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Contributors

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13

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THE
VOMITING OF PREGNANCY:

ITS CAUSES AND TREATMENT.

BY

GRAILY HEWITT, M.D., F.R.C.P.,

PROFESSOR OF MIDWIFERY AND DISEASES OF WOMEN, UNIVERSITY COLLEGE;
EXAMINER IN MIDWIFERY TO THE UNIVERSITY OF LONDON.

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FROM 1776 TO 1876

BY

JOHN P. KANE

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By GRAILY HEWITT, M.D., F.R.C.P.,

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"Ars medica est tota in observationibus."

THE nausea and vomiting so frequently present in pregnancy have come to be associated with this condition in an almost necessary manner, as a part and parcel of the affection, in the minds of the profession at large. Not very rarely, as is well known, the vomiting passes ordinary limits, and causes by its obstinacy and continuance a very serious disease. In a still further degree of intensity the vomiting by its incessant existence absolutely imperils the life of the patient, and in some few cases death has actually resulted from the combined effects of the starvation and exhaustion produced. The difficulty of dealing satisfactorily with obstinate cases of this kind is well exemplified by the fact that such a letter as the following was published in the 'British Medical Journal' for March 4th:

"Sir,—Can any of our members help me with a remedy or palliative for an obstinate case of nausea and vomiting in pregnancy?—I am, &c., A COUNTRY PRACTITIONER."

It is further illustrated by the very numerous list of remedies which are to be found enumerated in the various text-books.

I am prepared to lay before the Society what may be regarded as substantially a new view of the matter, and an explanation of the occurrence of nausea and vomiting in pregnancy, which will, if I am not much deceived, form a basis for the successful treatment or palliation of this troublesome and sometimes grave disease.

The whole question of the relationship of pregnancy to the vomiting or nausea so frequently accompanying it is one of great interest. It is well known that this symptom is not very uncommonly observed almost immediately after impregnation has occurred, the more general circumstance being that it is first observed when the pregnancy has lasted a week or two, the very early occurrence of the symptom apparently lending sanction to the view that the two things, the pregnancy and the vomiting, are related to each other in an inscrutable and inseparable manner.

From the very mild cases, where the symptom only consists of an occasional feeling of nausea, to the exceedingly severe cases where life is absolutely imperilled, we have all sorts of gradations, but it does not appear that essentially there is any difference in the actual phenomenon save one of degree. The pregnancy and the sickness are evidently in the relation of cause and effect.

Further, it must be stated, as a part of the natural history of the sickness of pregnancy, that it is almost, but not quite, invariably limited to the first four months, the cases being comparatively rare in which it is observed to occur after this time.

I thus briefly allude to the various well-known facts relating to the sickness of pregnancy, because it is evident that one and the same explanation, if one can be given, will apply, or should apply, to the sickness of pregnancy at whatever period it may occur. Any explanation, to be a sound and trustworthy one, must include all the possible cases and account for the various facts.

The fact that, especially in the milder cases, the sickness is particularly observable when the patient assumes the erect posture on rising from bed in the morning, is a very important element in the history of the affection, and I shall have presently to allude to it more particularly.

The explanation generally given of the occurrence of vomiting in pregnancy is, that it is a reflex phenomenon produced by the irritation of the gravid uterus giving rise to this sympathetic disturbance of the functions of the stomach. "The synergic action between the stomach and the uterus, both as regards secretion, sensation, and motor action, are," says Dr. Tyler Smith, who has so ably written on this subject, "amongst the most remarkable phenomena of reflex nervous action" ('Manual of Obstetrics,' p. 99). This fact is indisputable, that the vomiting is the result of a reflex action. But what is the *modus operandi* of the action on the uterus thus setting up irritation? Dr. Tyler Smith's explanation is, that "it is probably caused by the distension and evolution of the dense structure of the uterus after impregnation, or by the pelvic irritation caused by the gravid uterus before it emerges from the brim or from both these causes" (loc. cit., p. 99).

That "the distension and evolution of the dense structure of the uterus" is an exceedingly important element in the explanation of this irritation and consequent vomiting, there can be no doubt, and I am not aware that any writer has given a more satisfactory account of the matter than the one thus proposed by Dr. Tyler Smith.

