

EP05.65 Relationship between quantitative error and clinical assessment of standard fetal facial ultrasound planes

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AIM

Study the relationship between **quantitative error** and **clinical quality** for **facial standard planes**, comparing **algorithm errors** (translation and rotation) and **qualitative scores** (5=good, 1=poor).

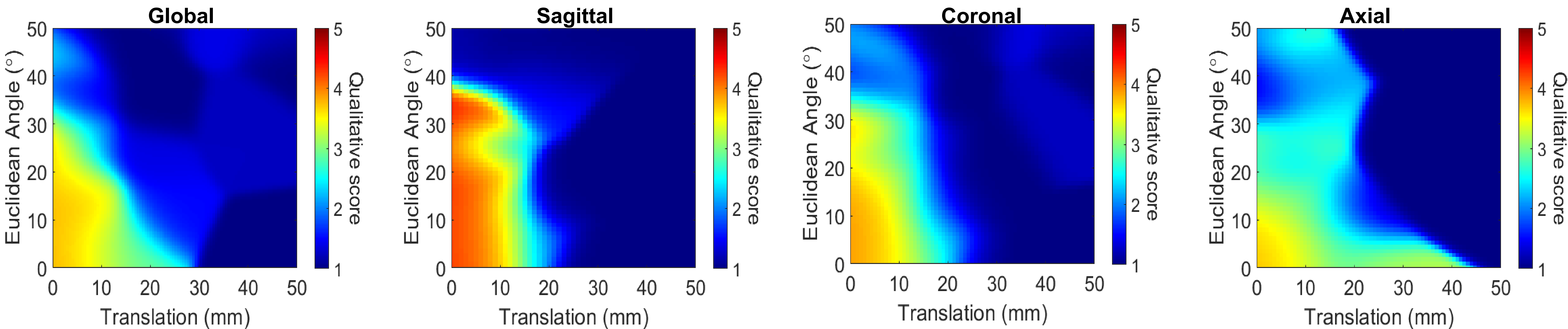


Figure 1. Relationship between quantitative plane localization errors and qualitative assessment of facial standard ultrasound planes. The x- and y-axes represent quantitative error metrics, and the color scale denotes clinical expert qualitative scores for planes with those errors.

METHODOLOGY

- **147 3D US images** from 26 Caucasian low-risk pregnancies
- **3DFETUS AI tool** extracts the sagittal, coronal, and axial **standard facial planes**.
- **Translation and rotation errors** relative to ground-truth were computed and compared with the **qualitative score** from six clinical experts.

RESULTS

- **Planes with** rotation and translation errors **<20°** and **<10 mm** were consistently rated as **clinically acceptable** by clinical experts.
- **Coronal** and **axial planes** show **strong correlation** between **quantitative** and **qualitative** evaluations.
- **Sagittal plane** qualitative score demonstrated **lower sensitivity** to rotation desviations.

CONCLUSION

Quantitative measures of rotation and translation error can **reflect the clinical quality**. However, reliable **clinical assessment** requires evaluation across **multiple planes**, particularly the coronal and axial planes, as the **sagittal plane alone is less sensitive** for assessing the face anatomy.

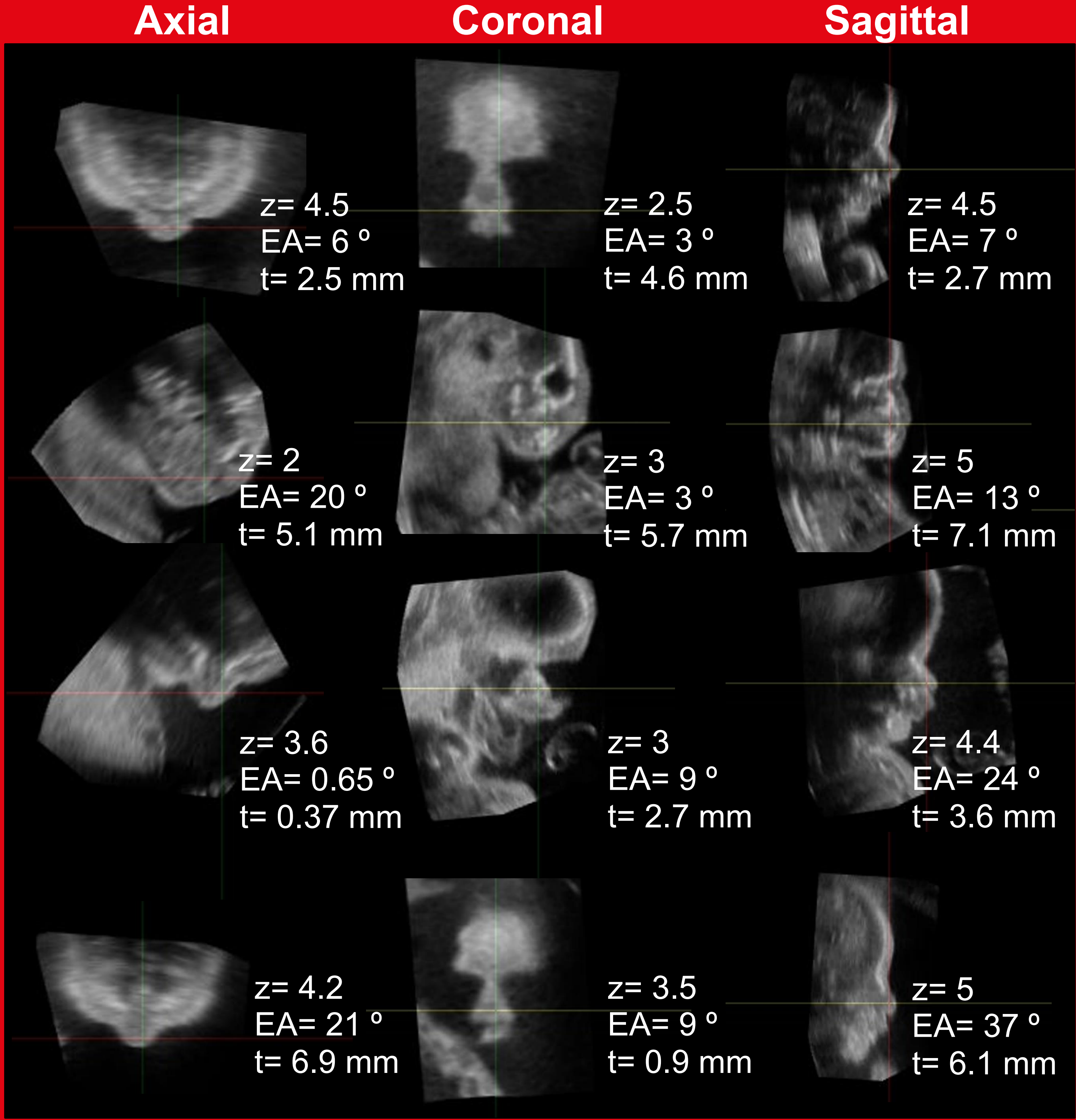


Figure 2. Examples of the evaluated facial planes with the corresponding quantitative errors (rotation EA and translation t) and qualitative score (z).