

There were several loose pieces of bone removed and the parts surrounding the fracture were severely contused. The fragments were wired together, but extensive sloughing of the soft parts occurred and amputation was found to be necessary five days after admission; the patient dying five days later.

This case certainly does not militate against the procedure, as it would have been a desperate one under any circumstances.¹ (See figure and chart).

OCCLUSION OF THE FALLOPIAN TUBE, DYSMEN- ORRHOEA, WITH CONVULSIONS AND OPIS- THOTONOS—LAPAROTOMY; RECOVERY.

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Mrs. R., an American lady, aged 31 years, was confined with her only child in 1876. Her labor was followed with an attack of cellulitis, especially severe on the right side. For seven years her menstrual periods were painful, and for the last two and a half the pain has been accompanied with convulsions. Her menstrual periods became more and more trying, and the pain in the right groin extending down into the leg and rendering locomotion difficult, increased in intensity from month to month. After enduring this disturbance for nine and a half years, she consulted me near the end of 1885.

Examination.—Dorsal decubitus; perineum, partial laceration; cervix uteri, bilateral laceration. Vaginal walls relaxed; cervical and vaginal leucorrhœa.

Neither of the ovaries could be distinctly felt. The portion of the vaginal vault on the right of the uterus was tender to the touch, and to this region she referred the pain she experienced during her menstrual periods. After this examination she returned home, and continued douches of hot water and counter-irritation over the right inguinal region until February 8, 1886, when she became an inmate of my private hospital. She reported that her distress at the time of her menstrual periods had increased since her visit to me near the close of the preceding year. Ten days after her admission she menstruated, and the pain she experienced during this period resisted all reasonable doses of morphia administered subcutaneously. An examination during the flow discovered, in the right side of the pelvis, a mass as large as a guinea egg and extremely sensitive. Morphia, hot douches, local blisters and rest in bed were persisted in during the continuance of the flow, and when it ceased, it left her lame in her right leg for several days. Three days after the termination of the flow, the mass discovered a few days previous could not be felt.

Nine days subsequent to the cessation of the menses and after six of comfort, the pain in the right

inguinal region returned; it extended down the leg on that side and rendered locomotion difficult and painful. Bimanual examination revealed the mass again present, situated on the right of the uterus and almost directly behind the external inguinal ring. It was not as large as it was during the flow, but fully as painful to the touch. Three days later it had again disappeared. Churchill's tincture iodine was liberally used over the vault of the vagina; local blisters applied; the hot douches were doubled in number and quantity and the temperature of the water raised to 115–120°, and absolute rest in bed required. On the morning of March 14 her second menstrual flow came on unannounced by pain. Twenty-four hours later a sudden invasion of agonizing pain occurred, and before sufficient morphia to relieve her sufferings could be administered, she had six convulsions, and stood on her head and heels, her body arcuate—perfect opisthotonos. Within a few hours nearly 2 grains of morphia were administered subcutaneously, producing no apparent effect. Fearing a fatal result from the exhibition of the narcotic, chloral hydrates and bromides in large doses were substituted. The hot douches were continued and a blister applied over the right inguinal region. The mass in the pelvis was now apparent to the touch and very sensitive to pressure. On March 19, after four days of severe suffering, the flow ceased, and in three days more the mass in the pelvis had again disappeared.

Diagnosis.—I could make none. Chronic cellulitis, recurring attacks of acute cellulitis, or local peritonitis was evident; but why? Was there pus, or blood in the tube? Possibly; but why no evidence except the pain and the mass alternately appearing and disappearing? Her leucorrhœal discharges might contain pus; I did not delay to examine with the microscope; this I could do afterwards. I reasoned that this trouble was of long standing, steadily and rapidly increasing, and I decided to open her abdomen, discover the cause, and do all I could to save the life of the lady. I agree with Mr. Tait in the matter of opening the abdomen for exploration in certain cases. A diagnosis without this is not always possible, and the surgeon who delays operation until a diagnosis is made, will be often in error, and his usefulness is limited.

On the 22d of March the bowels of this woman were cleaned out, and on the 23d, at 2 P.M., she was placed on the operating table and anesthetized by the second nurse. Dr. Stone, my assistant, being necessarily absent, I assigned my chief nurse to his place. I then proceeded to open the abdomen with an incision a little short of three inches, and discovering a difficult operation awaiting me, I lengthened the incision to five inches. Through this I turned the intestines out upon a towel above the upper angle of the opening, and gave them into the care of the nurse. An adhesion on the tip of the omentum was detached from something in the pelvis. I then discovered that the ovary and tube on the right side were firmly adherent to each other, to the broad ligament and the roof of the vagina; with great difficulty they were released with the fingers and drawn into view. The pedicle was secured with Tait's knot, and the ovary

¹ The patient's breath, on admission, smelled of whisky, and during his entire hospital sojourn he appeared dazed. The tissues were bleeding, but sloughing did not seem likely to occur; the shock from an amputation would have been greater than from the procedure adopted. We had no post-mortem; urine was not tested; exact cause of death not known.

and tube cut away. The left ovary was small, and both it and the tube appearing to be free from disease, they were not disturbed. The cavity was cleansed, the intestines replaced, the wound closed and the patient returned to bed. Carbolic acid did not touch the patient during the operation, and scalding water alone was used for the instruments and ligatures. The technique as pertaining to cleanliness was satisfactory. Drs. Lee, of Rochester, N. Y., and T. B. La Rue, of Smith's Grove, Ky., were present as visitors and witnessed the operation. I follow Mr. Tait in relying alone on hot water. No carbolic acid touches my patients.

