



75th AEROSPACE MEDICINE SQUADRON



75th MEDICAL GROUP



Progressive Hearing Loss, A Case Study

U.S. AIR FORCE

**Lt Col Carolyn Bennett
75 AMDS/SGPQ
DSN 777-1166**



Purpose of Presentation



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To present information known “so far” of an interesting hearing loss case



Dec 2006



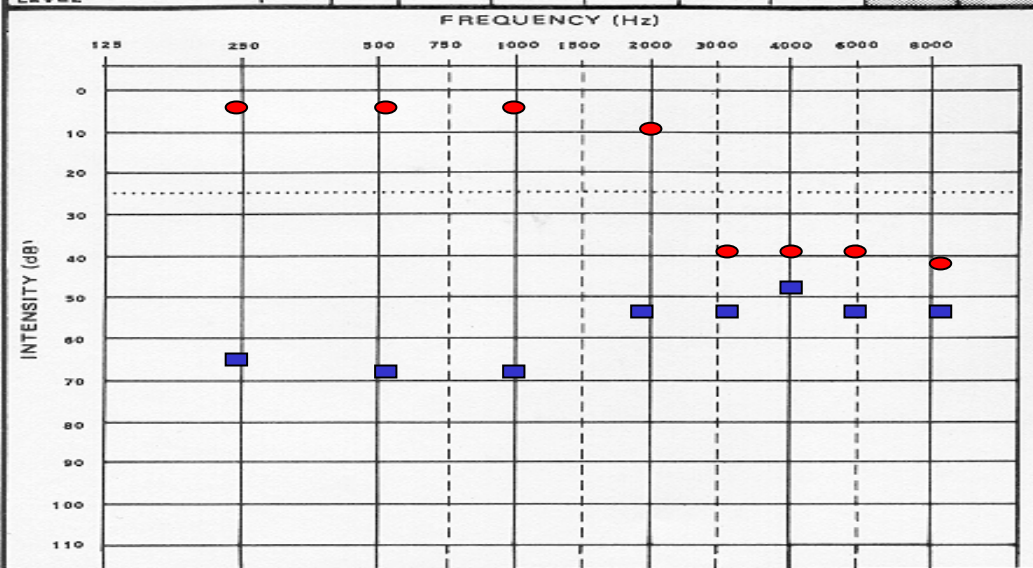
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- **20 year old Airman with STS on annual exam - referred to Maj Eppens**
 - **Normal hearing when entered AF in 2005**
 - **On July 4 he had wakeboard accident – did not lose consciousness but could have hit head**
 - **Tinnitus began shortly after accident**
 - **Noted changes in hearing left ear several months prior to hearing exam in Dec**
 - **No Vertigo**

AUDIOLOGICAL EVALUATION RESULTS

DATE OF EXAM 12 Dec 06	PROFILE H-	CALIBRATION DATE 22 Nov 05	MEDICAL TREATMENT FACILITY Hill AFB, Utah
EXAMINER'S NAME Maj Robert Eppens	CERTIFICATION NUMBER	AFSC/CSOC 42N3A	AUDIOMETER GSI 61

	LEFT EAR								RIGHT EAR										
FREQUENCY (Hz)	250	500	1000	1800	2000	3000	4000	6000	8000	250	500	1000	1500	2000	3000	4000	6000	8000	
AIR CONDUCTION																			
AIR COND MASK																			
AIR COND MASK LEVEL																			
BONE CONDUCTION																			
BONE COND MASK																			
BONE COND MASK LEVEL																			



		CONTRALATERAL				IPSI LATERAL					
LEFT	500 Hz					LEFT	500 Hz				
	1000 Hz						1000 Hz				
RIGHT	500 Hz					RIGHT	500 Hz				
	1000 Hz						1000 Hz				

SPEECH AUDIOMETRY										
RIGHT	SRT	10	MCL		MASK LEVEL		LISTS		NUM	
LEFT	SRT	75	MCL		MASK LEVEL	60	LISTS		NUM	
SPEECH DISCRIM	PER-CENT	100%	HEAR-ING LEVEL		MASK LEVEL		PER-CENT		HEAR-ING LEVEL	
RIGHT	PER-CENT	100%	HEAR-ING LEVEL		MASK LEVEL		PER-CENT		HEAR-ING LEVEL	
LEFT	PER-CENT	0	HEAR-ING LEVEL		MASK LEVEL	85	PER-CENT		HEAR-ING LEVEL	

