

ESPR 2019 – 55TH ANNUAL MEETING

Comparison of trans-temporal 3D ultrasound with cMRI

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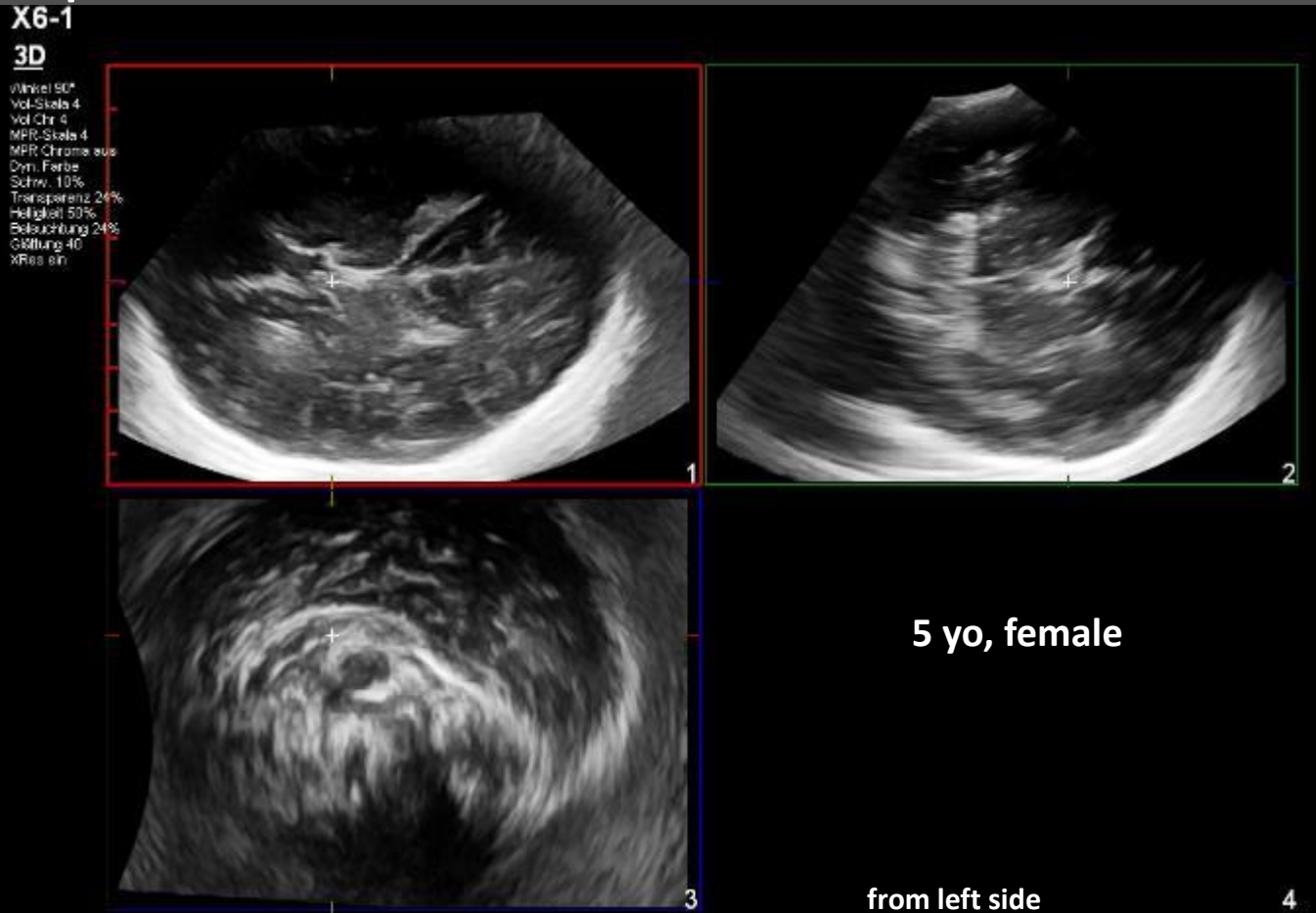
Outline

- Trans-temporal 3D ultrasound
- Materials and methods
- Results
- Discussion

Matrix array probe



Trans-temporal 3D ultrasound



Trans-temporal 3D ultrasound

5 yo, female

from left side

Outline

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Materials & methods

- 22 patients (13male, 9 female)
- mean age of 45,3months (1-117)

