

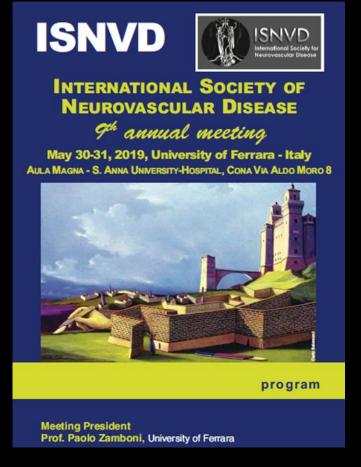
University "Gabriele d'Annunzio" Chieti-Pescara



Neurosciences, Imaging e Clinical Sciences Dept.

SIGMOID AND TRANSVERSE SINUS DISORDERS RELATED TO VERTIGO, DIZZINESS AND HEADACHE.

G. Neri



Eur Arch Otorhinolaryngol DOI 10.1007/s00405-013-2841-1

OTOLOGY

L'insufficienza venosa cronica cerebrospinale nella sindrome di Menière: diagnosi e trattamento

OTORINOLARINGOL 2013;63:173-77

A. BRUNO 1, L. CALIFANO 2, D. MASTRANGELO 1, M. DE VIZIA 1, B. BERNARDO 1

Chronic cerebrospinal venous insufficiency in patients with Ménière's disease

R. Filipo · F. Ciciarello · G. Attanasio ·

P. Mancini · E. Covelli · L. Agati ·

F. Fedele · M. Viccaro

Chronic Cerebrospinal Venous Insufficiency (CCSVI) IN Meniere Disease. Case or Cause?

Alpini D.C.(1), Bavera P.M.(2), Hahn A.(3), Mattei V.(1)

Chronic cerebrospinal venous insufficiency in Ménière disease

Federica Di Berardino, Dario Carlo Alpini, Pietro Maria Bavera, Piero Cecconi, Mario Farabola, Valentina Mattei, Umberto Ambrosetti and Antonio Cesarani Phlebology published online 4 March 2014 DOI: 10.1177/0268355514526871

Arch Otolaryngol, 1982 Sep; 108(9):544-9.

Vascular mechanisms in Meniere's disease. Theoretical considerations.

Gussen R.

Unimpeded venous drainage of the vestibular organs via the paravestibular canaliculus (PVC) vein is crucial to inner ear fluid mechanisms. With increased venous pressure, insufficient drainage may result in endolymphatic hydrops, unless collateral veins develop.



ORIGINAL ARTICLE

Chronic cerebrospinal venous insufficiency as a cause of inner ear diseases

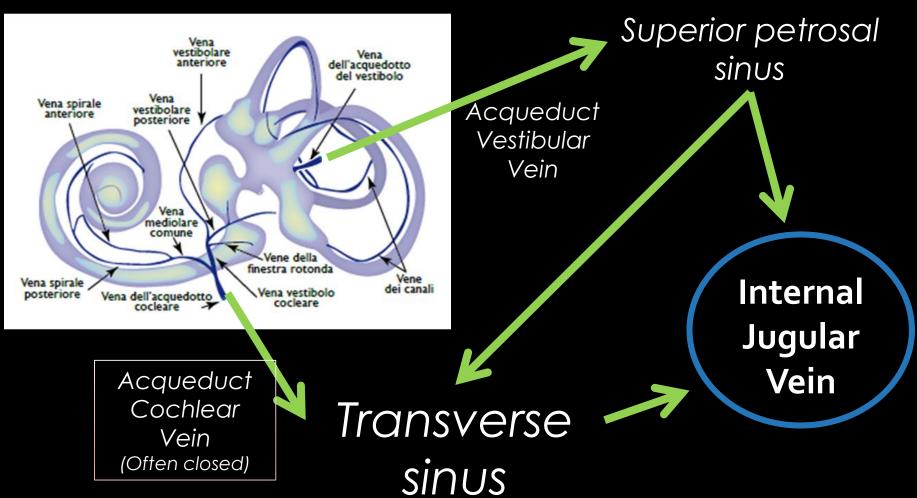
Giuseppe Attanasio^a, Laura Cagnoni^b, Eleonora Masci^b, Francesco Ciciarello^c, Francesco Diaferia^b, Aldo Bruno^d, Antonio Greco^b and Marco De Vincentiis^b

