five years before and who had not received my letter. She had been perfectly well and worked hard during this time until three months ago, when she again had pain in the right side, which increased. I found the kidney movable, evidently caused by very hard work.

DISCUSSION OF RESULTS.

These condensed reports are more than three-fourths of the total number of cases selected and ought to give the general average ultimate results. To the first question, Has the kidney remained in place? the answers are all "Yes." (One early case was operated on the second time.) Has the pain and distress been relieved? is also answered with "Yes," except by one, who complains of pain in the incision of the back. To the third, Have the stomach and digestive symptoms improved? most answered "Yes," except a few, who evidently expected also relief from headache or chronic constipation. The fourth question, Have any other symptoms, pain or distress been relieved? is answered "Yes" by nearly all patients, while a few still have other troubles.

I have always claimed that the whole question was one of correct diagnosis. I have any number of cases of movable kidney which I do not operate on when they produce no serious symptoms. I have always operated on cases in which I did not know if the kidney or the other pathologic conditions produced the trouble. In nearly every operative case which also has a loose kidney I fix the latter in order to be sure that I cure my case, otherwise the patient will not be relieved and blame me for not doing so. In case of general abdominal ptosis, fixation of the kidney will be of little benefit, although it may relieve one symptom, viz., the distress caused by the kidney, and I always refuse to operate on those cases except the patient has a clear understanding of the doubtful benefit. Still, some of those cases receive a great deal more benefit than they or I expect. I never make any promises. If, however, there is kinking and twisting of the ureter, or albumin makes its appearance in the urine, then I operate, as I have found that fixing a loose kidney and decapsulating it pretty thoroughly relieves, or I might say, cures the early stages of so-called Bright's disease.

At the same time, fixing a floating kidney does not mean that you get it in the exact position where it was or should be, but by fixing it high up as near to the original site as possible you prevent it pulling on or irritating other organs or the solar plexus of nerves; you prevent congestion, and kinking or twisting of the ureter. You simply fix it so that it stays in that locality subject only to that mobility which is required in respiration. You get it as near as possible in its normal position, but that will not cure smallpox nor fracture of the arm nor ingrowing toe nails. It will cure neither piles nor whooping cough. It will not relieve the headache caused by astigmatism. It will not relieve nervous affectations of syphilis nor elevate moral impulses.

As far as the mortality is concerned, I myself have never lost any case, neither in this series nor in other cases of fixation of the kidney. The mortality should be absolutely nil, although an unavoidable death may take place from some accident, chloroform, etc. In a few cases there was a superficial stitch abscess, but this does not interfere with complete recovery. I keep them in bed fifteen or sixteen days and in three weeks they can return home. It seems to me that I am perfectly justified in making these conclusions:

1. Movable kidneys can be permanently fixed by a proper technic.
2. Undoubtedly many disturbances of digestion are

caused by movable kidneys, probably by causing irritation of the sympathetic nervous system, perhaps of the solar plexus.

3. Fixation of a loose kidney will relieve some digestive disturbances.

4. Many of the nervous symptoms in this condition are relieved after a short time.

5. A proper diagnosis must be made before operating and the kidney found to be the cause of the trouble beyond any reasonable doubt.

6. The fixation of a floating kidney can not cure cancer of the stomach, remove gall-stones, subdue an inflamed appendix, nor dilate a constricted bowel.

CESAREAN SECTION IN THE TREATMENT OF PLACENTA PRÆVIA.*

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Placenta prævia in its manifestations and in its combined mortality of mother and child is the most appalling complication of pregnancy. In its management the courage, judgment and knowledge of the obstetrician will be taxed to their uttermost. It behooves him, therefore, to be prepared for every contingency of this multifarious condition. To paraphrase a paraphrase of Addison, she who has a hesitating physician is lost.

Within the brief period of three months I have seen four cases of total placenta prævia.

CASE REPORTS.

CASE 1.—This case occurred in the practice of Dr. S. E. Simmons and formed the basis of a paper read by him before the Sacramento Society for Medical Improvement. In this paper he laid particular emphasis on the importance of early diagnosis, insisting that every pregnant woman should be carefully examined with special reference to this condition as early as the sixth or seventh month. This is an important point universally neglected.

Patient.—The patient, a multipara, in the ninth month, was practically moribund from hemorrhage when the physician reached her. He delivered with forceps within fifteen minutes, and maintained the circulation with hypodermoclysis and hourly hypodermics of adrenalin for twenty-eight hours, when death took place from circulatory failure.