- 3D ultrasound:
EPIQ 7G with X6-1 XMATRIX probe, Philips Healthcare

- MRI:
T2-TSE, 1,5T Intera, Philips Healthcare

Materials & methods

- 4 probe positions



Materials & methods

- 16 measurements of intracranial structures:
 - Right ventricle
 - Left ventricle
 - Right hemisphere
 - Left hemisphere
 - Right thalamus longitudinal
 - Right thalamus transverse
 - Left thalamus longitudinal
 - Left thalamus transverse
 - Right peduncle longitudinal
 - Right peduncle transverse
 - Left peduncle longitudinal
 - Left peduncle transverse
 - 3rd ventricle longitudinal
 - 3rd ventricle transverse
 - Biparietal diameter
 - Fronto-occipital diameter

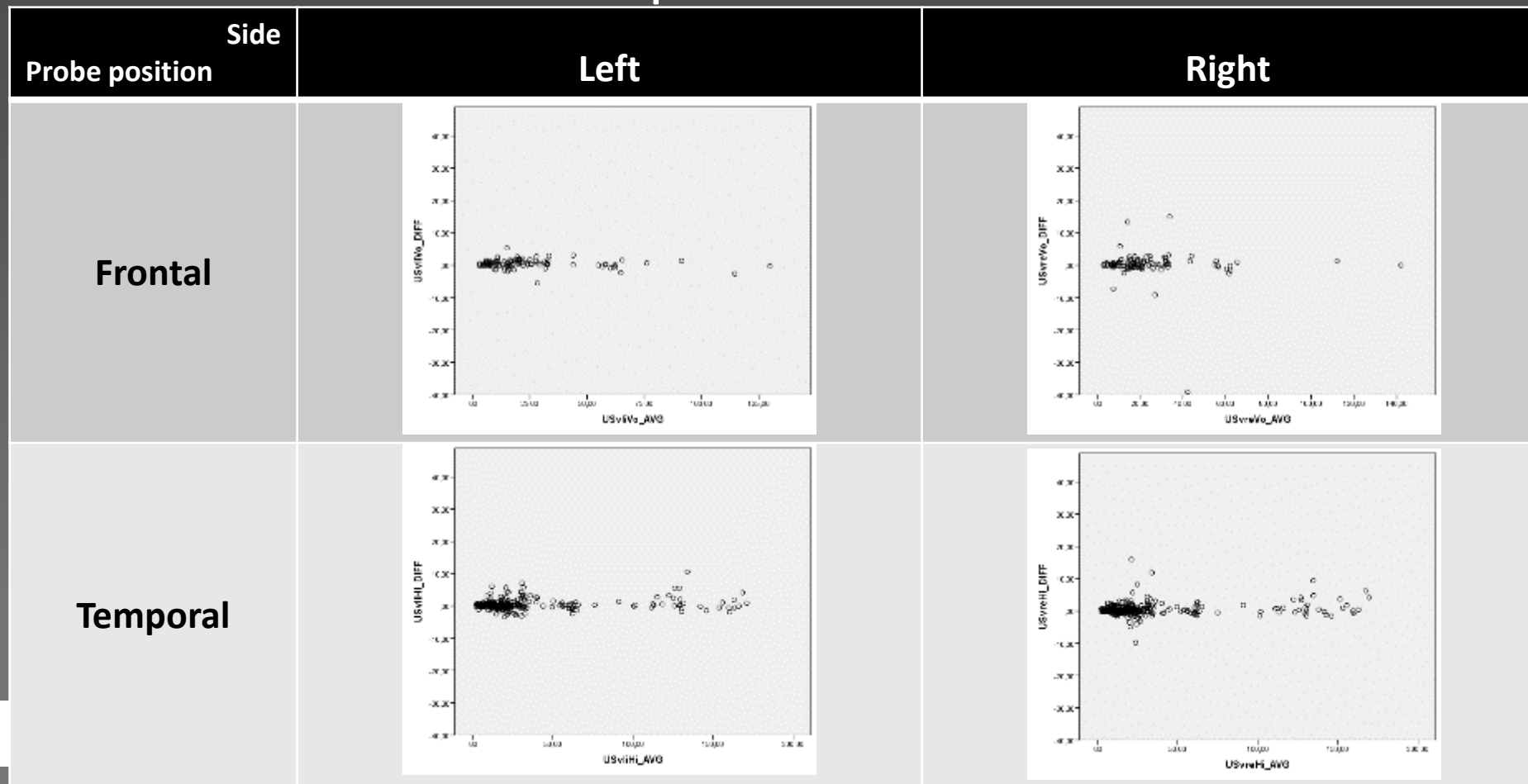
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Results – successful measurements: MRI 350 (99,4%)

Side Probe position	Left	Right
Frontal	106 (30,1%)	114 (32,4%)
Temporal	281 (79,8%)	303 (86,1%)

Results – bland altman plots



Results – pearson correlations to mri

Side Probe position	Left	Right
Frontal	0,998 p < 0,001 n = 106	0,976 p < 0,001 n = 114
Temporal	0,999 p < 0,001 n = 281	0,999 p < 0,001 n = 303

