SOCIETÀ CULTURALE ITALIANA VETERINARI PER ANIMALI DA COMPAGNIA SOCIETÀ FEDERATA ANMVI

RICHIEDO ACCREDITAMENTO

in collaborazione con

SOCIETÀ FEDERATA ANMVI

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RIMINI 1st-3rd June 2007
PALACONGRESSI DELLA RIVIERA DI RIMINI

Normally, I don't just return text from an image. However, in this case, the text is clearly visible and readable. The document is promoting an event titled "56th INTERNATIONAL CONGRESS" organized by SCIVAC. The event took place in Rimini from 1st to 3rd June 2007. The text also provides contact information for the SCIVAC Secretary and a website link to www.scivac.it.

If you have any specific questions or need further assistance with this document, please let me know!
Transarterial coil embolization (TCE) is a viable method for definitive patent ductus arteriosus (PDA) repair in the dog with success and mortality rates comparable to surgical ligation. The basics of the methodology have been described previously. There are however, a number of procedural specifics regarding coil size selection and method of deployment that are determined by the clinician. This half session will use a case based approach to illustrate the authors’ current clinical approach to TCE with particular emphasis on the selection of both the method of deployment and coil size.

All methodology described herein utilizes an arterial approach for coil deployment using the right femoral artery. Introducers are placed via cut down using a modified Seldinger technique and the femoral artery is ligated at the end of the procedure. Two methods routinely used in our institution include a controlled release (CR) and a free release (FP) deployment method. There are a variety of commercially available CR deployment systems but the CR method described in this session is customized to deploy 0.052” and 0.038” coils using a 3 Fr biptome and a 4 Fr transeptal dilator and sheath. This CR method requires placement of a 6 Fr introducer limiting its utility in dogs < 6-10 lb. Although the 4 French transeptal sheath can be used alone for arterial access, it limits the precision with which the tip of the sheath can be manipulated. The CR method is preferred as coils can be safely repositioned (or removed) if necessary. The FP method utilizes a 0.025” or 0.035” wire to deploy 0.025” or 0.038” coils through a 3 Fr or 4 Fr catheter respectively. The smaller size of this system allows safe arterial access and TCE in dogs between > 3 lbs that are too small to allow placement of a 6 Fr introducer generally necessary for the CR technique. Both the CR and FP methods can be used to deploy coil(s) either entirely within the ductal ampulla or to partially deploy coil(s), usually 1-1.5 revolutions, in the main pulmonary artery (MPA) with the remainder of coil(s) being deployed within the ampulla. Partial MPA coil deployment is most commonly performed with the CR method.

Following an angiogram ductal morphology is characterized with particular attention given to confirmation of ductal taper (minimal ductal diameter < ampulla diameter) at the pulmonary artery ostium, minimal ductal diameter, ampulla diameter and ampulla length. If the PDA fails to taper or the ampulla is shallow (ampulla length < approximately 5 mm) the procedure is aborted and surgical ligation is recommended. In a very short PDA the risk of accidental aortic embolization or partial extrusion of a deployed coil within the descending aorta is relatively high. Ductal angiographic measurements help determine both the specific method of deployment (ampulla vs partial MPA deployment) and the coil size.

**Coil Selection**

The gauge of the coil (0.025, 0.038, 0.052) is dictated primarily by patient size as that typically influences arterial access. It is of course possible to deploy smaller gauge coils using larger catheters. This is not carried out routinely but is occasionally done when a multiple coils have been deployed but significant residual ductal flow is still present. Smaller gauge coils (0.025, 0.038) are more flexible and thus collapse well into small areas sealing leaks occurring around or through previously deployed coils. Coil diameter is chosen to typically be greater than twice the minimal ductal diameter, slightly greater than the diameter of the ampulla but less than the length of the ductal taper.
ampulla. In the event that more than one coil is necessary (common) then the diameter of the second coil is usually 2 mm < the diameter of the first. If a third coil is required it will be < but more likely equal to the diameter of the 1st. The average number of coils required to achieve a clinically desirable endpoint (angiographic closure, or trivial residual flow) is 2-3 coils. Coil length is chosen to achieve a between three and six revolutions. We prefer longer coils having at least four revolutions regardless of technique (CR or FP) or method of deployment (ampulla or partial MPA deployment).

