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# **GUIDE**

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## **Uterine Artery Embolization**



The Ottawa Hospital | L'Hôpital  
d'Ottawa

***Disclaimer***

*This is general information developed by The Ottawa Hospital. It is not intended to replace the advice of a qualified healthcare provider. Please consult your own personal physician who will be able to determine the appropriateness of the information for your specific situation.*

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# What is Uterine Artery Embolization?

Uterine Artery Embolization (UAE) is one of the treatment options available to treat **symptomatic** uterine fibroids. Uterine fibroids are non-cancerous (benign) growths that develop in the muscular wall of the uterus.

UAE works by blocking the uterine arteries that nourish the fibroids.

It is a minimally invasive procedure. It is performed while the patient is conscious but sedated, therefore, drowsy and feeling no pain or minimal discomfort.

UAE is performed by a physician called an Interventional Radiologist, who is specifically trained to perform procedures under the guidance of x-ray and also in interpreting the images produced. The UAE procedure is done in the Radiology Department (x-ray) in a special procedure room.

## How Does UAE Work?

UAE works by blocking the blood flow to the fibroids which in effect “starves” the fibroids of the blood (nourishment) which they need to grow. When deprived of blood, the fibroids die, calcify and shrink in size. The symptoms they previously caused such as heavy menstrual bleeding, pelvic pressure, urinary frequency etc. become less bothersome or disappear altogether.

The Interventional Radiologist threads a fine catheter into the main uterine artery and injects small particles called polyvinyl alcohol particles (PVA) to block the uterine arteries feeding the fibroid. PVA is a material resembling fine particles of sand.

The PVA particles are a safe material approved by Health Canada. They have been in use for over 25 years with no reported adverse events.

# IS UAE NEW?

UAE is a procedure that has been used internationally as a treatment for women who have **symptomatic** uterine fibroids since 1995. Thousands of women have undergone this procedure worldwide. UAE has been performed at The Ottawa Hospital to treat symptomatic uterine fibroids since March 1998.

UAE was initially done to limit blood loss during the surgical removal of a fibroid (myomectomy). The UAE procedure was done prior to myomectomy to assess its effect. It was found that after embolization and while awaiting surgery, many patients no longer had symptoms and frequently the myomectomy operation itself proved to be unnecessary.

Embolization of the uterine arteries has also been used successfully for years to halt hemorrhage following childbirth or due to malignant gynecological tumors.

## Who Qualifies for UAE?

Premenopausal women with fibroids who are experiencing symptoms such as:

- heavy menstrual bleeding (menorrhagia) or
- irregular bleeding between menses
- anemia (low hemoglobin)
- pelvic pressure
- pelvic pain
- pressure on the bladder (urinary frequency, urinary retention) or bowels

Fibroids that **do not** cause symptoms do not require treatment, unless they are very large.

It is often possible for a smaller fibroid uterus during the perimenopause transitional years to grow very slowly, but after

menopause when there is no more estrogen circulating the fibroids may shrink substantially in size.

## **Fertility and Pregnancy**

Since the effects of UAE on fertility and pregnancy are not yet well known, it is strongly recommended that women seeking UAE have finished childbearing.

There are clinical trials ongoing to assess the safety of UAE when pregnancy is desired Myomectomy (surgical removal of the fibroid) may be a better choice for some women.

## **What are the Benefits of UAE?**

- No hospital admission required
- No surgery
- Minimally invasive “same-day” procedure
- General anaesthetic not required
- Ability to preserve the uterus and ovarian function
- Recovery time shorter than other treatment options (UAE: 1–2 weeks versus Hysterectomy: 6 weeks)

## **What are the Risks and Possible Side Effects of UAE?**

### **Uterine Catheter related risks**

The catheter **may** cause:

- Damage to the blood vessels
- Bruising or bleeding at the puncture site

When performed by an **experienced** Interventional Radiologist, the risk of any of these events occurring during UAE is less than 1%. The risks of UAE have been shown to be less than the risks of hysterectomy.

## **Post UAE Syndrome :**

- You may have a low-grade temperature ( 37.5–38.5 degrees Celsius) for 5–7 days.
- You may experience general malaise, feeling generally unwell for 1–2 weeks.
- You may require antibiotics.
- This side effect occurs often, is very mild and lasts for only a few days.