REFLEX DECAY TEST							
CONTRALATERAL STIMULATE LEFT				IPSI LATERAL STIMULATE LEFT			
500	1K	2K	4K	500	1K	2K	4K
STIMULATE RIGHT				STIMULATE RIGHT			
500	1K	2K	4K	500	1K	2K	4K

LEFT (Blue)	KEY	RIGHT (Red)	COMMENTS
X	AC	O	SUDDEN HEARING LOSS OF UNKNOWN ETIOLOGY: The loss in the left ear is down 55-75 dB. OAE's & BC suggest inner ear involvement. Speech reception in L was 75 dB and discrimination 0% with masking; R ear has 50 dB of high frequency loss with good preservation of speech. Discussed with PCM recommend ENT evaluation
□	AC MASKED	△	
∨	BC	∨	
]	BC MASKED]	
SOUND FIELD	~	~	COULD NOT TEST CNT
NO RESPONSE	NR	NR	DID NOT TEST DNT

PATIENT IDENTIFICATION		PATIENT'S NAME	
AGE	SSN	RANK/GRADE	



Sudden Hearing Loss of Unknown Etiology



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- The loss in the left ear is down 55-75 dB.
- OAE's & BC suggest inner ear involvement.
- Speech reception in left was 75 dB and discrimination 0% with masking;
- Right ear has 50 dB of high frequency loss with good preservation of speech.
- Discussed with PCM - recommend ENT evaluation



ENT Evaluation



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- **Initial Evaluation:**
 - **Evaluation: No cranial nerve abnormalities**
 - **Diagnosis - Acute Sensorineural Hearing Loss**
 - **Treatment – Two Week Course of Prednisone**
 - **Recommend: MRI**



ENT Evaluation



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- **Follow – up Exam**
 - **MRI – Normal findings of Brain and Auditory Canals**
 - **No Improvement from Prednisone**
 - **Recommendation: Follow Up 12 months to “document improvement in his hearing”**



Dec 2007



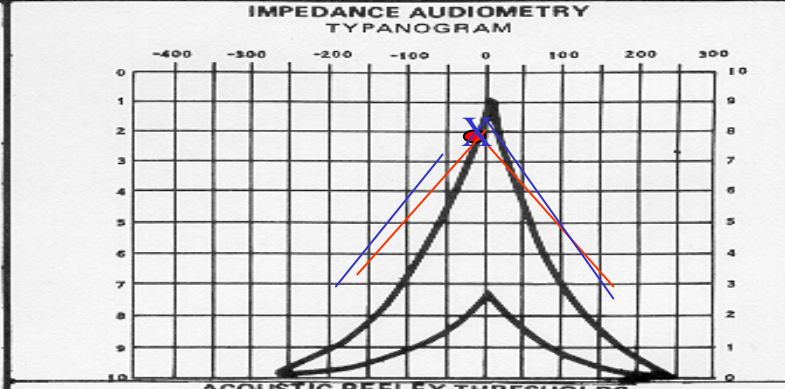
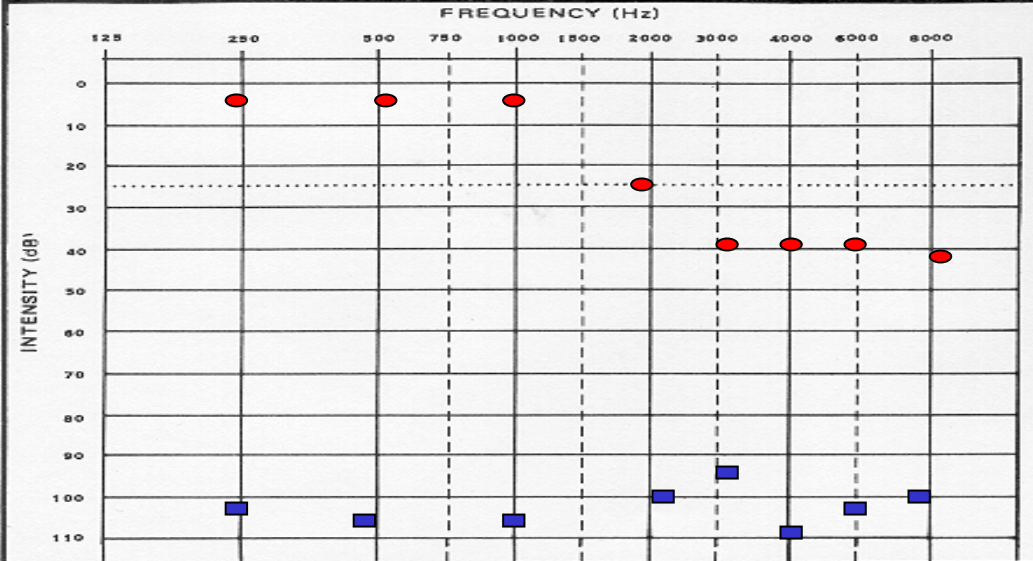
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- **21 year old Airman First Class with STS on annual exam - referred to Lt Col Bennett**

