

**Case Report**

Reversible Cerebral Vasoconstriction Syndrome: An Important Cause of Post Coital Thunderclap Headache

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Abstract: Reversible cerebral vasoconstriction syndrome (RCVS) is a rare cause of intracranial haemorrhage which is often unrecognized. There are no specific causes of the syndrome but many clinical conditions and drugs have been observed to be responsible for this syndrome. Often calcium channel blockers (CCBs) are used to relieve the symptoms. Here we will discuss a case of RCVS that was triggered by sexual intercourse. A 42 years old male presented to our hospital with a sudden thunderclap headache following sexual intercourse with vomiting several times. TCD (Transcranial Doppler) ultrasound showed high MFV (Mean flow velocity) in multiple arteries suggestive of moderate to severe stenosis. CT angiogram of the brain revealed multifocal segmental spasm. Then the patient was treated conservatively with analgesics and Nimodipine. The patient made a good recovery following this treatment. Reversible cerebral vasoconstriction syndrome remains an underdiagnosed presentation of thunderclap headache which can be triggered by sexual intercourse. It should be an important consideration in cases where SAH has been ruled out. Threatening outcomes could be averted if the excruciating headache is promptly evaluated and managed accordingly. All other parameters of general physical examination were within the normal limits. Any focal neurological deficit, the detailed neurological examination did not reveal. There was no neck stiffness or any other sign of meningeal irritation. Reversible cerebral vasoconstriction syndrome remains an underdiagnosed presentation of thunderclap headache which can be triggered by sexual intercourse. It should be an important consideration in cases where SAH has been ruled out. Threatening outcomes could be averted if the excruciating headache is promptly evaluated and managed accordingly.

Keywords: Reversible, Cerebral Vasoconstriction Syndrome, Coital Thunderclap Headache

1. Summary

A 42 years old male presented to our hospital with a sudden thunderclap headache following sexual intercourse with vomiting several times. TCD (Transcranial Doppler) ultrasound showed high MFV (Mean flow velocity) in multiple arteries suggestive of moderate to severe stenosis. CT angiogram of the brain revealed multifocal segmental spasm. Then the patient was treated conservatively with analgesics and Nimodipine. The patient made a good recovery following this treatment.

2. Introduction

Reversible cerebral vasoconstriction syndrome (RCVS) is characterized by recurrent thunderclap headaches and associated with multifocal arterial constriction and dilation. [1, 2] In the Emergency outdoor, patients with severe headaches are evaluated for risk factors, red flags or any other symptoms to support the diagnosis of a serious cause of headache like meningitis, subarachnoid hemorrhage. For patients in which SAH has been ruled out, reversible cerebral vasoconstriction syndrome (RCVS) represents an underdiagnosed presentation of thunderclap headache. [3] The primary clinical

manifestation is recurrent, sudden-onset, and severe headaches often accompanied by nausea, vomiting, photophobia, confusion, and blurred vision. 2 RCVS can develop either spontaneously or secondary to various conditions. [4, 5] It has been observed that spontaneous RCVS is more predominant in women than secondary RCVS, despite the occurrence of RCVS over a wide range of ages. In which the gender split is less significant. With RCVS, clinical worsening after diagnosis is common in patients. RCVS is self-limited but not strictly monophasic. Most patients have a very favorable outcome, but clinical worsening may result in permanent deficits. 5 Among complications intracranial hemorrhage, seizures, or cerebral infarcts can occur. Patients with reversible cerebral vasoconstriction syndromes have a unique set of clinical imaging features, with no significant differences between subgroups. 4 To help with timely diagnosis, several scoring systems have been developed. 6, 7 Once a diagnosis is made, treatment of RCVS is largely supportive. once a diagnosis is made. In the prevention of thunderclap headache attacks, open-label trials showed calcium channel blockers, such as nimodipine may be an effective treatment. In severe cases, intra-arterial therapy may be considered. 1 Sexual intercourse is an exertional trigger of RCVS. The exact pathophysiology of headaches after sexual intercourse is not completely understood. For the headache, it is believed that there is both a vascular and a muscular basis. 8 Local cerebral vasospasms in the concept of reversible cerebral Vasoconstriction Syndrome (RCVS) has been linked with this headache. [8] A disturbing metabolic cerebral autoregulation as a result of a hypothalamic malfunction, has also been described as the underlying factor in sexual headache. [9]

