



	Perilymph Fistula (PLF) and Superior Canal Dehiscence (SCD)
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	Main points
	<ul style="list-style-type: none"> ■ Uncommon disorders ■ Surgical cure for both ■ Share <ul style="list-style-type: none"> – Pressure sensitivity <ul style="list-style-type: none"> ■ Fistula sign ■ Valsalva – Tullio (sound sensitivity)

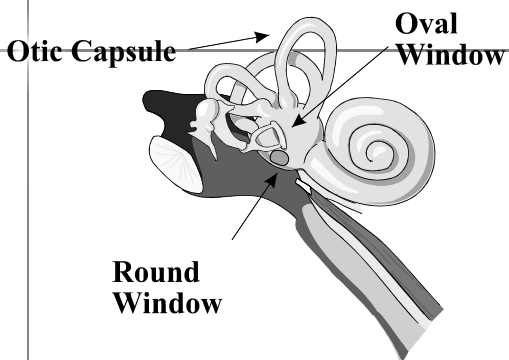
	Case: KF
	<p>After SCUBA diving, a young woman developed vertigo, aural fullness and tinnitus for 1 year.</p>
	

	Case: KF
	<p>Symptoms were worsened by tragal pressure and straining. Surgery had been performed previously and a round window fistula was found and patched. Symptoms had remitted immediately after surgery, but they returned 6 months later.</p>

	<p>A large round window fistula was found and symptoms completely resolved after a second surgery.</p>
	

	PLF: Main points
	<ul style="list-style-type: none"> ■ Uncommon source of vertigo <ul style="list-style-type: none"> – 5 cases/year/neurotologic surgeon ■ Controversial <ul style="list-style-type: none"> – subjective diagnostic process – Strong feelings in otologic community pro and con. ■ Surgical cure available

Fistula Locations



Historical Points Suggesting PLF

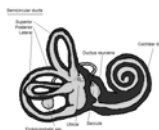
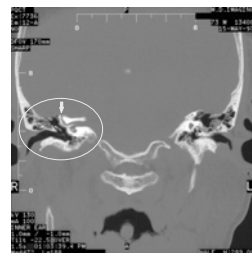
- Vertigo or hearing disturbance
- In the context of
 - Barotrauma (scuba, airplane)
 - direct ear trauma
 - Stapes or fenestration surgery
 - Congenital ear malformation
- Pressure sensitivity (straining, blowing nose, finger in ear)
- Or sound sensitivity

Case: WS

Retired plastic surgeon, with impaired hearing related to war injuries, found that complained that when he went to church, when organ was playing, certain notes made him stagger. His otolaryngologist noted that during audiometry (with hearing aid in), certain tones reliably induced dizziness and a mixed vertical/torsional nystagmus. This “Tullio’s phenomenon” could be easily reproduced experimentally. MRI scan was normal.

Superior Canal Dehiscence

Pressure in ear causes endolymph movement in superior canal



Ostrowski VB, Hain TC, Wiet R: Pressure Induced Ocular Torsion. Archives in Otolaryngology-Head and Neck Surgery. 1997

Bedside Examination for PLF and SCD

- Pressure sensitivity
- Tullio test
- Valsalva

Pressure Testing method

- Watch eye on VENG during pressure.
- Positive: Nystagmus or ocular deviation
- Rarely positive



Positive Pressure test



Pitfalls of Pressure test

- Head movement
- Latent nystagmus can be a fooler

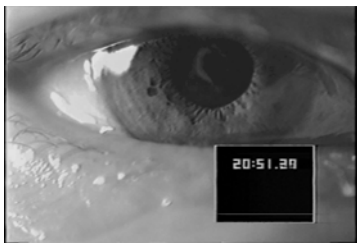
Tullio Test method

- Loud noise (about 100 db)
- Watch eyes for nystagmus
 - Torsional – if SCD
 - Horizontal if PLF
- Nystagmus is usually weak

Noise generating devices

- Barany noise box
- Shower massager (my favorite)
- Audiometer
- Patients may report cell phone going off line is trigger.

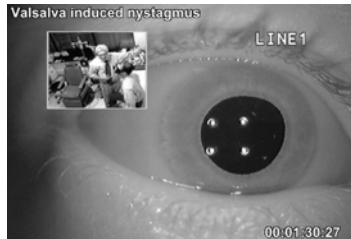
Positive Tullio test



Valsalva test

- Deep breath
- "Push" against closed glottis or nose for 10 seconds
- Watch for nystagmus with VENG

Positive Valsalva (in SCD)



Other ways to Valsalva

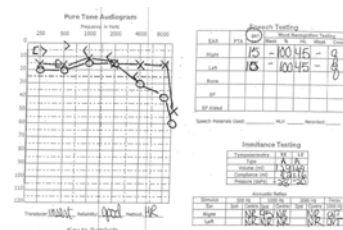
- Many human activities may involve straining
 - Squat and stand several times
 - Sit-up
 - Straining on toilet

ENG in SCD and PLF

- Normal in PLF
- Often a RVR in SCD

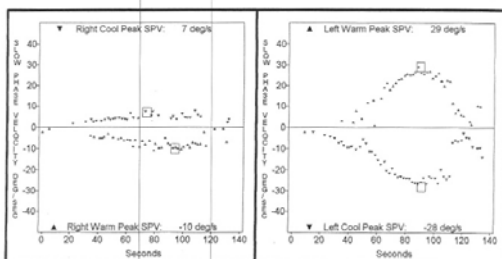
Patient Example

- Presenting complaint: Positional vertigo
- Audiogram:



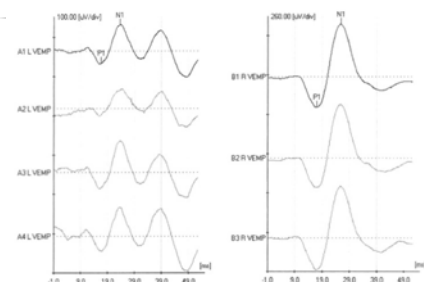
ENG – much smaller on R

Caloric - Both Eyes



Caloric Weakness: 54% in the right ear
Directional Preponderance: 3% to the right

VEMP – much larger on R



	Summary
	<ul style="list-style-type: none">■ PLF and SCD present similarly■ While there are many bedside tests, so far, none have become standard on ENG.■ SCD can be definitively diagnosed with CT t-bone and VEMP■ PLF diagnosis depends mainly on clinical suspicion