slit, through the vulva, and turned, when the stem is within the os uteri and the Hodge portion within the vagina.

In the second and third varieties, the stem is first passed with an ordinary sound within the uterus, and then the Hodge and shorter piece introduced. The shorter piece passes readily within the hollowed stem. In cases where the uterine canal is small, it is best to premise operations by a sea-tangle or sponge-tent.

It is remarkable what comfort these instruments give, when once applied. They have the disadvantage sometimes of provoking a temporary menorrhagia, as all intra-uterine pessaries do; but this can be readily arrested by the proper remedial means. But one effect that I have noticed is the large size to which, after their employment, the external os attains. The end of the index finger may be inserted. The advantage, in cases of sterility, of such a dilatation is at once obvious, for this dilatation becomes to a certain degree permanent. The same result renders the employment of these instruments in cases of dysmenorrhoea equally obvious. Certain it is the dilatation effected by stems without a support, however large, is much less considerable than that which these kind of instruments induce; and the reason is easily understood. In whatever direction the tendency to flexion may be, in exactly the opposite direction has the lower part of the stem a tendency to dilate the os, because this last point is fixed. It will also be seen how, with the third variety of instruments I now show you, a version may be gradually rectified, and therefore more permanently, the tissues conforming thereto by the gradual movement of the automatic screw.

ON PERITONEAL ADHESIONS OF THE GRAVID UTERUS AS A CAUSE OF *POST PARTUM* HÆMORRHAGE.*

By G. DE GORREQUER GRIFFITH, L.R.C.P.,

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UNDER such a head, Dr. Graily Hewitt described a case before the Obstetrical Society, at its meeting held on May 5th, 1869 (see *Obstetrical Transactions*, vol. xi, page 108).

"I wish," he said, "to draw the attention of the Society to the existence of one particular cause of *post partum* hæmorrhage which, so far as I am aware, has escaped the attention of obstetric writers and practitioners: I mean the existence of peritoneal adhesions of the gravid uterus, whereby the organ, after the expulsion of the child, is held and forcibly restrained, entirely or partially preventing that contraction which is so essential to the expulsion of the placenta, and to the prevention of *post partum* hæmorrhage."

Dr. Hewitt thinks that some of the various conditions of the uterus spoken of as causing *post partum* hæmorrhage may have really been the lesion he describes, but that it had been unrecognised because unknown. By these adhesions, the uterus is kept from contracting, and so the "mouths of the uterine sinuses must be held open, and a ready egress afforded to the blood in the maternal system".

I will here give a *résumé* of the *post mortem* appearances of the womb as found in his case, using, as nearly as is consistent with brevity, Dr. Graily Hewitt's own words, while I will also quote *verbatim* some of his remarks.

"The uterus, on being examined, presents a very unusual appearance. The peritoneal surface wants the smoothness usually observed. It is covered by bands and strings of a tough consistence and fibrinous appearance. The bands are reticulated. The ends of many of these strings are quite free, as if they had been attached to some fixed point and had been broken away from it. These strings or bands are found most numerous on the posterior aspect of the uterus; some of them are three inches long, and, when immersed in water, they give a shaggy appearance to that surface of the uterus. It is certain that these bands connected the uterus firmly with the abdominal parietes or with the viscera up to the time when labour occurred; and that, when the uterus descended, they were first much stretched and finally broken across. The uterus was nine inches long; its walls three-quarters of an inch thick. Examination of the interior of the uterus showed the attachment of the placenta had been to the posterior wall, and here the surface was granular, minute clots filling the aperture of the uterine sinuses, and projecting from these cavities a quarter of an inch or more into the interior of the organ. The sinuses of the uterus in the vicinity were large but empty."

* Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association in Bath, August 1878.

"Some further reflections", he continues, "suggest themselves on this interesting case. It has been stated that the uterus was 'apparently' well contracted after expulsion of the child, and before the hæmorrhage came on. Was this correct? I believe that such was the case, and my explanation of the matter is, that the uterus followed up the child, so to speak, and, in so doing, stretched the bands of adhesion so far as to allow of the fundus sinking lower into the abdomen, and to present to the taxis an 'apparently' good contraction. But these adhesions, being too strong to give way, and possessing a certain elasticity, subsequently—that is, in the course of half an hour—pulled back the uterus to the top of the abdomen, where it was afterwards found when the placenta was actually extracted. The re-expansion of the fundus would, of course, lead to hæmorrhage."