## **Passage of Fibroid Tissue:**

- You may pass small pieces of fibroid tissue after having UAE.
- This occurs very infrequently.
- The tissue may be red, grey or yellow in appearance.
- You will require antibiotics if this occurs.
- It is also possible that you may pass the fibroid intact, however, this is extremely rare. If this does occur, it may be accompanied by uterine cramping (like menstrual cramps).

## ***Prolonged Vaginal Discharge Post UAE***

- You may have persistent vaginal discharge, this is not serious but a nuisance.
- You may have a low-grade temperature ( 37.5–38.5 degrees Celsius).
- You may require antibiotics.
- This is more common if the fibroid extends into the uterine cavity prior to the UAE.
- This occurs infrequently.

## **Allergy to X-ray Contrast Material which contains Iodine**

- May include mild itching to severe reactions that can affect breathing or blood pressure.

- Patients are carefully monitored for this so that any allergic reactions can be detected immediately and reversed.
- If you are **aware** that you have an **allergy** to the contrast material (dye) containing Iodine, you are able to have UAE, but you must:
  - Inform your doctor (gynecologist) of the allergy
  - **Inform the person who telephones you to book your UAE procedure**
- The Interventional Radiologist will call you and order a prescription for the medication, **Prednisone** (know your pharmacy name and phone number). This medication acts to decrease swelling and also as an anti-allergic agent It needs to be taken **24 hours** prior to the UAE procedure.

### **Early Onset of Menopause after UAE**

- In approximately 1–5% of women, menopause may occur shortly after UAE.
- This is the same rate (1–5%) that occurs after a hysterectomy.
- At age 40 or less the incidence of menopause after UAE is rare, about 1%.
- After age 40, the incidence of menopause after UAE, starts to slowly increase:
  - age 40-45 approximately 1–5%
  - age 45-50 approximately 5–10%
  - after age 50 approximately 20% or more

### **Who Does “NOT” Qualify for UAE**

- Women who have no symptoms and a smaller fibroid uterus.
- When cancer is a possibility.
- When there is inflammation or infection in the pelvis.
- Pregnant women and/or women who under certain circumstances desire to have future pregnancies.

- Renal insufficiency – kidneys are not working properly
- Acute medical condition.

## **Procedure Booking**

The Interventional Radiologist feels that it is important to have shed the lining of the uterus (which occurs during menstruation) before the UAE procedure, in order to minimize the risk of infection in the uterus.

The UAE procedure therefore, is ideally performed in the **first two weeks** of the menstrual cycle.

The first day of menstrual bleeding is considered Day 1 of your menstrual cycle.

A clerk from The Ottawa Hospital-General Campus will be calling to schedule your appointment for UAE according to your cycle.

## **Will I be admitted to the Hospital?**

**No.** UAE is a “same-day” procedure performed in the Radiology Department (x-ray) at The Ottawa Hospital – General Campus.

The procedure is done under conscious sedation, you are awake but feeling drowsy.

## **Pre-Procedure Information**

- Do eat a normal supper the evening before with increased fluids.
- **DO NOT EAT BREAKFAST.** You may drink clear fluids – juice, coffee, tea (black with no milk).
- Do take your prescription medication for high blood pressure, thyroid, diabetes etc.
- Do **stop** the birth control pill three weeks before the UAE.



- Please use another form of contraception (condoms) during this time.
- You may restart the birth control pill 5 days post UAE.
- You may continue to take your progesterone medication (Provera, Prometrium) until the day of your UAE. Do not restart your progesterone medication after UAE. Your gynecologist will discuss whether you need this medication at your first appointment post UAE.

## **Day of Procedure**

- Come to **The Ottawa Hospital – General Campus, 501 Smyth Road at 0745 hrs.**
- Do not bring any valuables with you.
- Be **on time** or your procedure could be delayed or cancelled.
- Go to the **Radiology Dept. 2nd Floor, Module X.** Inform receptionist that you are having Uterine Artery Embolization.
- The staff will ask you for your Health Card and your Ottawa Hospital Green Card.
- You will be directed to the Diagnostic Imaging (DI ) observation room.

## **Preparation for the Procedure**

The radiologist performing the UAE will speak to you before the procedure to discuss the risks associated with this procedure.

The **nursing staff** will:

- Ask you to sign a hospital consent form for the UAE procedure.
- Request that you change into a hospital gown.
- Give you a rectal suppository (Naprosyn) to help decrease pain and swelling.
- Start an Intravenous (IV) in your arm for fluid replacement.

