

59 MEDICAL WING

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**Wilford Hall Medical Center
Lackland AFB, Texas**

Case Report SSNHL: Effects of Expedient Intervention and Management



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Capt Erin Artz

Dr. Ben Sierra

E-mail: erin.artz@lackland.af.mil

DSN Phone: 554-5436



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Overview



- Introduction
- Motivation
- Literature Review
- Case Report
- Conclusions



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Rationale



- Provide practical roadmap based on positive effects seen in case study.
- Management & occupational function implications
 - SSHL – only true audiology emergency
 - Effects of timely intervention in recovery of hearing
 - Benefit of treatment options available



Literature Review

General facts on SSNHL



- SSHL first described in 1944 by De Kleyn
- Incidence ranges 5-20/100,000
 - May be higher due to 65% spontaneous recovery
- Etiology dx only in 10-25% of cases
 - 75-90% remain idiopathic (“I don’t know”)



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Literature Review

Early Intervention



- Critical periods of intervention
 - Panda et al (2008) & Cvorovic et al (2009)
 - Recovery ranged: 60% <7 days & 17.2% >7 days
 - Zadeh et al (2003)
 - 65% within 3 days & 35% 4-7 days
- Critical period appears to be 3-7 days



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Literature Review

Medical Treatments



- Standard treatment procedure
 - MRI - rule out retrocochlear pathology
 - High dose steroids 10-14 days- oral Prednisone
 - Antiviral - no proven benefit
- Intratympanic steroid injections
 - Plaza and Herraiz (2007) show 72% recovery
 - Xenellis et al (2006) control study show improvement with intratympanic injections after failure of intravenous treatment for 10 days
 - Multiple treatments (2-3) i.e. dexamethasone concurrently with oral steroids sequentially for 3-4 weeks



Literature Review

Medical Treatments



- Hyperbaric oxygen therapy (HBOT)
 - Increases circulation of blood in/around cochlea
 - Some additional recovery shown
 - Most effective when combined with steroid therapy
- Topuz et al (2004) control study
 - Most significant changes in losses >61 dB & pts <50 years old
- *Muzzi et al (2010)*
 - *Low frequency hearing*
 - *Time sensitive*



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Case Report

Initial Intervention



- 52 yr old female noticed sudden loss RE since 0530
- Reported RE fullness/tinnitus & facial numbness
- Pure-tone test: Profound to severe SNHL RE, normal hearing LE
- ABR: RE – absent; LE - normal
- Immediately seen by neurotologist
 - Intra-tympanic and oral steroid therapy initiated within 6 hours of occurrence



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Treatment



- Oral steroid therapy for 4 weeks
- Intratympanic steroid injections 1X/week for 1st 3 weeks following onset
- HBOT
 - 10 dives within 1 week, often 2 per day (AM & PM)
- Weekly audiograms during and after treatment

