

James Marion Sims's Treatment of Vesico-Vaginal Fistula

James Marion Sims developed a treatment for vesico-vaginal fistulas in Montgomery, Alabama in the 1840s. Vesico-vaginal fistulas were a relatively common condition in which a woman's urine leaked into her vaginal cavity from her bladder, and many regarded the fistulas as untreatable during the early 1800s. After years of efforts to repair the fistulas with myriad tools, techniques, and procedures, Sims developed the speculum and a vaginal examination position later named for him. He also popularized the use of silver metal sutures to treat and cure women who had vesico-vaginal fistulas. Sims's surgical cure for vesico-vaginal fistulas eased both the social stigma and physical discomfort of many affected women. Though current treatments of vesico-vaginal fistulas have evolved since the nineteenth century, some of the basic principles utilized by Sims have been incorporated into present-day surgeries. In particular, Sims stressed the significance of continual bladder drainage after the operation.

Vesico-vaginal fistulas sometimes cause a problem for women after they give birth. Doctors named vesico-vaginal fistulas after the condition they cause: the word vesico relates to the bladder and the word fistula means an abnormal connection or passageway. Vesico-vaginal fistulas consist of a breach of the wall separating the vagina and neighboring bladder, connecting the two cavities. The break in the wall can range from a small tear to a large hole. The causes of vesico-vaginal fistulas are numerous, but many result from long, traumatic childbirth in which prolonged labor puts too much pressure on the vaginal wall. Tissue death, scar formation, and shedding of the vaginal walls can also occur in patients with vesico-vaginal fistulas. In areas with little access to health care, vesico-vaginal fistulas are common because women with obstructed deliveries and difficult labors do not receive medical attention to reduce the injury.

In 1675, Johann Fatio in Basel, Switzerland, reported an early treatment of vesico-vaginal fistulas. Fatio used a sharp swan quill to cut and fit the edges of the fistula together. After that, doctors did not discover a reliable and effective surgical cure until the nineteenth century. In the early nineteenth century, many considered vesico-vaginal fistulas a shameful condition that women did not talk about, a stigma that many argue continues today. Consequently, the rate of vesico-vaginal fistula occurrence has never been properly accounted for and remains unclear in some areas of the world. In some developing countries in South Asia and Africa, 350 of 100,000 births reported in 1985 resulted in obstetric fistulas, and most of them were vesico-vaginal fistulas. That incidence is markedly higher than in developed countries where vesico-vaginal fistulas due to labor happen rarely. Instead, causes of many vesico-vaginal fistulas in developed countries are post-surgical complications.

In the early 1800s, lack of access to trained physicians coupled with the young age of birthing women, whose pelvises were small and not fully developed, often resulted in complications during labor and in vesico-vaginal fistulas. Sims, who owned a medical practice in Montgomery, Alabama, encountered in the summer of 1845 a number of occasions to treat vesico-vaginal fistulas, especially among slave women. Sims then held, as did many doctors, that vesico-vaginal fistulas were not curable or even treatable, and he was reluctant to tend to any of these cases.

After meeting with a female patient who fell from her horse and suffered from a tilted uterus in August 1845, Sims developed a new method for vaginal examination. During the mid-nineteenth century, women who needed vaginal examinations lay on their backs with their knees bent and thighs apart. Many called this position the lithotomy position. Sims's patient was of considerable size, however, and this position for examination proved unhelpful. Sims asked the patient to lie laterally, extend her bottom leg and pull her upper knee towards her chest. This position, later

called the Sims position, creates suction within the pelvis that allows the vaginal cavity to fill with air and to fully extend. Sims applied this position to women with vesico-vaginal fistulas, which allowed him to better survey the damaged vaginal wall by fully expanding the vaginal cavities.

With the vaginal wall fully extended instead of folded, Sims used a bent spoon to dilate the vagina, allowing him to better see damaged areas. The bent spoon became a permanent tool in vaginal examinations and many have since called it the Sims speculum. The speculum has changed from its first rudimentary form and now has a cylindrical, hollow barrel created by two rounded metal blades. After insertion into the vagina, one can screw the blades apart to create a canal by pressing the walls of the vagina away from one another.

Throughout the 1840s, Sims performed vesico-vaginal surgeries with varying techniques on three enslaved African American women whom he had acquired in deals with their owners. After performing multiple surgeries on these patients, Sims practiced different techniques and learned about suture materials, and he came to deploy a make-shift catheter in his surgeries. By using a sponge that drew out urine from the bladder, Sims kept the hole in the bladder and vaginal wall clean during and after operations. Inflammation, however, still regularly occurred when Sims used unsterilized silk to suture the wounds. Due to its high tensile strength, doctors used silk for sutures during the early 1800s. Wounds stitched together with silk began healing within a few days and the knots tied in the ends did not affect the healing of the wound. However, within the body, silk, an organic material, was in warm and wet surroundings that created an ideal environment for bacterial growth. Internal silk stitches often resulted in infection and pus formation.

During the summer of 1849, Sims realized that he might use metal sutures as a possible substitute for silk ones. Sims brought wire to a blacksmith and asked for replicas of the wire in pure silver. Doctors had often used silver, a sturdy, yet malleable metal, in solution form as a topical disinfectant because of its anti-microbial properties. Silver's aseptic and anti-inflammatory properties provided Sims with a wire stitch that held together the edges of fistulas without enabling infections. Sims's application of metal sutures, specifically silver sutures, changed the way doctors treated vesico-vaginal fistulas.

Sims performed his first successful vesico-vaginal fistula closure with a complete recovery in 1849 on one of the enslaved patients, Anarcha, during her thirtieth operation. Sims verified the efficacy and safety of the operation when he reproduced two more successful surgeries on the two other slaves. He then began to operate on and cure women of all classes and races in Alabama. Sims published his techniques in "On the Treatment of Vesico-Vaginal Fistula" in January 1852. Doctors adopted his surgical approaches worldwide and he operated on women with vesico-vaginal fistulas while traveling throughout Western Europe.

Sims's enhanced examination techniques and his surgical procedures influenced surgeons worldwide. Through the implementation of the Sims speculum, Sims position, and silver sutures, vesico-vaginal fistulas became a treatable condition. Furthermore, the Sims position and speculum became tools used outside the context of vesico-vaginal surgery, and doctors used them in regular gynecological examinations.

Sources

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