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Clinical Picture

A Case Report of Bilateral Transverse Venous Sinus Stenosis

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Abstract: Idiopathic intracranial hypertension (IIH) which is caused by bilateral transverse venous sinus stenosis is defined as a syndrome of raised intracranial pressure with normal imaging of the brain and cerebrospinal fluid (CSF) composition. There are many controversies and myths that surround IIH. Although patients of IIH may present "typical" symptoms and signs of raised intracranial pressure, clinical scenarios often vary. A typical clinical and radiological finding poses significant problems in diagnosis and management of patients with IIH. We have tried to resolve these controversies and provide a comprehensive update on different aspects of IIH caused by bilateral transverse venous sinus stenosis. In this article, we review the common problems encountered while dealing with patients of IIH. Here we present a case of bilateral transverse venous sinus stenosis who later complaints of blurring of vision, retro orbital pain with eye movements, headache and nausea.

Key words: Stenosis**,** Bilateral transverse venous sinus stenosis, Venous sinus, Venous sinus stenosis/occlusion, Transverse venous sinus**,** Intracranial hypertension, Hypertension.

INTRODUCTION

Idiopathic intracranial hypertension (IIH), or pseudotumor cerebri, formerly called benign intracranial hypertension, is a challenging condition with raised intracranial pressure (ICP) [1].

The diagnostic criteria for IIH were first formulated in 1937 by Dandy and were later modified by Smith in 1985. In 2013, Friedman et al. further refined the diagnostic criteria and proposed the condition best described under the umbrella term of pseudotumor cerebri syndrome (PTCS) classifying it into primary or secondary (IIH) depending on the absence or presence of an identifiable cause. As a result, IIH acts as a subset within the primary PTCS category. The International Headache Society"s International Classification of Headache Disorders 3rd edition (ICHD-3), 2018 defines IIH under "Headaches attributed to non vascular intracranial disorders"/Headache attributed to increased CSF pressure. As per ICHD-3, IIH is described as a new-onset headache or significant worsening of a preexisting headache accompanied by clinical symptoms/signs, and/or neuroimaging signs of raised increased intracranial pressure (ICP) [2].

Several brain MR imaging findings have been associated with the diagnosis of idiopathic intracranial hypertension. These include transverse venous sinus stenosis, appearance of an empty sella (>50% vacancy of the sella with a concave upper surface of the pituitary gland), optic nerve sheath dilation, vascular distension and protrusion of the optic papillae with advanced papilledema, "slit ventricles" [3].

METHODS

On physical examination a 24 year old female presented with a 7 days history of blurring of vision, retro orbital pain with eye movements, headache and nausea.
Fundus examination: bilateral papilledema
No other comorbidities noted.
Other investigations:
Lumbar puncture and open pressure monitoring showed increased opening CSF pressure
CSF analysis – normal.

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Imaging Features:

MRV /TOF IMAGE

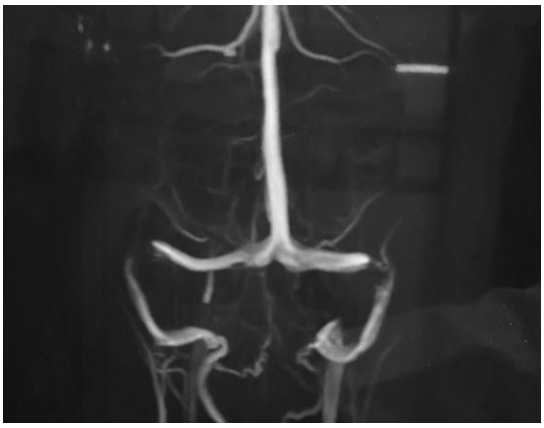

Image: Focal luminal narrowing seen for a length of ~ 11- 14 mm seen in the bilateral distal transverse sinus and junction of transverse and sigmoid sinuses

SAGGITAL SECTION ON MRV

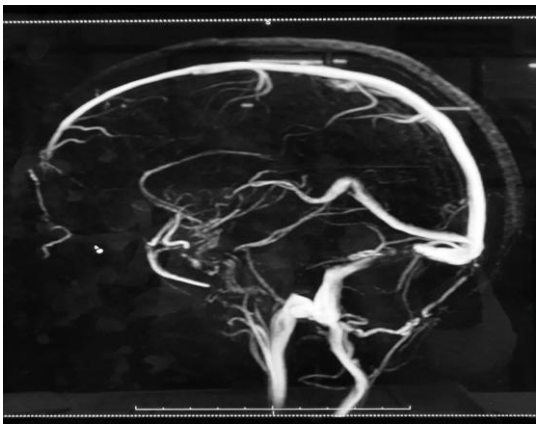

Image: Focal luminal narrowing seen in transverse sinus and junction of transverse and sigmoid sinuses