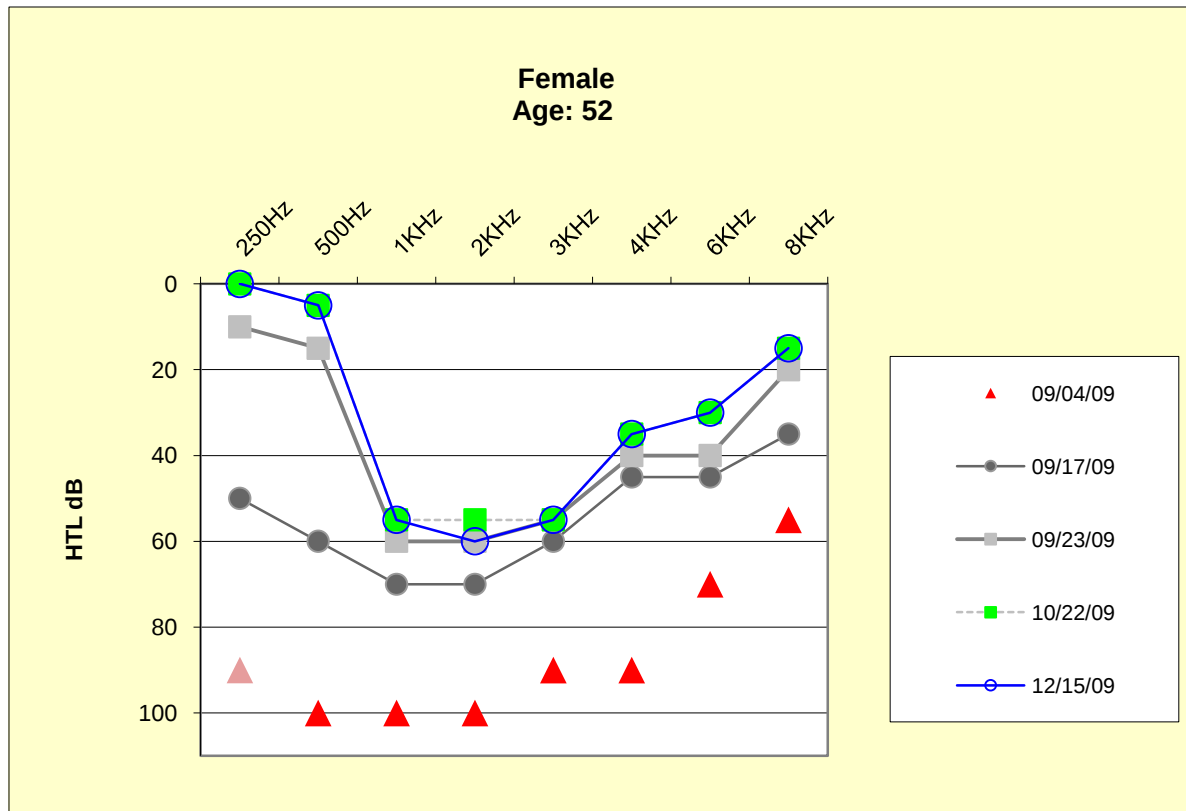


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Case Report



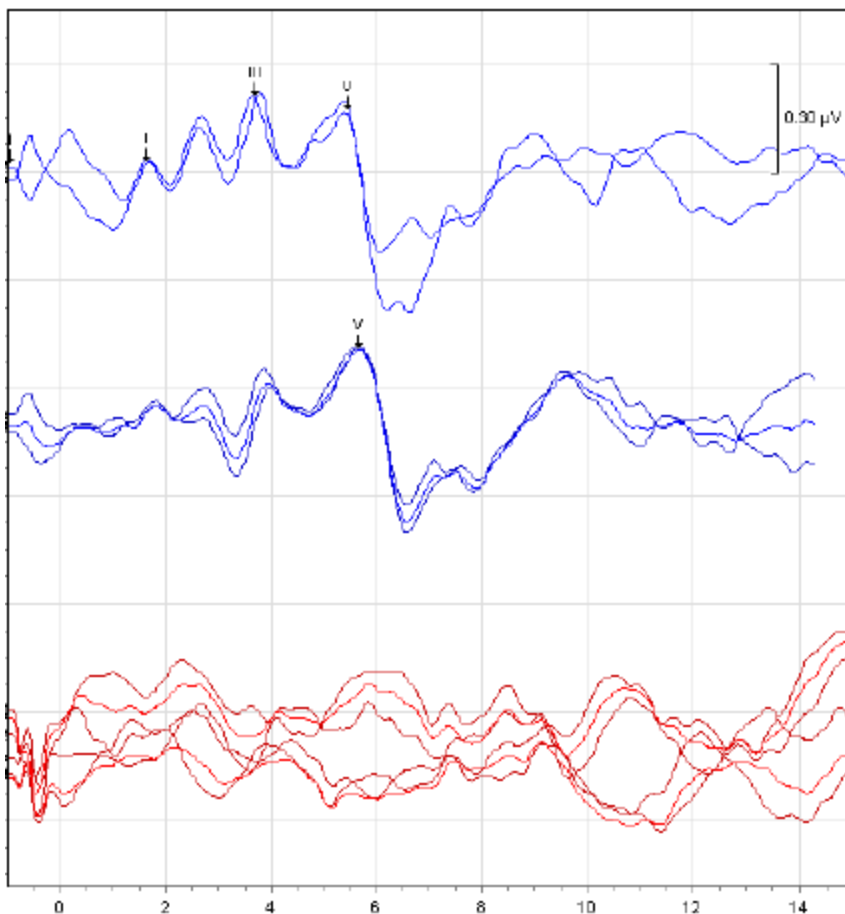
■ Audiological data:





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Case Report



EPID-SCAN MAICO

OTORCOUSTIC EMISSIONS TEST

Left: 04-Sep-09 02:09 PM
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NAME	F2	PL	P2	DP	NF	SN
1.5	66	55	4	-13	17	P
2.0	66	55	15	-15	30	P
3.0	66	55	7	-18	25	P
4.0	65	55	1	-20	21	P
5.0	65	55	-1	-20	19	P
6.0	65	55	-3	-20	17	P

F2	PL	P2	DP	NF	SN
1.5	66	55	4	-13	17
2.0	66	55	15	-15	30
3.0	66	55	7	-18	25
4.0	65	55	1	-20	21
5.0	65	55	-1	-20	19
6.0	65	55	-3	-20	17

