nique. In a few cases of long standing, which have resulted in serious derangement of the nervous system or in organic changes consequent on mal-nutrition, the prognosis is unfavorable.

TREATMENT.

(1) Palliative. Numerous devices have been used for the retention of these troublesome hernia, but their efficacy has been anything but satisfactory. From the fact that these hernia are so commonly irreducible, any truss serves only as an irritant, becomes unbearable, and makes the patient's condition worse. The adhesions become more extensive, and a local peritonitis not rarely follows. Hence palliative treatment should never be recommended unless some valid contraindication exists for any radical operation, such as some serious organic lesion or advanced age. Under such circumstances, carefully adjusted swathes with or without a pad, as experience with each case will dictate, may serve to alleviate suffering in some cases. In women, carefully adjusted corsets are occasionally effective. The diet should be regulated so as to avoid overloading the stomach, and the importance of bodily rest after eating should be enjoined upon the patient.

(2) Operative. Many of the early operated cases died of peritonitis. Some years later, deaths were less frequent, and absolute relief was afforded by the operation, but recurrences generally took place because these wounds were left open and allowed to heal by granulation.

Under the present technique of abdominal surgery, the risk of death is practically nothing, the almost immediate relief from symptoms assured, and the chance of recurrence very slight.

The general steps in operating do not differ essentially from those to be followed in any case of hernia. The sac should be carefully isolated deep within the ring, then incised and its contents examined, adhesions freed, redundant omentum excised, and the stump reduced within the abdominal cavity. It is safest to enlarge the ring sufficiently to introduce the finger in order to be certain that no further adhesions exist around its circumference. Such adhesions very commonly exist, and these alone are sufficient to give rise to all the symptoms which the case presents. The entire sac should be excised and the peritoneum closed with slight tension so as to obliterate all folds. The abdominal wall should be closed in layers by buried sutures, and the whole may be supported by a few deep interrupted silkworm-gut sutures. Muscular tissue is one of the best barriers against recurrence, hence it may be advantageous to open the sheaths of the recti muscles laterally, and thus obtain perfect approximation along the line of incision.

CONCLUSIONS.

(1) That hernia epigastrica should be considered in the differential diagnosis of gastro-intestinal disorders in all text-books which deal with internal medicine.

(2) That cases are probably more common than is generally supposed.

(3) That the apparent gravity of the symptoms is far out of proportion to the physical signs.

(4) That in most cases the gastro-intestinal symptoms are probably consequent on tension or constriction of nerve fibres in the omentum and peritoneum.

(5) That the subperitoneal fat tissue plays an important rôle in the formation of these hernia, the

presence of which alone may give rise to symptoms and signs differing in no respect from cases complicated by the presence of omentum or intestine.

(6) That palliative treatment is practically useless, and should be considered only in exceptional cases.

(7) That operative treatment offers immediate relief with a minimum of risk.

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FIVE CASES OF ECLAMPSIA, WITH COMMENTS UPON THE TREATMENT.¹

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CASE I. Eclampsia following delivery. Recovery.

A primipara, twenty-two years old, after a day of pain which she had concealed, was finally forced to admit her illegitimate pregnancy by the gush of liquor amnii at 5 P. M., December 15, 1885.

At 9 P. M. I found her in a dazed, stupid condition. Her face was decidedly edematous. She had not been passing much urine for some days. After the birth of a six-pound girl at midnight, and in fifteen minutes the delivery of the placenta, she was seized with a convulsion. In fifteen minutes a second occurred, and

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a third a half-hour later. For several hours she was comatose. During the following afternoon she had several convulsions, finally controlled by the hypodermic injection of a half-grain of morphia, and by the forcible police removal, at my request, of the lady of the house, who persisted in upbraiding the patient for damaging the reputation of the premises.

CASE II. Eclampsia during labor. Recovery.

On June 10, 1887, I found Mrs. S. F. Z. in a most wretched condition. She had previously borne five children without trouble. For several weeks she had been suffering from headache, and for several days she had been having occasional labor pains. The os was not larger than a silver half-dollar, the lips were wiredged. She was vomiting often. Her urine was very scanty, and dark brown. Cream-of-tartar water was given her. A few hours later, during my absence, the five-pound boy was born during a convulsion, and without the nurse's knowledge. Four hours later a second convulsion seized her. The room was then made very hot, and free perspiration obtained. Morphia, half a grain, was given hypodermically to quiet her. After a long sleep she appeared as well as ever, and made an uneventful recovery.

CASE III. Eclampsia. Manual dilatation, podalic version, recovery.

