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The AUS Device and Pump

The AMS 800 Artificial Urinary Sphincter (AUS) is an implantable, fluid filled device (Figure 1). The device consists of three components: an occlusive cuff (cuff), a control pump, and a pressure regulating balloon (PRB). The AMS 800 AUS simulates sphincter function by applying circumferential pressure to aid in opening and closing the urethra. When the cuff is inflated, the urethra is closed and urine stays in the bladder (Figure 2). When the patient wishes to void, he cycles the device by squeezing and releasing the pump several times, moving the fluid from the cuff to the PRB (Figure 3). The cuff deflates and urine passes through the open urethra. Pressure from the PRB pushes fluid back into the cuff automatically after about 1-2 minutes, occluding the urethra and restoring continence (Figure 4).

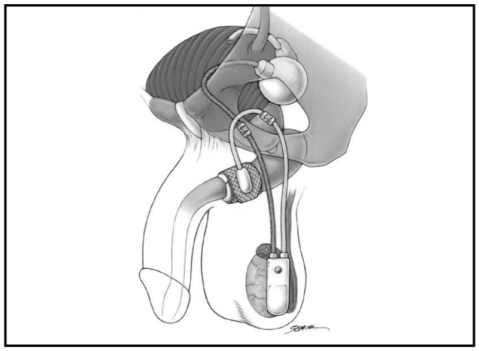

Figure 1. AMS 800 AUS

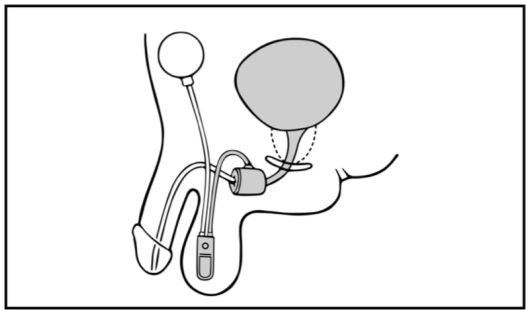

Figure 2. Urethra closed by cuff

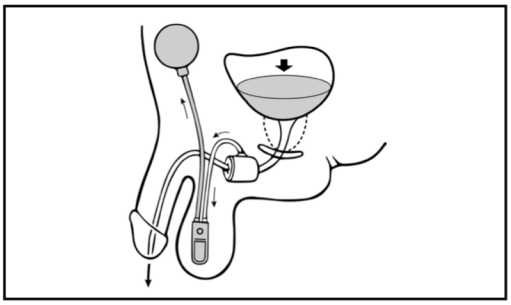

Figure 3. Opening of cuff and urination by manipulation of pump

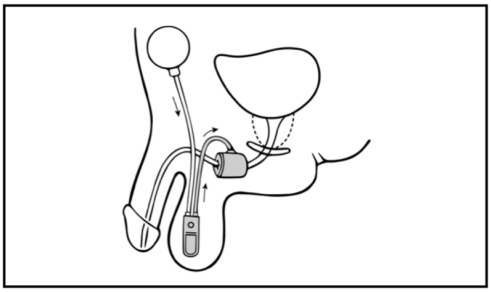

Figure 4. Automatic cuff inflation and urethral coaptation

The two key parts of the pump to be aware of is the bulb at the bottom of the pump that the patient squeezes to open the cuff. When the cuff is fully open the pump stays flat after pumping.

The deactivation button, when pressed, will stop the flow of fluid in the system with the cuff at any level of inflation.

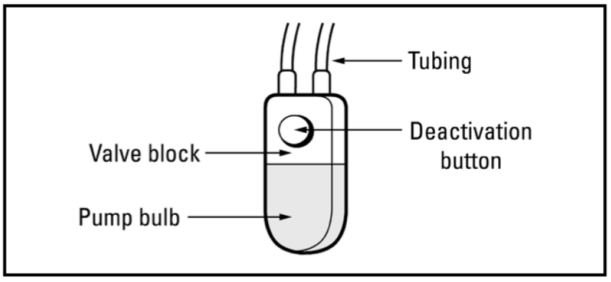

Figure 7. Control pump

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Placing the AUS Pump

The pump is typically placed as the picture shows from an incision in the right or left lower quadrant or a midline incision.

The pump is most commonly placed in the right hemiscrotum as shown here (for right handers, left handers ideally get the pump in the left hemiscrotum). Sometimes the pump will be placed midline.