"In conclusion", said Dr. Hewitt, "I venture to express the belief that the subject now broached is an important one in its bearing on obstetrical practice. The inferences which follow, as regards the management of the third stage of labour, are of a very obvious nature. To follow down the uterus by the hand after the expulsion of the child; to be satisfied, by actual and close manipulation externally, that the uterine tumour possesses the proper shape, and that it is well down in the abdominal cavity: these points are evidently those to which we should direct our attention, not simply in one case, but under all circumstances. So far as my experience goes, *post partum* hæmorrhage is far more liable to occur where the attention of the practitioner is called away from the mother to the child when asphyxiated, and absorbing all the energies of the attendant for its resuscitation. It is during the few minutes which immediately follow the expulsion of the child that the condition of the uterus is mainly liable to go wrong; and, if there be a hidden pitfall, such as adhesions of the uterus of the kind here described, extraordinary care will then be required to avert hæmorrhage and other evil results. Peritonitis, leading to formation of adhesions, may, it is now shown by the pathological facts presented to the Society, occur during pregnancy, and the pregnancy go on undisturbed by the existence of the inflammation. It appears to me probable that peritonitis is not unfrequent in the pregnant state, and, if so, it will go far to explain those anomalous pains and distressing sensations incidental to pregnancy, which are generally set down to other causes than that of inflammation. Further research will doubtless increase our knowledge on this subject; for the present, I content myself with pointing out the connection of these adhesions with retention of the placenta and consequent *post partum* hæmorrhage."

I am not aware that anyone, except Dr. Graily Hewitt, has drawn attention to the fact that hæmorrhage after the delivery of the child may be occasioned by adhesions, the result of inflammatory action during gestation, such adhesions holding the uterus high up in the abdominal cavity, the fundus being near the diaphragm, and the entire organ unable to contract so efficiently as to check the bleeding that may occur when the after-birth has been removed by the hand of the accoucheur, such removal being necessitated partly by inertia uteri and partly by the action of those adhesions to which in this paper reference is made.

I will give a case in point. Mrs. B., aged 37, came to me from Norfolk to be attended in her confinement. She had on two former occasions been delivered with instruments, and I had previously—about a year before—to terminate her labour by means of the short forceps, owing to delay occasioned by a circular narrowing of the entire pelvis, and the projecting inwards of the tuberosity of the ischium on each side.

In July 1876, she wrote to me, telling me she was again pregnant, and I advised her to have labour induced at once, as there was no time to lose, she being then in the eighth month. Accordingly, she came up to town. Allowing her twenty-four hours to rest after her journey, I proceeded to induce labour by passing the forefinger through the os uteri, sweeping it all round the zone of the entrance to the womb, and thus causing dilatation and some uterine pains. I next passed a male gum-elastic catheter, deprived of its stylet, through the os uteri, between the membranes and the walls of the womb, taking every care not to rupture the amnial sac; and this instrument I supported with a well larded soft pocket-handkerchief introduced into the vagina. I had Dr. Barnes's dilators in readiness; but the pains came on so sharply, and the os opened so rapidly, that there was no occasion to employ them.

All went on well for some time, and I hoped my patient would be delivered naturally; but at length the arrest in the downward progress of the head occurred. She lost patience, though I assured her that, if she would only be patient, all would be terminated without the use of instruments. This I judged from the size of the child's head, and because I felt the advance of the presenting parietal bone. I told her my opinion emphatically, as I was anxious she should have confi-