Mrs. C. H. was a primipara twenty-four years old. She was seven months pregnant. One evening she complained of headache. Her feet were much swollen. Her urine contained a trace of albumin, and had not been noticed to be scanty. The next afternoon she vomited, became blind, and soon was in a spasm. She had barely recovered consciousness half an hour later, at the time of my arrival. Immediately there came a second spasm, and in ten minutes a third. She was then etherized and manual dilatation begun; but it was a full half hour before even one finger could be inserted, and nearly two hours before dilatation was completed. Then, by podalic version, a two-pound girl was delivered. The baby lived only for a few gasps. The patient was superheated by means of hot air from a lamp-chimney carried through a stove-funnel into her bed, and was soon copiously perspiring.

She made a rapid and uninterrupted recovery, but has since had to undergo operation for the repair of her cervix, which was torn through into the vaginal vault.

CASE IV. Eclampsia following labor. Recovery.

Mrs. B. O., a strong, healthy primipara, several hours after a perfectly normal labor, was seized with a convulsion, and became comatose.

I saw her, in consultation. Her urine, drawn by catheter, solidified on boiling. Nitrate of pilocarpine was given hypodermically, and hot air carried directly into her bed. She soon perspired freely. The next day she became conscious, and subsequently made an uninterrupted recovery.

CASE V. Eclampsia without spasms. Partial suppression of urine, recovery.

On September 20, 1896, I found Mrs. B. I. J. suffering with a snapping headache which had lasted for several days, preventing her from sleeping, and which had now become unbearable. She had passed through a former pregnancy nine years before normally, save for a severe post-partum hemorrhage. Now her hands and face as well as her feet and legs were very edematous. Her urine was scanty, and contained one-quarter per cent. albumin with hyaline and granular casts in abundance. She was eight months pregnant.

Phenacetine gave her some relief from the blinding headache. Her bowels were freely moved with Seidlitz powders. Cream-of-tartar water and coffee increased the flow of urine for a time. But soon, on account of her constant vomiting and agonizing headache, morphia and pilocarpine were used hypodermically. But after free perspiration she would be comfortable for several hours. But she was unable to lift her head from the bed. She slept only in naps of a few minutes' duration. She became very restless, and her eyes and face were constantly twitching.

Preparations were made for the induction of labor, but from day to day this was postponed. For ten days she passed only 126 ounces of urine; on one day only 10 ounces; and only 18 ounces the best day.

During each of these ten days she was given at least five pints of liquid nourishment and water. Diuretin, in ten-grain doses every four hours, was given without any apparent effect. But she gradually grew more comfortable; and quite suddenly, after several days' use of Basham's mixture, she began passing more urine, the daily amount jumping from 20 ounces to 37 ounces, and then to 73 ounces. The edema lessened greatly. All medicine was stopped. During the following three weeks she passed sufficient urine, the least amount being 40 ounces. Her appetite returned, and she was able to sit up for a few hours nearly every day, but her headache continued and she slept very poorly.

As her confinement drew near, she became worse again. Her urine amounted to only 163 ounces for the week immediately preceding her labor, to nine ounces the day before, and to eight ounces the day of her labor. The edema returned, together with the severe headache and vomiting. Bromo-cafein was given in large doses, and morphia occasionally. Basham's mixture was again employed.

On October 28th she passed through a normal labor, and gave birth to a large boy. On the following day she passed four pints of urine, and the diuretics were omitted. Her convalescence was rather slow; but she was able to nurse her baby, and she made a perfect recovery. When the baby was a fortnight old her urine again became scanty, one day amounting to only one pint. The headache and vomiting also returned, but under the same diuretic treatment she again rapidly improved. At the end of a month the urine became normal in amount and entirely free from albumin.

She is now (two years later) a perfectly well woman, and her baby is a perfectly well boy.

In previous papers read before this Society and already published² I have reported six other cases of eclampsia, making eleven cases which have occurred in my seven hundred midwifery cases. In four of the eleven cases the mother died. In four cases the premature child died. In two cases the fetus was macerated. In only five cases the child survived.

Inasmuch as both the mother and child lived in the four cases where the labor was neither induced nor assisted, the treatment employed demands close scrutiny in accounting for the frightful mortality.

Two of the four mothers who died were under my own observation for some time previously. Had they been as carefully watched and as faithfully nursed as was my patient last reported (Case V), I cannot but believe they and their babies would have lived. And

² Boston Medical and Surgical Journal, vol. cxx, p. 427; vol. cxxv, p. 28; and vol. cxxxv, p. 355.

I also believe the same of another of the mothers whom I saw only in consultation. The fourth mother who died had not been under medical observation. She died probably from shock or from etherization or from hemorrhage, or, in other words, from too energetic treatment. Her baby survived.

Four premature babies were practically sacrificed where forcible induction of labor was employed, on the supposition that such treatment alone would save the mother's life. Twice this may have been true, but in two of these cases not even the mother was saved. In all the cases fortunately the father survived.

It may be presumptuous to attempt any deductions from such a record as to the proper treatment of eclampsia, especially as it is customary to base recommendations as to treatment only upon uninterrupted successes. Nevertheless, believing as I now do that the treatment employed was not theoretically right, I offer the following criticisms and conclusions:

(1) It is more important to keep account of the amount of urine excreted by pregnant women than it is to test it occasionally for albumin. And if the amount is scanty, prompt measures should be taken to promote diuresis; failing which, then catharsis and diaphoresis should be induced.

