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# Is It TBI or Hearing Loss?

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# TBI Case Study

- 31 yo exposed to “more than 15 IED explosions while deployed.” He was hit on 8 June 2007 while riding in an up-armored vehicle. He was sitting in the rear right passenger seat. He reports wearing his Kevlar, IBA collar/groin protector, front/back/side armor plate, and eye protection. **NO hearing protection was worn.**
  - He only remembers “his buddy trying to give him water following the blast, and he remembers not being able to hold anything in his hands because they were shaking so much.”

27-May-03 (DD2215)	500	1000	2000	3000	4000	6000
<b>RIGHT</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>
<b>LEFT</b>	<b>30</b>	<b>25</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>0</b>

# Initial Symptoms-8 June 2007

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- Assessment following the blast 8 June 2007

## -Initial Symptoms

- Tinnitus and problems hearing from the left ear
- Blurry vision
- Dizziness/Imbalance while walking
- Nausea with emesis
- Headache/Confusion
- Problems concentrating
- Poor motor coordination

# Landstuhl Evaluation-13 June 2007

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## ■ Symptoms

- Concentration
- Poor focus
- Short term memory problems
- Sleeping problems/nightmares
- Headaches
- Tinnitus/Hearing problems from the left ear

- Patient also reports feeling “very frustrated and angry due to the memory problems.”
- MRI BRAIN Scan was ordered which was WNL
- This physician recommended that he return CONUS to pursue recovery and therapy due to his significant symptoms.

# Fort Sam Houston-25 June 2007

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## **First Psychiatric Evaluation**

-He was given the Psychiatric Evaluation Form P (PCL-C Questions only);

\*Grades answers 1-not at all, 2-a little bit, 3-moderately, 4-quite a bit, 5-extremely

### **Symptoms**

- Repeated, disturbing dreams (4)
- Feeling distant or cut off from other people (5)
- Feeling emotionally numb (5)
- Trouble staying/falling asleep (5)
- Difficulty concentrating/unable to relax (5)
- Feeling jumpy or easily startled (5)
- Dizzy or lighthearted (5)
- Blurry visions (5)
- Hearing difficulty (5)
- Memory Problems (5)

\*From Fort Sam Houston he was recommended to return to home duty station Fort Carson\*

# Fort Carson-29 June 2007

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- He was escorted by his mother to most of the following appointments

- He was placed on medication to help with both his anxiety and sleeping problems; reports some success with those medications

- -Recommendation for cognitive therapy due to memory and word finding problems

- **02 July 2007**

- Reported improvements to unsteady gait and dizziness

- Still having trouble with memory, headaches, and concentration

- He is referred to Neurology, TBI for evaluation, and Psychology to assess his therapy needs

# 29 June 2007-SRP Post-deployment Hearing Test

## Reported symptoms

- Constant tinnitus in the left ear
- Problems hearing from the left ear

\*Soldier was referred by Hearing Readiness for a complete audiological evaluation following this test

29-Jun-07 DD2216	500	1000	2000	3000	4000	6000
<b>RIGHT</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>30</b>	<b>25</b>	<b>25</b>
<b>LEFT</b>	<b>100</b>	<b>95</b>	<b>85</b>	<b>85</b>	<b>85</b>	<b>80</b>

## 3 July 2007-First Audiology Appointment

- Elevated reflexes bilaterally-present ipsi/contra through 2000Hz
- Type Ad tympanometry bilaterally
- SPRINT results 167/200 with “Discretionary” recommendation

4-Jul-07	250	500	1000	2000	3000	4000	6000	8000
<b>RIGHT</b>	<b>25</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>25</b>	<b>25</b>	<b>15</b>	<b>10</b>
<b>LEFT</b>	<b>90</b>	<b>90</b>	<b>85</b>	<b>85</b>	<b>80</b>	<b>75</b>	<b>75</b>	<b>75</b>

# Audiological Impression

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- Soldier was slow to respond and appeared to have difficulty with the tasks given to him. He was accompanied by his mother who reported that he was having trouble understanding directions given to him and was having trouble with his memory
- Soldier was referred for a hearing re-test to confirm hearing loss, DPOAE testing

# 06 July 2007 Re-test

- DPOAEs present in the right ear; Absent in the left ear
- Negative Pure Tone Stenger test
- Type Ad tymps bilaterally
- Elevated reflexes bilaterally, present ipsi/contra through 2000Hz
- Normal MRI IAC within normal limits

6-Jul-07	250	500	1000	2000	3000	4000	6000	8000
<b>RIGHT</b>	<b>35</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>25</b>	<b>20</b>	<b>15</b>	<b>10</b>
<b>LEFT</b>	<b>65</b>	<b>65</b>	<b>85</b>	<b>85</b>	<b>80</b>	<b>75</b>	<b>DNT</b>	<b>DNT</b>

# Patient Begins Cognitive Therapy

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- Cognitive Therapy
  - 16 July 2007 and continues Cognitive Therapy through May 2008
- Patient reported that the “combination of cognitive therapy and working with the poetry books and cross-word puzzles really helped improvement my memory.”

# SRP Hearing Test

- Patient came through the SRP due to PCS orders to Fort Sam Houston
- When compared to DD2215 May 2003; Hearing remains stable bilaterally
- Patient did report having no problems with his hearing and felt that he had made a full recovery!

14-Aug-08	250	500	1000	2000	3000	4000	6000
<b>RIGHT</b>	0	10	5	5	0	-5	-5
<b>LEFT</b>	5	20	40	15	0	0	-5

# Last Audiological Evaluation

## 15 August 2008

- Hearing levels confirmed; no STS is noted when compared to his DD2215 27 May 2003
- Type Ad tymps bilaterally
- Elevated reflexes; present ipsi/contra through 2000Hz bilaterally

15 August 2008	250	500	1000	2000	3000	4000	6000	8000
<b>RIGHT</b>	<b>0</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>-5</b>	<b>-5</b>	<b>-5</b>
<b>LEFT</b>	<b>5</b>	<b>20</b>	<b>45</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>-5</b>	<b>-5</b>

# Last Assessment by the TBI Physician

## 10 April 2008

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- Physician noted that this soldier had 'marked improvement' and was relatively symptom free (i.e, headaches, hearing and memory problems had improved)
- Patient has since been accepted to the Army's PA program and is currently down at Fort Sam Houston