

ON SEATANGLE TENT.

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OF all the materials used for dilating the cervix uteri there are none so cleanly, efficient, and convenient as those made from the *Laminaria digitata*. Although now largely employed by many, they are not so well known as they deserve to be; and therefore allusion to the subject may not be altogether useless, nor some practical hints unacceptable to some readers.

This material can be made into tents of various forms and sizes, but as the dried stem of the alga usually employed does not exceed half an inch diameter,¹ tents required of a larger size must be made by fastening together a sufficient number. They may be grouped in three, five, seven, &c. But perhaps it will be found most convenient for the very large size to combine groups of three in one large bundle; they may be tied together by twine at the base, but at their apex it will be best to employ a small elastic band. These can be obtained ready made up.

Some are made in two halves pegged together. Some are made tubular to permit of the introduction of a stillet, which, passing two inches beyond the end of a catheter, forms an easy contrivance for reaching the os without the speculum, and also to permit the secretions to flow through it. The smallest sort, from $\frac{1}{12}$ to $\frac{1}{8}$ inch in diameter, are used for dilating the rigid or contracted os and cervix, either alone, or preparatory to the use of the hysterotome. The tubular form cannot be made below a

¹ As other larger varieties of algæ will hereafter probably be found equally useful with the *Laminaria digitata*, it is desirable that investigations be made in this direction.

certain size, as it is found impossible to drill a hole through them if too attenuated.

I have found that they distend to about three times their original diameter, and that in an ordinary state of the secretions they reach their full distention in about fifteen hours; of course some variation will be found in this respect, especially between the different sizes, for the larger they are, the longer the time occupied for them to become wet in their interior, and therefore, generally speaking, the large bundles produce their effect quicker than if made of one piece of an equal diameter to the combined. These two points are important to bear in mind, because where we have to dilate the cervix to a considerable size, and we require to follow in succession, it is best to introduce the next sized tent as soon as the previous one has attained its full dilatation. To leave it in beyond that time not only delays the operation uselessly, but adds much to the chances of uterine irritation. We must therefore have at hand a series of three for general purposes. For instance, when we wish to dilate the cervix in order to pass the finger in easily into the cavity, supposing we begin with one of $\frac{1}{8}$ inch diameter; the next size should be nearly $\frac{3}{8}$ inch, and the last (if another be required) should be nearly 1 inch diameter: as this would expand to nearly three inches at its fullest, it would not be requisite to allow it to remain in—unless in a case of pregnancy or imperfect miscarriage, where we want the fullest expansion—so long as to its complete expansion, say for ten hours. Where slight dilatation only is required then one is sufficient, and it should be removed in twenty or twenty-four hours at the longest. For dilating further, we may group the smaller bundles in any numbers we like, but it will seldom be required to go beyond an inch diameter for the last one. If we wish the tents to be more rapid, then it is best to soak them in cold water a short time before introduction.

The purposes to which they can be applied for obstetric purposes are numerous. They can be employed to dilate the smallest os and cervix uteri, either alone or in preparation for the hysterotomy; they can for this purpose be made as small as required. In the case of a traumatic closure of the os uteri, I have employed it with complete relief. In closures of the vagina from injury,

also where the opening is reduced to a pin-hole, they may be employed to dilate up the stricture, preparatory to some more radical operation, or in some cases they may be employed entirely. The effect of the latter plan, however well it may succeed at the first, is liable to pass off, and the contraction to resume its sway. I have found that the bistoury lightly drawn over the contraction, in numerous places, attended by much more satisfactory results ultimately. After operation for opening either vagina or os uteri, these tents may be employed from time to time to prevent the closure recurring. They may be employed to dilate the cervix to a size sufficient to permit us to explore the interior of cervix or the body of the uterus, in cases where polypus is suspected, or where the remnants of an imperfect abortion is supposed to exist. For the same purpose they are of great value to permit us to diagnosticate between polypus and fibroid tumour of the uterus, where the hæmorrhage is so great as to require interference.

In cases of flexion of uterus they will assist to straighten out the canal of the cervix, and for a time relieve the patient of the dysmenorrhœa which frequently accompanies it.

