



Embolization of Cerebral Arteriovenous Malformation (AVM) - Patient Information Sheet

Introduction

1. Arteriovenous Malformation is a tangle of abnormal and poorly formed blood vessels (arteries and veins). AVMs can occur anywhere in the body. Brain AVMs are of special concern because of the damage they cause when they bleed. They are very rare and occur in less than 1 % of the general population.
2. Bleeding may injure the surrounding brain resulting in a stroke, with possible permanent disability or even death. The risk of bleeding is about 2-4% per year. AVMs may also produce headaches, seizures and progressive paralysis, and the treatment may alleviate these symptoms.
3. Apart from haemorrhage from an AVM during labour, there is an increased risk of hemorrhage, usually after the first three months of pregnancy. It may be due to the increased blood circulation that occurs during pregnancy.
4. The chances of completely curing the AVM will depend on the size and the complexity of the AVM. Using embolization treatment alone is about 20% and therefore it is frequently combined with other treatments such as radiation or surgery.
5. Embolization may not completely close off an AVM. The chance of bleeding every year in partially treated AVMs is likely reduced by embolization, but not eliminated.

Preoperative preparation

1. Your doctor will explain the reason, the procedure, the possible risks and complications to you. You have to sign consent form for this operation. You should volunteer information to your doctor on history of allergy to food and drugs, history of asthma, urticaria, eczema and allergy to contrast medium. Also, you should inform our staffs if you are pregnant or breast feeding.
2. You will have a blood test to check any bleeding tendency and correct if possible.
3. Skin preparation and shaving of the puncture site.
4. No food or drink is allowed 6 hours before operation.
5. Please void before going to X-ray department.
6. Remove loose objects (e.g., underwear, dentures, jewelry and contact lens etc.) and change to operation attire one hour before the procedure.
7. For diabetic patient on drug, consult doctor concerned for the adjustment of insulin dosage if necessary.

Procedure

1. The procedure will be performed under local or general anesthesia under aseptic technique.
2. The interventionist will puncture a blood vessel at your groin region with a needle. After the needle is correctly positioned, a slender guide wire is placed through the needle into the blood vessel. The needle is then withdrawn, allowing a fine plastic tube (the catheter) to be placed over the guide wire into the blood vessel.
3. Under X-ray guidance, the catheter will be advanced into your neck region and contrast medium will be injected through the catheter and X-rays taken.

4. Within this catheter, another smaller micro-catheter will be advanced into the brain vessels and then into the AVM. Embolic agents are injected into the vessels to block the AVM. The embolic material can be coils, liquid agents or particles.
5. All the catheters will be removed at the end of the procedure. Pressure will be applied to the groin region to stop any bleeding. The opening in the skin is then covered with a sterile dressing.
6. The duration of this procedure is variable; it depends on the complexity of the condition.

Care & Advice

1. After the catheter is removed, the puncture site has to be compressed for at least 10mins to stop bleeding.
2. Continue to watch for evidence of secondary bleeding and swelling at the puncture site.
3. Continue to check blood pressure and pulse, or neuro-observation.
4. You may need to have bed rest for several hours; avoid vigorous movement to prevent bleeding over the puncture site.
5. You may need to continue to fast or take diet as tolerated depending on your condition.
6. For diabetic patient on drug- consult clinician concerned for the adjustment of insulin dosage if necessary.

When the patient is released home, he or she is advised to:

1. The puncture site will be inspected before discharge. Please keep the wound clean and dry for 24 hours.
2. Avoid vigorous activities in the first few days after the procedure.
3. Once diet is resumed, please take more fluid to help eliminate contrast by passing urine if allowed by your doctor.
4. If bleeding from the puncture site occurs after discharge from the hospital, press on the puncture site for 15 minutes and notify your doctor. If your doctor cannot be reached, come to the Out-patient Department of St. Teresa's Hospital.

Potential complications

1. The overall complication rates with AVM embolization ranges from 3% to 11%
2. The combined rate of death and other permanent disabling neurological deficit is below 5%
3. Major complications include:
 - Immediate or delayed intracranial hemorrhage
 - Retrograde thrombosis leading to stroke
 - Inadvertent occlusion of normal vessels leading to stroke
 - Pulmonary embolism
 - Retained catheter
4. Minor complications includes:
 - Groin bruise and pain
 - Complications related to contrast medium injected –rash, urticaria
 - Transient neurological deficit which is reversible within 24 hours (limb weakness, numbness)
 - Transient visual loss
 - Arrhythmia

Should you have any queries, please consult your attending doctor.