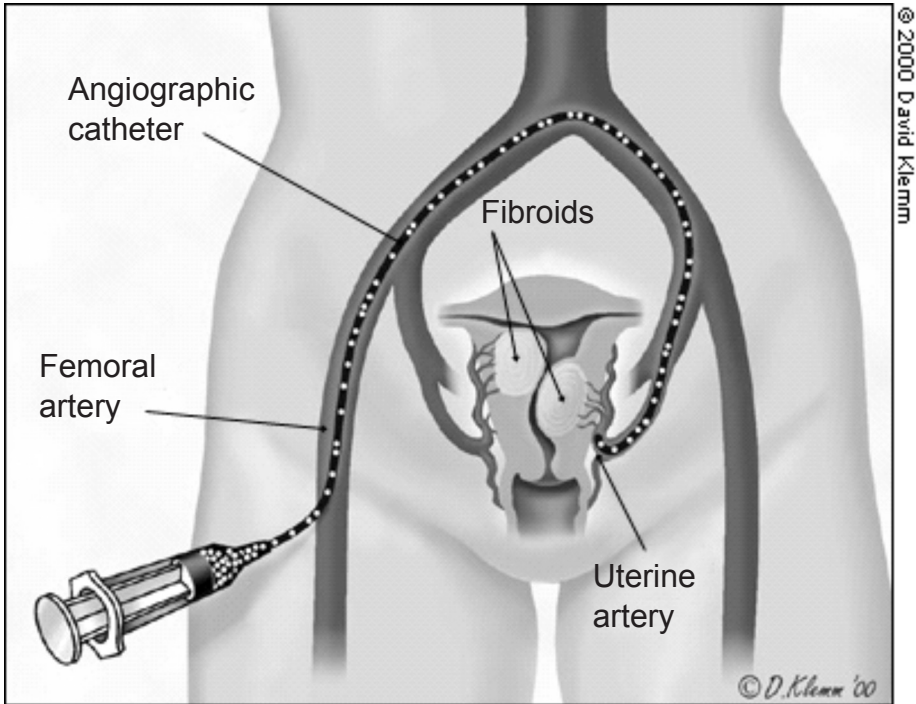
- Insert a foley catheter into your bladder to drain urine from your bladder.
- Shave your right and left groin area.
- Transport you by stretcher to the “special procedures” room.

## **UAE Procedure**

- The room temperature is cool.
- A heart monitor will be attached to your chest or upper arms.
- The oxygen content of your blood will be monitored by a device attached to your finger that looks like a “clothes-pin”.
- You will be given a medication called **Adalat** under your tongue, to relax the blood vessels (artery) prior to the procedure.
- You may be given a medication (Ativan) under your tongue to help you relax, if you or the physician feels this is advisable.
- You will be given a **nerve block** which is a local anesthetic “freezing” in the abdomen to decrease the pain during the procedure and for the next 48 hours.
- This nerve block is accomplished by the radiologist inserting a needle into your abdomen.
- A **tiny incision** (approximately 0.5 cm) will be made in the right groin after the radiologist gives you a local anesthetic (freezing). Through this small incision, the radiologist can access the main blood supply to the uterus. A very thin tube called a catheter, is inserted into the femoral artery located in the right groin. This catheter will be advanced further up to the internal iliac artery.
- A **contrast dye** is then injected into the artery. Using X-ray guidance and the contrast agent (dye) to map the blood vessels, the catheter is then threaded into the uterine arteries. The contrast agent (dye) is used to confirm satisfactory catheter position within the uterine arteries. You may feel a

warm sensation in your buttocks when the contrast agent (dye) is injected, this is normal.

- Next, embolization (blockage of an artery) is performed. The **PVA particles** are injected into the uterine arteries to obstruct the blood supply to the fibroids. The procedure is considered complete when the Interventional Radiologist sees satisfactory blockage of the blood flow to the uterus from these arteries.



- During the procedure, the lights will be turned on and off and you will be requested to hold your breath on occasion, in order for the physician to see the blood vessels more clearly on the x-ray screen.
- The **catheter** will be removed from the femoral artery and a device called an Angio-Seal will be used to close the incision in your groin. This device stops the bleeding quite rapidly with little or no manual compression (holding hand firmly on the area).
- This closure device will be **absorbed** by the body within

90 days, therefore it is not necessary to have it removed. A clear sterile dressing is then applied to the incision.