Again, in cases of dysmenorrhœa and sterility in married women from contraction of cervix, they can be with great advantage used, because it is clear if the sterility be owing to the occlusion of the cervix, then its expansion should be attended by immediate relief; otherwise we may conclude that other causes exist which give rise to these states, and if after this dilatation the patient conceive, then a permanent cure results. In the single woman, however, the effects are less permanent, and in cases of severe obstruction will be frequently the only means of giving anything like permanent relief.

In some cases, as in malignant disease of cervix where the resistance is considerable, I have employed this substance to dilate, in order to deliver prematurely. These cases however are rare where much resistance exists, and in general it will be better to employ a softer material, as sponge tent, or elastic dilating bag, because they are less likely to scratch and abrade by their extremities than the more rigid seatangle tents.

They can be introduced into the cervix uteri in various ways.

First, they may be introduced by a long pair of forceps. The patient being placed on her left side, the fore-finger of the left hand, or still better two fingers if possible, are to be passed to the os uteri. The tent, held by the forceps, is carried along the finger to the os, into which it is introduced. The handle of the forceps should be then brought well against the perinæum, so as to throw the tent into the axis of the uterus (in cases of normal position) and very gently pressed forward; after it has passed in nearly its whole length, the forceps should be detached, and the fore-finger presses gently against the end of the tent to keep it *in situ*. In order to retain it there, it is well to pass a plug of sponge with a tape tied round it so as nearly to fill the vagina. It is well to see the urethra is not pressed on, or retention of urine might ensue, causing trouble and alarm. In multiparæ there is no trouble in employing this plan, but in some, particularly in virgins, there is much difficulty in introducing the tent in consequence of the rigidity and drawing up of the perinæum. Besides, unless the serrations of the forceps are carefully rounded off at the edges, the vulva and vagina may be scratched, not only causing pain, but adding to the difficulty of introduction in consequence of the movements of the patient.

Another, and in my experience a better plan, in cases where the extremely small tents are not required, is to employ an elastic catheter with a stillet. A portion of the end of the catheter not quite so long as the tent should be cut off. This will leave the stillet protruding. On this the tubular tent should be passed, care being taken to see the stillet does not extend beyond the end of the tent. The string which is attached to the lower end of the tent being carried down by the side of the catheter, is held by the same hand. The arrangement is then introduced as an ordinary uterine sound: and when the tent is properly within the cervix, the stillet is withdrawn, thereby leaving the tent in the cervix. The finger which is in the vagina should be placed on the lower end of the tent to prevent it sliding out and the sponge introduced as usual. A very convenient little instrument based on this principle has been made by Messrs. Weiss.

There is another mode which will be convenient in some cases, namely, to pass a speculum. Having introduced the

tent into the cervix as far as possible by a forceps, the speculum can be withdrawn carefully. A finger is then passed up to the tent, and gentle pressure being made the tent slides in. This plan is good in cases where retro- or ante-flexion exists, but then of course it will be necessary when pressing the tent in with the finger to vary its direction, either forward or backward according to the axis of the body of uterus. In these cases the tent is ultimately placed in the transverse diameter of the vagina. In cases where the inner cervix will not permit the tent to pass, I have managed to do so slowly, by lodging the lower end against the fold in the posterior wall of the vagina, and then plugging that canal as usual. The little irritation produced by this has caused the levator ani to act, so that a gentle pressure is exerted for some time against the inner os, which has ultimately yielded. For the larger groups of tents, it will be found that the forceps will introduce them most readily; for in most of the cases where we wish to use large tents the vagina is so well relaxed, difficulty is rare.

It is very important in order to effective dilatation that the tent should pass the inner os, in all cases where the cavity of the uterus is to be explored. Tents of all kinds may fail in this particular, for two reasons: one because they may not have been introduced so far; and another, because they slip out. This is particularly the case with the seatangle tents, but as they can be made smaller than any other kinds there is no reason why, if one will not pass, a smaller should not be tried. But it must be also remembered that the cause of inability to pass a tent may be from a flexion of the organ; this point of course should be first made out before we commence to pass the tent.

One means of preventing these tents from slipping out, at least after they begin to swell, is a plan adopted by some makers of tying the string round the lower end, so that it cannot expand so much as the upper: and this reminds me of a fault in many, namely, the shortness of the string attached to the lower end, and the imperfect security of the knot: so that it is difficult on the former account to withdraw it, and on the latter the cause of much trouble and sometimes pain when we wish to remove it.