Correlation (83.5%) between CCSVI diagnosis and MD

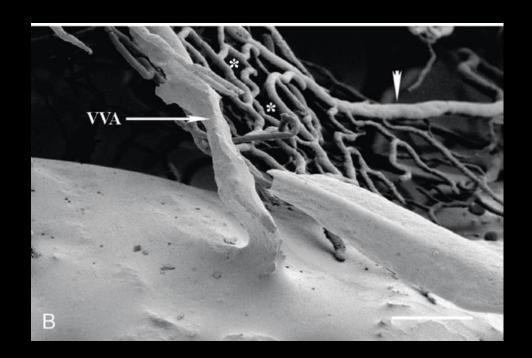
Lack of association between CCSVI and ISSNHL.

INTERNAL EAR VENOUS DRAINAGE

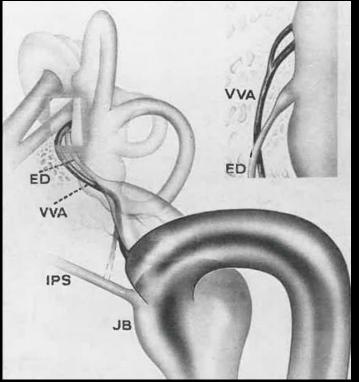
Parete membranosa



Mazzoni A. "Vein of the vestibular aqueduct". Ann Otol, 1979.



Acqueduct Vestibular Vein (35 μm diameters)



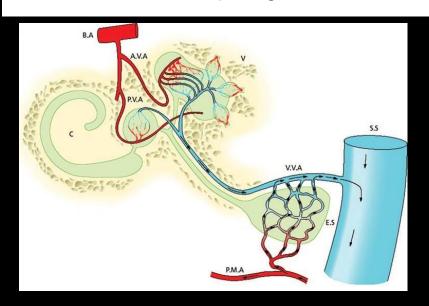
Oblique entry
Sudden flow deviation
Flow slowdown
Difficult development of collateral circulation

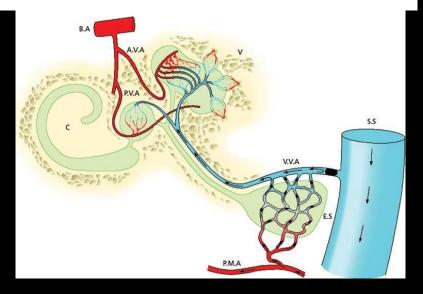
Potential Thrombosis

(Mazzoni 1979, Ikeda, 1985, Friberg 2002)

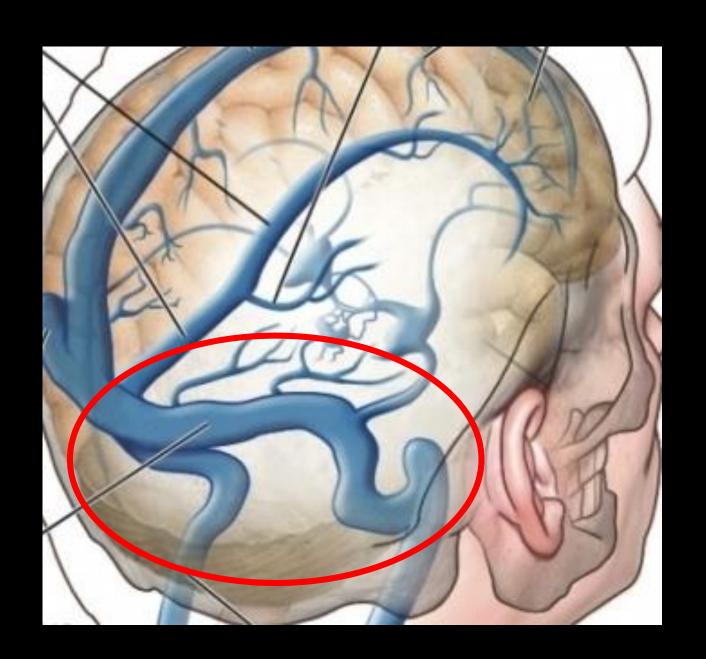
A Potential Portal Flow in the Inner Ear