So far as it goes the explanation thus given is satisfactory, and many arguments may be adduced in confirmation of it. The uterus necessarily expands during pregnancy. The resistance to this expansion has the result of giving rise to compression of the uterine tissues. The nerves of the uterus are mechanically compressed, and irritation is thus set up. Such would be probably the general statement of the professional ideas on the matter; and these ideas are substantially accurate.

But this does not explain many of the most curious facts

about the sickness of pregnancy. It does not account for the circumstance that the sickness is so frequently observed only in getting into the upright position in the morning. It does not explain why it is that the sickness is occasionally so severe as to endanger life, and it leaves unexplained, or at least imperfectly so, why it is that the sickness is so commonly limited to the first four months of gestation. Various theories regarding abnormal conditions of the digestive organs as the causes of the sickness have been largely had recourse to, but no one author has been able to observe facts enabling him to put forward this explanation as to the occasional severity of the sickness with any degree of confidence.

Inflammation and congestion, and the so-called ulceration of the os uteri, have been successively invoked to account for the sickness, but certainly the facts of the case do not support this view, unless in a very partial sense, which I shall presently more particularly allude to. The os uteri may be in an unnatural condition; this I believe; but this is by no means an essential concomitant of the sickness.

I will next proceed to set forth the views I have been led to take on the matter, and the shortest method of doing this will be to explain the train of reasoning which induced me to adopt them.

For the last few years I have carefully and rigidly analysed the cases of uterine disease which have come before me, with the endeavour to establish definite relations between the symptoms and the alterations or lesions present. Sickness and nausea are so frequently attendant on uterine disease that this symptom necessarily comes very commonly under observation. The facts which have presented themselves to me have led me to establish a very close connection between nausea and sickness, and those alterations in the shape of the uterus known as flexions. This connection I have repeatedly, though by no means constantly, observed. I am speaking now, let it be understood, of nausea or vomiting quite apart from pregnancy, and for the moment I wish to speak of cases in which there is no question of pregnancy whatever. I say, then, that nausea and vomiting are rather common symptoms

in cases of flexion of the non-impregnated uterus, though it by no means follows that every case of flexion will be attended with nausea and vomiting. Endeavouring still further to trace the connection between the flexion and the nausea or vomiting, I was led to the conclusion, from an analysis of the facts, that it was more likely to be observed in cases where the flexion led to retention of the secretions of the organ, as in dysmenorrhœa, when the menstrual blood does not readily escape, owing to the constriction at the seat of the bend of the uterus, and in certain other cases where the flexion was severe independently of such evidence of retention of fluid in the uterus. Severe flexion thus alone, or coupled with retention of fluid in the uterus, have seemed to me to be demonstrably and unmistakeably the cause or essential accompaniment of the troublesome nausea and vomiting observed in the non-pregnant condition. I am not unaware of the fact that the os and cervix uteri are not uncommonly under such circumstances turgid, congested, and otherwise somewhat changed, but I regard this condition of the os as secondary, and the result of the interference with the circulation at that situation due to the flexion and other concomitant circumstances.

This is by the way, however. I will not dwell further on this question, the relation between flexion of the uterus in the non-gravid state and sickness, further than to state that it has gradually grown to represent itself to me as a fact fortified by observation of numerous cases.

Latterly I have found myself extending a like explanation to the sickness of pregnancy, and have been led to the conclusion that the sickness of pregnancy is due to the combined effects of the increasing distension of the uterus and an associated flexion of the organ. In other words, I have become more and more convinced that the presence of a flexion of the uterus will, in some few cases, lead to troublesome sickness if the patient becomes pregnant.

It should be observed that I do not here make the sweeping assertion that flexion of the uterus will always give rise to sickness of a troublesome character should pregnancy super-

vene. I am desirous of exercising caution and do not wish to overstate the case, for reasons which will be presently set forth; but I am nevertheless in the position to state that the facts which have come before me have been such as to show that there is a most obvious and a most unmistakable connection between the supposed cause, the flexion, and the effect, the sickness.

The proofs which I am able to submit to the Society in favour of the truth of the theory now propounded are various in character. Having had occasion to treat cases of sickness in young unmarried women suffering from flexion, it has been observed by me that when those patients marry and become pregnant, the sickness observed is liable to be unusually severe and troublesome. Another class of facts are those presented by patients whom I have been called upon to treat for the first time in consequence of the presence of severe sickness, with pregnancy, and whose condition previous to marriage I have had no means of actually knowing.

