

Internal jugular vein stenosis

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[Internal jugular vein stenosis](#) (IJVS) is gaining increasing attention from clinical [researchers](#) due to a series of [confounding](#) symptoms that impair the [quality of life](#) in affected individuals but cannot be explained by other well-established causes ¹⁾.

Non-thrombotic IJV stenosis may be a potential etiology of IIH. Stenting seems to be a promising option to address the issue of intracranial hypertension from the etiological level, particularly after medical treatment failure ²⁾.

Treatment

Treatment for internal jugular vein (IJV) stenosis varies depending on the underlying cause, severity of the stenosis, and the symptoms experienced by the patient. Here are some common approaches:

1. Medical Management:

1. **Anticoagulation Therapy:** If the stenosis is related to thrombosis (e.g., in cases of thrombosis-induced stenosis), anticoagulants or thrombolytics may be used to dissolve the clot and restore normal blood flow.
2. **Medications:** Treating underlying conditions or symptoms, such as hypertension or vascular inflammation, with appropriate medications.

2. Endovascular Interventions:

1. **Stenting:** Placement of a stent in the stenotic segment of the IJV can help to keep the vein open and improve blood flow. This approach is often used in cases where stenosis is significant and causing symptoms or complications.
2. **Angioplasty:** Balloon angioplasty involves inflating a balloon in the stenotic area to widen the vein. This can sometimes be used in conjunction with stenting or as a standalone procedure.

3. Surgical Options:

1. **Surgical Decompression:** In cases where stenosis is caused by external compression (e.g., thoracic outlet syndrome), surgical decompression of the area causing compression may be performed.
2. **Vein Repair:** In rare cases, surgical repair or reconstruction of the vein may be necessary if there is significant structural damage.

4. Lifestyle and Supportive Measures:

1. **Managing Symptoms:** Symptomatic treatment such as pain management, physical therapy, or management of related symptoms (e.g., headaches, tinnitus) can help improve quality of life.
2. **Monitoring and Follow-Up:** Regular monitoring through imaging studies (e.g., ultrasound, MRI, or venography) to assess the effectiveness of treatment and ensure that stenosis does not recur.

5. Addressing Underlying Conditions:

1. **Treatment of Primary Conditions:** Managing conditions that contribute to IJV stenosis, such as thoracic outlet syndrome or other vascular anomalies, is crucial. This may involve physical therapy, lifestyle changes, or other interventions tailored to the specific condition.

Case-Specific Considerations: - **Thoracic Outlet Syndrome (TOS):** If IJV stenosis is associated with TOS, treatment may involve addressing the thoracic outlet itself through surgical or non-surgical means to relieve the compression affecting the IJV. - **Idiopathic Intracranial Hypertension (IIH):** In IIH, addressing IJV stenosis might be part of a broader treatment strategy, which could include medication to reduce intracranial pressure and surgical options if medical management fails.

Conclusion: The treatment of IJV stenosis is tailored to the specific cause and impact of the stenosis on the patient's health. Endovascular interventions like stenting are commonly used for symptomatic stenosis, while medical management and lifestyle adjustments play a supportive role. In cases where stenosis is secondary to another condition, addressing the primary condition is also essential.

Right and left internal jugular vein stenosis is common in patients with neurogenic TOS symptoms. Treatment of internal jugular vein stenosis could potentially benefit these patients, and the implications of these findings warrant further study ³⁾.

Prospective cohort studies

Fifteen consecutive patients were screened from 46 patients suspected as IIH and were finally confirmed as isolated IJV stenosis. The stenotic IJV was corrected with stenting when the trans-stenotic mean pressure gradient (Δ MPG) was equal to or higher than 5.44 cmH₂O. Dynamic magnetic resonance venography, computed tomographic venography and digital subtraction angiography of the IJV, Δ MPG, ICP, Headache Impact Test 6 and the Frisén papilledema grade score before and after stenting were compared.

