Spina Bifida Hydrocephalus Ireland

Lo-Call **1890 20 22 60**

AUS – Artificial Urinary Sphincter

What is it?

The artificial urinary sphincter (AUS) is a surgically implanted device for controlling urinary incontinence which has been in use since 1972.

Usually, when the bladder is full, the urge to urinate is felt because a message goes from the brain, through the network of nerves in our back (spinal cord), to the natural sphincter (muscle that keeps the urethra closed). When it receives the message, the sphincter relaxes and allows the bladder to empty. Afterwards, it tightens again, squeezing the urethra (the opening which allows urine to leave the body) to keep urine from leaking out of the bladder. Sometimes the "messages" aren't able to get from the brain to the natural sphincter. This often happens because the nerve supply (communication network) is damaged, as in Spina Bifida. The bladder is then considered to be "neuropathic" and must be managed.

If the bladder is difficult to manage and urine continues to leak, the urologist may decide that an AUS is necessary. An AUS is fitted either to strengthen a small part of the urethra, or to squeeze a small part of the bladder neck (bulbar urethra). The device is made from silicone elastomer - a synthetic (non-latex) rubber so the body isn't likely to become sensitive to, or reject the material. It has three main parts: a cuff, a pump and a balloon. All three parts are connected by silicone tubing.

How is it fitted?

The AUS is surgically implanted through an incision (cut) in the lower abdomen. In males, an additional incision is made just behind the scrotum on either the left or right side. The AUS is hidden inside the body with the balloon in the abdomen and the pump in either the left or right scrotal sac in males, or the labia in females. The cuff, which holds a small amount of water, is inflated and then gently wrapped around the urethra.

How does it work?

The inflated cuff applies gentle pressure to the urethra, helps to hold the urine in the bladder, and thereby improves continence. The pump has a soft curved end which can easily (and gently) be pressed to shift the water from the cuff to the balloon. When it is time to urinate (wee), the pump is pressed, and the pressure is released, relaxing the sphincter so the urine is free to be drained. The bladder can then be emptied by whatever means is normally used, for example clean intermittent catheterization (CIC - see leaflet). After a few minutes the fluid returns to the cuff, and the pump returns to its original shape. The bladder once again becomes continent.

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When can it be used?

For the first month after surgery, the AUS is left deactivated, or switched "off" to allow the body to adjust to having the implant, and to allow swelling to settle. Within four to six weeks after surgery, the doctor or nurse specialist will activate or switch "on" the AUS and explain how to use it.

As with all surgery, very occasionally things do go wrong. Sometimes the cuff does not provide sufficient pressure on the urethra to stop urine from leaking out of the bladder and the cuff needs to be replaced with one that gives a higher pressure range.

Infection, pump failure and erosion may also occur in some people, in which case, the system would have to be replaced. Ejaculation may be a problem, but this can be overcome by changing the position of the cuff.

Who is it for?

Although the artificial urinary sphincter is a very effective way of maintaining continence when the sphincter is weak, it is used only when other methods fail or the urologist decides they are inappropriate.

Insertion of an artificial sphincter is an expensive operation, but if the cost of providing incontinence pads and protective bed pads, etc for a lifetime are taken into account, then this alternative method proves to be more cost effective in the long run.

Candidates for this type of surgery need to be carefully selected though because four-hourly emptying of the bladder is essential. Furthermore, the AUS is generally not advisable for boys before puberty, due to physical changes.