Before the introduction of these, as of course with all tents,

it is important that the bowels be well open the day previous, and the bladder evacuated immediately before. Otherwise the disturbance caused by the action of the bowels is sufficient to cause expansion of the tent; with regard to the urine, its passage will of necessity be requisite twice at least during the twenty-four hours the tent is dilating; but as it is advisable that the patient should not rise up, she should be directed to pass urine without rising: or still better, if the catheter can be employed, that it should be used.

Upon your visit at the end of twenty or twenty-four hours the sponge plug is to be removed first, and then the tent, and the vagina syringed with warm water, to which a little of Condly's solution should be added. By this means any absorption of the unpleasant discharge (which is almost always present) through any abrasion is prevented. This is especially useful where a series of tents have to be introduced. It is not a bad plan to soak the sponge plugs in a lotion of permanganate of potass before introduction. Some sponge tents are made enclosing antiseptics, so that when they expand by the melting of the wax this material is set free. The same plan might be adopted in the tubular seaweed tents, but the quantity set free would not be so much. But the tent itself, independent of the plug, does not produce much unpleasant odour, while the sponge tents do so.

After the process of dilating the cervix by the tent, I consider it important, indeed I may say imperative, that the patient should keep quiet. In hospital practice I always enjoin a week's rest, and this plan I adopt in private, unless a couch can be substituted after a few days for the bed. The vagina is washed gently out with warm water twice a day, to prevent accumulation of the discharges, and irritation resulting from them.

Too much care cannot be taken after the employment of the tent, especially if done rapidly and to a considerable extent. The irritation in and around the uterus does not subside for some days: I should say a week or more, and if excitement of any sort arises, especially by exercise, this is apt to increase and become a matter of serious import. I have seen a case end fatally, where there had been dilatation a week previous;

mental shock suddenly lighting up the inflammation and extending it to the peritoneum. I would therefore treat dilatation of the uterus as an operation of much more importance than it is by some practitioners; who, having introduced the tent at their own house, have sent the patients home, with directions to remove it in so many hours. In one such case the string broke away and the patient could not remove the tent. Severe cellulitis and metritis followed, which laid her up for many months.

But with the care above enjoined, this unpleasant result is obviated to a great extent. Probably in the slight dilatation produced by the use of the tent for a few hours, the risk in this respect is perhaps considerably less, and perhaps it is less when softer materials are used than the seatangle tent; but where free expansion of the cervix has been produced, the risk of subsequent trouble is readily seen if care be not taken, and this risk is much increased proportionately to the time occupied in tenting. I would say that the patient should never, if at all avoidable, be under the continuous action of these tents for more than two and a half days, at outside three. For this reason the tents should follow one another as quickly as consistent with efficiency.

During the presence of the tent in the cervix, it is not unfrequently found that the uterus becomes irritable, and expulsive pains occur. To prevent this, as well as the consequent extrusion of the tent, it is well to give an opiate, especially should the pains appear. This will also lull the bladder and rectum, and thereby prevent their influence extending to the uterus.

In conclusion, I may point out the special advantages of tents made of seaweed.

1st, They can be made of any size, particularly much smaller than sponge tents.

2d. They have more distending power. The rigidity of the inner os uteri is sometimes so great that even these tents are distinctly marked by it; but the sponge tents not at all unfrequently are unequal to produce any marked impression on the constriction.

3d. They do not retain the secretions so as to produce so much offensiveness, consequently there is less risk of irritation locally or generally.

4th. By their greater rigidity they can be more readily applied, especially in a tortuous canal.

They have, however, some disadvantages :—

Their rigidity makes them not so suitable in cases where the uterus is readily bleeding, or very tender; nor in cases where the os is somewhat dilated by a polypus or growth distending it. Here a sponge tent is best unless the os and cervix are very rigid.

Their great distensive force makes them less acceptable where the uterus is very irritable.

They should be in all cases so made that no sharp edge be noticeable. In the tubular tents this is a point liable to be overlooked.

And for the dilatation of the os uteri in a natural state for purposes of induction of premature labour these tents are not by any means so suitable as the sponge tents, or as the India-rubber bags.

With these exceptions, in cleanliness, certainty of action, ease of introduction, and minuteness, they are certainly not equalled by any other material at present in use.