

# A New Software for Automated Analysis of DMSA Images

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## Aim

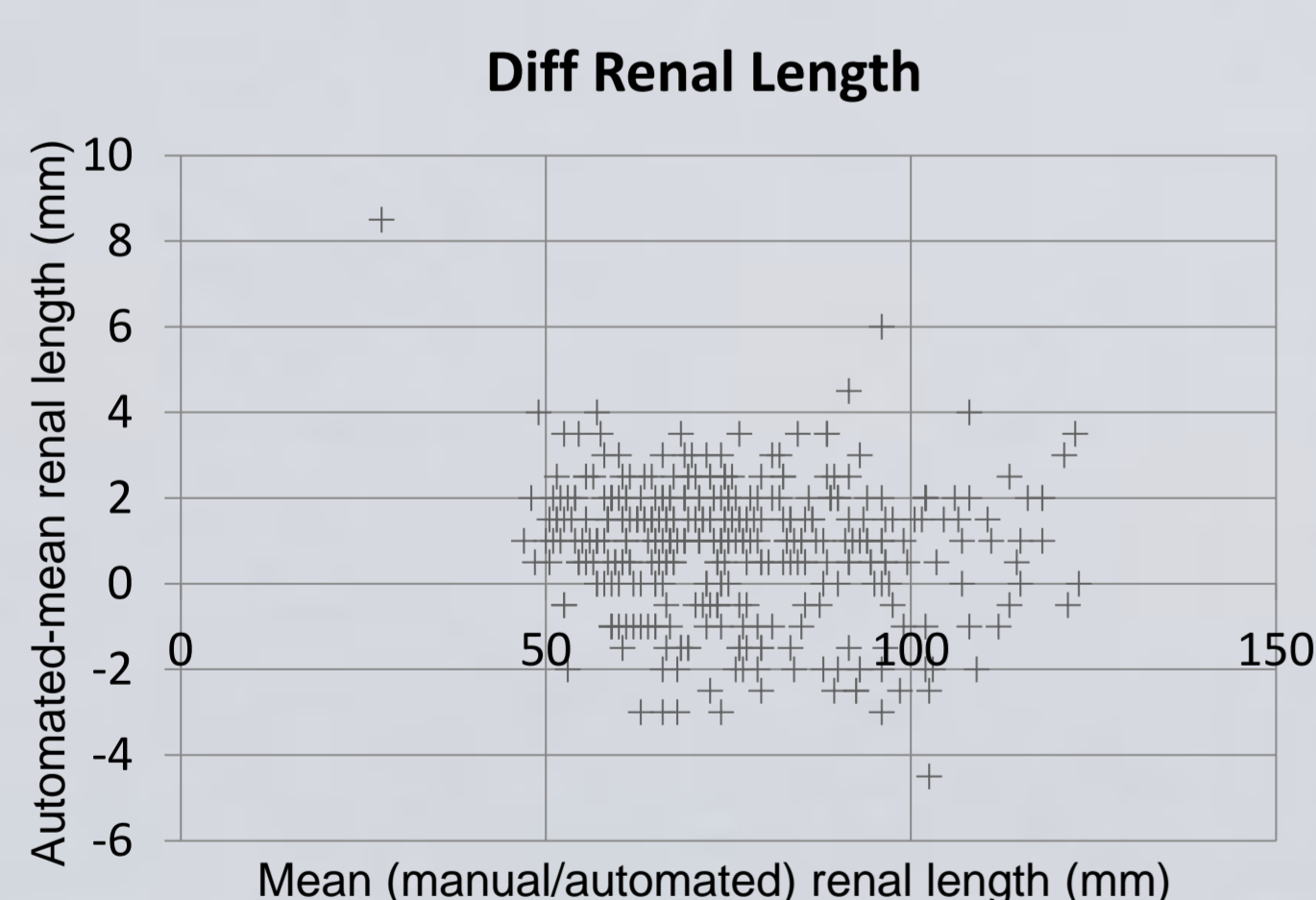
Renal imaging using Tc99m-dimercaptosuccinic acid (DMSA) is a widely used method for evaluating children with urinary tract infection. The aim of this study was to develop and evaluate a software for automated analysis of DMSA images.