INVESTIGATION OF CHOICE :CONTRAST MRI

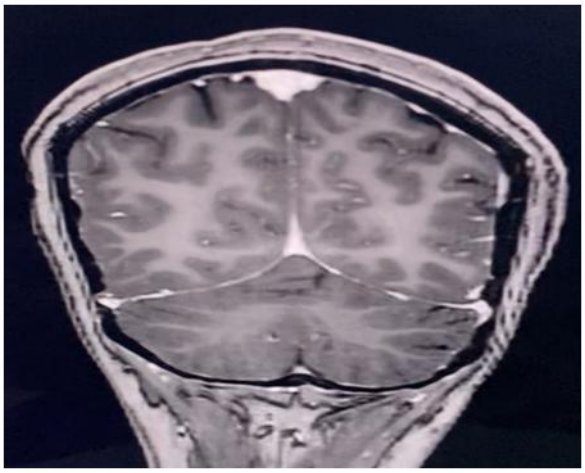

Image: **Focal luminal narrowing seen in the bilateral distal transverse sinus**

SAGGITAL SECTION OF BRAIN

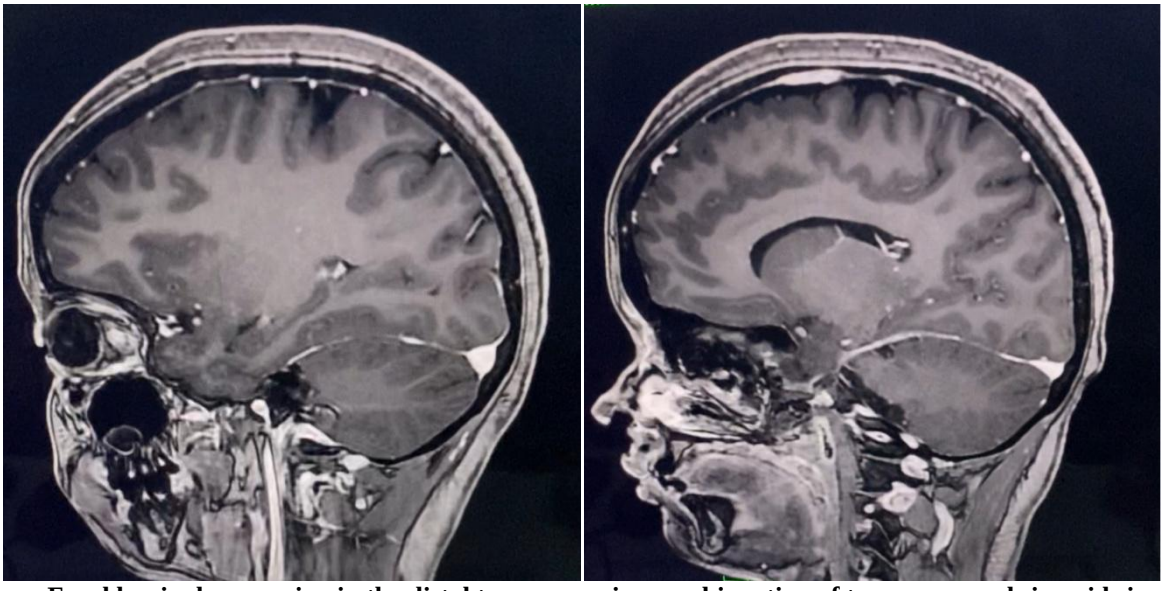

Image: **Focal luminal narrowing in the distal transverse sinus and junction of transverse and sigmoid sinuses**