All the stenotic IJVs were corrected by stenting. Δ MPG decreased and the abnormal collateral veins

disappeared or shrank immediately. Headache, tinnitus, papilledema and ICP were significantly ameliorated at 14 ± 3 days of follow-up (all $P < 0.01$). At 12 ± 5.6 months of outpatient follow-up, headache disappeared in 14 out of 15 patients (93.3%), visual impairments were recovered in 10 of 12 patients (83.3%) and tinnitus resolved in 10 out of 11 patients (90.9%). In 12 out of 15 cases, the Frisén papilledema grade scores declined to 1 (0-2). The stented IJVs in all 15 patients kept to sufficient blood flows on computed tomographic venography follow-up without stenting-related adverse events.

Non-thrombotic IJV stenosis may be a potential etiology of IIH. Stenting seems to be a promising option to address the issue of intracranial hypertension from the etiological level, particularly after medical treatment failure ⁴.

Prospective Observational Studies

Previous magnetic resonance imaging studies have shown abnormalities of the internal jugular veins in patients with thoracic outlet syndrome (TOS), but this finding has largely been ignored. We, thus, prospectively performed diagnostic brachiocephalic venograms in all patients with diagnosed neurogenic TOS from April 2008 to December 2011 (mean age, 42.6; r, 16-68; 77.8% women and 22.2% men). Stenosis of the left internal jugular vein, left subclavian vein, right internal jugular vein and right subclavian vein were assessed, and significant stenoses of these vessels were seen in 63.49%, 65.08%, 60.32%, and 68.25% of patients, respectively. Internal jugular vein stenosis was not present in 23.81%, unilaterally in 28.57%, and bilaterally in 47.62% of patients. Subclavian vein stenosis was not present in 17.46%, unilaterally in 28.57%, and bilaterally in 53.97% of patients. Phi coefficients of correlation were 0.067 between the left internal jugular vein. They left subclavian vein stenoses, 0.061 between the right internal jugular vein and right subclavian vein stenoses, and 0 between any internal jugular vein and any subclavian vein stenoses, indicating there is no correlation between jugular vein stenosis and subclavian vein stenosis in these patients. They conclude that right and left internal jugular vein stenosis is common in patients with neurogenic TOS symptoms. Treatment of internal jugular vein stenosis could potentially benefit these patients, and the implications of these findings warrant further study ⁵.

Observational Clinical Studies

A study of Zhou et al., from the [Xuanwu Hospital](#), aimed to elucidate the clinical features, [neuroimaging](#) characteristics and [pathogenesis](#) of IJVS, and explore their possible correlations, in attempt to provide useful clues for clinical [diagnosis](#) and [treatment](#). Forty-three eligible [patients](#) with unilateral or bilateral IJVS confirmed by contrast-enhanced [magnetic resonance venography](#) of the [brain](#) and [neck](#) were enrolled in a study. [Magnetic resonance imaging](#) along with [magnetic resonance angiography](#) or [computed tomography angiography](#) was applied to identify the radiological pattern of parenchymal or arterial [lesions](#). [Cerebral perfusion](#) and [metabolism](#) were evaluated by single-photon emission computed tomography ([SPECT](#)). Of the 43 patients (46.0 ± 16.0 years old; 30 female), 14 (32.6%) had bilateral and 29 had unilateral IJVS. The common clinical symptoms at admission were [tinnitus](#) (60.5%), [tinnitus cerebri](#) (67.6%), [headache](#) (48.8%), [dizziness](#) (32.6%), visual disorders (39.5%), hearing impairment (39.5%), neck discomfort (39.5%), sleep disturbance (60.5%), [anxiety](#) or [depression](#) (37.5%) and subjective [memory impairment](#) (30.2%). The presence of bilateral [demyelination](#) changes with cloudy-like appearance in the periventricular area and/or [centrum semiovale](#) was found in 95.3% (41/43) patients. [SPECT](#) findings showed that 92.3% (24/26) patients

displayed [cerebral perfusion](#) and metabolism mismatch, depicted by bilaterally and symmetrically reduced cerebral perfusion and increased cerebral [glucose](#) consumption. IJVS may contribute to alterations in [cerebral blood flow](#) and metabolism, as well as [white matter](#) lesion formation, all of which may account for its clinical manifestations. ⁶⁾.

Clinical trials

<https://clinicaltrials.gov/ct2/show/NCT03373292>

References

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