- The procedure takes about 60–90 minutes.

## **Recovery Area**

- You will be transferred on the stretcher to the Recovery Area where the nurses will monitor your condition.
- You will be asked to stay lying on your back for 4 hours.
- Your blood pressure, heart rate and intravenous (IV) will be checked frequently.
- The right groin area will also be monitored often for any bleeding.
- You will still have the “clothes-pin- like” device on your finger, to check the level of oxygen in your blood.
- You may have pain, shivering or nausea at this time which is normal. The nurses will give you medication to alleviate your discomfort if this occurs.
- An antibiotic will be given intravenously to prevent any infection.
- A medication called Decadron (Dexamethasone) will also be given to decrease swelling.
- The foley catheter will be removed from your bladder just prior to your discharge home.

## **Departure**

- Your family member/friend is expected to arrive between **3:00–3:30 p.m.**
- They are asked to come to the **2nd Floor, Module X** at the Ottawa Hospital – General Campus.
- They shall inform the receptionist that they are there to take you home.
- They will be directed to the Diagnostic Imaging observation

room.

- The family member/friend will be given your prescription for medication which includes, Morphine, Naprosyn, Gravol and Ciprofloxacin. The total cost for all of these medications is approximately \$100.00.
- This **prescription** can be filled at the pharmacy, located on the 1st Floor of the Hospital.
- You will be assisted to sit up in a chair and to get dressed.
- A wheelchair will be provided to assist you to your vehicle.
- You **MUST** arrange to have a family member or friend stay with you for the next 3–4 days. This is necessary so you will have someone to assist you with your medication and also in the event you should feel weak and need assistance.
- It is very important to **drink** plenty of **fluids** to eliminate the dye from your body.
- Keep the incision in the right groin area clean and apply firm pressure at the site if any bleeding occurs.

## **At Home... Post UAE**

- You may be very alert or more likely, you will be very tired...  
**REST!**
- You may be nauseated as a result of the morphine.
- Your abdomen may feel tender and bloated.
- We suggest a light supper for the first evening, such as soup, toast and plenty of fluids.

## **Pain Control**

You will be sent home with **two different strengths** of Morphine medication (in tablet form) to treat your pain:

- Morphine 30 mg SR (also called MS Contin) is a “slow-release” medication that acts over 12 hrs.
  - You are to take this medication daily at 10 am and 10 pm.

- The pharmacy may give you one of two different brand names of Morphine:  
Ratio-Morphine SR 30 mg or  
PMS (Pharmascience) Morphine SR 30 mg
- These are equivalent, either is acceptable.

**Morphine 10 mg** is an “immediate release” medication that acts quickly.

- In **addition** to your slow release Morphine, you are to take Morphine 10 mg (tablet) if you have “break-through pain” between 10 am and 10 pm.
- The pharmacy may give you this medication under the brand name “**Statex**”.
- May be taken every 4 hours **if required**.

**Tylenol Extra-Strength** or **Advil** may be the only pain medication you require on the 3rd or 4th day post procedure. If you have a low grade temperature at this time, we suggest you use Tylenol.

**If you have pain when you arrive home** and it is getting worse, we suggest you take an Immediate Release Morphine 10 mg tablet **immediately** rather than wait to take the longer acting morphine tablet that is due at 10 pm. It is **very important** that you **control** your pain early so it does not become too intense.

## **Nausea**

You may experience nausea after taking the Morphine medication.

- Take Gravol 100 mg. It is a suppository which is inserted into the rectum.
- Gravol may be taken every 6 hours or as required for nausea.
- If your nausea is due to the Morphine, take Gravol ½ hour before the next dose of Morphine.

# Bleeding or Swelling

If bleeding or swelling occurs at the incision site:

- Lie down on the floor and have someone apply direct pressure to the incision site firmly for three minutes, then
- Release the pressure for 15–30 seconds and re-apply firm pressure for 5 minutes.
- Stay lying down and have someone call an ambulance to bring you to the nearest Emergency department for assessment.

Also, be aware of any changes in the colour or sensations in your legs and /or feet. If this persists, go to the nearest Emergency department.

You may have some bruising or feel a raised area in your right groin. You may gently massage the raised area. Both the bruising and the raised area will gradually disappear after about 2 weeks. If they do not, please call the clinic.