(2) In cases of eclampsia, before term, diaphoresis should be tried before resorting to the induction of labor. Hot air is the safest and most effective means thereto.

(3) In cases of eclampsia occurring at term, diaphoresis should be employed *while* inducing and expediting delivery.

(4) The rapid induction of labor by manual dilatation of the cervix is a difficult and dangerous operation, which if combined with forcible delivery of the child is well calculated to add to the shock already caused by the eclamptic attack.

(5) In eclampsia, as in all other cases of kidney failure, ether is contraindicated. Surgical anesthesia is not needed. Chloroform, always the proper anesthetic in obstetric practice, is imperatively proper in cases of eclampsia.

PUERPERAL ECLAMPSIA.¹

A STUDY OF ONE HUNDRED AND SIXTY CASES OCCURRING AT THE BOSTON LYING-IN HOSPITAL AND IN THE PRIVATE PRACTICE OF MEMBERS OF THE OBSTETRICAL SOCIETY OF BOSTON.

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THE following paper, which is offered as an introduction to the discussion of this subject before the Obstetrical Society of Boston, consists first, of a brief analysis of the 67 cases of eclampsia that have occurred at the Boston Lying-in Hospital in the last twelve years, and, secondly, of an analysis of 93 cases occurring in private practice collected from the members of the Society and their invited guests.

I. SIXTY-SEVEN BOSTON LYING-IN HOSPITAL CASES.

I have availed myself of the excellent paper by Dr. Charles M. Green published in the *American Journal of Obstetrics*, Vol. XXVIII, No. 1, 1893, for the cases

of eclampsia occurring at the hospital from 1885² to 1892, inclusive, a total of 36 cases. In the four years (lacking one month) since then, 31 more cases of eclampsia have occurred at the hospital, making a total of 67 cases; 48 of these, or 72 per cent., were primiparæ. Of the 67, 48 recovered and 19 died, giving a maternal mortality of 28 per cent.

This compares favorably with other statistics. Thus, Fothergill puts the mortality at 26 per cent.; Braun, of 73 cases, finds it to be 26 per cent.; Dohrn, of 747 cases, 29 per cent.; Dorland, 30; Kaltentbach, 30; Hofmeier (104 cases) 32.4; Shauta, 36.5; Bailly, 42; Madame La Chapelle, 50; Pajot, 50.

The fetal mortality in the ante-partum and inter-partum cases, excluding the non-viable cases, is 24 per cent. out of 32. The following table shows the relative frequency and mortality in the three classes of puerperal eclampsia:

	Cases.	Per cent.	Per cent. fatal.
Ante-partum eclampsia . . .	29	43	38
Inter-partum eclampsia . . .	17	26	23
Post-partum eclampsia . . .	21	31	19

It is seen that the ante-partum cases are the most common and the most fatal; the inter-partum cases are less fatal; while in the post-partum cases the prognosis is the best. Coming now to a more particular consideration of the prognosis, we find that where marked coma was present, always considered an unfavorable sign, about one-half only, or 51 per cent., were fatal.

The average total number of convulsions in the 48 mothers that recovered was 5, the numbers running from 1 to 25. In the 19 that died, the average was 8.2, the numbers running from 2 to 24. It is, therefore, impossible in any given case to form a definite prognosis from the number of convulsions or the existence of coma, as a study of these cases shows that women have died after two convulsions and recovered after 25 and deep coma, although the general rule is, the fewer the convulsions, the better the prognosis.

The effect of the convulsions, or the condition which causes the convulsions, on the child, is also of interest. It is generally assumed that the toxemic condition with eclampsia and coma is, if prolonged, fatal to the child. The Lying-in Hospital cases do not bear this out. Thus, of 19 ante- and inter-partum cases (excluding the non-viable) that recovered, the number of convulsions in the mother averaged 4.8; of seven that died, the convulsions averaged 3.8. One child was born dead after only one maternal convulsion; while four children survived eight or more maternal convulsions, one surviving seventeen maternal attacks and was delivered alive while the mother was comatose. Forced delivery by version is, of course, responsible for the death of the child in several cases, without reference to the existence of toxemia. These cases, therefore, show that it would be unwise to assume that the child was dead even if the mother had had numerous convulsions and was comatose.

The treatment, to quote freely from Dr. Green, in these hospital cases has been essentially the same in all the cases, with minor differences owing to the member of the staff in charge, or adapted to the individual case. It should be remembered that the hospital patients are not received prior to the onset of labor; hence there is no opportunity to observe or relieve the various prodromal symptoms of eclampsia

¹ Read before the Obstetrical Society of Boston, December 15, 1896.

² Cases prior to 1885 are not included, as the aseptic system was not introduced until this date.