Feel for the position of the pump to make sure is in a good spot for patient to access. The pump may retract a bit in some patients, esp the heavier patients. You can pull down on the pump to make sure is “seated” in the most dependent position,

The CRITICAL issue post op with the pump is that it should be DEACTIVATED. That is, the cuff is deflated, and the device is deactivated so there is no fluid going into the cuff.

THE PUMP SHOULD HAVE A PALPABLE DIMPLE WHEN DEACTIVATED PROPERLY. Please check post op to make suree that is true. It can be subtle, especially in there is swelling post op. If there is any question you may need to “cycle” the device. That’s probably worth a phone call to the surgeon.

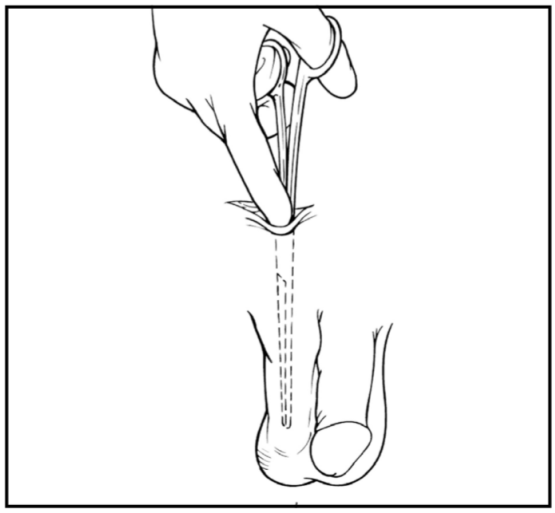

Figure 31. Create pouch

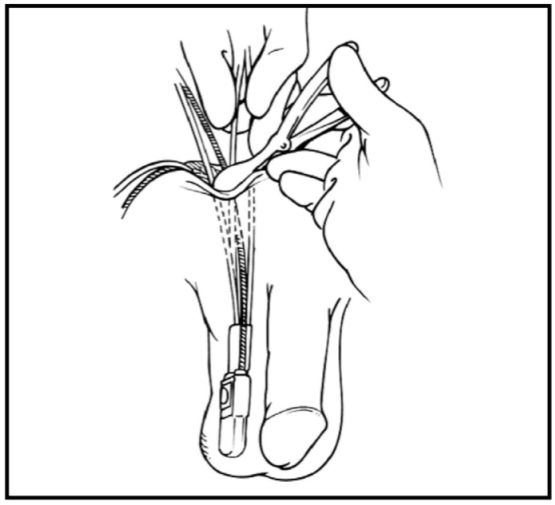

Figure 32. Place pump into pouch

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How to Deactivate the sphincter Cuff

The device system must be left in the deactivated mode for four to six weeks following implantation.

Squeeze and release the pump bulb several times to remove all fluid from cuff (Figure 42).

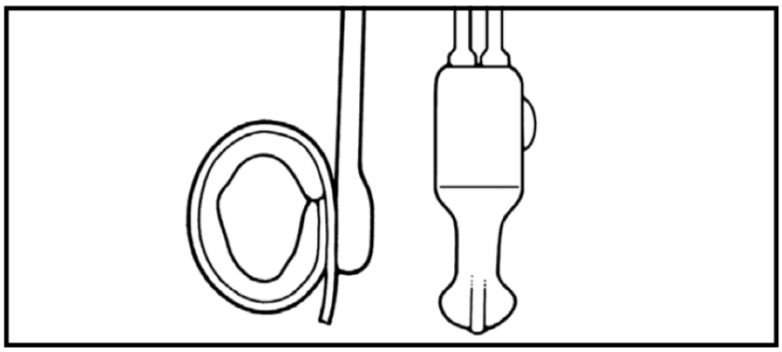

Figure 42. Squeeze and release pump bulb

Note: The cuff will be empty when the pump remains flat.

Allow pump bulb to partially refill (10-15 sec)

When slight indentationi n pump bulb is felt, press the deactivation button (Figure43).