Controlled release method of deployment
If the angiogram suggests that more than one coil will be necessary (common) the initial coil is placed using the partial MPA deployment technique. Following deployment if the diastolic pressures do not increase substantially or if transesophageal echocardiography (TEE) continues to show significant residual flow a repeat angiogram is done immediately to help guide re-advancement of the wire and guiding catheter across the PDA into the MPA so an additional coil can be deployed. Coils continue to be deployed in this manner until a clinically desirable endpoint is achieved (angiographic closure, or trivial residual flow), the guiding catheter can no longer be advanced safely across the PDA into the MPA, or the patient becomes unstable. Ten minutes is allowed before angiograms are repeated if a clinically desirable endpoint is suspected.

The free push method of deployment
When limited to this method due to patient size the angiographic morphology of the PDA is particularly important because deployment may need to be within the ampulla and in the event that satisfactory angiographic closure is not completed with one coil then a 2nd coil is deployed deep within the ampulla making every attempt to engage the first coil in order to secure it within the ampulla. After partial deployment of the 2nd coil (<50% of the length of the coil) if the 2nd coil does not appear to be engaged then it is withdrawn to avoid accidental aortic embolization.

If safe deployment of additional coils cannot be performed the procedure is aborted and re-evaluation in carried out in 3-4 months. This is true regardless of the method and technique employed and even if a clinically ideal endpoint has not been achieved. If hemodynamically significant flow (QP/QS > 1.5) is present at that time a second procedure is recommended. Additional procedures are uncommon overall being more common in larger dogs requiring more than 5 coils. When necessary, successful resolution of residual flow with a second TCE procedure has been successful in every case with no untoward complications. These procedures are usually carried out using a left femoral arterial approach unless the right femoral artery was ligated distal enough following the initial procedure to allow proximal re-entry.

3Fr System: [Dogs ≥ 3 lb that are too small for 4Fr introducer and 4Fr catheter]
- 18g x 1.75" Jelco® catheter
- 3Fr catheter (Royal Flush II angiographic catheter #N3.0-21-60-P-NS-JR2.5, Cook, Inc.)
- 0.025" x 180 glide wire (#46-240, Boston Scientific/Medi-Tech)

4Fr System: [Dogs that are too small for a 6Fr introducer, usually < 6 lb]
- 18g x 1.75" Jelco® catheter (not all brands of 18g catheters accept an 0.035" glide)
- 4Fr pediatric introducer [4 cm length] (#RCFP-4.0-25-4-J, Cook, Inc.)
- 4Fr Snare Catheter (#MC4000, ev3, an endovascular company)
- 0.035" x 150 glide wire (#46-318, Boston Scientific/Medi-Tech)

6Fr System: [Dogs > 6-10 lb]
- 18g x 1.75" Jelco® catheter (not all brands of 18g catheters accept an 0.035" glide)
- 6Fr pediatric introducer [4cm length] (RCFP-6.0-35-4-J, Cook Inc.)
- 4Fr dilator & sheath (RCFW-4.0-35-75-RB-MTS, Cook Inc.)
  - 5-10 uses with diligent cleaning and plasma re-sterilization
- 0.035" x 150 glide wire (#46-318, Boston Scientific/Medi-Tech)
- Bioptrome (#220130, 3Fr cup biopsy forceps, Cook Urological)
  - 2-10 uses with diligent cleaning and plasma re-sterilization

Coil Retrieval System
- Snare: (#GN700, ev3, an endovascular company)
- 4Fr Snare Catheter (#MC4000, ev3, an endovascular company)

Non-ionic contrast:
- Oxilan®300 (Ioxilan injection 62%, 300 ml/ml, 50 ml single use bottle): Guerbet LLC.

Note: unless otherwise stated all equipment is single use.
Order Contact Information:

- **Cook Incorporated**: 750 Daniels Way* P.O. Box 489, Bloomington IN 47402-0489, www.cookgroup.com, Phone: 812-339-2235, or 800 457-4500
  
  - **Boston Scientific/Medi-Tech**: 480 Pleasant Street, Watertown, MA 02172 Phone: 617-972-4000, or 800-225-3238
  
  - **ev3, an endovascular company**: 4600 Nathan Lane North Plymouth, MN 55442-2920, Phone: 763-398-7000, or 800-716-6700
  
- **Guerbet LLC**, 1185 West 2nd Street, Bloomington IN, 47403, Phone: 877-729-6679

**Coils (2 per pack) Cook Inc.**

- 0.025” (commonly used sizes 4cm x 3mm, and 5cm x 5mm)
- 0.038” (for use with 4 Fr system) and 0.052” (for use with 6Fr system)