dence for future deliveries, and I wished her to see that she *could* give birth to a living child without recourse to instruments, chloroform, or any other such adventitious aids. However, as she became clamorous to be delivered, I forthwith delivered her under chloroform, the short forceps being employed. Fortunately, the perinæum, very dilatable, yielded readily, and allowed the head to be drawn well back; I was thus enabled easily to liberate it from the tuberosities, draw it towards the expanding perinæum, and terminate the labour. There seemed no attempt at uterine contractions; therefore, immediately when I had separated the child, I introduced the hand into the womb, which I found quite flaccid, extending above the umbilicus, and much more dilated at its fundus than at its cervical extremity. I also noticed that, while the greater part of the outer or peritoneal surface was quite smooth, the inner or mucous, including the thickened muscular substance, was corrugated, and one particularly large fold occurred on the anterior surface, just above the pubes. This is the second case of labour induced at the eighth month in which I have found the folded condition of the inner surface of the uterus. While my hand was thus extracting the placenta and exploring the cavity of the uterus, I found a peculiar jerky movement of the organ in its long diameter—that is, from its mouth to its fundus—as though it were endeavouring to contract, but was held fast by something which mechanically prevented its efforts from being successful. With one hand—the left—in *utero* and the right placed outside over the abdomen, in the same fashion as Dr. Braxton Hicks advises in bimanual version, I sought to assist the contractile attempts, and, while doing so, I noticed adhesions at the upper and posterior part of the fundus, binding it in its now no longer natural situation; that is, up under the liver, stomach, and spleen, and in front of the dorso-lumbar spine; the soft structures, of course, intervening. As I irritated the womb with my hands to promote its contractions, I perceived that its own unaided attempts were unavailing to set itself free, and I therefore proceeded (the left hand being *in utero*, and the ulnar edge of the right being applied) with the intervention of the abdominal wall, on the upper surface of the fundus—to stretch and, if practicable, to break down the adhesions, which yielded after a little time and allowed in some degree the contraction I sought to gain, though it was still not quite satisfactory. This latter was accounted for, in a measure, by what seemed to me either an inflammatory or fibromatous thickening of the uterus at its fundus, on the upper and peritoneal aspect of which was a hard fibrous knob. It was, indeed, from the presence of this fibrous tumour, and from the hardness of the fundus itself, that I considered the hypertrophy to be fibrous or inflammatory, and one of the causes of the delay in the assumption by the womb of its proper dimensions.

I would like to ask, Is the folding of the internal surface of the uterus, to which I have above referred, the usual state of that organ immediately after the birth of a full-grown foetus? Or is it only to be met with in cases of induced labour? Or of those induced before the full time? Or does it only exist when hæmorrhage is present? In both the instances in which I noticed it—and I have done so in two cases only, my attention having first been called to it as I was removing the placenta in a case almost identical with this—hæmorrhage existed after the birth of the child and of the placenta.

I can readily imagine a fibromatous uterus tending to the production of *post partum* bleeding, owing to the contractile efforts of the uterine muscular fibres being borne off by the interposition of this foreign material, and the blood-vessels in consequence not being able to be closed. Moreover, I suppose the vessels running through the fibrous structure would remain patulous, in the same way as would a piece of hard vulcanite tubing or an artery in which osseous or earthy deposit had taken place. Then, of course, if the *posterior wall of the uterus be fixed by adhesions*, and the anterior doubled or folded in the way I have described, and if to this be superadded attempts at contraction, I can understand how the blood-vessels in the posterior wall will be kept open partly by the fixity of the womb by the adhesions, partly by the falling forward of the anterior wall, which position will still further tend to keep them open, the posterior wall being more or less fixed, and partly also by the very uterine contractions themselves, especially when they are stronger in the yielding wall, since, by this inequality of forces, a leverage power is formed, the fulcrum being at the points of adhesion, the power being the efforts of the muscular coat to effect the involution of the uterus, the weight to be moved being the entire organ in its enlarged state. Thus the mouths of the blood-vessels are not alone kept open, but probably also forcibly opened with each attempt at contraction. Again, supposing the mouth of each vessel to be sealed by a small clot within it, or by the coagulation of the blood exuded on the inner or placental surface of the uterus, where it lies as a stratum, thinner or thicker according to the stratification, the uterus, and consequently the blood-vessels, being disturbed by

every contraction, the clots are displaced, and the stratified blood lining the interior of the uterus is separated from its attachments, the hæmorrhage being in this way promoted and continued. Indeed, I take it that the coagulum, which lies in each vessel as a pellet, is expelled, shot out into the uterine cavity just as a pea is from a shooter. This is effected in the uterus bound by the adhesions which I have described, especially if there be fibromatous or other thickening, by the vessels being freely and freshly opened and more dilated at the uterine extremity than at the cardiac; also by the *vis à tergo* of the heart's force and of the arterial vessels themselves, and by the circulatory impulse of the blood itself created in it by its constant revolution in the body.

