

## SMRT Student Scope Submission

### Title and Author

- Include Title of your submission and any collaborator as co-authors  
Title: Brain Injuries Due to Traumatic Birth
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### Introduction or Patient History

This is a four day old infant girl. She experienced a traumatic birth and now has new neurological deficits. The patient also has a history of low apgars. She has had very little movement since she was born. After evaluation by her doctor, a MRI of the brain without contrast was ordered.



### Patient Preparation and Scan Set up



The patient arrived in the MRI department with her nurse. In order to make sure that she was safe to be placed in the scanner, the patient's parents filled out a screening form for her while they were still on the floor. She was placed in a GE 1.5 T magnet and a 4 channel neurovascular head coil was used to scan her brain. The nurse placed a pulse ox on her toe and EKG leads on her chest to monitor her while she was being scanned. She was positioned head first and supine on the table. Towels and sponges were placed around her head in order to prevent movement and she was wrapped in a blanket to keep warm. Tape was also placed over her forehead to further prevent movement.

### MR Imaging Parameters

An infant brain protocol was used for this study, which included a total of six sequences.

Sequence	FOV	Slices	TR	TE	Spacing	Matrix
Sagittal T1	18	18	667	13	3/1	256x192
Axial PD	18	44	2450	90	3/1.5	256x256
Axial T2	18	22	8300	85	3/1.5	256x256
Axial T1	18	22	550	8	3/1.5	256x160
Coronal T2	18	21	8000	84	3/1.5	256x256
Diffusion	18	62	9400	73	3/0	128x128



### Findings and Discussions



The results of the study showed that the ventricles, cisterns, and sulci are normal in size and in position. There is no evidence of hydrocephalus or of a mass. The T1 and T2 weighted images demonstrated normal early myelination of the thalamus, internal capsule, midbrain, and upper spinal cord. A cephalohematoma was found in the vertex of the parietal lobe. The diffusion weighted images demonstrated a small area of restricted micromolecular diffusion in the right postcentral gyrus, and the anterior parietal lobe. This measured 7mm in size and is indicative of a small focus of recent cerebral ischemia. There was also no evidence of leukomalacia, hemorrhage, or Chiari malformation.

## Conclusions



Ischemia is a restriction in blood supply; therefore cerebral ischemia occurs when a portion of the brain doesn't receive an adequate amount of blood. For TIA's (transient ischemic attack), this normally results in brief neurologic dysfunction and lasts for up to 24 hours. However, if the patient has experienced a CVA (cerebrovascular attack), dysfunction can last longer. Symptoms usually include loss of or blurriness of vision, difficulty speaking, weakness on one side of the body, and numbness or tingling. The most common cause of these ischemic attacks are blood clots. However, they can also be caused by excessive narrowing of large vessels due to an atherosclerotic plaque and increased blood viscosity. By studying this case, I have learned that adults are not the only age group that cerebral ischemia can affect. Early diagnosis in infants can be difficult. The patient is not able to communicate with others and therefore a lot of the symptoms might be overlooked. This could be very dangerous because if left untreated, it is likely that the attack could occur again or cause permanent damage that might have otherwise been treatable.

## References



Sherling, Edward, M. D. MRI examination dictation, staff radiologist. Crawford Long Hospital. 14 April 2008.

Wikipedia. Transient ischemic attack.  
[http://en.wikipedia.org/wiki/Transient\\_ischemic\\_attack](http://en.wikipedia.org/wiki/Transient_ischemic_attack).

Images