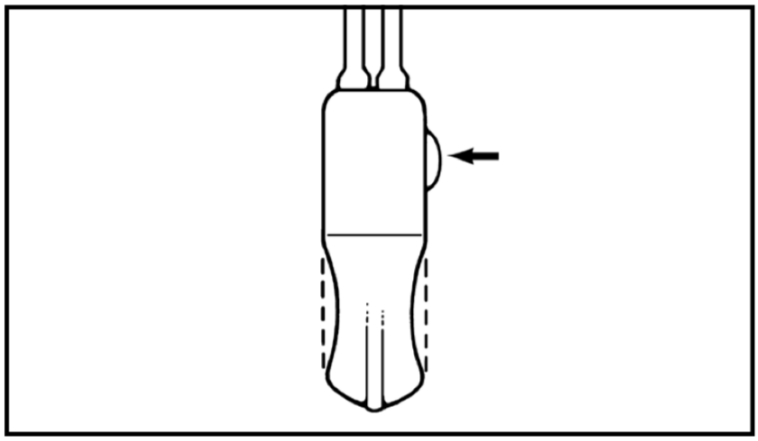

Figure 43. Press deactivation button when slight indentation is felt

After the deactivation button is pressed, the pump bulb may feel firmer than usual. The dimple should remain after checking it in a couple of minutes later.

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How to reactivate the pump

Activate (Reactivate) Cuff: Normal Method

To activate (reactivate) the device, complete the following instructions.

Push the deactivation button a few times to loosen the poppet inside the valve block. Then give the pump bulb a quick, forceful squeeze (Figure 44).

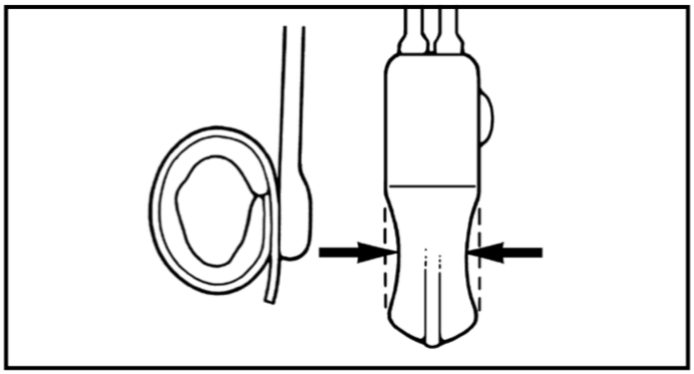

Figure 44. Activate (reactivate) the cuff: Normal method

This will move the deactivation poppet back to activated position.

After the device is activated, the pump will fill first and then cuff will refill. It will take a few minutes for the device to refill and for the cuff to close off the urethra or bladder neck.

If it is difficult to activate the device, there may not be enough fluid remaining in the pump to push the deactivation button to its activated position. Use an optional method described in the Troubleshooting section if this happens.

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Troubleshooting the reactivation

Activate (Reactivate) Cuff: Optional Methods

If the normal activation method does not work, use one of the following optional methods.

Side Squeeze Method

1. Squeeze sides of control pump adjacent to deactivation button to allow fluid to fill the pump bulb (Figure 46).

   Note: It may take several minutes for the pump to refill.

2. When enough fluid has returned to the pump bulb, give it a quick, forceful squeeze to reactivate the system.

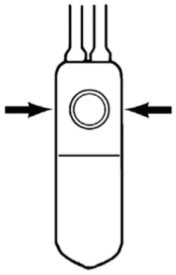

Figure 46. Side squeeze method

Cotton Swab Method

1. Feel control pump to locate deactivation button.
2. Take a cotton tip swab and apply pressure to area directly behind deactivation button (Figure 47).

   Note: This should unseat the poppet and allow fluid to fill pump and then cuff.

3. When enough fluid has returned to the pump bulb, give it a quick, forceful squeeze to reactivate the system.

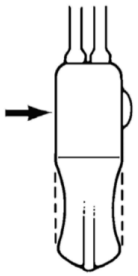

Figure 47. Cotton swab method

Fulcrum Method

1. Feel the control pump, locate the deactivation button, and place your index finger above it (at tubing side) (Figure 48).
2. Place tip of your thumb below deactivation button on the opposite side.
3. Place index finger of your other hand on firm portion of pump (valve block portion) in front of deactivation button (toward the pump bulb).
4. Firmly bend pump end down to activate, by using thumbs as a fulcrum.
5. Release after bending.
6. When enough fluid has returned to the pump bulb, give it a quick, forceful squeeze to reactivate the system.

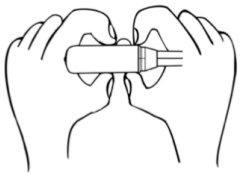

Figure 48. Fulcrum method