3. Case Presentation

A previously healthy 42 years old male presented to our hospital with a thunderclap headache following sexual intercourse. He described the sudden onset of severe occipital headache which was associated with vomiting several times. Pain mostly affected the occipital area with minimal spread to the temporal region. The pain persisted for 3 days and then started to decline. There was no history of fever, loss of

consciousness, or convulsion. He gave a history of taking Cap. Orexis, a male enhancement supplement a few hours before sexual intercourse. He was not on any other medication. He was fully conscious and oriented (GCS-15). His highest recorded blood pressure was 140/90 mm Hg. All other parameters of general physical examination were within the normal limits. Any focal neurological deficit, the detailed neurological examination did not reveal. There was no neck stiffness or any other sign of meningeal irritation.

4. Investigation

Routine laboratory investigations including complete blood count, C reactive protein were normal. Urgent CT brain was unremarkable (Figure 1). TCD (Transcranial Doppler) ultrasound showed high MFV (Mean flow velocity) in multiple arteries suggestive of moderate to severe stenosis (Figure 2 A, B, C). CT angiogram of the brain revealed multifocal segmental spasm (Figure 3). CSF (Cerebrospinal fluid) was not done as a CT scan of the brain was normal and there was no clinical evidence of meningeal irritation. Markers of vasculitis like ANA (Antinuclear antibody, Anti-dsDNA (Anti-double standard DNA), ANC as (Anti-neutrophil cytoplasmic antibodies) were negative.

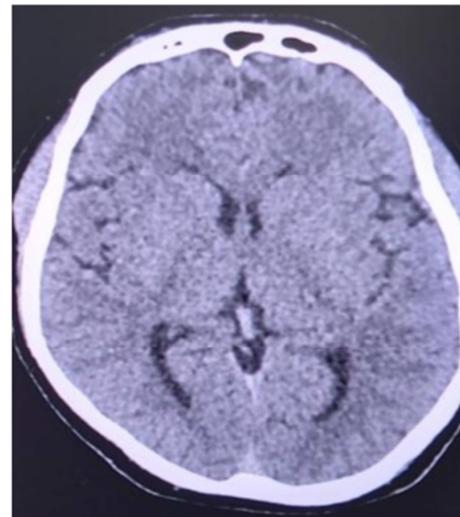


Figure 1. Normal CT Scan of brain.

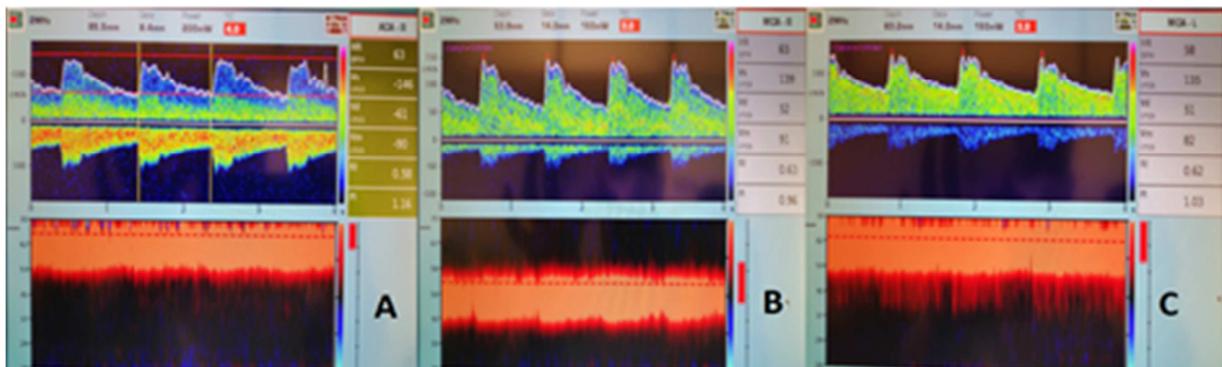


Figure 2. TCD ultrasound of high MFV (Mean flow velocity) in multiple arteries suggestive of moderate to severe stenosis.



Figure 3. CT angiogram of the brain revealed multifocal segmental spasm.