In these cases I have, since my attention was directed to the matter, always recognised an abnormal condition of the uterus as regards its shape. Lastly, regarding the cases which have come to me in the course of consultation practice, and where the symptoms of sickness have been still more troublesome, the same fact holds good, the connection between the two things have been observed to exist.

As an illustrative case I will cite the following, which was observed by me in the month of February of this year, in consultation with Dr. Royston.

The lady, æt. 24, quite recently married, had menstruated last on October 14th, 1870, a very slight discharge being observed on November 3rd. Since November 3rd there had been occasional sickness, and from the end of January up to February 21st, when I first saw her with Dr. Royston, the sickness had been severe. Dr. Royston informed me that the lady was pregnant, that when first called in to see her, about a fortnight prior to my seeing her, the sickness was

most severe and trying, and no article of food could be retained. On hearing Dr. Royston's account of the symptoms I expressed my opinion that the uterus was acutely anteflexed, that the fundus of the uterus would be found to be low down, jammed in the pelvis, and that this was the explanation of the symptoms. On proceeding to make an examination my opinion was found to be exactly verified, the os uteri lay far back, the roof of the vagina was projected downwards and backwards by the enlarged and anteverted and flexed uterus, and the body of the uterus was scarcely to be felt at all through the abdominal wall, although the pregnancy was probably of about four months' duration.

The patient had, in my opinion, suffered from anteflexion before marriage, and pregnancy having occurred the uterus had gone on growing and expanding without losing its vicious shape, and, indeed, with an increasing aggravation of that vicious shape up to the time of my seeing her.

The evidence that anteflexion existed prior to marriage is as follows:—The patient was never able to dance without discomfort. She had, six years prior to marriage, taken for six months violent horse exercise to which she was previously unaccustomed, and this was followed by losses similar to those of the menstrual periods, and by diarrhœa. On another occasion, a year later, horse exercise again taken brought on similar symptoms.

In this case the advice given was that the patient should remain altogether in the horizontal position in order to allow the expanding uterus a better chance of escaping from the pelvis, and that the bowels should be kept regularly open. The result of this treatment was that the chief symptom—the sickness—underwent a most material alleviation. This patient was much relieved, therefore, by a treatment which diminished the flexion.

I mention this case because it is a typical one, but others equally and indeed more illustrative might be given of anteflexion associated with marked, troublesome sickness.

I have also observed cases in which the occurrence of

obstinate sickness has been connected with the presence of retroflexion of the gravid uterus. It is now well known, as insisted on by Dr. Tyler Smith, that the retroflexed gravid uterus generally results from impregnation of an already retroflexed organ. Of the truth of this I am entirely convinced from my own experience, and in some few cases I have observed obstinate sickness to accompany this state of things. I have also observed that under such circumstances