Morten Friis, MD; Klaus Qvortrup, MD, PhD





Thrombosis of a transverse sinus - essential intracranial hypertension – CCSVI



Congenital and Acquired Abnormalities of the Dural Venous Sinuses

Joel K. Curé and Pamela Van Tassel

The imaging features of a variety of dural venous sinus (DVS) abnormalities are reviewed. Congenital and heritable diseases affecting the DVS, tumor-related sinus compression, and traumatic injuries of the DVS are discussed. The causes, clinical manifestations, and imaging findings in cerebral sinovenous thrombosis are described, and pertinent imaging techniques and pitfalls are illustrated. Etiologic theories about the formation of dural arteriovenous malformations are discussed and their imaging features are demonstrated.

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- Aplasia Hypoplasia
- Duplication
- Thrombosi

Conventional angiograms in patients with CSVT show partial or complete occlusion of the involved sinus, or filling defects within its lumen

TRANSVERSE SINUS ASIMMETRIES

- Normal anatomic variant from 20% to 39% (Zouaoui 1988, Fofi, 2012)
- 24% flow deficit or aplasia (Alper 2003)
- 26.8% show hypoplasia and 3.3% aplasia or atresia (Friedmann 2012)
- Left aplasia 14% -20% right 3.3% -4%. (Hacker 1974, Alper 2004)
- Flow decrease in 31% of patients with normal MRI (Ayanzen 2000)

Most common symptoms:

Headache (75.4%). Headache and vertigo (13.1%),
 Convulsions (5.3%), Headache and vomiting (3.2%),
 Vertigo (2%), Paresthesia (0.5%), Memory disorders (0.3%)

TRANSVERSE SINUS ASIMMETRIES

- Increase cerebral circulation time (Frydrychowyski 2012)
- Brain autoregulation disorders (lin 2014)
- Increased resistance to venous outflow → infarction of cerebral artery → middle cerebral edema (yu 2009)
- Severity of headache at high altitude (Wilson 2013)
- Increase and size of white matter in Parkinson's patients (Liu 2015)

Cerebral venous sinus thrombosis: an analyses of 47 patients

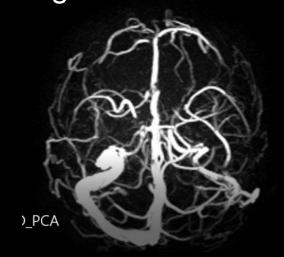
E. UZAR, F. EKICI*, A. ACAR, Y. YUCEL, S. BAKIR**, G. TEKBAS*, O. ONCEL, N. TASDEMIR

ONSET

- Acute or subacute headache (80.8%)
- Loss of consciousness (25.5%)
- Hearing disorders (21.3%)
- Paresis (19.1%)
- Epileptic seizures (14.9%)
- Chronic headache without neurological signs (10.6%)

SINUS INVOLVED

- Transverse sinus 61.7%
- Sagittal sinus 44.7%

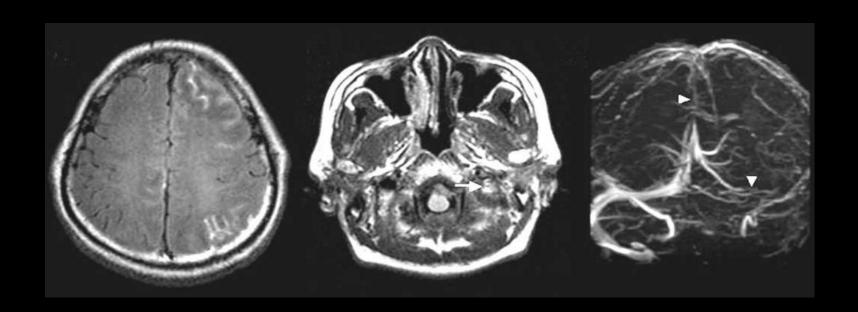


Negative neurological objectivity 40.4%

CASE REPORT

Cerebral venous thrombosis mimicking acute unilateral vestibulopathy

Hyun-Ah Kim • Sung-Il Sohn • Hyung Lee



CAUSES OF CEREBRAL SINOVENOUS THROMBOSIS (CURÉ 1994)

