contracted scars following the previous operations. No weakness of the tongue-muscles was evident. There was a definite decrease of strength in the muscles used in closing the right side of the jaw. A specimen from a slight bulging of the right side of the nasopharynx showed lymphatic tissue only. There was a slight bilateral catarrhal deafness. The sinuses were objectively normal. A roentgenogram of the skull disclosed a trephine opening about $\frac{1}{2}$ inch in diameter in the right temporal region. Diagnosis was made of a tumor of the middle cranial fossa involving the gasserian ganglion.

Operation.—June 6, 1913, an operation was performed in the Mayo Clinic by Dr. Beckman. The Hartley-Krause method exposed a hard mass below the right temporal lobe. The extent of the tumor could not be determined and it was considered inoperable. A specimen examined microscopically showed the tumor to be a small round-cell sarcoma.

The patient died a few months later. No necropsy data were obtained.

The important features in this case are: (1) the enlargement of the right cervical glands; (2) the constant dull pain just anterior to the right ear with paroxysms of sharp pain which involve the entire distribution of the fifth nerve; (3) the absence of symptoms of general intracranial pressure, such as headache, vomiting, choked disk, etc., unless the occasional vertigo and the mental hebetude are considered symptoms; (4) the definite localizing signs such as the anesthesia, the loss of the sense of taste on the right anterior portion of the tongue, the partial paralysis of all the right extrinsic eye-muscles with a nearly complete ptosis, the pallor of the right optic nerve-head, and the large immobile right pupil.

It is possible that the anesthesia became more definite following the alcoholic injections which had been given six weeks previous to our examination. As would be expected, considering the absence of any signs of general intracranial pressure, there was no improvement following the exploration.

In the cases reported by Dercum, Keen and Spiller, Hofmeister and Meyer, and Spiller there was enlargement of the lymphatic glands of the neck. In our case, although no microscopic examination was made by the physician who excised the glands, the history of glandular enlargement just previous to the onset of the symptoms gives strong presumptive evidence of their metastatic character.

The fact that the glands were enlarged three months before the onset of pain makes it probable that the tumor originated from the dura and had gained considerable size before it involved the gasserian ganglion.

SURGICAL TREATMENT OF URETHRO- RECTAL FISTULAS

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Under the present methods for the surgical treatment of urethrorectal fistulas about 25 per cent. of the cases terminate successfully. This low rate of recoveries is not surprising when it is remembered that the urethra is a curved channel carrying water under pressure and that the fistula is usually located at the most tortuous part. In addition to this, the rectum is in close apposition to the prostate and the recto-urethralis muscle anchors the ampulla of the rectum at a short distance from the membranous urethra.

The standard operative procedures seem faulty in principle.

No one would try to repair a leak in the retaining wall of an irrigation ditch, especially on a curve, by tearing down the sound, natural wall for some distance close to and up into the leak, if this could be repaired in the line of leakage. Still, this is the principle underlying the operative methods usually employed. The perineal body is split at its center, the cut extending back to or into the rectum, in front to the bulb, and in depth down to the urethra; thus, a sound retaining wall many times the length of the fistulous opening is laid open—a wall which is known to be hard to make water tight by suturing. The fistulous tract is cut flush with the urethra and the opening closed by a continuous suture. The condition then is that instead of one large opening, there are several small holes, not water tight, between the sutures. After the removal of the fistulous tract and repair of the rectum, the wound is sutured. The result is that in 75 per cent. of the cases there are, instead of one leak, two—a rectal and a perineal.

The following technic has been worked out and found very satisfactory:

After the usual preparatory treatment, such as curing of strictures, etc., the field of attack is just in front of the rectal wall up to and above the fistula; and then in the line of the fistula. A catheter is inserted into the bladder and retained for several days. If the fistula is located low down, the rectum is loosened from its bed in front and to the sides, while in fistulas high up, the rectum is dissected loose in its entire circumference. If more room is required, the postanal tissue is cut through to the coccyx, which may also be turned back. An incision through the skin is made in front of the anus either half way around, or encircling the anus and back to the coccyx. The sphincter, left attached to the skin, is cut through in front or in front and posteriorly. If the fistula is above the levator ani, this is cut close to the rectum and so also the recto-urethralis and if necessary the deep perineal fascia. This exposes the prostate, bladder and the peritoneal pouch. The dissection should be up to and a short distance above the location of the fistula. As the fistula is reached, it is tied and cut close to the rectum and the fistulous tract is dissected loose up to the urethra; if this is impossible, it is curetted up into the urethra. A purse-string suture is placed around the fistula close to the urethra in the tissue surrounding the tract and tied, leaving the ligature ends long. The tract is removed. Several flaps now are dissected loose alternately on each side of the tied urethral end and stitched in place, one on top of the other, each suture-line being located at a different plane. The long ends of the urethral tie are drawn through the center of the first flap and tied before the flap is stitched into place. The principle here is not only to build up a water-tight, but also a thick wall, thereby bringing the rectum farther away from the urethra. The rectal tie is buried by two or three pleats of the rectal wall. As the ends of the fistulous tract, where they open into the urethra and the rectum, are, as a rule, funnel-shaped, these funnels should be tied and not cut; if they are cut, two large openings are produced which are hard to make water-tight by stitching, while if they are tied, this makes the opening water-tight. If there should be a large opening into the urethra which cannot be tied off, the urethral edges should be apposed by interrupted sutures, the sutures tied and their ends drawn through the center of the first overlapping flap and tied. It generally spells failure to turn up a flap from each side of the urethra, their edges meeting and sutured opposite the urethral suture-line. This is like putting one sieve

on top of another. After a thick wall has been built up between the rectum and the urethra, the rectum is partly twisted and a sound part is sutured to the built-up wall. The levator ani and sphincters are sutured in place. If the postanal space was entered, a good-sized drain is left in there.

