

Objective Quantification of Aneurysm Wall Enhancement Can Improve Experts' Enhancement Adjudication

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1. Introduction

- Aneurysm Wall Enhancement (AWE) determination relies on subjective assessment

2. Methods

- Mean Signal Intensity (SI) in the post-contrast T1 MRI was computed with a MATLAB script after normalization to Corpus Callosum. **Figure 1.**
- Subjective assessment of AWE compared to objective quantification. **Figure 2.**
- Objective AWE determination was defined by mean T1 Post SI higher than one. **Figure 3.**

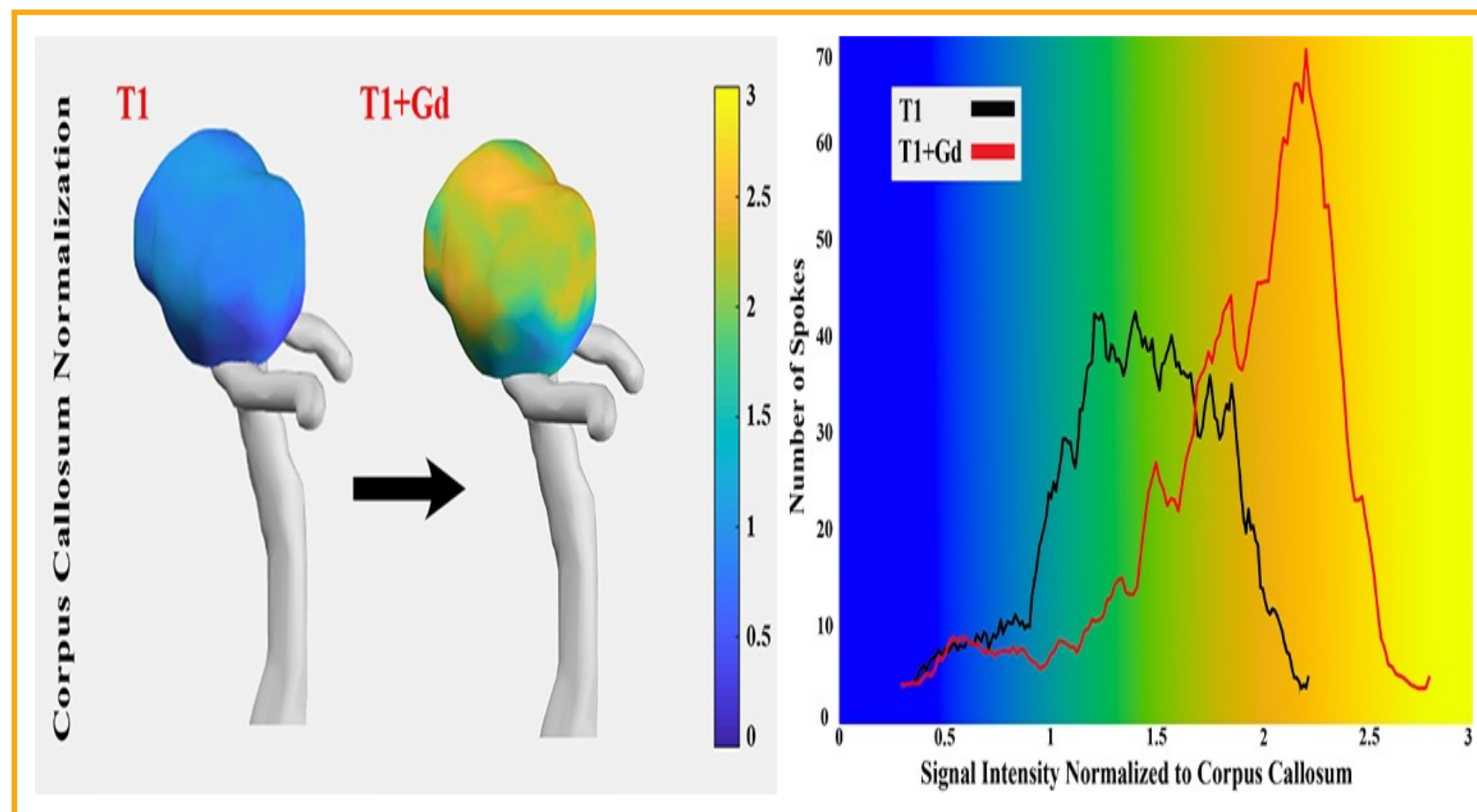


Figure 1. Objective AWE pipeline extraction

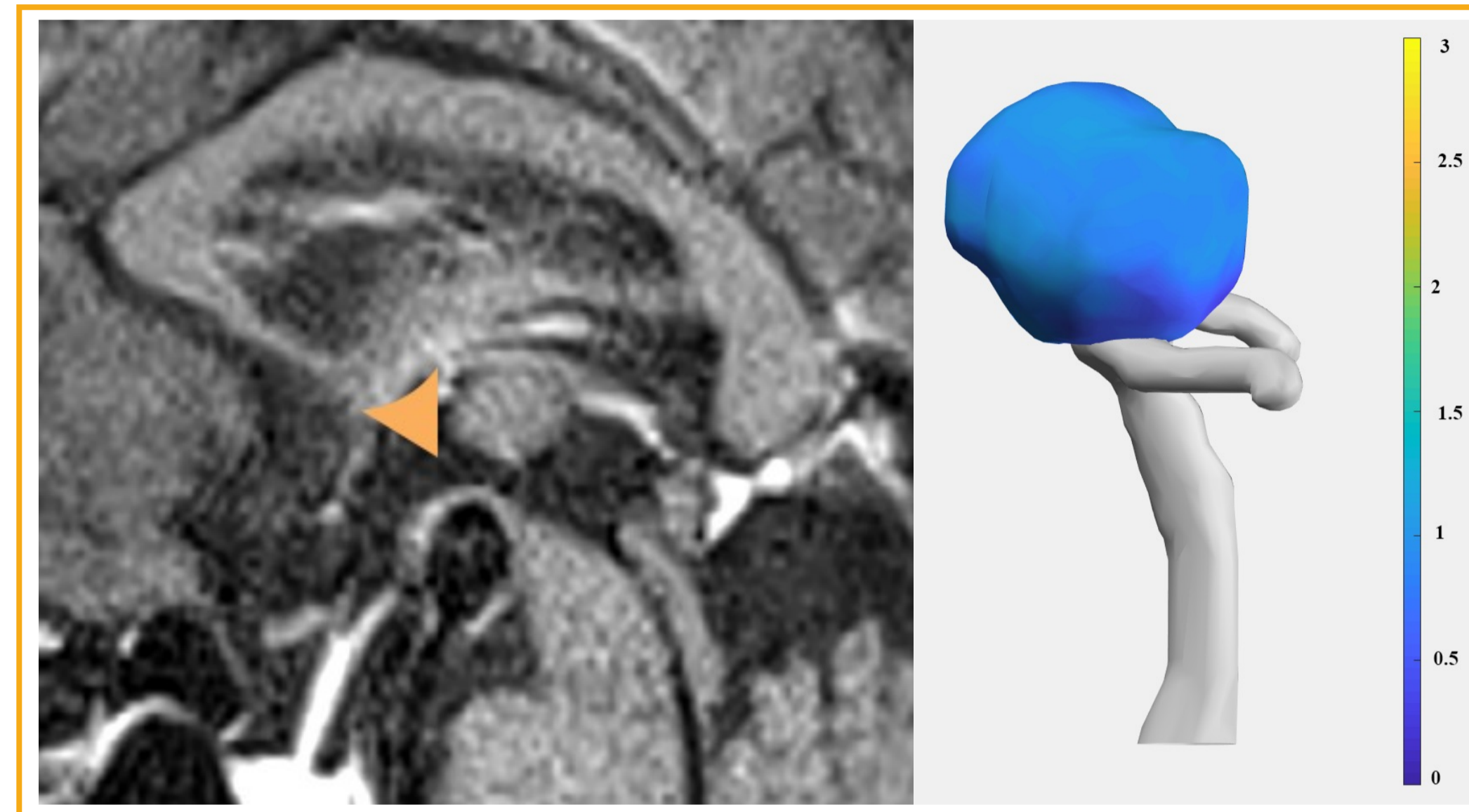


Figure 2. Positive Visual Enhancement Adjudication compared to Negative Objective AWE.

