of a solution of 0.6% sodium chloride and 3% sodium bicarbonate were injected into a vein. Subjectively the patient was much better. Eighteen hours later the coma returned and one litre of the same solution was injected. In one hour and a quarter the patient put out his tongue when asked, but did not answer questions. In another hour he was dead.

CASE XVI.¹⁸ Duration of diabetes probably at least four years. Three hours after the appearance of deep coma 450 c.c. of a 3% solution of sodium bicarbonate were injected intravenously. There was no improvement. Death fourteen hours later.

CASE XVII.¹⁹ Very soon after the onset of the coma, treatment was begun, 4-5 gm. of sodium carbonate were injected subcutaneously, also 200 gm. sodium carbonate given by the mouth in about forty-eight hours. The urine became alkaline later, the coma disappeared, the patient improved, and left the clinic two months later in fair condition.

[CASE XVIII.²⁰ Diabetes for fifteen years. Headache, occasional syncope and feeble heart. Seven days before the saline injection the patient became suddenly unconscious on getting out of bed, there was twitching of the face and clonic spasm of the extremities; the attack lasted about ten minutes. Headache continued a prominent symptom, and on this account 600 c.c. of sterilized water containing 20 gm. of sodium bicarbonate were injected. During the operation the pulse grew more feeble and frequent; an hour later there was a severe chill, the temperature rising to 40° C. and the pulse to 160, the respiration was irregular. Semi-coma, then coma, and death followed.]

Of these seventeen cases²¹ only one was completely successful, the patient having left the hospital two months later; in seven the patients were rational for a longer or shorter time, and were able to speak and answer questions; one could swallow, but was unable to speak; of one it is only stated that the mental condition improved, while in a third there was improvement, and inferentially the patient could speak and answer questions. In four cases there was not even temporary improvement, and in three the gain was very slight.

So little is said of the condition of cases IX and XII, that though there was improvement, it seems safest to exclude them, thus leaving only fifteen cases for comparison. In eight of these (53%) there was a gain that ought be of great value to both patient and friends, though in only one (6.6%) was the gain permanent. Of the remaining seven cases (46%), three (20+) showed absolutely no improvement.

The incomplete data in these few cases do not suggest that either the age or sex of the patient, or the duration of the diabetes have any marked influence on the prognosis, nor do they show conclusively the necessity of an *alkaline* solution, one of the most favorable results having been obtained where water alone was used. I think, however, we can say that intravenous injection will be likely to give the patient a few hours of complete consciousness, with the possibility of recovery from this almost hopeless condition, and that the chance of a favorable result is probably better if the operation is done as soon as the first signs of coma have been surely recognized.

FIVE CASES OF URÆMIA CONNECTED WITH PREGNANCY.

BY WILLIAM N. SWIFT, M.D., NEW BEDFORD.

CASE I. Mrs. S., primipara, about four months pregnant. From the first few weeks of pregnancy she had nausea and vomiting. During the month before, she had been nourished by enemata as she vomited everything taken into the stomach. A week before I was called, her sight failed and in a few days she became almost blind. As her sight failed her vomiting grew less and the family had been told that she was improving. The blindness was attributed to trouble with the liver. When I saw her she had not vomited for forty-eight hours and had taken some clear beef soup.

The patient was quite well nourished. She lay in a dose but answered questions intelligently when aroused, although her mind was somewhat sluggish in its action. She was much opposed to a change in physicians and said, as she was so much better, the person called in would get the credit of curing her. She was perfectly blind and could only distinguish between a bright light and darkness. There was slight pitting on pressure over the tibiae. She complained of no headache and had had none. Her pulse was 120 per minute, very small and weak. The urine was decreased in quantity and had been growing less in the last few days. The nurse thought there had been about one pint in the previous twenty-four hours. The urine was red in color evidently from blood. Specific gravity 1.026 and with one-half per cent. of albumen. The sediment contained blood and much degenerated epithelium. In a careful examination of four slides, three casts were found.

Dr. J. J. B. Vermynce examined the eyes and found marked neuritis, but no separation of the retina or hemorrhages into it.