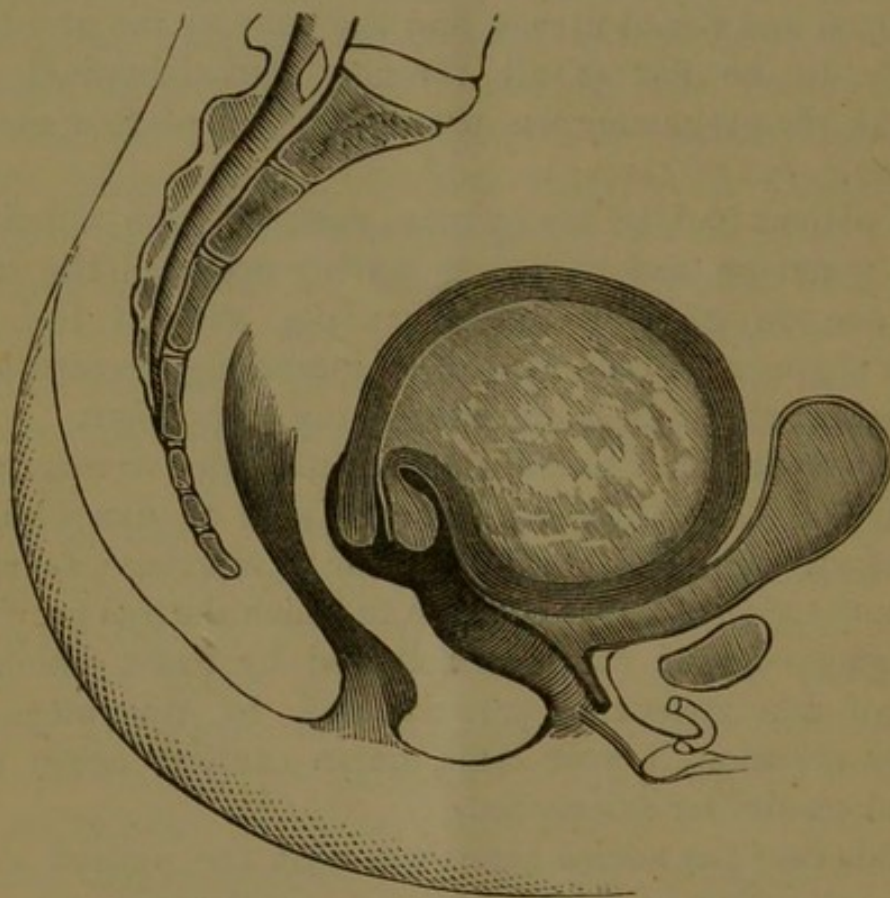


Diagram representing anteversion of the gravid uterus.

the sickness disappears when the organ is restored by artificial means to its proper position.

Anteversion of the uterus is much more commonly found to be the cause of sickness in pregnancy than retroflexion, simply because it is a comparatively rare thing for the retroflexed uterus to become impregnated, while nothing is more common than for the anteverted uterus to fall into the gravid state. Pregnancy is generally, though, as already remarked,

by no means universally prevented by retroflexion, a position which is most unnatural for the organ to be placed in, and which pretty effectually hinders conception, but in ante-flexion the bend of the uterus deviates less from that which is normal to it. Hence the result, clinically, that when obstinate sickness occurs it is infinitely more likely to be due to ante-flexion than to retroflexion of the gravid organ.

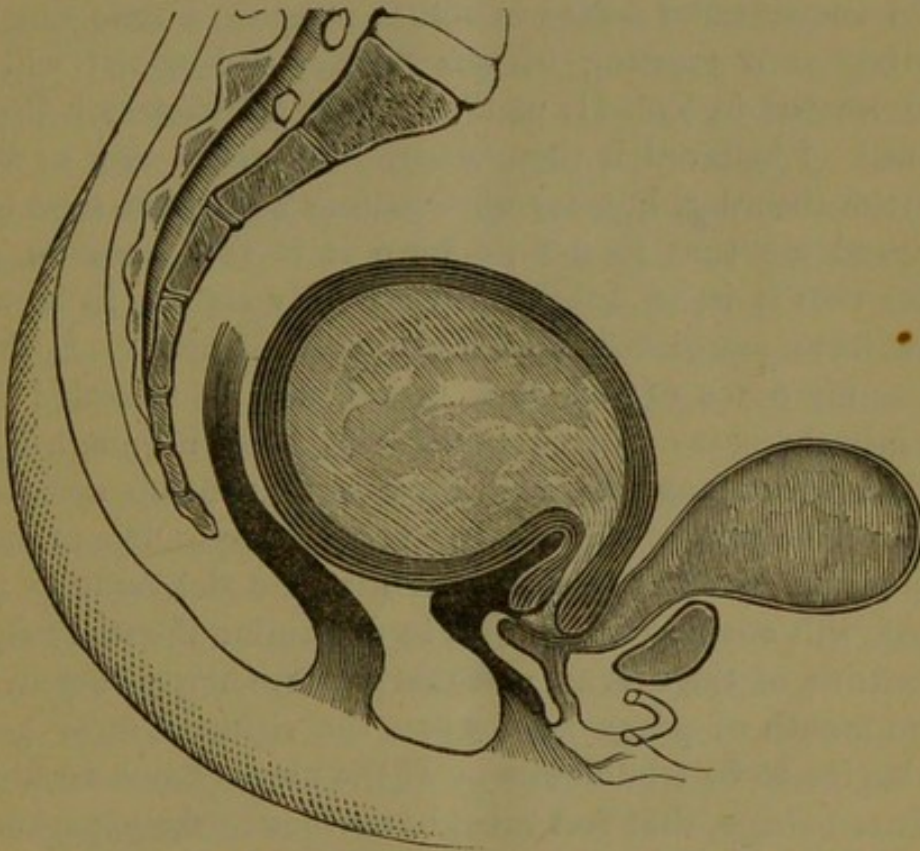


Diagram representing retroflexion of the gravid uterus.