## Methods

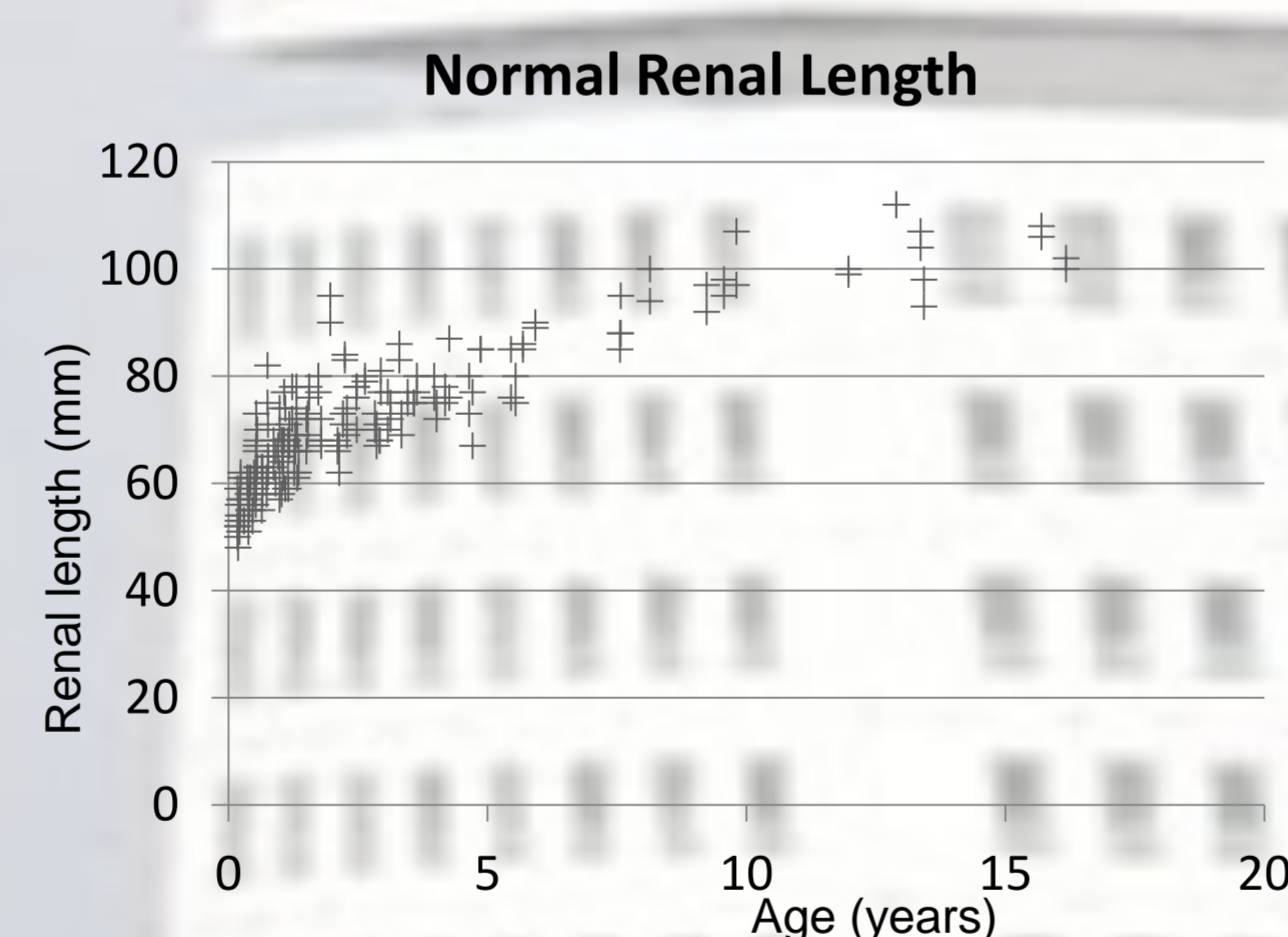
- 298 patients, 1 month to 18 years of age
- 97 DMSA scans interpreted as normal were used to establish reference values for renal length in relation to age and “Normal Image” for comparison (see Figure)
- Delineation of the kidneys was evaluated by two experienced technologists
- Quantitative results were compared to those of a manual method
- Computer Assisted Diagnosis (CAD) advice was evaluated by an experienced nuclear medicine physician