In the next twenty-four hours she became delirious. She passed 280 c.c. of urine of the same character as before. In forty-eight hours she became comatose and would have had convulsions before death except for the hypodermic use of morphia.

It was my opinion and the opinion of those who saw the case with me, that, during the time that I saw her an attempt to empty the uterus was not justifiable, on account of her weak condition.

CASE II. I was called in consultation with Dr. George T. Hough to see a young woman who was having convulsions. The patient was supposed to be eight months pregnant. She had felt well and nothing out of the way had been noticed until the convulsions came on. She had some oedema of the legs and feet. Her husband was a professor of the "faith-cure," but his faith was not quite firm enough for this occasion, nor had he the least idea of what the trouble was with his wife. The convulsions followed each other at short intervals and were violent. The uterus contracted feebly at times and the cervix was dilatible. The patient was etherized, put on a table and made thoroughly aseptic. Dr. Hough kindly asked me to operate.

I dilated the os manually and in about twenty minutes it was sufficiently dilated to admit the hand. There was no difficulty about turning and delivering. The patient did perfectly well with no rise of temperature or complication of any kind. The child was between seven and eight months and did well.

CASE III. Mrs. P., primipara, age thirty-six years. The case was watched with great care from the begin-

¹⁸ Sakellariou: loc. cit.

¹⁹ Minkowski: (Article by Stadelmann). Deutsch. Med. Wochen., 1889, No. 46.

²⁰ Lepine: Rev. Med., viii (1888), pages 1003-7.

²¹ Case No. 18 is omitted because coma was not present.

ing of pregnancy. Patient was a stout nervous woman with a quick, small pulse. She began to have some edema of the feet and legs about the beginning of the eighth month and had a very slight trace of albumen in the urine. The quantity of urine was large. She had no other marked symptom. About a week before the expected time of confinement the head descended into the pelvis. The following night the patient had some difficulty in lying down on account of dyspnoea. The urine during the twenty-four hours was 1,200 c.c. and contained rather more albumen. She was given cathartics and digitalis and the next night was better.

In the following twenty-four hours she passed only 600 c.c. of urine which contained more albumen and the sediment contained much granular epithelium with some granular casts. Dr. C. D. Prescott saw the case with me. The patient had had no headache, vomiting or trouble with the eyes. We decided to wait twenty-four hours. During this time the patient passed 540 c.c. of urine. Her bowels were freely moved and she slept rather better although she could not lie down. In consultation with Dr. W. L. Richardson of Boston and Dr. Prescott, it was decided to induce labor. A catheter was passed up between the membranes and the posterior wall of the uterus. The uterus began to contract within one hour and during the night she had some pain, but slept quite well with chloral. In the morning the os was the size of a quarter of a dollar. At 1.15 the catheter was removed, the os being the size of a silver dollar. At 7.20 the membranes ruptured.

During the day the patient had passed more urine than she had done for two days, making 720 c.c. in twenty-four hours. Her condition continued good and she was making progress with each pain when, about 12 o'clock, as the head began to press on the perineum, she suddenly had a convulsion. Her breathing and pulse were very bad and she became very cyanotic. I immediately gave her ether, put on forceps and delivered, with some difficulty, a large dead child. The placenta was adherent and had to be separated manually. There was an extensive tear of the perineum through the sphincter. This was sewed up with catgut and silk. The patient's condition was, for some time, critical, but she had no more convulsions. In spite of every possible antiseptic precaution she had a profuse offensive discharge, which began on the third day. She had no rise of temperature or other symptom of septic absorption. A couple of stitches were lost on the perineum but she got a very good result. The albumen persisted in the urine for three months. The patient, at present, seems perfectly well.

In this case if labor had not been induced and the convulsions had come on earlier, I believe the chances of recovery would have been very poor.

CASE IV. Mrs. S., primipara, twenty-six years. Had slight nausea about the third month, but had otherwise been well during her pregnancy. I had examined her urine every month and after the beginning of the eighth month, every two weeks. On May 31st I found one-fourth per cent. albumen in the urine. Two weeks previous, when I had examined it, there had been no albumen. There was slight edema of the legs and feet. From this time the patient was watched with the greatest care. Her diet regulated and tr. ferri. chl. and inf. digitalis given.