HORIZONTAL SECTION OF BRAIN SHOWING STENOSIS BILATERALLY

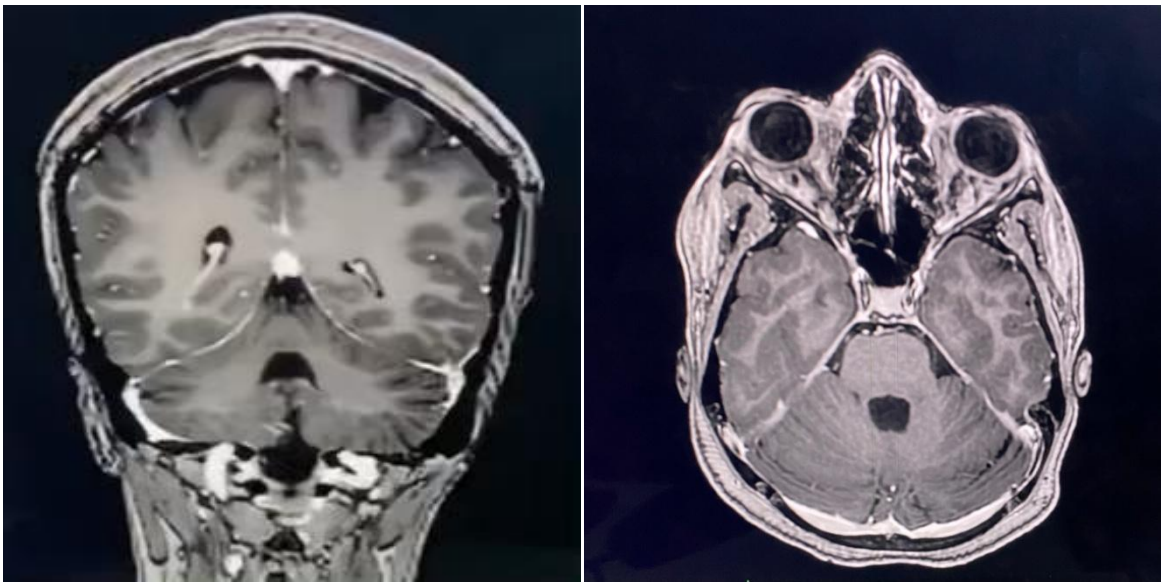

Image: Focal luminal narrowing seen in the bilateral distal transverse sinus and junction of transverse and sigmoid sinuses

DISCUSSION

Bilateral transverse venous sinus stenosis patients manifests with severe headache, visual disturbances and bilateral papilledema [2]. Headache is the most consistent symptom experienced by patients, though back and shoulder discomfort can be reported too. Papilledema progressing to variable degrees of transient or permanent visual loss is a familiar but not necessarily a sine qua non manifestation [4].

Magnetic resonance imaging (MRI) of the brain showed tortuous optic nerves with a flattened optic cup and partial empty sella suggestive of idiopathic intracranial hypertension (IIH), No other lesion or meningeal enhancement was seen [1].

MR venogram (MRV) showed bilateral transverse sinus stenosis [1].

The aim of management of bilateral transverse venous stenosis is to reduce intra cranial pressure with the main goals of preservation of vision and relief of headache [2]. Acetazolamide, an old diuretic with a significant carbonic anhydrase inhibitor effect is the first drug of choice for immediate relief [2]. Furosemide and other diuretics are sometimes used. While the use of long-term steroids have been noted to

cause/precipitate intra cranial hypertension, high-dose pulse steroids may be used as a temporary measure while awaiting definitive surgical procedure in patients presenting acute, severe visual loss [3]. CSF diversion for raised intra cranial pressure include: lumboperitoneal shunts (LPS) or VPS. In earlier days also ventriculojugular and ventriculoatrial shunting have been performed [2]. Dural venous sinus stenting in transverse venous sinus stenosis is debated and stenting of the dural venous system is controversial. Several smaller case series and retrospective studies have been published and no prospective, randomized controlled trials have yet been performed, probably due to the ethical considerations. Resolution of tinnitus, improvements in headaches, visual function, and papilledema is commonly reported after dural venous sinus stenting, but none of these endpoints are statistically confirmed [2].

CONCLUSION

In a setting with a dedicated intra cranial hypertension team consisting of neuro-ophthalmologist, neurologist and dietician and an easy access to frequent follow-up visits, it should be possible to adjust the medical treatment individually depending on disease course and symptomatology. The visual prognosis seems to have improved in recent years while persistent headache still poses a significant long-term problem for the patients [2].

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from individual participant included in the study.

REFERENCES

1. Bhattacharya, K., Paul, B., & Purkayastha, S. (2020). A Case of Idiopathic Intracranial Hypertension with Bilateral Transverse Sinus Stenosis Treated with Balloon Angioplasty. *Neurology India*, *68*(2), 504-506.
2. Jensen, R. H., Radojicic, A., & Yri, H. (2016). The diagnosis and management of idiopathic intracranial hypertension and the associated headache. *Therapeutic advances in neurological disorders*, *9*(4), 317-326.
3. Takkar, A., & Lal, V. (2020). Idiopathic intracranial hypertension: The monster within. *Annals of Indian Academy of Neurology*, *23*(2), 159-166.
4. Morris, P. P., Black, D. F., Port, J., & Campeau, N. (2017). Transverse sinus stenosis is the most sensitive MR imaging correlate of idiopathic intracranial hypertension. *American Journal of Neuroradiology*, *38*(3), 471-477.

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