There are a few points of interest which I would add. Immediately after the birth, I got Dr. Folwell to hold the uterus and prevent any hæmorrhage by securing good contraction. He assured me that he had the organ well under control, and, when I applied my hand externally over his to grasp the uterus, there was the sensation as if the womb were completely within the hand, save that there was a flabby rolling feel communicated by the slipping away of the uterus. On introducing the left hand, I found that the hand exercising pressure externally was right across the body of the uterus, the fundus being above it, close under the liver, stomach, and spleen, and lying there quite uncontracted, so that I readily slipped my left hand under the external compressing hand into the cavity of the fundus beyond.

Just above the junction-line of the cervix and body—that is, in the inferior half of the womb—lay the placenta, and this at first, before its removal, gave to the hand laid on the abdomen the semblance of firm uterine contraction; but, even after the expulsion, very nearly the same feeling was communicated, due, no doubt, not to proper contraction, but simply to the gathering up and the folding in the grasp of the hand of the relaxed uterus, the mere bulk of which, and not true contraction, conveyed the impression that the latter existed.

I would draw particular attention to this deceptive evidence, because, had the placenta had its attachment in the upper half of the womb instead of in the lower half, very dangerous hæmorrhage might have occurred almost wholly unperceived till too late, perhaps, to prevent serious consequences. Again, I should draw attention to the fact that I had given two doses of liquor ergotæ—one drachm for a dose—at an interval of a few hours, yet apparently with very little effect. The question arose in my mind, Do these adhesions induce inertia uteri—a condition which, I believe, will often be found associated with them? Moreover, the hand in the womb, even when moved about in it freely, did not produce the usual contractions, nor were they excited by titillation of the interior with the fingers; indeed, nothing seemed to produce an effect, except the scooping action of the right hand placed outside, whereby the fundus and anterior wall of the womb were partly pressed and partly drawn down upon the left hand as it lay in the uterine cavity, and were compressed against the hand and against the dorso-lumbar vertebræ.

When the patient was convalescent, I questioned her, and learned that, at various times in the later months of her pregnancy, she had suffered from pains in the "stomach"; she indicated the region corresponding to the sites of the adhesions and of those fibrinous bands, the products of the peritonitis preceding the lying-in period.

Dr. Gervis, in the discussion upon Dr. Graily Hewitt's paper, mentioned the case of a lady, a patient of his, in whom pelvic cellulitis and abscess of a chronic character had occurred, and who was, as a consequence, troubled with severe *post partum* hæmorrhages in her subsequent confinements. He had thought general and local debility occasioning inertia uteri was the sole cause of the bleeding; but he now considered, since he had heard Dr. Hewitt's explanation, that adhesions might have been another factor.

I agree with Dr. W. R. Rogers that the *mere adhesions to the bowels*—the bowels being in themselves movable and capable of being brought down—would probably not prevent contraction of the uterus; yet such adhesions as I have described, existing high up in the abdominal cavity and with fixed attachments, would, without doubt, prevent efficient contraction.

Dr. Wynn Williams said: "Peritoneal inflammation during pregnancy is not at all uncommon, and, as regards the first case reported by Dr. Hewitt, where the broken and torn adhesions were plainly to be seen after death, it proved to his mind that they could have been little or no impediment to the contraction of the uterus, as the adhesions were completely ruptured by the contraction of the uterus, or by the pressure exerted by the hand on the uterus in forcing it into the pelvis."

