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at the same time, propelling and spasmodically contracting upon and retracting itself over the body of the child. The sum of these efforts is communicated to the circumference of the foetal head which, in these cases, acts as a large fluid bag or hydraulic machine distending the cervical tube enormously and equally in all its diameters. Now, since the cervical tube is fixed, and the expulsive efforts are acting at right angles to it, the tear will occur transversely in the sulcus between the cervix and uterine body, but in a case of hydrocephalus a longitudinal rent will also be found, produced by the simple distension of the cervix. In unrecognised cases of hydrocephalus, as a matter of course, forceps will be resorted to in order to overcome the obstacle; but, if a diagnosis is made, we should avoid the perforator and use the aspirator or very fine trocar, remembering that our lawgivers are not Spartans, and do not permit the destruction of children although diseased. We will be encouraged to practise the latter method by remembering Dr. Conquest's cases of chronic hydrocephalus, treated by tapping, which was found not by any means a necessarily fatal procedure; but, on the contrary, the deaths ensued only after reaccumulation of fluid and its evil sequels.

THE UTERINE SOUND.

By MURDOCH CAMERON, M.D.,

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THE sound has been long used as a means of diagnosis in uterine affections, but its use has been much extended by the widespread influence of Simpson. With many practitioners it seems to be in daily use as a ready means of exploration in these special affections. No one can deny its utility, yet physicians who have many uterine cases under observation will acknowledge, that although it is when properly used and upon suitable cases an agent for good, its indiscriminate use is productive of a great deal of injury.

With some its use is considered indispensable, and as a result, there is found an increasing number of cases where very serious irritations and lesions ensue, comprising uterine colic, ovaritis, metritis, &c. Instead of using it as a secondary agent, they err in too often making it a primary one.

A description of the instrument would be out of place here,

as it is so well known; but the best have upon the convex edge, and at about two and a-half inches from the point, a little projection as an indicator of the average depth of the healthy uterus. Towards the point, and also towards the handle, you have the distances marked by notches and figures, which show at a glance how far the instrument has penetrated. The credit of the introduction of the uterine sound has been given to Simpson, although some claim the honour for Kiwisch.

With the flexible sounds we are apt to be misled, supposing an advance whilst they may have simply bended upon themselves. Much can be learned by a proper use of the sound. In some cases the sound is used to assure the examiner of the permeability of the uterine orifice, and of the cervix uteri. It serves also to recognise the length, direction, position, volume, and mobility of the uterus.

When the sound penetrates easily as far as the small nodule upon its convex edge, we are certain that the internal os is sufficiently permeable. You find the cervix narrowed in congenital constriction, in stenosis of the os externum, as also of the os internum, as found in cases of acute ante flexion.

If the sound passes into the uterine cavity farther than two and a-half inches, we know that there is elongation of the cavity from some cause or other. The uterus is increased in bulk in endo-metritis, fibroids, polypi, or subinvolution, as also after a confinement or abortion, and as a matter of course in pregnancy. The uterus may be diminished in size, as is found in cases of non-development, superinvolution, and senile atrophy.

If we feel the point of the sound through the relaxed abdominal walls, immediately above or behind the pubes, we are assured that the fundus uteri is in a normal position. If, to pass the sound, we require to direct the point backwards, more forwards, or to either side, and find afterwards that the organ presents itself in its proper position, and that a tumour previously felt projecting into the vagina has disappeared, we have reason to diagnose a flexion of the uterus. What has taken place is simply that the uterine sound has for the time corrected a displacement of the womb. In a case of retroversion seen lately in the Western Infirmary, the replacement was permanent.

If, on the contrary, we recognise by the sound that the fundus uteri is normal and in its proper position, we arrive at the conclusion that the tumour supposed to belong to the uterus is situated outside of this organ, and has perhaps nothing

in common with it. If it is impossible to feel the point of the sound through the abdominal walls, as generally felt in the normal state, the cause may perhaps be a tumour situated in the uterine walls or near them. We remark at times that a movement communicated to the uterus by the sound does not displace at the same time the tumour in question, and so we are able to say that it does not adhere to the uterus. The sound may at times be useful for the dilatation of a stricture, chiefly of the os internum. This instrument is therefore of very great service, both as a diagnostic and therapeutic agent, but we must not trust too much to signs, many times misleading. The sound may be found to pass only a small distance into the cavity of the cervix, as, for instance, when a fold of mucous membrane arrests its further progress. In such a case it would be a great error to conclude that because the instrument was thus arrested, there existed an obliteration of the cervix. Again, you may have elongation with flexion. Here the sound might pass in a distance say of two inches, and might lead us to suppose that the uterine cavity was diminished, and that a tumour was present, but by closer observation we find that the sound can be passed further, and that the tumour first found upon examination is simply the fundus uteri, and as we would expect, with the replacement of the uterus the bulging felt in the vaginal space has disappeared.

It may seem unnecessary that we should here repeat the warning, never to pass the sound where there is any reason to suspect pregnancy, as then you incur the serious responsibility of producing abortion; but the too frequent mistake of overlooking such a condition demands the repetition of this caution. The utmost care should be taken in the introduction of this instrument, because without this you may perforate the tissue, perhaps already softened, or set up peritonitis. Malignant disease of the cervix or fundus excludes its use, as also acute inflammation of the uterus or its appendages. It has been recommended in special cases; but it is better to avoid any examination during menstruation, and in no case should the sound be passed without previously having made a careful bimanual examination.

To introduce the uterine sound, place the patient as in passing the speculum, and pass two fingers of the right hand—viz., the index and middle, up to the cervix, with the knuckles toward the pubes, and in the groove formed by the fingers glide the instrument along, keeping the concave surface directed backwards. Never forget to have the sound warmed previous to its introduction. If the passage is straight, as in

females who have never had children, the index finger will be sufficient to guide the sound. If the os is directed downwards and forwards, the instrument is passed into the cavity without rotating the handle; if the os is, however, directed downwards and backwards, the instrument is only allowed to enter the external os, and then the handle is turned so that the point of the sound may be directed upwards and forwards.

If there be any difficulty in making the instrument enter, this is often overcome by slipping the point of the instrument from the finger tip into the os.

We noticed previously that the instrument usually passes into the uterine cavity for two and a half inches, as indicated by the nodule upon the convex edge of the sound. To measure the distance it has passed, place the finger point firmly upon the portion at the os, and, keeping it there, withdraw the instrument, when you can at a glance observe by the engraved figures how far the sound has passed. With sufficient care, we can usually succeed in passing the sound into the healthy womb; but the most experienced finds it often exceedingly difficult to introduce it in certain affections of this organ.

In the various flexions and versions, as also neoplasms projecting into the cavity, we find much to oppose our attempts to pass the sound. In some cases you will even fail, and it is only by the greatest patience that success may reward your efforts. Generally its introduction is free from bleeding, and if traces of blood are seen, it is usually the result of congestion, cancer, fibroids, or polypi. Force should never be used, as you will simply expose your patient to much danger. To lay down special rules were vain, for experience must guide you in each case. Every instrument should have a mark upon the flat surface of the handle, so that the operator may have no difficulty in seeing at once how the instrument is situated. In replacing the displaced organ, say in displacement backwards, the movement is effected by a rotation of the handle through half a circle, so that the portion acting within the uterus may rotate in the smallest degree. A simple twisting of the handle is apt to give pain, and may cause injury. In conclusion, the uterine sound, as before stated, should never be used without previously making a careful examination. So much is this overlooked that a very eminent obstetrician proposes to have a uterine sound made, having for its handle a small representation of a foetus, which may be the means of causing the operator to pause before using the instrument.