She had no headache, no trouble with the sight or nausea, in fact, she felt perfectly well and I should

not have suspected any trouble except for the examination of the urine. The amount of urine in twenty-four hours varied from 1,200 c.c. to 1,500 c.c. The amount of albumen varied from one-fourth to one-half per cent. There was very little organic sediment and after examining two or three slides every day for a month I found only two hyaline casts. On June 25th the patient had slight pains and the head descended into the pelvis. Her bowels were kept well open with salines and the urine continued free. She did not show the slightest uramic symptom.

On July 3d she had an easy and normal labor, the first stage lasting four hours and the second three hours. After labor she complained of some headache, but, at first, no trouble with the eyes.

I gave her a hypodermic injection of morphia sulph., one-eighth of a grain. Two hours later as she seemed to be doing well I left her. Two hours later I received a message from the nurse that she had a severe pain in the epigastric region. I hurried back and found that the pain was very severe. She complained of headache and that things looked queer. I gave her a hypodermic injection of morphia sulph., one-eighth of a grain, but, she soon had a convulsion. I then gave her ether and philocarpine, one-sixth of a grain with a hot pack.

She had no more convulsions and the convalescence was normal in every way.

The albumen persisted in the urine for three months, growing gradually less. On the day that she was confined, the urine from 6.30 p. m. to 2 a. m., measured 1,020 c.c. to 11 a. m. she passed 60 c.c., at 3 p. m. 90 c.c. were drawn. In nine hours she had passed 150 c.c. In the evening the quantity began to increase and for a week the secretion was profuse, from 1,800 c.c. to 2,400 c.c. in twenty-four hours.

CASE V. Mrs. W., thirty-seven years. Married at nineteen and had a miscarriage about nine months afterwards when about seven months' pregnant. She had a convulsion before the miscarriage. She had a good deal of flowing following, but otherwise got on well. Six months later she had another miscarriage at about four months. About a year later had a male child born. During the whole of the pregnancy there was much nausea and vomiting, otherwise no particular trouble. The labor was rather long but not difficult.

Since that time she has had three miscarriages all of which she supposes have been produced by taking herbs. The last was about seven years ago.

On the 10th of last March she menstruated. I saw her on May 12th. She is a very large, fat woman, but rather anæmic and decidedly neurasthenic. She complained of her digestion being out of order, although she had not vomited. She also had some headache and had had a cough for several weeks. I found she had some subcrepitant râles at the base of the left lung. The uterus was displaced backwards, enlarged and with a decidedly elastic feel over the fundus. I told her I thought the chances were she was pregnant. The uterus was replaced without difficulty and held in place by a pessary.

By regulating her exercise and diet and with other tonic treatment her general condition improved. The cough disappeared and the râles cleared up. She soon began to have some morning vomiting and the diagnosis of pregnancy was made certain by the physical examination.

I had been examining her urine as a matter of routine and on July 15th I found albumen, but the quantity of urine was normal. A month later the albumen had increased, and on August 29th she began to show uramic symptoms. The urine was somewhat decreased in quantity, was loaded with urates, and contained a large amount of albumen. The organic sediment was not very large and was made up of granular epithelium with some casts.

She had marked vomiting and headache, but her sight was very slightly affected. Her most prominent symptom was epigastric pain. There was some oedema of the legs and some puffiness of the face and hands. She passed a decreased quantity of urine but never less than 500 c.c. in twenty-four hours. All the symptoms were temporarily relieved by either a brisk catharsis or by a sweat following a hypodermic injection of pilocarpine, but they soon returned again.