Remarks.—Nothing, I believe, could have saved this woman. Completely exsanguinated by a sudden and enormous hemorrhage, when Dr. Simmons reached her she was in a state of vasomotor paralysis from which, notwithstanding vigorous and well-directed measures, she never rallied. This case, with any respect whatever for the canons of surgery, certainly was not suitable for Cesarean section.

CASE 2.—This was one of total placenta prævia in the seventh month; there was rather sharp hemorrhage. Dr. Sutliff made a diagnosis of total placenta prævia, in which I concurred. Fetal heart sounds were inaudible, and, as bleeding had ceased, it was thought best to leave the case to Nature. Three days later labor set in and was completed without further hemorrhage.

CASE 3.—Mrs. S., a multipara, in the ninth month of pregnancy, was taken with hemorrhage and attended by Dr. Sutliff, who packed. Hemorrhage was repeated and profuse, and in Dr. Sutliff's absence the husband packed the vagina at least once. The patient was sent to a hospital where I saw her at 10 p. m., Feb. 4, 1905. She was extremely anemic; the cervix was undilated and undilatable; the lower segment was boggy in entire circumference as far as finger could reach; the sac was ruptured and largely emptied; the head was at superior straight, but unengaged; hemorrhage was profuse; the child was alive, but feeble.

In the opinion of both Dr. Sutliff and myself Cesarean sec-

* Read before the Nevada State Medical Society, May 10, 1905.

tion offered the only hope for the child, and practically the only hope for the mother. It was accordingly proposed and accepted.

Operation.—I operated, with the assistance of Drs. Sutliff and Parkinson at 11 p. m., following the plan prescribed. The child was delivered alive in two minutes; the shock and loss of blood were slight; the uterine contraction was prompt and efficient.

Postoperative History.—Uterine infection, suspected at the time of operation, was quite evident the day following. Fearing some accident, however, I delayed intrauterine treatment until the fifth day. From this time on an intrauterine douche, followed by an intrauterine injection of clove oil and glycerin, with the patient in the Sims' position, was given every six hours until her condition was greatly improved, and then every eight or twelve hours until convalescence was established. Within an hour after each injection the temperature dropped nearly or quite to normal, with a corresponding subjective improvement in the patient's condition. The patient left the hospital on the fifteenth day after operation, and both she and her child have done well since.

CASE 4.—Mrs. T., primigravida, in the ninth month, was taken with severe uterine hemorrhage Feb. 8, 1905, at 7 p. m. On examination Dr. Sutliff found a total placenta prævia with long, undilated and undilatable cervix, and with the head presenting at upper straight. In consultation I confirmed the diagnosis and concurred in advising immediate Cesarean section.

Operation.—I operated at 10:30 p. m., with the assistance of Drs. Sutliff and S. E. Simmons. The extreme corpulence of the patient necessitated a freer incision, but without any effort the child was delivered within three minutes. The lower uterine segment was filled with blood, dammed back by the vaginal packing. The hypodermic of ergot was given late, and the uterus did not contract at all promptly or vigorously, but hemorrhage was kept fairly under control by compression of the aorta. The loss of blood, however, was considerably greater than in the previous case. The child could not be resuscitated, although Dr. Simmons thought he felt a few heart beats.

Postoperative History.—The uterus was also infected in this case and the same treatment was employed. The patient left the hospital on the tenth day, completely recovered. Examination May 27 showed uterus somewhat enlarged, but entirely free from abdominal wall.

DISCUSSION OF CASES.

The course pursued in these cases was justified, I believe, both by the conditions present and the results obtained. In the third case with total placenta prævia, undilated and rigid cervix, head presenting but unengaged, sac ruptured and largely emptied, any other procedure would have sacrificed the child inevitably, and probably the mother.

In the fourth case, with total placenta prævia and a long and rigid cervix, the same assumption is not unwarranted.

DIAGNOSIS AND TREATMENT.

Early diagnosis of placenta prævia is imperative. During the sixth month a thorough pelvic examination should be made in every case of pregnancy. The vaginal examination should be supplemented by a rectal one in order to determine the condition of the posterior and lower segment of the uterus, which it is sometimes difficult or impossible to reach by the usual method. Having made a positive diagnosis of total placenta prævia, I believe that serious hemorrhage and likelihood of infection consequent on repeated packing and manipulation should be prevented by early operation, prophylactic Cesarean section.