Examination of the parts removed.—The ovary was twice the ordinary size and cystic. It contained a large proportion of healthy ovarian stroma, which was here and there crossed with fine lines of gritty tissue. An empty ovisac lay beneath the surface, ruptured, and proved that true ovarian action existed immediately prior to the operation. The tube was entire, with the exception of the fimbriated end; this was torn and a small portion of it absent. It exhibited the usual appearance, except a redder color. Its calibre was normal, except at the ulterior end, where it was occluded by a stricture so complete that the head of a needle used as a probe could not be passed through it.

Rationale of symptoms.—The stricture in the tube doubtless arrested the ova, and to some extent accounts for the symptoms, but, in my judgment, had the ovary been free, this would not have caused pain. The ovary was bound to the fimbriated end of the tube and the surface of the broad ligament, and at the menstrual periods, its physiological increase was impeded; its products were imprisoned in the surrounding tissue, and the pain was largely caused by the pressure thus produced. During menstrual activity the mass appeared, and disappeared when it subsided. Its recurrence subsequent to the cessation of the flow, I suspect, was due to the excitement in the ovary during ovulation, which certainly occurs independent of menstruation.

Result.—On the day following the operation, the pulse was 108, and the temperature $100\frac{1}{4}^{\circ}$; the next day both the pulse and temperature fell below 100. On the fourth day the stitches were removed. On the morning of the fifth day the pulse was 74, and the temperature 99° . On the morning of the sixth the pulse was 65, and the temperature $98\frac{1}{2}^{\circ}$ (Fahrenheit). No farther rise in the temperature occurred, and her progress was rapid. From this date no further attention than that given by her nurse was required. She left the hospital for home on April 16; she had not as yet menstruated.

Remarks.—Does this case prove that, as gynecological surgeons, we are too aggressive? Does it prove that exploratory operations are useless and dangerous? So long as proper precautions as to place of operating and environment are observed, such operations will bring neither harm to the patient nor obloquy to the art. Of my last forty-one abdominal sections, none has given me less anxiety and more pleasure than the one just described. A new lease of life is this woman's reward for her confidence in me and my regard for duty.

NINE CASES OF IMPERMEABLE URETHRAL STRICTURE TREATED BY ELECTROLYSIS.

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The removal of urethral stricture by a galvanic current is a method of treatment whose merits and advantages have been generally ignored by specialists as well as by general practitioners. In very few of the standard text books is this method even mentioned, and in none that I have seen is it intelligently discussed. A few physicians have, at various periods in the past thirty years, briefly tried and then abandoned the current; and the report of their failures had deterred others from further investigation.

Unfavorable and even disastrous results have undoubtedly been produced by electrolysis; but they have generally been caused by the use of an improper current. To dissolve the cicatricial tissues constituting a stricture only the chemical, dialytic effect of the current is required or desired. Now the galvanic current liberates heat as well as chemical force; it will not only decompose a chemical compound, but will also raise a platinum wire to a white heat. The ill effects of the current observed in the urethra have evidently been produced by the heat; as formerly applied, the treatment of stricture by the current was in effect merely a cauterization of the urethra, which resulted of course in severe local inflammation and even extensive sloughing. Yet by proper management a galvanic current can be made to produce a strong chemical effect with an insignificant minimum of heat; or, in technical language, to produce great *intensity* with but little *quantity*. To this end the plates should be small and the fluid weak; but a number of cells (6 to 15) should produce the current.¹ To Dr. Robert Newman, of New York, is due great credit for urging upon the profession the proper use of the current for electrolysis.

During the past two years I have practiced electrolysis for stricture upon thirty-seven patients; and I now use it almost exclusively except for strictures located within an inch of the meatus, and for strictures of large calibre elsewhere in the penile urethra (which I divide with Otis's urethrotome). In my experience the advantages of this method may be summarized as follows:

1. It is applicable to strictures at any point in the urethra.
2. Any stricture or succession of strictures, however rigid and cartilaginous, however long and tortuous, however tight (even if impermeable), can be readily and safely perforated.
3. As a rule it causes no pain nor bleeding, is followed by no chill nor urethral fever, and it is always devoid of danger.
4. When properly handled it can produce no false passage nor other local lesion.
5. The effects are more enduring than those of either cutting or stretching; whether or not they are permanent (as maintained by Dr. Newman), my experience does not yet enable me to assert.

¹ For the past year I have used with great satisfaction the complete and compact portable battery made by the McIntosh Company, 309 Dearborn Street, Chicago.