AUDIOLOGICAL EVALUATION RESULTS

DATE OF EXAM 12 Dec 07	PROFILE H-	CALIBRATION DATE 22 Dec 06	MEDICAL TREATMENT FACILITY Hill AFB, Utah
EXAMINER'S NAME Lt Col Carolyn Bennett		CERTIFICATION NUMBER	AFSC/CSOC 42N3A
		AUDIOMETER GSI 61	CALIB STD ANSI 1969

FREQUENCY (Hz)	LEFT EAR								RIGHT EAR									
	250	500	1000	1800	2000	3000	4000	6000	8000	250	500	1000	1500	2000	3000	4000	6000	8000
AIR CONDUCTION																		
AIR COND MASK																		
AIR COND MASK LEVEL																		
BONE CONDUCTION																		
BONE COND MASK																		
BONE COND MASK LEVEL																		



		CONTRALATERAL				IPSI LATERAL					
LEFT	500 Hz					LEFT	500 Hz				
	1000 Hz						1000 Hz				
RIGHT	500 Hz					RIGHT	500 Hz				
	1000 Hz						1000 Hz				

SPEECH AUDIOMETRY										
RIGHT	SRT	15	MCL		MASK LEVEL		LISTS		NU6	
LEFT		NR							TAPE	
									LIVE	
SPEECH DISCRIM	PER-CENT	100%	HEAR-ING LEVEL		PER-CENT	75	HEAR-ING LEVEL		MASK LEVEL	
RIGHT										
LEFT										

REFLEX DECAY TEST							
CONTRALATERAL STIMULATE LEFT				IPSI LATERAL STIMULATE LEFT			
500	1K	2K	4K	500	1K	2K	4K
STIMULATE RIGHT				STIMULATE RIGHT			
500	1K	2K	4K	500	1K	2K	4K

LEFT (Blue)	KEY	RIGHT (Red)	COMMENTS
X	AC	O	Progressive sensorineural hearing loss in the left ear. Hearing levels have decreased 35-55 dB from 2006 exam. Plan immediate consult with PCM and recommend ENT evaluation ASAP
□	AC MASKED	△	
∨	BC	∧	
]	BC MASKED	⊔	
SOUND FIELD	~	~	COULD NOT TEST CNT
NO RESPONSE	NR	NR	DID NOT TEST DNT

PATIENT IDENTIFICATION			PATIENT'S NAME		
AGE	SSN				
			RANK/GRADE		



2007 Assessment



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- **Profound sensorineural hearing loss left ear, 35-55 dB change from 2006 levels; speech reception not obtainable**
- **Normal hearing through speech range with high frequency sensorineural hearing loss right ear; 15 dB shift at 2000 Hz - discrimination excellent**
- **Discussed with PCM**
- **Recommend: Immediate ENT referral**



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- ***Discussion***

- ***What is going on?***
- ***Is he a cochlear implant candidate?***