The difficulty with this dictum, it seems to me, will rather be with its application than its acceptance. To me it seems quite clear that taking time by the forelock and with due deference to the interests of both

mother and child, selecting the opportune moment for surgical intervention, we may materially reduce the death rate, maternal no less than fetal.

But what is the opportune moment? The moment of maximum viability of fetus compatible with minimum danger to mother. In other words, the furthest point of pregnancy which does not materially compromise the safety of the mother—as a rule, probably, the last week of the eighth month or first week of the ninth month; earlier, of course, if hemorrhage has already occurred.

PLAN OF OPERATION.

Besides the avoidance of hemorrhage and infection, there is another important advantage in electing the time for operation—all preparations can be properly made.

In an emergency, preparation can be made in a few minutes: Shave abdomen, rub well with clove oil, scrub with sterile soap and water, wash off with alcohol, cover with sterile gauze, sheet or mackintosh with median slit, sterilize hands by same method and cover them with gloves.

Only a few instruments are absolutely necessary: Knife, scissors, needles and holder, hemostats, silk and silkworm sterilized by boiling; in fact, in case of necessity, one might do with sharp-pointed scissors, a hemostat or two, needles and thread.

Whenever time permits the most painstaking preparation should be made, and the most careful plan of operation should be laid out beforehand. Two lives are at stake, and each must be surrounded with every possible safeguard. These precautions consist of three days in bed preliminary to operation; a clear and aseptic digestive tract; free ingestion of water twenty-four hours before operation; thorough antiseptic preparation, and the strictest asepsis in every detail. Competent assistants should be provided in sufficient number; one, with every preparation for resuscitation, to take the infant immediately after delivery; one to compress the aorta after the uterus is emptied; one to compress the uterine arteries if need be, and two to hand instruments, to use hypodermoclysis or venous infusion and to render other necessary assistance. Each assistant should be thoroughly instructed in his special duties; sutures should all be threaded and ligatures cut; saline solution and apparatus for flooding abdomen, hypodermoclysis or venous infusion, ergot and adrenalin solution, Faradic battery, everything possible pertaining to the operation should be in readiness for immediate use, so that, from start to finish, there may not be the slightest hesitation, hitch or delay.

Anesthesia should be induced by a skilled anesthetist, beginning with ethyl chlorid and finishing with ether.

Ten minutes before the first incision a full dose of ergot should be administered hypodermically. Should arterial tension drop, adrenalin chlorid, 1/50 grain, may be given intravenously or hypodermically, but not mixed with ergot, as it might hinder the absorption of the latter and predispose to abscess or to necrosis.

With everything planned and prepared, a median incision from 15 to 20 cm. in length should be made over the most prominent part of the fundus, extending ordinarily about equally above and below the umbilicus, occasionally one-third above and two-thirds below. The abdominal incision should be made quickly, but not hurriedly, and should be completed before the uterine incision is made. While the assistant presses the edges of the abdominal wound against the uterus, the uterus and amnion are incised at either the lower or the upper

angle of the abdominal wound; either Kocher's director or two fingers of the left hand are introduced, and the uterine and amniotic incision is completed with angular scissors. The infant is seized by the feet, or, if the head presents, by the neck, and lifted carefully out of the womb and handed to the assistant selected for this purpose. The cord is clamped in two places with suitable hemostats and cut between.

No attempt at uterine hemostasis should be made until the child is delivered, when the second assistant, after cleansing the wound, should introduce the right hand behind the uterus and compress the aorta, in order to control uterine hemorrhage and to maintain the arterial tension of the central nervous system. If bleeding be not sufficiently controlled in this way, the third assistant should grasp the neck of the uterus with both hands, low down, and firmly compress the uterine arteries. Under the influence of the ergot, the uterus should now begin to contract; if not, it should be stimulated with a strong Faradic current conducted by aseptic cords and electrode; one pole should be applied to the fundus and the other to the back.

The placenta and membranes are removed in their entirety; if separated, by lifting and twisting; if not separated, either by the same process or by introducing the hand between the placenta and uterus and carefully peeling them off. The afterbirth must be examined thoroughly; if fragments remain and the condition of patient permits these should be found and removed. The uterine muscle should at once be stitched with No. 2 catgut alternately from the lower and the upper angle at intervals of one centimeter. A curved needle and holder should be used to carry the stitch into the muscularis just below the peritoneum and out of it just above the mucosa; the order is reversed on the opposite side. An assistant ties the stitch at one angle, while the operator introduces another at the other angle.