If at the time of the operation there should exist both a urethrorectal and a urethroperineal fistula, the best policy is to repair the urethrorectal fistula first, waiting for a future time to repair the perineal fistula, because there would be a too extensive injury inflicted on the periurethral wall in one sitting, and because an open drain through the perineum will greatly assist in relieving the repaired part, until thoroughly healed, from the expansive pressure of the urine. A perineal fistula is easier to repair later on. It is a great temptation to repair the two in one sitting, but the result is generally a failure. In repairing the perineal fistula, the same overlapping, building-up method will give good results.

THE PRESENCE IN THE URINE OF DIALYZABLE PRODUCTS REACTING TO NINHYDRIN

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In a recent article in *THE JOURNAL* Warfield¹ says:

It occurred to me that if there was a specific ferment in the blood-serum which was elaborated to split up the products derived from the placenta, syncytium especially, there should be also in the blood-waste, products of the metabolic activity of the growing fetus. These substances had to leave the body by some route and the most logical route was the urinary excretion. These products should be peptones and amino-acids, they should dialyze out and one should then be able to find them by means of the ninhydrin reaction in the dialysate. It was found that actually such is the case.

In support of this theory, tests on seventeen cases of pregnancy are cited, all of them giving positive results; seven cases in the puerperium were tested with the result that "the eleventh day was the earliest to show a negative reaction, while one still showed a faint reaction on the seventeenth day." If correct, these observations would be of the utmost importance and would greatly simplify the "Abderhalden test."

I have carried out a series of reactions in order to prove or disprove these conclusions. The water containing the dialyzers, the glassware, pipets, etc., were all carefully tested for the presence of the ninhydrin reaction before being used. The work was done with the dialyzing thimbles supplied by Parke, Davis & Co., and these had been proved to be impermeable to all but amino-acids by repeated testing and also by a long series of tests with the original technic. Three different solutions of ninhydrin were used.

February 10 the urines of six positively pregnant women were tested for the presence of the ninhydrin reaction, without dialyzing, by boiling 2 c.c. of urine with 0.2 c.c. of a 1 per cent. solution of ninhydrin. The accompanying table shows the results.

It will be observed that whenever the urine was strongly acid, the ninhydrin reaction was negative. This indicates that the acidity inhibits the reaction, a fact that is already well known. An attempt was made to bring out the test by neutralizing these strongly acid urines, but the reaction remained negative. It was further observed that, although a urine may give a strongly positive ninhydrin reaction, if made strongly acid by the addition of acetic acid the reaction will disappear and will not reappear when the urine is exactly neutralized by the addition of sodium hydroxid. The same day, those urines that had given negative tests before dialyzing, were placed in dialyzing thimbles and the dialysates tested at the end of twenty-four hours. All three, that is, Nos. 2, 5 and 6, gave strongly positive reactions with ninhydrin.

February 11 the urines of three women known to be pregnant were dialyzed. At the end of twenty-four hours the dialysate gave a positive reaction in each instance. These urines did not contain albumin and were acid in reaction.

February 12 the urines of ten non-pregnant women suffering from various surgical conditions were dialyzed, and the dialysates tested for the presence of the ninhydrin reaction. Without exception, these urines gave distinctly positive reactions. The reactions of these urines to litmus varied from alkaline to acid, the majority were acid. No matter what the reaction of the urine before dialyzing, however, the dialysate is

NINHYDRIN TEST OF URINES FROM SIX PREGNANT WOMEN *

No.	Reaction	Ninhydrin
1	Acid	+
2	Strongly acid.....	—
3	Neutral	+
4	Neutral	+
5	Strongly acid.....	—
6	Strongly acid.....	—

* All urines were albumin-free.

always neutral to litmus. These urines were voided just before luncheon, and none of them gave a positive reaction with the ordinary tests for albumin.

February 13 the urines of four non-pregnant women and two men were tested. One of the men had nephritis, the other was normal. The dialysates from all of these urines gave positive reactions with ninhydrin.

February 14 the urines of four healthy men were tested; the dialysates giving negative reactions.

In view of these results it was thought that the amino-acids present might be accounted for by the action of bacteria on pus and other albuminous matter present in the urine, especially in that of women. To avoid this, the urine was thoroughly boiled as soon as voided, all material used in the tests was sterilized by boiling and the tests were set up under aseptic precautions. Under these conditions ten urines from non-pregnant women suffering from various surgical conditions and two from known pregnant women, were tested. At the end of twenty-four hours the dialysates from eleven of them showed positive reactions with a freshly prepared solution of ninhydrin, and one of them a negative reaction. The case giving a negative reaction was one of carcinoma of the breast.

In regard to the presence of dialyzable substances reacting to ninhydrin in the urines of others than pregnant women, Dr. Warfield says:

In order to show that in normal urine there are no dialyzable substances which give a positive reaction with ninhydrin, a number of urines from healthy persons were tested. These gave no color reactions.

1. Warfield, Louis M.: The Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women; a Preliminary Report, *THE JOURNAL A. M. A.*, Feb. 7, 1914, p. 436.