

# THE ADDED VALUE OF SUSCEPTIBILITY WEIGHTED IMAGING IN NON TRAUMATIC PEDIATRIC BRAIN LESIONS

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## Introduction

Susceptibility-weighted imaging (SWI) is a magnetic resonance imaging (MRI) technique that enhances image contrast by using the susceptibility differences between tissues. The strength of SWI is in its ability to identify hemorrhage, calcium and nonheme iron by virtue of its susceptibility artifact, Susceptibility weighted imaging (SWI) has become a key MR sequence in pediatric neuroimaging.

## Aim of the work

The aim of this study is to identify the added value of Susceptibility Weighted Imaging (SWI) in evaluation of non-traumatic pediatric brain lesions.

## Subjects and Methods

### Subjects:

The study was conducted on 20 patients. All the patients were below 18 years old from both genders and with history of non traumatic brain lesions.

### Methods:

**The studied patients were subjected to the following:**

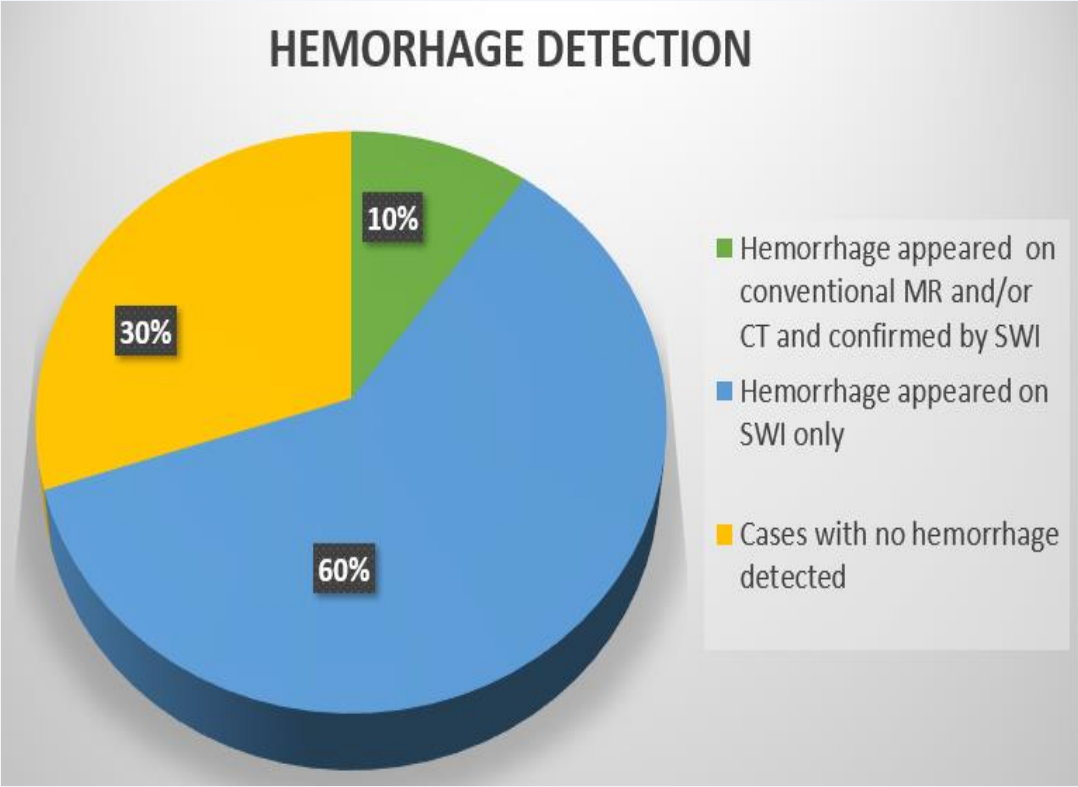
- Full detailed history taking and thorough clinical examination.
- MRI examination of brain including:
  - Routine magnetic resonance imaging:**
  - T1 weighted axial sequences.
  - T2 weighted axial sequences.
  - Fluid-attenuated inversion-recovery(FLAIR) axial sequences.
  - Axial susceptibility imaging (SWI)**

## Results

Our study included 20 patient of pediatric age group, there were 9 males and 11 females, categorized into 4 groups according to pathology. Ten patients with vascular lesions, three patients with Germinal matrix hemorrhage, four patients with Congenital lesions and three patients with tumors.

In the studied cases SWI proved to be more sensitive in hemorrhage detection than CT or conventional MRI.

Among the studied cases, in 12 patients (60%) hemorrhage appeared on SWI only and six patients (30%) were with no hemorrhage detected and in 2 patients (10%) hemorrhage appeared on conventional MR and/or CT and confirmed by SWI.



## Conclusion

Compared with conventional MRI sequences, susceptibility-weighted imaging may show lesions in better detail or with higher sensitivity.

**Table:** Hemorrhage detection.

HEMORRHAGE DETECTION	NO. OF CASES	%
Hemorrhage appeared on conventional MR and/or CT and confirmed by SWI	2	10%
Hemorrhage appeared on SWI only	12	60%
Cases with no hemorrhage detected	6	30%
TOTAL	20	