5. Treatment

Symptoms were treated conservatively with analgesia and Tab Nimodipine (60 mg 4 hourly for 3 weeks).

6. Discussion

This case illustrates the key features of RCVS due to sexual intercourse in an otherwise healthy male and the outcome of the disease after making a timely diagnosis. As RCVS presents similarly and with equal frequency to SAH, [10] it is important to consider it during the early stages of the workup for SAH in the hospital. In this case, features like nausea, vomiting, and photophobia were present. RCVS is distinct in that the presenting headache is excruciating and abrupt in nature, though these are also often seen in migraines. [6] Other features that should prompt the consideration of RCVS include one or more recurrent thunderclap headaches or a sudden increase in

headache intensity. [11] Early differentiation from migraine is particularly important. Common migraine treatments such as triptans may worsen symptoms, and in some cases have been documented as inducing RCVS. In the diagnosis part we can see that the CT scan of the brain had not revealed any abnormality along with normal complete blood count & C reactive protein but the diagnosis was made by TCD (Transcranial Doppler) and CT angiogram. Because up to 20% of cases may escape detection on initial noninvasive vascular imaging, so there we may need catheter-based angiography. This patient had a history of taking Orexis. It contains Withania somnifera, a vasoactive agent which is documented to be associated with RCVS but it is not clear whether they were temporally related to the headache. [6, 7, 13] Serious neurologic injury can occur although the outcome of RCVS is benign in most patients. Serious complications can prevent of recognizing triggers and initiating appropriate treatment.

7. Conclusion

Reversible cerebral vasoconstriction syndrome remains an underdiagnosed presentation of thunderclap headache which can be triggered by sexual intercourse. It should be an important consideration in cases where SAH has been ruled out. Threatening outcomes could be averted if the excruciating headache is promptly evaluated and managed accordingly.

8. Outcome & Follow up

Headache reduced gradually over the next 4 weeks. He was evaluated with TCD and CT angiogram of the brain after 8 weeks. TCD showed normal MFV in all the arteries (Figure 4 A, B, C), and CT angiogram of the brain revealed reversal of vasospasm (Figure 5).

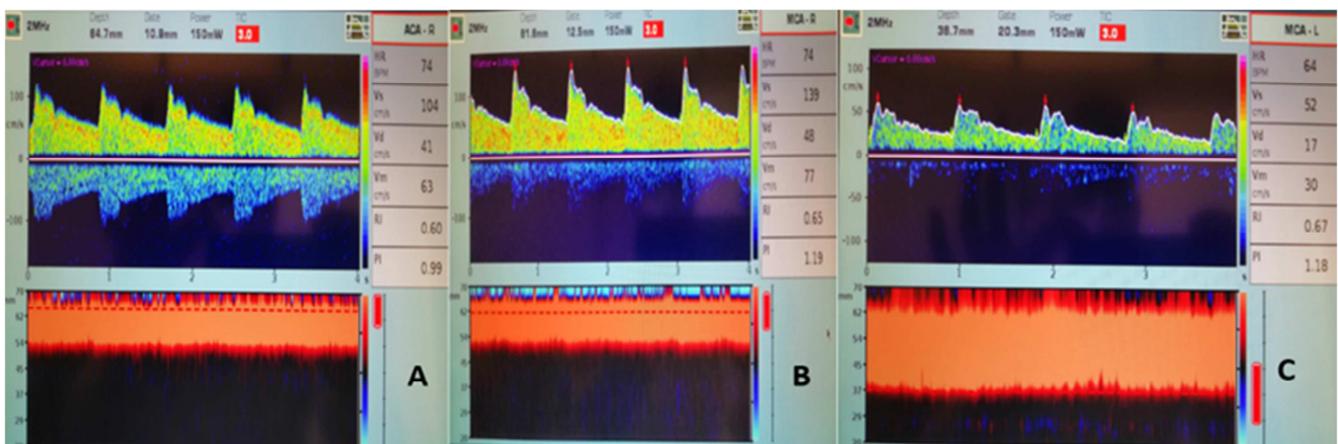


Figure 4. TCD of normal MFV in all the arteries.



Figure 5. CT angiogram of the brain revealed reversal of vasospasm.

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