IN VIVO OPERATION of VASCULAR OCCLUDERS

IMPORTANT:
Before Implantation: Operate the occluder in accordance with the instructions under Testing Procedure.

1. To avoid unintentional constriction, select the occluder size that provides a slightly loose fit around the subject vessel.
2. Wrap the occluder snug around the exposed vessel and secure it in place using suture material passed through the eyelets and tied securely.
3. Exteriorize the actuating tube through a convenient incision.
4. When used in conjunction with a flow transducer, be sure to position the occluder distally (downstream) from the transducer. If positioned upstream, the vessel will collapse during occlusion, resulting in loss of contact with the transducer’s electrodes or crystals.
5. Occlusion may be determined in chronic implantation by any of the following methods:
   a. Obliteration of phasic flow patterns displayed by the vessel under study. This is the recommended method for accurately determining zero-flow baseline in small vessels.
   b. Note the amount of air pressure or liquid volume injected, according to the previous calibration. See testing Procedure on the reverse side of this instruction page.
   c. Monitoring of inflation by injecting radiopaque fluid instead of water and viewing the action fluoroscopically.

SUGGESTED ACTUATING MEDIA FOR VASCULAR OCCLUDERS
The occluder may be activated by either pneumatic or hydraulic methods. Satisfactory results can be expected by injecting air, inert gas, or various liquids into the actuating tube. Some researchers prefer air because of its simplicity, availability, and ease of pressure control. Other prefer water or saline solution, especially for occlusions of longer durations (up to one hour). As a precaution, sterile normal saline solution or sterile distilled water are recommended for use with this device in case fluid is accidentally injected into the animal under study.

For procedures requiring occlusion times in excess of one hour, sterile glycerin has been used successfully by researchers. Glycerin does not transpire through silicon rubber, does not evaporate, and is generally biocompatible.

DURATION OF OCCLUSION FOR VASCULAR OCCLUDERS
Model OC vascular Occluders, when used with water or saline solution, perform well for brief occlusions. Stable, long-term occlusion cannot be maintained with water due to its tendency to transpire through silicone rubber. Short term occlusion of up to approximately one hour may be maintained successfully using water or saline solution if pressure is applied slightly in excess of what is required to achieve full occlusion. For longer occlusion times, we recommend monitoring the degree of occlusion using any of the methods described in step 5 above, as well as selecting a liquid such as glycerin as the actuating fluid. Glycerin does not transpire or evaporate easily through silicone rubber, nor will it cause damage to the device.

CAUTION: Use extreme caution when using sharp objects during implantation. The occluder diaphragm and actuating tube can be easily cut or pierced.
INSTRUCTIONS

OPERATIONAL PRINCIPAL
The occluder cuff is wrapped around the exposed vessel and secured in place using suture material passed through the eyelets. Air or liquid is then injected into the actuating tube by syringe inflating the diphragm and compressing the vessel into occlusion.

MATERIALS REQUIRED FOR OPERATION
For Sizes OC-1,5N through OC-10, use a 20 gauge blunt needle and a 10cc syringe
For Sizes OC-12 through OC-24, use a 16 gauge blunt needle and a 20cc syringe

CAUTION: We DO NOT recommend implanting occluders without first testing them.
See Test procedure below.

CAUTION: DO NOT exert excessive pressure in the diaphragm as bursting may result
Use only enough pressure to achieve the desired degree of occlusion.

CAUTION: DO NOT inflate unsutered occluders as damage or bursting may result.

IMPORTANT: TESTING PROCEDURE PRIOR TO IMPLANTATION
1. Secure the cuff ends together by tying suture material through the eyelets of the occluder before inflating.
2. Insert the proper size blunted syringe needle into the occluder’s actuating tube.
3. Inject just enough air or liquid into the tube to inflate the occluder’s cuff to full occlusion. CAUTION: DO NOT OVERINFLATE THE DIAPHRAGM AS BURSTING MAY RESULT.
4. Hold pressure for 30 seconds while observing for possible leaks.
5. Repeat the procedure 4 to 5 time to relax the diaphragm, particularly if the occluder has not been used recently.

CALIBRATION OF THE OCCLUDER
Carefully observe and note the air pressure or liquid volume required for varying degrees of occlusion. the same degree of occlusion may be expected after implantation. FOR GREATER ACCURACY: calibrate this device in conjunction with a pressure gage, flow meter, and a simulated flow system.

STERILIZATION
This device should be thoroughly cleaned immediately following each use to remove all organic residues. this device is designed to be sterilized by an autoclave or by appropriate cold sterilization methods.

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