The wound is cleansed, and over the intramuscular suture the peritoneum is sutured with continuous Lembert catgut suture. The abdomen is cleansed, if necessary, and left full of physiologic salt solution, particularly in case of anemia or shock. The wound is closed by the tier method.

UTERINE INFECTION.

In consequence of repeated tamponing, uterine infection is a frequent and serious complication of placenta prævia; but with prompt, rational and energetic treatment it may be often aborted. The two cases of infection here reported were treated by the method to be outlined; the earlier one somewhat tardily, because of an exaggerated and probably groundless fear of preventing repair of the uterine wound, the later one promptly, and both patients recovered.

The method which I had previously used with excellent results in a number of cases of puerperal infection, and had described in the *Occidental Medical Times* and in *American Medicine*, is as follows:

Immediately on evidence of probable uterine infection cleanse the vagina, and under strict antiseptic precautions, with the patient on the back, wash out the uterus thoroughly through a soft rubber uterine irrigator. This may be improvised with two soft rubber catheters—one No. 12, full length, the other No. 16, one inch longer than the depth of the uterine cavity, and fenestrated in several places so as to permit easy outflow—tacked together by two or three stitches. Then place the patient in Sims' position and inject from two to four ounces of 5 per cent. oil of cloves and glycerin. Leave the irrigator *in situ* and repeat the irrigation and injection from four to eight hours apart. Ordinarily I put the patient

in Sims' position after washing out the uterus and before injecting the glycerin, and let her remain there as long as she can without particular discomfort. One of these patients bore the Sims' position very well; the other found it painful and had to discontinue it.

SUMMARY.

1. Every pregnant woman should be examined during the sixth month to determine the presence or absence and, if present, the degree of placenta prævia. The examination should be made bimanually both by vagina and by rectum and stethoscopically by the vagina and by the abdomen.

2. In case of central placenta prævia, elective Cesarean section of Sanger type should be done at the moment of greatest viability of fetus compatible with least danger to mother.

3. In case the fetus is dead and labor does not set in spontaneously, it should be induced after placental circulation is shut off.

4. In emergency cases, when the patient is not exsanguinated and a sufficiently experienced operator is at hand, the Sanger-Cesarean section with presumably clean or superficially infected uterus should be done, and the Porro-Cesarean operation if the uterus be positively and deeply infected. (A) In case of total placenta prævia with (1) undilated and undilatable cervix, (2) cancerous or fibroid cervix, pelvic tumors, pelvic contraction or other obstacle to the usual obstetric procedure; (3) ruptured sac with escape of amniotic fluid and presenting but undescended head. (B) In cases of lateral placenta prævia with living child, uncontrollable bleeding, and either (1) undilatable cervix or other obstacle to the indicated obstetric procedure, or (2) ruptured and emptied sac with presenting but undescended head.

5. In elective cases complete and thorough preparation should be made, and the operation systematically planned; distinct functions should be assigned to each assistant.

6. In imperative emergency cases, the surgeon must operate with what may be at hand—scissors, hemostats, needles, thread, antiseptic, ether.

7. Hemorrhage may be prevented by giving a full dose of ergot hypodermically ten minutes before beginning the operation, compressing the abdominal aorta as soon as the child is delivered, grasping the neck of the uterus low down with both hands and firmly compressing the uterine arteries and by Faradic stimulation of the uterine muscle.

8. Shock may be obviated and relieved by preventing hemorrhage; by rapid operation; by introducing physiologic salt solution into the colon, connective tissue, blood vessels and abdomen; by hypodermic or intravenous injection of adrenalin chlorid solution, and by compressing the abdominal aorta.

9. In the after-treatment, purgation should be avoided; colon injections of saline solution from eight to sixteen ounces, may be given at intervals of from three to eight hours; the bowels may be moved by enemata; epsom salts, two to four ounces; glycerin, three to six ounces, asafetida mixtures fifteen to thirty ounces.

10. On the first evidence of uterine infection prompt and energetic measures of local disinfection should be instituted by means of antiseptic exosmosis and drainage.

Normal Diet.—Dr. Harry Campbell, London, says that the minimum normal diet is the smallest quantity of food adequate to maintain a man at the lowest weight compatible with the highest attainable level of health.—*Clinical Journal*.