

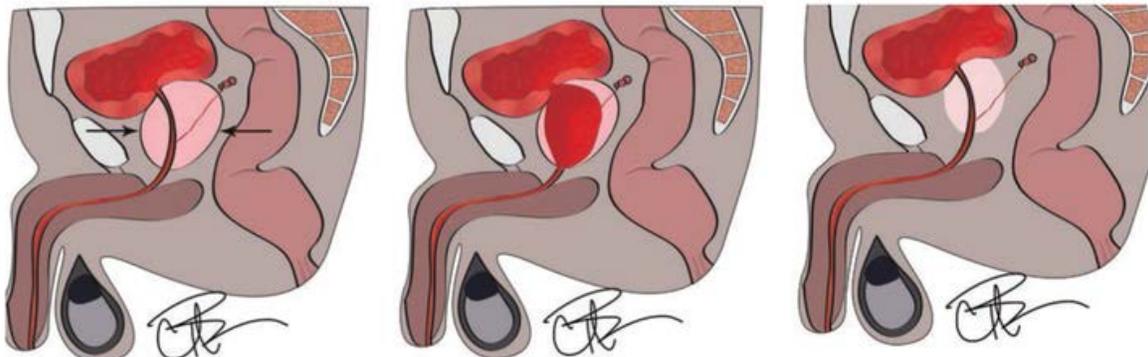
# Prostatic Artery Embolization (PAE)

*Treating enlarged prostates without the risk of sexual side effects.*

Prostatic Artery Embolization (PAE) is a cutting-edge procedure performed to help improve urinary symptoms caused by an enlarged prostate without minimal risk of sexual side effects. Originally developed in Europe and South America, this procedure is now being performed in the United States. [UNC Interventional Radiology](#) is excited to be providing this clinical service.

Our Interventional Radiologists encourage any patient or physician who wants more information on PAE to [contact them to discuss the options](#) that are available.

## PAE: A new minimally-invasive approach at UNC



*Enlarged prostate with a hypertrophied bladder*

*Changes following a TURP procedure*

*Changes following a PAE procedure*

PAE is performed through a small puncture in the groin or forearm. A catheter is inserted through the artery and directed toward the prostate. Once the catheter is positioned in the artery supplying blood to the prostate, tiny particles are injected that plug up the artery, blocking blood flow. This is called embolization. The process is then repeated on the other side, most commonly through the same original puncture. The procedure can take anywhere from 1-3 hours, depending on the location and size of the prostatic arteries.

PAE blocks blood flow to the areas of the prostate that are most affected by benign prostatic hyperplasia (BPH), resulting in death, or necrosis, of isolated areas. Because it is impossible to block all of the blood flow to the prostate, it does not die completely.

These areas of necrosis cause the prostate to initially be softer, alleviating some of the pressure that is causing blockage of the urine. Over several months, the body's immune system reabsorbs the dead tissue and replaces it with scar. This scar tissue slowly contracts, resulting in shrinkage of the prostate. Over a six-month period, the prostate will shrink by 20-40%, resulting in improved and less frequent urination.

## During the PAE procedure

General anesthesia is not used for PAE, so the patient will not be "put to sleep." The patient will receive IV medications that take away pain and anxiety with the goal of making them comfortable for the entire procedure. The procedure itself is not painful. The most discomfort that patients report is from lying flat on their backs for the duration of the procedure.

This procedure can be challenging because of the very small size of the prostatic arteries and the 'twists-and-turns' that need to be navigated with the catheter to get to them. However, Interventional Radiologists at UNC have become skilled at overcoming these challenges in the course of performing over 200 PAEs.

## After the PAE procedure

Because PAE does not involve surgery or physical removal of part of the prostate, the patient will not see results immediately. The first changes are seen most commonly 2-3 weeks after the procedure, with continued improvement until 3-4 months afterwards.

According to the data on PAE that have already been published, 75-80% of men who undergo the procedure experience satisfactory improvement. The reason PAE does not work for some is either related to the inability to complete the embolization due to the size and location of the arteries, or an inherent weakness in the bladder that does not resolve after the prostate shrinks.

Because PAE is a new procedure, there are no long-term data available yet. From the studies that have been done, the results of the PAE procedure can last for 7+ years.

## Possible Medical Risks

As with any medical procedure, there are some risks involved, but with PAE, they are mild. The greatest risk comes from the accidental injection of particles into arteries not supplying the prostate, but the bladder or rectum instead. This could result in death of tissue within these organs.

At UNC, our physicians have a valuable technology called Cone Beam CT. This technology allows us to obtain CT images on the procedure table that simulate the injection of the particles before it actually takes place. During this simulation, Cone Beam CT allows our Interventional Radiologists to see whether any of the particles will be going into the wrong arteries. If any particles are misdirected, they can make any necessary adjustments before the actual embolization.

As there is no pathway from the prostate to the lungs or brain, it is impossible for the particles to cause blood clots in the lungs, which would lead to a possible stroke. The particles all become lodged in the prostate. Interventional Radiologists have been using the same particles for other procedures for many years and have not seen any problems arise from them.

Other small risks of the procedure include blood in the urine, semen, or stool; leakage of blood in the puncture site; bladder spasm; or infection of the puncture site or prostate. All of these potential complications will either resolve on their own or can be treated with a short course of medication.

To view a video created by UNC Interventional Radiologists explaining how PAE works, go to this [YouTube](#) link.

UNC Health Care's use of PAE to treat many men's challenges with BPH was [highlighted by WRAL in January 2018](#).