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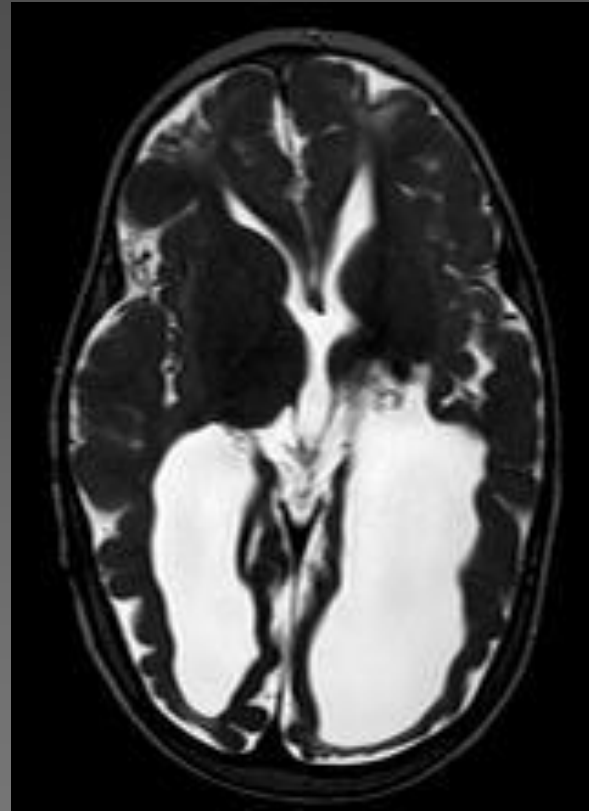
Discussion

- Fast 3D dataset acquisition
- Technical limitations of ultrasound
- Very high correlation to gold standard

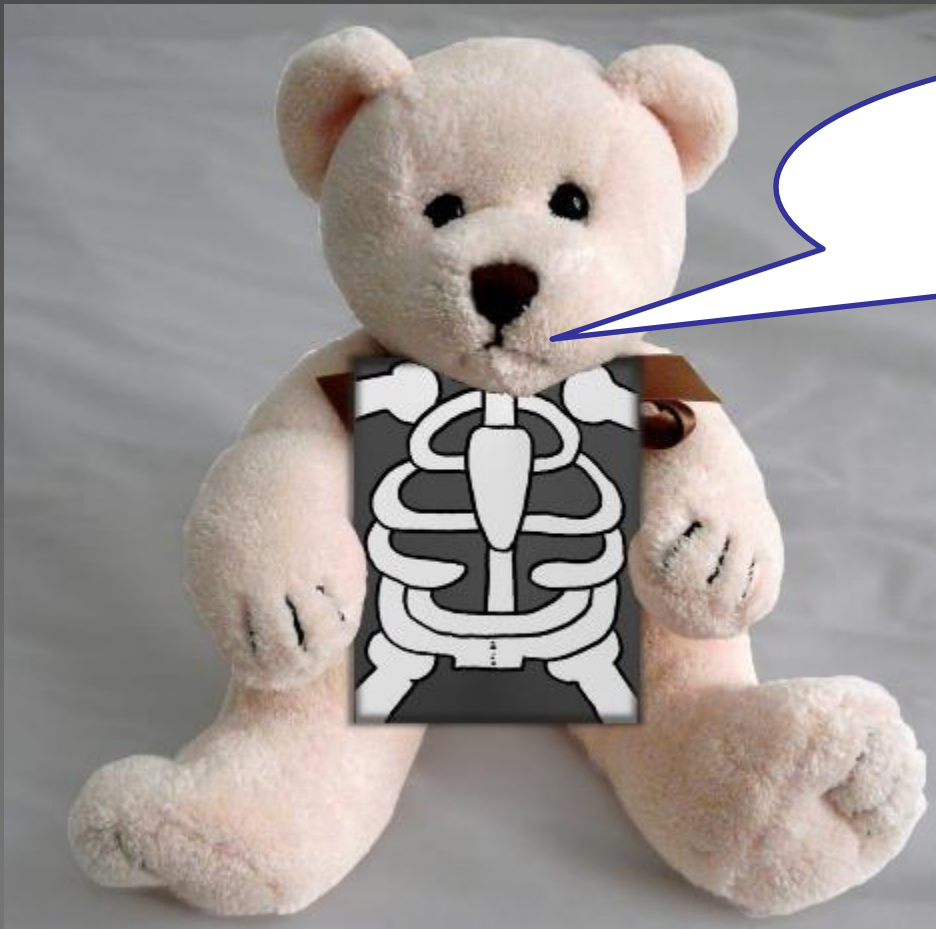
Limitations:

- Sample size
- No emergency MRIs included

Prospects



2 yo, female



**Thank you for your
attention!**

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