## Results

Delineation was successful in 90%, minor manual adjustment required in 7.5%, failure in 2.5%



Small differences manual vs. automated renal length measurements

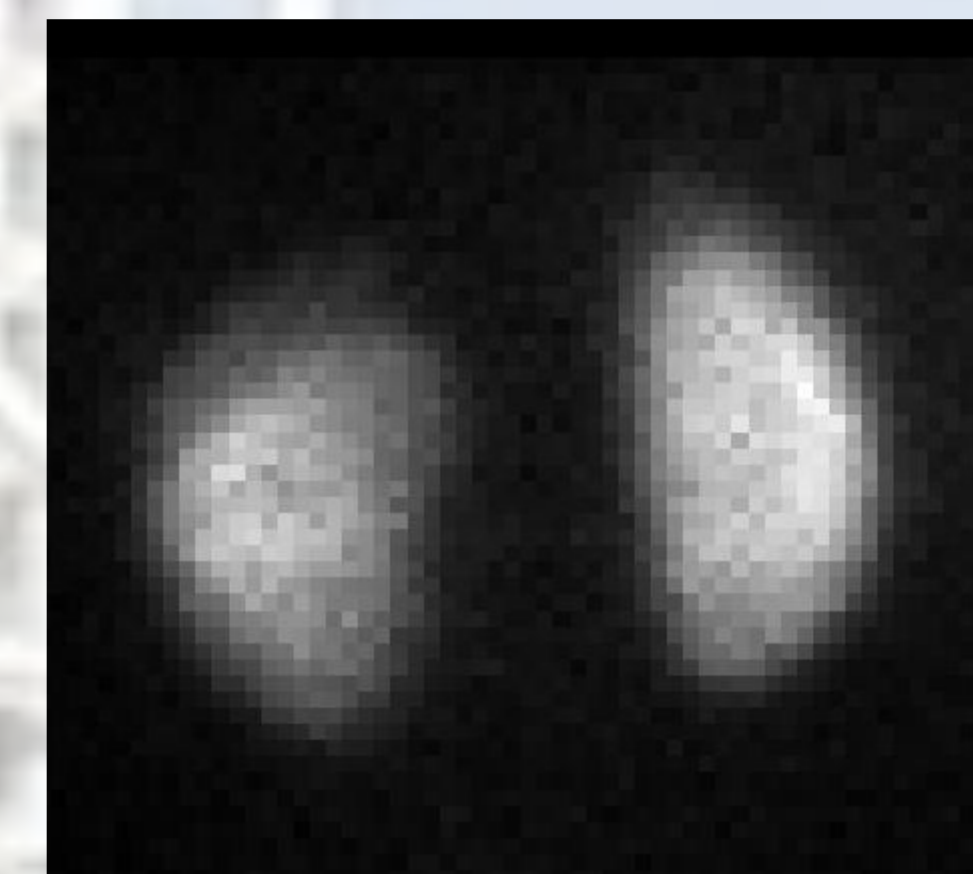


Reference values for renal length in relation to age established

CAD system detected 96% of true lesions with a positive predictive value of 35%.

## Conclusion

Our new software was able to perform automated analysis of DMSA images and we will evaluate it in clinical routine.



