

were performed. Incisions were made parallel to the condylar groove deep to the cubital tunnel retinaculum to expose the underlying UN. Injections were accurate if the UN perineural space was dyed, and they were precise if the injection did not damage adjacent anatomy.

Results—Eight of 8 injections were both accurate and precise.

Conclusions—UN perineural injection is significant as it can provide symptomatic relief for CTS with corticosteroid injections to reduce inflammation. Sonography is inexpensive, quick, and minimally invasive. Future phases of this study will investigate efficacy of sonographically guided UN perineural corticosteroid injections in patients with CTS. This study suggests that injections under sonographic guidance are accurate and precise, therefore serving as a potential adjunct to treatment that is worth further investigation. Future phases of this study will center on expanding the initial data set and correlate the accuracy and precision of injection with improved patient outcomes.

1539088 Translating Contrast-Enhanced Ultrasound Intraneural Vascularity From Bench to Bedside

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Objectives—To describe contrast-enhanced ultrasound (CEUS) imaging of the human median nerve's intraneural vascularity, with equipment settings and optimizations derived from experiments with a cohort of *Macaca fascicularis*.

Methods—The equipment used was a GE LOGIQ 9, complete with contrast settings, and a GE LOGIQ i, which is considered a hand-carried unit. A 9.0-MHz linear broadband transducer was used with the GE LOGIQ 9, and a 12.0-MHz linear broadband transducer was used with the GE LOGIQ i hand-carried unit. Definity was used for this study because it possesses the smallest microspheres, 1.1 to 1.3 μm , has stability of <10 minutes, and resonates at 4 MHz. Equipment settings that had been used with experiments conducted with 11 *M fascicularis* were repeated with 11 patients during a CEUS echocardiogram. PixelFlux Scientific software allowed for semiautomatic assessment of the intensity of the contrast pixels. Descriptive statistics are compared to pixel counts and intensities between humans and the monkeys, although contrast dosing amounts varied. The goal was to capture multi-incremental sampling of the images during CEUS, focused on the median nerve.

Results—The GE LOGIQ equipment settings were applied to the human study based on previous experiments. A better visual yield was found with 4% output power and a mechanical index of 0.13; these translated settings provided optimum imaging of the median nerve. The 9.0-MHz linear transducer was also downshifted to a transmit frequency of 6.0 MHz for the human studies. Trend graphs are provided for comparison purposes.

Conclusions—It will be vital to replicate this pilot study to validate these results with a larger set of subjects and correlate the findings with nerve conduction studies. Higher levels of evidence will promote the use of CEUS to investigate intraneural vessels and allow for angle correction, thereby yielding increased accuracy.

Table 1. Comparison of Semiautomatic Analysis of CEUS Data Within the Median Nerve in both Macacas and Humans (n = 11)

Parameter	Preclinical Dosing	Human Dosing
Mean average intensity	0.39	1.79
Mean maximum intensity	1.89	4.18
Mean signal count	3.85	25.6

Obstetric Ultrasound: Uterus, Placenta, and Cervix

Moderators: Harris Finberg, MD, Cyrethia McShane, RDMS, BS

1540994 Cervical Length Assessment by Transabdominal and Endovaginal Ultrasound

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Objectives—Endovaginal (EV) cervical length identifies women at risk for preterm birth (PTB) and thus eligibility for vaginal progesterone. Our objective was to compare transabdominal (TA) with EV cervical lengths to determine the degree of correlation, the capability of TA ultrasound (US) to predict an EV-detected short cervix, and the rate of cervical change over time.

Methods—Retrospective review of singleton pregnancies having TA and EV US for cervical length between 16 and 28 weeks' gestation at Duke University from January to December 2011. TA measurements are routinely obtained on midtrimester exams with EV measurement for high PTB risk, TA <30 mm, assessment of placental location, and/or presence of cerclage. Serial US with TA and EV are performed when EV <25 mm. Pearson correlation and receiver operating characteristic curves were used to compare TA and EV cervical lengths and determine optimal TA cutoffs for prediction of an EV cervical length <25 mm. Linear regression was used to compare the rate of cervical change by TA and EV by term vs PTBs.

Results—A total of 142 subjects with 245 US observations met study inclusion criteria. TA and EV measurements were significantly correlated ($r = 0.810$; $P < .0001$). A TA cutoff of 30 mm accurately predicted an EV-detected short cervix (<25 mm): sensitivity, 90.4%; specificity, 80.2%; positive and negative predictive values, 70.1% and 94.2%. Using linear regression, women delivering preterm had a greater rate of cervical change by EV compared to women delivering at term ($P = .014$). TA failed to demonstrate such a difference ($P = .592$).

Conclusions—TA and EV cervical lengths correlate well and TA <30 mm as an accurate predictor of shortened EV cervical length. Serial follow-up of a US-detected short cervix should be via EV measurements, given the better detection of the rate of cervical change than TA in patients who deliver preterm. Detecting a rapidly changing short cervix sooner may allow for earlier interventions. Prospective studies are required to confirm our findings.

1472715 Cervical Length in the Second and Early Third Trimesters as a Predictor of Cesarean Delivery in Singleton Gestations

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Objectives—A long cervical length (CL) at 22 to 24 weeks' gestation has been shown to be associated with an increased risk of cesarean delivery. The objective of this study was to determine the association between CL at 28 to 32 weeks and the risk of cesarean delivery in singleton pregnancies and to evaluate whether it is more predictive of cesarean delivery than CL at 22 to 24 weeks.

Methods—This was a retrospective cohort study of singleton gestations with a history of prior spontaneous singleton preterm birth managed in a single practice between 2005 and 2011. All patients were followed with serial CL measurements via transvaginal ultrasound. Patients met criteria for inclusion if they had a CL measurement between 28 and 32 weeks' gestation. Patients were excluded if they underwent a planned