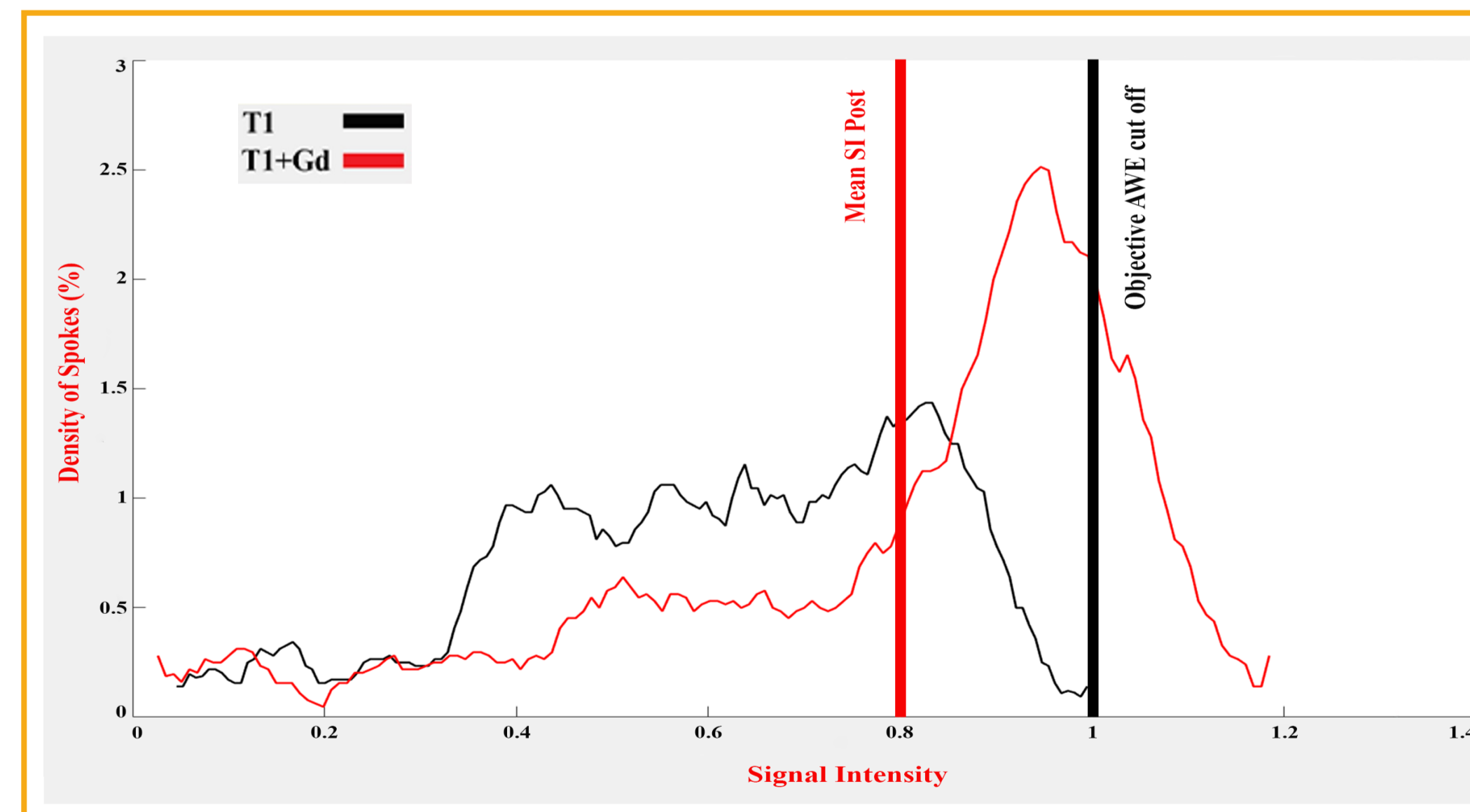


Figure 3. Aneurysm with objectively negative AWE.

3. Results

- Experts' adjudication was different compared to objective assessment ($p=0.0057$), **Table 1.**

Subjective adjudication	Objective quantification		
	AWE +	AWE -	
Enhancing	9 (35%)	17 (65%)	26 (23%)
Non-enhancing	10 (11%)	77 (89%)	87 (77%)
	19 (17%)	94 (83%)	113

- The Aspect Ratio and Symptomatic presentation accurately predicted the agreement between subjective adjudication and objective AWE (**OR:** 1.92, 95% CI 1.06 - 3.43, $p=0.0295$, **OR:** 4.17, 95% CI 1.03 - 16.75, $p=0.0444$).

4. Conclusion

- **Subjective AWE** is reliable when determining its absence.
- **Objective assessment of AWE** can help experts prevent overestimation of wall enhancement.