visible at term. This study estimates that the NeuroCURE device retains up to 64% of its original radiopacity after one year.

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55 LARGE, WIDE-NECK ANEURYSM CANINE MODEL TREATED WITH NEUROCURE® LIQUID EMBOLIC – 12-MONTH SURVIVAL

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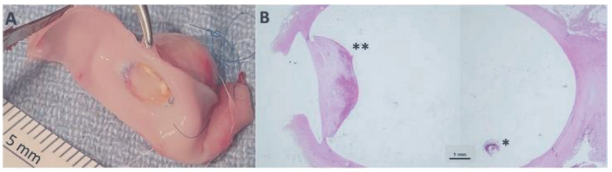
Introduction High recanalization rates of large aneurysms embolized with current devices can be attributed in part to limited modeling of larger aneurysms during preliminary device testing in animal models. We developed a clinically-relevant in vivo canine model of large, wide-neck aneurysms to study aneurysms with traditionally high recanalization rates post-treatment. This model was then treated with a new liquid embolic device under development: NeuroCURE® (Aneuvas Technologies, Inc. (ATI) - Flagstaff, AZ). NeuroCURE® is a non-adhesive, elastic polymer gel (a form of polypropylene diacrylate – PPODA) that self-coalesces and completely fills the aneurysms sac in less than 10 minutes.

Materials and Methods The canine large aneurysm model was developed by the Neurosurgery Research Center at Barrow Neurological Institute (BNI – Phoenix, AZ) and completed as a GLP study at American Preclinical Services (APS – Minneapolis, MN). The study included 10 canines (4 – 3-month, 4 – 6 month, and 2 – 12 month survivals post-embolization)A lateral wall aneurysm was surgically created by anastomosis of an external jugular vein (EJV) segment onto the common carotid artery (RCCA) in the neck. The EJV segment was sewn to the RCCA to form a wide-neck aneurysm (5 – 7 mm diameter). The distal EJV was tied off at a dome height $\geq$ 10 mm. The animals were survived at least 2 weeks pre-embolization to allow for aneurysm maturation, stabilization, and vessel model healing. NeuroCURE® was then delivered under balloon protection using a single 10 minute inflation.

Results Pre-treatment angiographic imaging verified a patent aneurysm with large dome height (>10 mm) and wide-neck morphology (> 4mm neck diameter and midline Dome: Neck (D:N) ratio 1.1:1 to 2:1, **figure 1A**). Post-treatment histology verified healing of the aneurysm neck (full endothelialization and neointimal formation, **figure 1A and B**). Due to the near complete aneurysm filling, GLP histology verified no thrombus formation, no clot reorganization, no neo-angiogenesis, and minimal inflammation across all survival timepoints.



Abstract P-055 Figure 1 A) continuous neointimal growth across the neck of a canine aneurysm (12-month survival); B) H&E stain showing neck neointimal formation (**) at the dimple created by balloon protection, > 90% aneutysm fill (white intrasaccular area is NeuroCURE), and a stabilized remnant of a microcatheter track inside the NeuroCURE gel (*)

Conclusion The canine model was adopted over other models (i.e. rabbit-elastase) because of comparable healing responses to humans, representative blood-flow, similar blood pressure, and vessel sizes that accommodate both large aneurysms and multiple microcatheters. The model and survival timepoints have been approved by the Food and Drug Administration (FDA) for clinical assessment of NeuroCURE®, for which an Investigational Device Exemption (IDE) application is underway.

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P-056 IMPROVED FLUID DYNAMICS SIMULATIONS OF COILED CEREBRAL ANEURYSMS USING MICROTOMOGRAPHY AND HOMOGENIZATION TECHNIQUES

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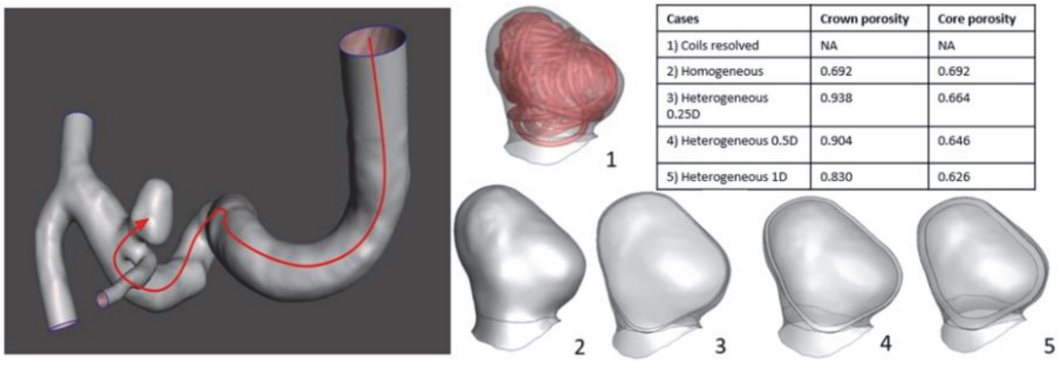
Hemodynamic changes after aneurysm coiling can be simulated using computational fluid dynamics (CFD) to better predict treatment outcomes. Since the geometry of the coil mass is not visible using conventional imaging, most CFD simulations represent coils as a simplified, uniform porous medium. This



Cases	Crown porosity	Core porosity
1) Coils resolved	NA	NA
2) Homogeneous	0.692	0.692
3) Heterogeneous 0.25D	0.938	0.664
4) Heterogeneous 0.5D	0.904	0.646
5) Heterogeneous 1D	0.830	0.626

Abstract P-056 Figure 1 Method of obtaining high-resolution coil geometry