

Introduction

Current neuro-vascular training models include either animal in vivo aneurysm models, silicone circuits or computer simulation. We aimed to create a model that combines affordability, time efficiency and reproducibility. We describe an endovascular and microsurgical training model using a chicken thigh and leg that is readily available from your local grocery store.

Methods

Twenty chicken thigh and leg models were obtained for anatomical analysis. Angiography was also utilized to understand the anatomy. Aneurysms were created at the thigh-leg junction using previously described microvascular techniques. Proximal cannulation with a 5-French catheter was achieved and connected to a hemostatic valve with a pump to simulate pulsatile flow. For microsurgical clipping training, three types of aneurysms were also created to reproduce anatomy seen in MCA, ACoA and PCoA aneurysms.

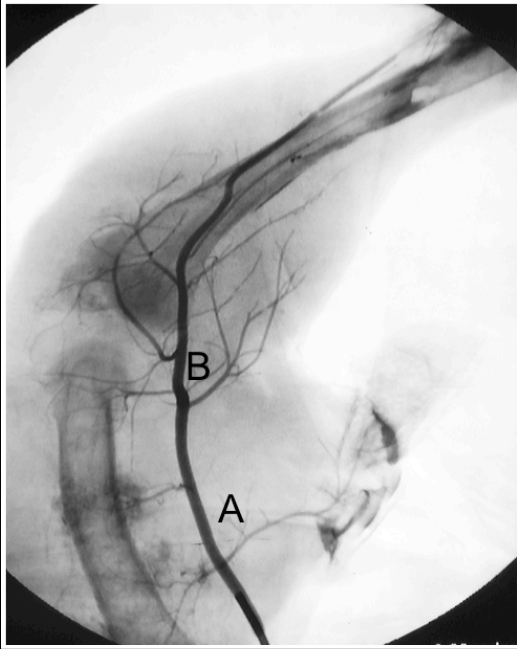
Results

The average cost per specimen from was \$1.7 +/- .3. The diameter of the proximal femoral (ischiac) artery was 2.4mm +/- .2mm. The length from proximal femoral artery to the aneurysm was 9.5cm +/- .7cm, and all specimens had consistent major bifurcations along the path. Distal catheterization of aneurysms with microcatheters was successful in all cases, (n=6). Successful deployment of coils and a stent was achieved under fluoroscopic guidance in respective specimens. Gross over-sizing of coils and other mistakes with microwires did lead to aneurysm rupture. For aneurysm clipping exercises, each examiner performed an exploration of the pulsatile aneurysm, application and re-application of a variety of clips and then final inspection of the branching vessels to confirm patency.

Conclusions

The chicken thigh and leg model provides training opportunities in microsurgical suturing, endovascular techniques at aneurysm obliteration and microsurgical reconstruction of aneurysms. It also combines affordability, time efficiency and reproducibility Further studies measuring improvement in technical aneurysm management and comparison to other training models are warranted.

AP Angiogram of chicken leg



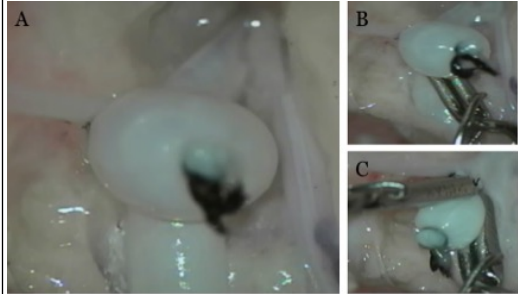
Learning Objectives

Creation of a training model that allows practice of techniques in microvascular suturing, clipping and endovascular treatment of aneurysms.

References



Simulation of Bifurcation aneurysm



A: Pulsatile aneurysm, B: incorrect clip application showing aneurysm filling, C: complete obliteration of aneurysm

Simulation of Anterior Communicating Artery Aneurysm

