PAE: A Minimally Invasive Alternative for Treatment of Symptomatic Prostate Enlargement

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Prostate artery embolization (PAE) is a recently developed procedure to treat benign prostate hyperplasia (BPH) and alleviate urinary obstructive symptoms. During PAE, an interventional radiologist implants small beads in the blood vessels that supply the prostate gland, depriving it of blood supply and causing it to shrink.

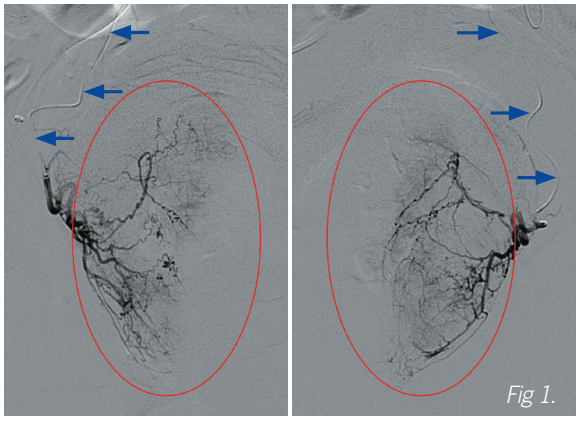

Fig 1. Prostate artery embolization procedure. A small microcatheter (blue arrows) is advanced into the prostate artery on each side. Contrast injection shows the hypervascular enlarged prostate (red ovals). Small microspheres are injected through the microcatheter to block the blood supply to the prostate, resulting in prostate shrinkage and improvement in urination.

The PAE procedure is performed through a small puncture made in the groin, which provides access to both prostate arteries. Unlike other procedures that treat BPH, including TURP (transurethral resection of the prostate) and prostatectomy, PAE carries no risk of bladder incontinence or retrograde ejaculation, and there are no reported instances of erectile dysfunction.

"At least 80 to 90 percent of men who undergo prostate artery embolization experience significant improvement in their BPH symptoms," states Justin McWilliams, MD, associate professor of Radiological Sciences. "The PAE procedure has greatly improved the quality of life of many of my patients." The best candidates for the procedure have an enlarged prostate, severe urinary symptoms, have failed medical therapy, and have failed or refused surgical therapy.

Prior to the embolization procedure, patients undergo a CT angiogram of the pelvis to show the size of the prostate as well as the size and location of the prostate arteries, followed by a clinic visit in interventional radiology to discuss the procedure. On the day of the procedure, the patient is put under conscious sedation and the access site is numbed. A catheter is advanced under X-ray guidance into the arteries of the pelvis and contrast dye is used to locate the prostate arteries on each side. A small microcatheter is guided into each prostate artery and embolization beads are administered into the artery to block the flow of blood. Patients typically go home three to four hours after the procedure.

Patients usually begin to experience improvement of BPH symptoms within a week after the procedure, with continued improvement over the next one to three months. Most patients experience a 25 to 40 percent shrinkage of the prostate. Prostate symptom scores show significant improvement, similar to that reported for TURP.

Although PAE is a relatively new treatment for BPH, the data on durability is promising. Most men whose symptoms improve after the embolization have continued to do well at one and three years after embolization, and the majority have continued to do well five years after embolization. While long-term data is not yet available, Dr. McWilliams points out that if BPH symptoms do return, the patient would still be a candidate for other urologic therapies, such as TURP and prostatectomy, or for re-embolization.

PAE is not yet FDA approved for BPH and is currently available at a limited number of centers, including UCLA. Not all insurances are currently reimbursing for PAE, but insurance coverage is expanding as more studies show the success of the treatment. "PAE is a safe and effective procedure and is a viable alternative to surgery in selected patients with severe symptomatic BPH," states Dr. McWilliams.

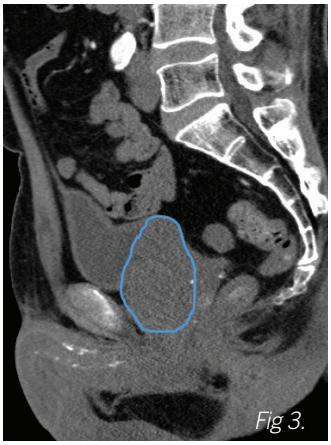

Fig 2. Sagittal CT image one week prior to PAE demonstrates an enlarged prostate (outlined in blue) with a prostate volume of 150 cc. The patient was unable to urinate due to severe BPH, and was living with an indwelling Foley catheter (arrow).
Fig 3. Sagittal CT image six months after PAE demonstrates reduction in prostate size (outlined in blue), now measuring 100 cc, a 33 percent reduction. The Foley catheter was removed three weeks after PAE, and the patient was able to urinate freely.