- Hypercoagulable states
- Neoplasms
- Hematologic disorders
- Diffuse intravascular coagulation
- Sickle cell anemia
- Polycythemia (including that caused by cyanotic heart
- disease or dehydration)
- Protein C deficiency
- Antithrombin III deficiency
- Anticardiolipin syndrome
- Autoimmune disease
- Systemic lupus erythematosis
- Sinusitis

- Behcet's disease
- Inflammatory bowel disease
- Pregnancy /puerperium
- Nephrotic syndrome
- Homocystinuria
- Drug-related causes
- Oral contraceptives
- L-asparaginase
- Infections
- Generalized sepsis
- Head and neck infections
- Otomastoiditis
- Trauma (especially fractures crossing DVS)

Idiopathic up to 25% of cases

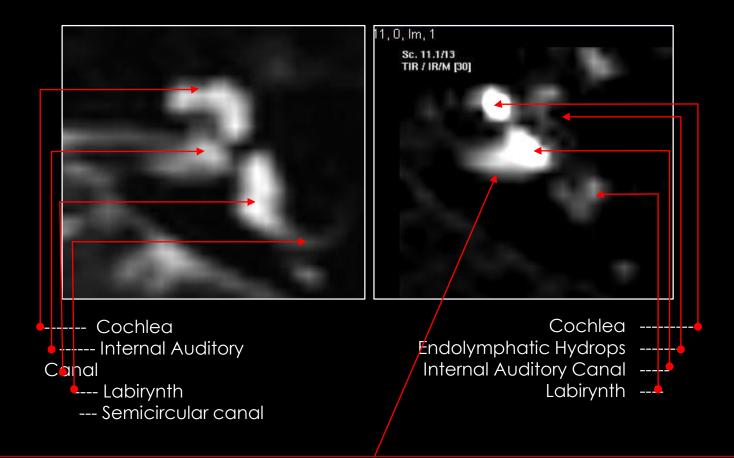
Can develop systemic diseases including neoplasms or autoimmune diseases

Intracranial venous dysfunction



Hearing and Labyrintic disorders

INTRACRANIAL HYPERTENSION



The internal auditory canal is the place where the perilinfa drains and where the modification of intracranial pressure causes its effects on the inner ear

Posted by: deleted_user 6 years ago Mood: Ok

Anyone here have Menieres disease? I have had Menieres disease for 10 years and was recently diagnosed with Pseudotumor Cerebri. I have read a few items suggesting there is a link between the two. Just wondering if anyone else here has both or has heard or anyone having both diseases.

steps of the PTC diagnosis and that maybe the connection between the two is that some people with Menieres disease actually have/had PTC, but went undiagnosed until the symptoms caused doctors to look further? I experienced the symptoms of Menieres disease before my PTC diagnosis, however, I also had visual auras and disruptions. nicole:)

deleted_user 6 years ago

That is an interesting theory. However, I have found my PTC symptoms to be very different than my Menieres attacks. I go almost completely deaf after a Meniere's attack and it takes several days for my hearing to come back. Unfortunately Menieres disease does have some unique

ategan 12 days ago

I have been diagnosed with both diseases in the last year. I was told that I had PTC by an and visual disturbances that were not eye related. Diamox dropped my BP too low, so I ta constant ringing and fluid in my ears. My ENT did a balance test and hearing test, which I misdiagnosed because people with meniers do not complain of debilitating headaches.



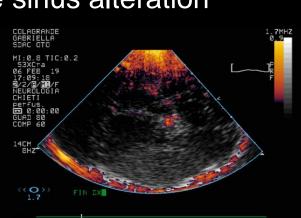
ENDOCRANIAL VENOUS ALTERATIONS PRELIMINARY RESULTS

- Patients with non-specific disturbances of the balance with persistent symptoms worsened by a sense of tension, general malaise, severe headache, astenia, increased fatigue, depression ...
 - Suspected MdM
 - Suspected previous poorly compensated neuritis
 - Suspected migraine vertigo
 - Recurring BPPV with ineffective maneuvers
 - Recurrent headache or episodes of intense accessory headache with pattern menieric audiological signs, vertigo or dizziness
 - AngioMR
 - HIT, CVemp and Ovemp
 - Transcranial ECD

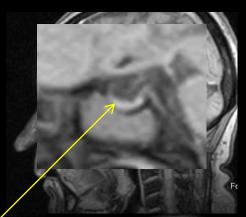
- 42 Patients
- 8 with head trauma in history
- 12 with recurrent ear infection in infancy