## Naprosyn 500 mg

- Naprosyn is an analgesic (for pain) and also an anti-inflammatory medication (decreases swelling).
- It is a suppository which is to be inserted into the rectum.
- Take daily for 7 days as prescribed.

## Dressing Care

- Remove the small transparent dressing which covers the incision in your groin, the day after the UAE procedure. The area may be slightly discolored, this is normal.
- You may shower, but keep the incision clean and dry after showering. You do not require another dressing on this area after you shower.
- **NO baths**, Jacuzzi, and/or pool for **6–8 weeks** post UAE to prevent infection in the vagina and/or uterus.

## **Ciprofloxacin 500mg**

- Ciprofloxacin is an antibiotic medication (tablet) which helps prevent infection.
- Take one daily for 7 days as prescribed.
- **Do not take with food and/or dairy products.**

## **Constipation**

- You may feel **constipated** as a result of the nerve block in your abdomen or due to the pain medication (Morphine).
- Drink plenty of fluids, eat food high in fibre content (i.e: fruit and vegetables) and walk Walking aids digestion and elimination.
- **Walking** will also decrease the risk of a blood clot formation.
- Take either Milk of Magnesia, Lactulose, Colace (a stool softener) and/or a Dulcolax suppository for constipation. No prescription is required.

## **Menstrual Bleeding**

- It is not unusual to have vaginal bleeding post UAE or you may have none. Both are acceptable. The first one or two menses following UAE may be unusual... prolonged, light, spotting or heavy. This is not a problem.
- Please record on your menstrual calendar any vaginal bleeding following the procedure.
- Please bring your **menstrual calendar to each clinic visit** with the physician.



## Sexual Activity

It is advisable to refrain from intercourse for the first 6 weeks post UAE, especially if you have vaginal bleeding or discharge and also if you have a submucous fibroid (extends into the uterine cavity).

## Urgent Problems... Please Call

You may experience a low grade fever for a week or two post UAE, this is acceptable, but you **MUST CALL** our clinic at 613-738-8400 ext. 8-1725 if you experience a:

- Persistent **high temperature** (> 38.5 degrees Celsius), and/or any
- **Vaginal discharge** that has a strong odour

The physician will need to assess you in the clinic.

## Troubleshooting

- If **intense pain** occurs in the middle of the night and the pain medication that you have (Morphine) is ineffective, go to the **Emergency Department of The Ottawa Hospital – General Campus.**
- Advise staff that you had the UAE procedure for symptomatic uterine fibroids.
- You will be given a stronger pain medication by injection and/or intravenously.
- You will be sent home if pain relief occurs. or
- You will be admitted overnight if necessary,

## Follow-up Appointments

- Your first follow-up appointment with the gynecologist will be **3 months** after your UAE procedure.
- Once you know the date of your UAE procedure, please call our clinic at the Shirley E.Greenberg Women's Health Centre at **613-738-8400 ext. 8-1725** to arrange your first follow-up visit.
- A vaginal ultrasound and blood work should be done 2 weeks prior to this appointment with the gynecologist.
- Call **613-738-8400 ext. 8-1721** to book your vaginal ultrasound.
- The bloodwork (not fasting) should be done on the same day as the ultrasound.
- The lab is opened Mon.–Fri. from 6:30 am – 5:00 pm.
- The ultrasound and bloodwork requisitions for this appointment will be given to you by your gynecologist when it is decided that you are ready to have the UAE procedure.
- You will take these requisitions to the clerk at the ultrasound desk.
- Always bring your Health Card and your Ottawa Hospital Green Card.
- **Remember to document your menstrual bleeding on your Menstrual Calendar and bring it to every appointment.**
- Your next follow-up appointment will be **12 months** post UAE and annually thereafter with a pelvic ultrasound and blood work done 2 weeks prior to each visit.

## Returning to Work

- You will need to take one week off from work.
- If your employer requires a medical certificate for absence from work, that will be provided to you.

## **For more information, please check the following:**

- 1) The website of Robert L. Worthington-Kirsch, MD, FSCVIR, the founder of IGSA, began to perform Uterine Artery Embolizations (UAE) in 1996, and has since then amassed the largest single operator experience in the world.  
<http://www.fibroidcorner.com/>
- 2) The Society of Obstetricians and Gynecologists of Canada  
<http://sogc.org/>
- 3) The Society of Interventional Radiologists of Canada <http://www.car.ca/en.aspx>