Certainly, in my case, uterine contractions, even though more than ordinarily strong, would have been unable to sever the fibrinous bands which moored the womb in its unnatural berth, nor could the contrac-

tions of themselves have liberated the organ from its unnatural situation.

Mr. Spencer Wells "had upwards of twenty cases of childbirth noted after his ovariectomy cases, and in none had uterine adhesions led to any unusual difficulty". Such, however, he admitted, might obtain as a direct effect; "for Sir J. Simpson", he stated, "had recorded a case where the pedicle of an adherent fibroid outgrowth had been ruptured by the uterine contractions".

Dr. Holman "thought it was a matter of clinical experience that, in cases where there had been peritonitis and pelvic cellulitis, there was increased tendency to *post partum* hæmorrhage. All practitioners must have met with many cases in which the uterus did not contract and expel the hand, and in which the hand had to be left in the uterus for some time after the separation of the placenta. In such cases, if there were this atonic inert condition of the uterus, it was quite possible that adhesions might assist the inertia of the organ and aid in the production of the hæmorrhage; and that, if the adhesions were so strong, they would not be broken down until the uterus was pressed down by the hand externally."

Dr. Cleveland "could not conceive how adhesions formed during pregnancy could be of such strength and firmness as not to be separated when the uterus contracted after the birth of the child. Further evidence was, he thought, required before adhesions could be regarded as an efficient cause of retained placenta or *post partum* hæmorrhage."

Such evidence I have sought to adduce by the recital of this, the only case which has as yet come under my notice of adhesions of the gravid uterus as a cause of *post partum* hæmorrhage.

IRIDECTOMY VERSUS SÄMISCH'S OPERATION IN HYPOPYON ULCER OF THE CORNEA.*

By R. S. HUDSON, M.D., Redruth.

IN the early part of 1871, my attention was directed to a paper in the *Royal London Ophthalmic Hospital Reports*, by Pagenstecher of Wiesbaden, which highly praised Sämisch's operation for certain indolent ulcers of the cornea. It happened that at that time I had seen two cases, which, in spite of the orthodox treatment by tonics, such as quinine, instillation of atropine, fomentations, and pressure bandages, had terminated unfavourably—one in staphyloma, the other in rupture of the eyeball, with subsequent atrophy—and I resolved to give the operation a fair trial on the first opportunity. We had not long to wait, inasmuch as the district in which I practise furnishes a considerable number of the traumatic forms of the indolent hypopyon ulcer. Many of our miners are pale and anæmic from their underground occupation: the air which they inhale while at work is highly carbonised by candle or powder smoke; ventilation at certain stages is impracticable; and those of low vitality are liable to ulceration of the cornea, when the cause has been so trivial as the imbedding of a piece of tinstone, or granite, or quartz, in the anterior epithelial layer. Sometimes the injury is more severe, and I have known the foreign body to enter the true corneal tissue, and even project into the anterior chamber; but this is more likely to occur when the violence arises from blasting operations, rather than the more common cause, viz., the use of the "pick". The blacksmith at the mine is usually visited when the man comes to surface, and probably the larger proportion never consult a surgeon. In some, it may be that the remedy is worse than the original injury; for, in obstinate cases, we find that the cornea has been abraded for a considerable distance around the offending body. It is clear, at any rate, that miners are peculiarly prone to injuries of the cornea; and a few of these, after the lapse of a week or so, present a greyish ragged ulcer in the seat of the injury, with swollen edges and surrounding opacity. In some cases, there is not much pain; in others, ciliary neuralgia of a severe character. In a large number, there is hypopyon; and, if the progress of the ulcer be not arrested, it generally ends in rupture, with protrusion of the iris, staphyloma, or atrophy. It is most intractable to treatment, and is frequently rapid in its destructive course. Sämisch has called it the "ulcus serpens" or "creeping ulcer"; but this name more accurately describes an ulcer of similar character and tendencies, which occurs in aged decrepid people, but without any definite history of injury. His operation is now well known, and needs no description on my part. Regarding the benefits of the operation, I can speak with confidence; very seldom is an anæsthetic required, and then only with very nervous or excitable patients. In itself, it is not very painful; and all these cases with severe

