Artificial Sphincter

An artificial sphincter can be fitted, to close the urethra (the tube through which urine leaves the bladder). This operation is done when the natural sphincter (the muscle which keeps the urethra closed) doesn’t work for some reason, eg nerve damage.

The artificial sphincter is made up of three main parts, a cuff, a pump, and a balloon; all three parts are connected by silicone rubber tubing (see diagram).

Usually a person’s natural sphincter squeezes the urethra to stop urine from escaping from the bladder. When the urge to urinate is felt, the sphincter relaxes, thus allowing the bladder to empty. If the “messages” from the brain to the natural sphincter are unable to reach it through the nerve supply an artificial sphincter can be used to stop urine leaking out of the bladder.

The artificial sphincter is a device for controlling urinary incontinence and is surgically implanted in the body through an incision in the lower abdomen. In males, one additional incision is made just behind the scrotum. The device is unseen because the whole thing lies inside the body. It is made from silicone elastomer which is a synthetic type of rubber, and so the body is less likely to reject it. It has been used as a way of controlling urinary continence since 1972.

A cuff is used to surround the urethra. It is inflated with fluid, and puts just enough pressure on the urethra to allow the bladder to store the urine, but not so much as to damage the urethra. To allow the urine to drain out of the bladder,
the pump (which in males is inserted into the scrotum and in females in the labia) is pressed flat. This makes the fluid in the cuff go into the balloon, situated in the abdominal cavity. This allows the bladder to be emptied by whatever means is employed, for example clean intermittent catheterisation. After a few minutes the fluid returns to the cuff, and the pump returns to its original shape. The bladder once again becomes continent.

After surgery, the artificial sphincter is not usually used for a couple of weeks to allow the body to adjust to having the implant. 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 does occur in some people, and so the system may 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?**

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

The artificial urinary sphincter is a very effective way of eliminating sphincter weakness incontinence when other methods fail or are inappropriate.

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