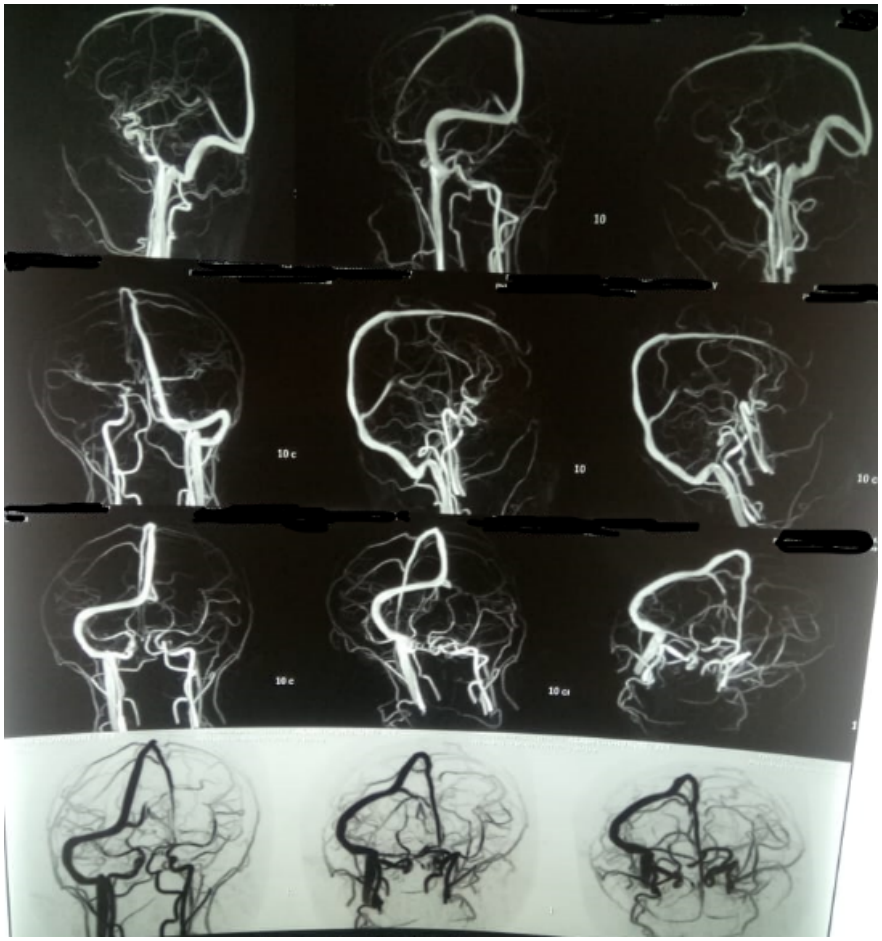

Figure 02: Magnetic Resonance Venography (MRV): Sagittal view of collateral system (dynamic magnetic resonance image) of the case: Revealed the jugular venous system of the left side is not visualized and the right side jugular venous system is prominent and deep veins and dural venous sinuses appear normal which suggestive of congenital agenesis of jugular venous system of left side