ciliary neuralgia obtain relief after twenty minutes or half an hour—just time to allow of the smarting caused by speculum and instruments to subside. I have had eighteen cases in which I have performed the operation; some I have lost sight of owing to death or emigration, others I meet with occasionally; in only one has the sequela of staphyloma occurred, against which Mr. Brudenell Carter warns us, and in this case I could not expect any other result, owing to the meddlesome curiosity of the man's wife. No surgical operation offers more brilliant results than iridectomy in certain ulcers of the cornea, such as the phlyctenular on the point of bursting, when pain and inflammation cease as if by magic. We are now agreed as to the superiority of iridectomy over every other plan for reducing intra-ocular tension; but I hesitate to employ it in the "hypopyon ulcer", inasmuch as it is a much more grave operation than the corneal incision of Sämisch, and I think it good surgery to choose the less violent of any two methods which are represented as equally effective. Against the possible risk of a "weak cicatrix", after Sämisch's incision, you must weigh the following considerations which an iridectomy involves:

1. More pain, rendering an anæsthetic more desirable;
2. Risk of injuring the lens, if the patient be unruly;
3. Risk of secondary iritis or iridocyclitis; the inflamed irides of old decrepid people being soft and rotten, portions may (even when great care is taken) be left to mix with the lymphoid pus in the anterior chamber.

I have written the above notes, giving my experience in this common but neglected disease of the eye, with the view of learning the experience of gentlemen present at the section. I am not wedded to Sämisch's operation; and if any surgeon, who has opportunities for watching his cases year after year, confirms the dread of staphyloma and enucleation of the eyeball, already referred to, I should consider it my duty to return to iridectomy in such cases, and abandon the corneal incision through the base of the ulcer, with which Sämisch's name is so honourably connected.

CHLORIDE OF AMMONIUM IN THE TREATMENT OF HEPATIC DISEASE.*

By WILLIAM STEWART, M.D.,
Surgeon-Major, Army Medical Department.

IN 1869, when stationed with my battalion in Rangoon, British Burmah, I first made known the value of chloride of ammonium in the treatment of hepatic congestion and tropical hepatitis. In a pamphlet published in 1870,† I brought the subject prominently to the notice of the profession in India; and in subsequent papers in the *Madras Monthly Journal of Medical Science* and the *Indian Medical Gazette*, I gave the result of further clinical observation and experience, and ventured on an explanation of the general and special action of the medicine on the congested or inflamed liver. Since then, the subject has received the attention of a number of careful and skilled observers, and at length the chloride of ammonium, having "obtained a great and well deserved reputation in India and other tropical countries, for the treatment of hepatic congestion, has been found to be of great utility in this country as well as in India" (Murchison, *Clinical Lectures on Diseases of the Liver*, second edition, London, 1877).

But although the power of chloride of ammonium to subdue hepatic congestion and bring about healthy action in the inflamed or functionally disordered liver is now fully recognised in India, as well as by some among us who have made the diseases of the tropics a special study, I fear its influence is still inadequately realised by the general profession in this country. Under these circumstances, with your permission, I will give a short account of the remarkable train of effects following the ingestion of the medicine in cases of hepatic congestion, as met with in India and other tropical climates, with a few cases in illustration, in which the characteristic and special symptoms produced by the drug have been recorded.

In active congestion of the liver, the special and characteristic action of the medicine will be found to be more marked than in cases of chronic hepatitis, for reasons which will be apparent from a consideration of its *modus operandi*.‡ The dose necessary for its full therapeutic effect is twenty grains, and the only condition which contraindicates its use is the existence of a dry and hot skin in cases of hepatitis. Under such circumstances, its use should not be commenced till the skin is rendered moist by the administration of some simple diaphoretic

* Read before the South Wales and Monmouthshire Branch.

† *Chloride of Ammonium a Specific Therapeutic Agent in the Treatment of Hepatitis and Abscess of the Liver*. Rangoon: 1870.

‡ For an explanation of its therapeutic action, see my paper in *Madras Monthly Journal of Medical Science* for March 1872.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Bath, August 1878.