Left : Pass

EPID-SCAN MAICO

OTORCOUSTIC EMISSIONS TEST

Right: 04-Sep-09 02:10 PM
DP Custom 2 sec avg U7.65

NAME	F2	PL	P2	DP	NF	SN
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2.0	66	55	-15	-15	0	
3.0	66	55	-19	-19	0	
4.0	65	54	-20	-20	0	
5.0	64	55	-20	-20	0	
6.0	65	55	-20	-20	0	

F2	PL	P2	DP	NF	SN
1.5	66	56	-13	-13	0
2.0	66	55	-15	-15	0
3.0	66	55	-19	-19	0
4.0	65	54	-20	-20	0
5.0	64	55	-20	-20	0
6.0	65	55	-20	-20	0

Right : Refer

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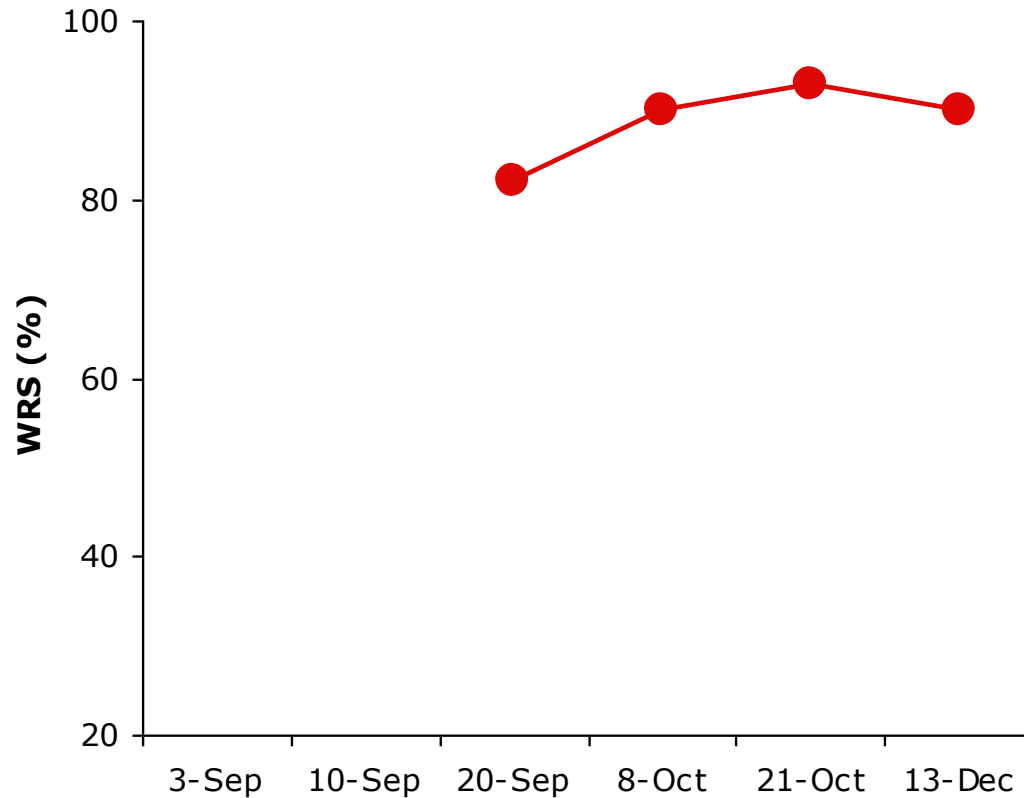


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- Speech discrimination scores:





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Conclusions



- Expedient intervention is critical in recovery
- 1st line providers (PC & ER Staff) may lack awareness
 - Unaware of symptoms & critical time line for recovery
- All treatment options should be explored
- In this case hearing appeared to recover in 2 stages
 - 1st pure tone hearing sensitivity
 - Then speech understanding



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Recommended procedures

Audiology



- Patients presenting with sudden loss should be seen by audiology immediately
 - Pure tone and speech testing
 - OAEs
 - ABR
- If SSNHL confirmed treat ASAP
- Weekly monitoring of pt during treatment
- Follow up with amplification options & regular audiometric exams or as needed



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Recommended procedures

Otolaryngology



- Preference given to sudden hearing loss pt
 - It is a hearing emergency -- time is critical
- Imaging studies and blood tests to determine etiology/rule out other pathologies
- Oral steroids -14 days with taper
- Intratympanic steroid injections
 - 3-4 treatments, 1X/Week depending on improvements seen in audiologic testing
- Hyperbaric oxygen therapy (if available)



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Questions



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