ANGIO MRI

- 35 (85,7%) transverse sinus alteration
 - 19 reduced
 - 16 absent
- Transcranial ECD
 - 7 normal
 - 22 slow flow
 - 9 Flux inverted
 - 4 not performed due to excessive skull thickness
- Intracranial hypertension in 22 cases (55%) seen in T1 and T2 RMI



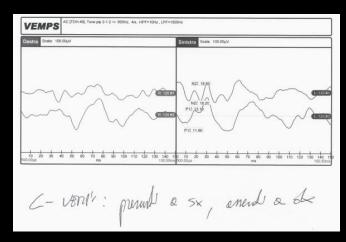


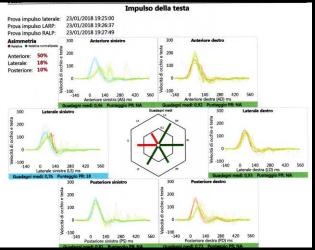




AUDIOLOGICAL RESULTS

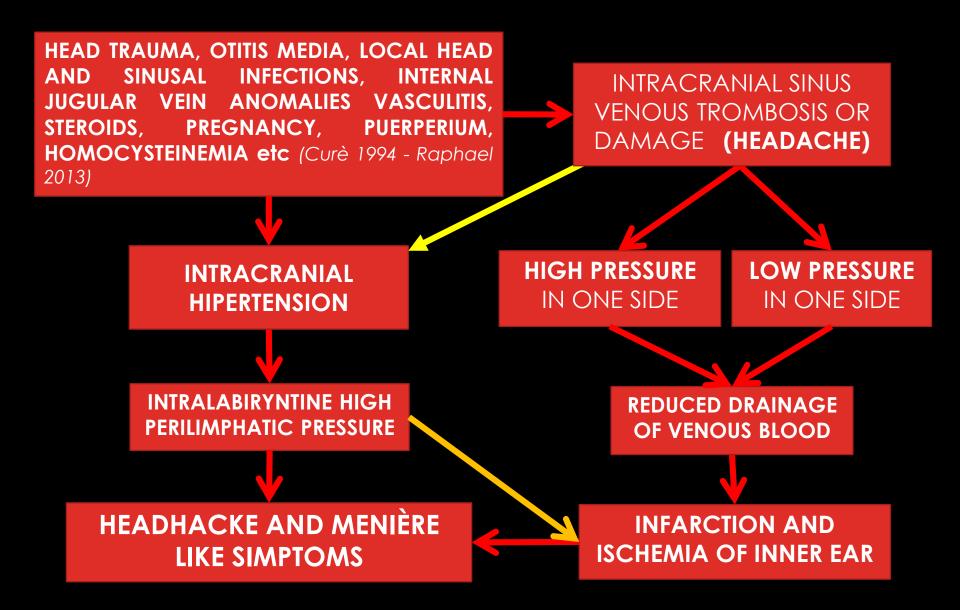
- Vestibular potentials absents uni or bilaterally in 38 subjects (90%)
 - 26 CVEMPs (16 Right 10 left)
 - 24 OVEMPs (14 Right 10 left)
- HIT 7 patients with canal ipofunction
 - 4 LSC, 2 ASC, 2 PSC
- Audiometry
 - 34 (81%) SNHL low and middle frequency
 - 16 with hydropic pattern
 - 8 normal
- Results were ipsilateral to the side with hypoflux in 60% of the cases bilaterally in the remaining 40%







WHAT EXPLANATION CAN WE GIVE?



CONCLUSIONS

- VESTIBULAR SUBJECTS WITH NOT MIGRAINOUS HEADACHE CAN HAVE
 - Presence of transverse sinus anomalies with an incidence higher than that reported in the literature (20% to 39% vs 85%)
 - Presence of intracranial hypertension (55%)
 - Constant presence of macular vestibular alterations (90%)
 - Presence of menieric symptoms with significant Hydropic hearing pattern (47%)
 - It Is new pathology?
- These results need to radically change the diagnostic approach to vertigo with not migrainous headache by stimulating radiologists to correctly interpret MRI and vestibologists to specifically request the study of cerebral venous circulation.

