Male Sexual Impotence: A Case Study in Evaluation and Treatment

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DR. JOHN HALVORSEN (*Assistant Professor, Department of Family Practice and Community Health*): Male sexual impotence is the inability to obtain and sustain an erection adequate to permit satisfactory penetration and completion of sexual intercourse. Impotence is defined as *primary* if erections have never occurred, and *secondary* if they have previously occurred but subsequently have ceased. The cause of sexual impotence may be psychogenic, organic, or mixed. In the past, the common belief was that 90 percent of impotence was psychological.[1,2] Recent research indicates, however, that over one half of men with impotence suffer from an organic disorder, although often there is considerable overlap between both psychological and organic causes.[3,4]

A knowledge of the anatomy of the penis and the complex physiology of erection is necessary to understand the cause of the problem, the methods of diagnosis, and the treatment options.

ANATOMY AND PHYSIOLOGY

The three major parts of the penis are (1) the base, which is anchored to the perineum; (2) the body, composed of the paired corpora cavernosa located dorsally, and the corpus spongiosum, located ventrally; and (3) the terminal portion, the glans, an enlargement of the tip of the corpus spongiosum. The corpora cavernosa are separated by an incomplete connective tissue septum that permits free communication of blood between the corpora and that allows them to function as a central unit. They are also fused in the body and proximally diverge to attach to the inferior aspect of the pubic rami. The corpus spongiosum houses the urethra and lies ventral between the corpora cavernosa. There is also a very important suspensory ligament—a triangular structure attached at the base of the penis and to the pubic arch blending with Buck's fascia around the penis—that is responsible for forming the angle of the erect penis.

The arterial supply to the penis flows from the aorta through the common iliac, hypogastric, and internal pudendal systems. The artery of the penis is a branch of the internal pudendal artery and has four branches. The first branch, the artery to the bulb, supplies the corpus spongiosum, the glans, and the bulb. The second branch is the urethral artery. The artery of the penis then terminates into the dorsal artery of the penis (which supplies the deep fascia, the penile skin, and the frenulum) and the deep or profunda branch (which supplies the corpora cavernosa on each side).

The venous drainage consists of both a superficial and a deep venous system. The superficial dorsal vein drains into the external pudendal vein, which then connects to the saphenous system. The corpora cavernosa and the corpus spongiosum flow into the deep dorsal vein, which drains into a plexus of veins called the lateral prostatic vesical venous plexus, or Santorini's plexus.

The penis has somatic, sympathetic, and parasympathetic innervation. These fibers originate from two areas—spinal segments T-12 through L-2 and segments S-2 through S-4. The afferent somatic fibers responsible for penile sensation travel through the dorsal nerve of the penis to the internal pudendal nerve back to its spinal roots S-2 through S-4. These fibers supply the ischiocavernous muscle, the bulbocavernous muscle, penile skin, and urogenital diaphragm. The parasympathetic fibers, on the other hand, originate from the anterior roots of S-2, S-3, and S-4, and are known as the nervi erigentes. They terminate in the small and large cavernous nerves supplying the penis. The sympathetic fibers originate from the spinal roots of T-12 through L-2, descending through the aortic plexus, the superior hypogastric plexus, the inferior hypogastric nerves, and finally intermingling with the parasympathetic nerves as they reach the penis itself.

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