On September 4th I was called at night. The epigastric pain was very sharp. She had a severe headache and twitchings of the muscles of the eyelids, arms and legs. I bled her from the arm taking about sixteen ounces of blood. I also gave her a hypodermic injection of one-fourth of a grain of sulphate of morphia. She was soon relieved, but the next morning the symptoms returned, but without the muscular twitchings. Dr. C. D. Prescott saw her with me, and we agreed that the uterus should be emptied. The os admitted the tip of the finger and seemed dilatable. I dilated slightly with my finger and then introduced a rubber bag which I inflated. In the afternoon I found my patient was getting drowsy and complained that her eyes felt very unnatural. I called Dr. Prescott again and we put the patient under ether. She was put upon a table and after the most careful antiseptic preparation I proceeded to dilate the os manually. This I accomplished without difficulty in about half an hour, I then turned and delivered a six months' old fetus. The head was so firmly grasped by the cervix that the neck gave way as I was attempting to deliver it. By grasping the head with a pair of strong forceps, with one blade in the foramen magnum and the other on the surface of the skull, I perforated with a pair of blunt scissors, and after diminishing its size I delivered the head without difficulty. The placenta was adherent and was scraped away with the fingers, afterwards a douche of corrosive sublimate 1-10,000 was given.

The patient has done uninterruptedly well since that time. Her temperature was not at any time above normal, and she had absolutely no abdominal tenderness, or, in fact, any discomfort of any kind. She had no more uramic symptoms and the urine began at once to improve. I had to draw the urine by catheter only twice.

The patient is now in good condition and says she feels better than she has for a long time previous to this pregnancy. The urine still contains a slight trace of albumen, but the quantity is large.

Uremia in pregnancy is stated by authorities to be a rare complication. Lusk estimates the frequency as about one in five hundred pregnancies. It certainly is more common in my experience. I believe the urine of every pregnant woman should be examined for albumen once a month and after the eighth month every two weeks. Of course, many pregnant women have albumen in the urine without developing uramia. Turnier says that taking a mean of a very large number of cases one out of every four or five patients with

albuminuria will show uramic symptoms. It is, however, an important symptom and when we are forewarned much can be done in the way of preventive treatment. A severe epigastric pain is, in my experience, a common and important symptom. The diet should be regulated, the general hygienic treatment of the case is important and remedies prescribed as they are indicated in particular cases. Perhaps iron and digitalis are the most important drugs with the exception of cathartics. But when grave uramic symptoms develop, such as continual vomiting, with other nervous phenomena, such as derangement of vision, pain in the head or in the epigastrium. If such symptoms are not relieved by cathartics, by stimulating the action of the skin or by bleeding, or, if they are only temporarily relieved by treatment, I believe we have no right to wait, but, that the uterus should be emptied.

If the symptoms are not urgent a bougie may be introduced into the uterus and allowed to remain until uterine contractions are set up. This must be done with the most rigid antiseptic precautions.

If the symptoms are urgent any delay is dangerous to the life of the patient and the uterus should be emptied at once. Usually in such cases there is an attempt at abortion and the os is patulous and dilatable. The operation should be regarded like any other surgical operation. I consider it absolutely necessary to have the patient on a table. The shaving and washing must be carefully done, then a douche of 1-4,000 corrosive sublimate should be given, after which, the carefully disinfected hand may be introduced. I believe it is much better to be absolutely sure that all placental shreds are brought away, using a curette if necessary. After the operation an intra-uterine douche of corrosive sublimate 1-10,000 should be given. Careful washing and spraying of the parts after the catheter is used, or urine is passed, with the application of an antiseptic pad, is absolutely necessary for safety after such a proceeding.

In hardly any other class of cases is delay so fatal as in the uramia of pregnancy. I believe that careful antiseptics makes a great difference in the prognosis of cases where the uterus has to be emptied rapidly and that in most cases there is no danger from the operation.

SOME PRACTICAL SUGGESTIONS IN REGARD TO ANTRUM DISEASE.

BY F. H. BOWWORTH, M.D.,

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I THINK it is a somewhat prevalent impression, that suppurative disease of the antrum of Highmore gives rise to certain prominent symptoms, such as pain, redness and tumefaction, which indicate this cavity as the seat of morbid changes in so marked a manner, as to render a diagnosis comparatively simple.

It is easy to understand how this view should be generally accepted, if we accept the teaching of Garretson,¹ that carious teeth are by far the most frequent cause of the disease. This is from the point of view of the oral surgeon, whose experience is largely limited to those cases which are dependent upon diseased teeth; and where an antral disease is set up in this manner, its clinical history is usually marked by the notable symptoms above mentioned.

¹ System of Oral Surgery, 1874, p. 477.