The assertion that flexion of the gravid uterus is generally the cause of the obstinate sickness sometimes observed in pregnancy is one which I need not say can be easily verified or not by examination of cases coming under actual observation. But it is necessary that a caution should be given in accepting any supposed negative results of such examination in particular cases. From what I have heard and seen of professional opinion on the matter it is not

generally known or understood that anteflexion of the uterus in the non-gravid state is a common affection, nor is it practically admitted that anteflexion of the gravid uterus is common. In the various text-books on obstetrics anteversion of the gravid uterus is generally not even mentioned as a possible occurrence. This observation does not apply to some of the text-books published on the Continent. One of them, at all events that of M. Cazeaux, alludes to it. I myself was not aware of the possibility of its occurrence until I encountered a case in actual practice, a case which I described at a meeting of this Society and which will be found related in Vol. II, p. 170, of the 'Obstetrical Transactions.' I believed it then, that is, six years ago, to be a very rare disorder, but my observations since that time have convinced me that in a mild form it is very common, and further that it is, as I have already fully stated, in a more severe form associated with obstinate sickness. Looking back to my notes of this first case I find it recorded that obstinate sickness occurred in this instance, although I did not then attach any particular signification to this symptom.

The verification of the fact is, I repeat, easy. The ordinary examination by the finger, if carefully and deliberately performed, will enable the observer to determine the exact shape and outline of the uterus, and this is particularly easy in the second month of pregnancy, when the sickness most generally begins to be troublesome. If the uterus has a decidedly anteflexed shape, that fact must be obvious to the experienced touch under such circumstances. When the patient is lying down in the ordinary position on the left side, the force of gravity does not act so as to increase the anteflexion, but the contrary. This affects the consideration materially, and allowance must be made for variations produced by position of the body in deciding on the diagnosis. Thus a very decided anteflexion may exist, and yet because the observer does not find the fundus uteri very low down in the forwards direction, the conclusion may erroneously be drawn that there is no anteflexion. The fact is, that the position of the fundus uteri varies during the first two or three months of pregnancy

in these ante flexion cases according to the position of the patient. In the erect posture the fundus is low down, pressing on the original roof; when the patient is lying down, on the other hand, the body of the uterus is relatively higher in the pelvis. We see the same phenomenon in the non-gravid state, where the organ may be ascertained to change its position very materially under the influence of gravity, while the *shape* remains unchanged. Further, it cannot fail to strike any one considering the subject that, if the uterus is rendered more pliable, as it is likely to be under the influence of pregnancy, the influence of gravity will, or may have, the effect of intensifying the flexion itself, supposing such flexion to exist. And I have no doubt whatever that, as a matter of fact, the ante flexed gravid uterus at, say, the end of the second month does become more flexed, as well as more anteverted, when the patient is in the erect position.

I believe we may now go a step further in the analysis of this sickness of pregnancy. Admitting, as I believe I have proved, that the cause of the sickness is generally flexion of the organ, how is the sickness traceable to such flexion?

The explanation I have to give of this occurrence is, that the tissues of the uterus, including the nerve ramifications pervading it, are compressed at the seat of the flexion, and that this is the cause of the sickness. Irritation of the os uteri, where nerves are sufficiently numerous, is well known to excite vomiting. Stretching of the os uteri, such as occurs during parturition, is well known to give rise to vomiting. This dilatation of the os uteri has the physical result of stretching or pressing upon nerve-tissue, and this in the latter instance appears to constitute the irritation. Again, to take the case of the non-gravid flexed uterus, what is the nature of the irritation which sets up the vomiting and nausea sometimes observed? Is it not the compression of the nerves embedded in the uterine tissue at the seat of the flexion? It seems to me that it must be so. It is likely that I may be here met with the statement that this sickness is due to the associated inflammation, and that the flexion has nothing or little to do with it. But this associated inflammation,

granting it to be present, is really another of the effects of the flexion, for the same circumstance which gives rise to the pressure on the nerves at the bend of the uterus gives occasion to an obstruction of the circulation in the organ (a condition which I have described under the term "strangulation" of the uterus), and this obstruction is the essence of the physical conditions described as inflammations of the os; certainly it is generally the first and primary cause of such inflammations.

To come back to the gravid uterus, with which we are now more immediately concerned, what holds good in the case of the non-gravid organ will *à fortiori* hold good with the uterus in the gravid state. The tissues are now more vascular, the nervous constituents of the organ are more sensitive, and even according to some authorities, much increased in size. A pressure which would be sufficient to produce sickness apart from pregnancy would be infinitely more likely to act in this way under these altered circumstances.