DMSA scan

## Automated Analysis

Motion Correction

Segmentation

Background subtraction

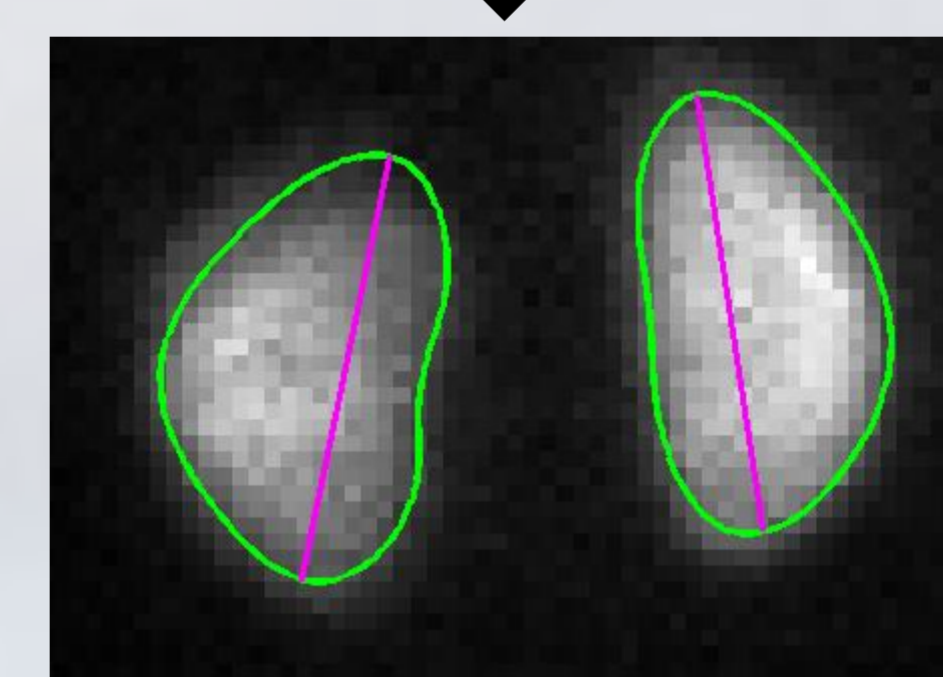
Quantification

Comparison to Normal

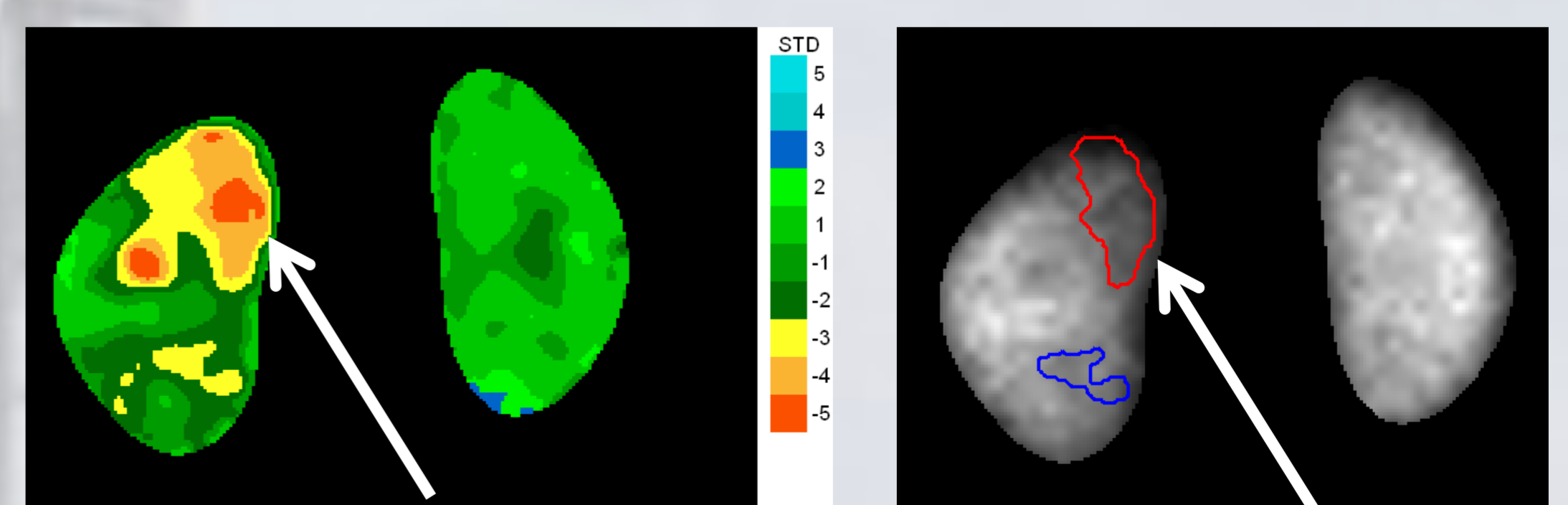
Detection of Lesions

Classification of Lesions

CAD advice



Relative function and renal length



Low counts compared to “Normal Image”

CAD advice: Abnormal lesion