It is certainly a curious corroborative fact that, under ordinary circumstances, where the sickness is not particularly troublesome, it is observed to occur generally when the patient rises from bed. The taking of the erect posture aggravates and increases the existing tendency of the uterus to fall forwards, the tissues of the uterus at the region of the upper part of the cervix are compressed thereby, and the reflex disturbance is thus produced, resulting in sickness. The mechanical theory then finds itself well supported by this ordinary fact in the natural history of the sickness of pregnancy. I need hardly say that suggestions as to the treatment of the sickness of pregnancy of a very important character logically follow from this consideration.

The compression of the nerves at the seat of the flexion, a compression increased and intensified by every circumstance increasing the degree of the flexion, is, I believe, the almost universal cause of the sickness of pregnancy. The tissues of the uterus resist expansion—this is the cause assigned by Dr. Tyler Smith in the opinion already quoted. Unquestionably this is the case, but if I am correct in my view, this resist-

ance is not enough, apart from the conjoined flexion of the organ, to account for more than a small number of cases.

I have spoken of flexion as almost universally being the prime factor in the business, and I have studiously used the word "almost." For it must be quite clear that, if the uterus be *from any other cause* more resisting than usual to the expansive process, the nerves may equally undergo such pressure as will lead to sickness. But it is also my belief that the explanation now put forward as to the connection of flexion with the sickness is true in the very extended sense of the word in which I have used it.

I have not yet had an opportunity of examining cases of obstinate sickness in pregnancy after the fourth month. I am not sure how often sickness is noticed in this degree after that period of pregnancy; and I cannot, therefore, pronounce any opinion derived from actual observation as to the state of the uterus under such circumstances. Flexions of the uterus *do* persist under rare circumstances up to a late period of pregnancy. Dr. Oldham in our 'Transactions' recorded a case of delivery at full term of a retroflexed uterus, which is a case in point, though in Dr. Oldham's case there is no mention of sickness. As already stated, severe sickness is rare after the fourth month, by which time a miscarriage occurs, or the flexion which had existed becomes spontaneously cured, and troublesome symptoms of all kinds disappear. There are probably a small number of cases left in which the sickness persists, even when the flexion has been relieved, but on this point I await further information.

Lastly, so far as the pathology of this affection is concerned, the ordinary cases where the sickness is very slight and hardly calls for medical attention. Under these circumstances the sickness is, in my opinion, due to a temporary, evanescent flexion of the uterus; for it need hardly be said, there are all degrees of flexion, from what is merely a slight anteversion to the retort-shaped uterus.

The cases which have come under my notice, and which have been treated on the principles which obviously suggest themselves from the foregoing conclusions, have by the

success of the treatment confirmed the truth and value of these conclusions. By treating the flexion the sickness becomes, in other words, relieved; by maintaining the uterus in a position which will allow of its expansion without compression of the tissues of the cervix, the symptom either entirely disappears or becomes so much mitigated that the trouble is practically at an end. I do not like to appear to overstate the case, but the effect of such treatment has certainly been in many cases quite magical. When, as is most commonly the case, we have to do with an anteflexed uterus, the patient must be made to wear an instrument which I have devised for supporting the uterus from the front termed a "cradle" pessary, or an india-rubber air ball pessary will answer the purpose in some cases; or, as answers the purpose perfectly in a few cases, the patient is made to lie entirely on the back and thus abolish the additional influence of gravity in aggravating the anteflexion.

In cases of retroflexion a very different treatment is required. The oval ring made in various sizes (a modification of the Hodge pessary) is required. The pressure of the upper part of the ring aids the fundus in rising upwards, the flexion is thus diminished, and by-and-bye it disappears.

It is hardly necessary to remark that the application of pressure, by means of pessaries and internal appliances, to the gravid uterus is a matter requiring care, otherwise irritation may be set up and a miscarriage produced. Time will not permit me on this occasion to dwell further on the details of the treatment, but the principle of it is sufficiently obvious.

I do not know how far the reasoning put forward in this paper will commend itself to the minds of the Fellows of this Society; all I can say is, that the facts on which this view as to the cause of sickness in pregnancy has been based have been carefully observed, and that I have been led to the conclusion enunciated simply by the facts which have presented themselves to my notice.



