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MEDULLARY ANESTHESIA IN GYNECOLOGY.*

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It is now about one year and a half since Bier, of Kiel, Germany, announced to the profession that he had found a new method of anesthesia, consisting of injections of cocain into the subarachnoid space of the spinal cord¹. His methods were promptly put to the test by various obstetricians, gynecologists and surgeons, and to-day the whole surgical world is agog to learn the indications for the use of this method, its limitations and its special field. The original supposition was that it was applicable to cases demanding a limited field of work and the practice of the early operators was to confine it to operations upon the lower extremities. This was gradually extended to include operations within the pelvis, the line of analgesic demarcation being drawn at the umbilicus. This naturally led to the conclusion that the special field for its application was embraced in the three departments of obstetric, gynecologic and genito-urinary surgery, together with the general surgery of the lower extremities. Further experience with the method and with the use of larger doses has extended to the regions of the body in which surgical work can be done under this method of anesthesia until it includes all parts, both superficial and deep, from the tip of the toes up to and including the breasts. The head, neck and upper extremities are outside its sphere, and probably will always remain so.

It would seem, therefore, to be a matter of special pleading to insist that gynecology has any special claim on the method for its particular use, and yet there are reasons for insisting that it has in this department a special indication. We know that after an injection of the cocain, the analgesic effect begins in the toes and gradually extends up the lower extremities, the extent of its complete analgesic influence depending on the amount of the drug used. It has been thoroughly established, however, that the dosage necessary to produce anesthesia as high as the umbilicus is perfectly safe; its action is prompt and the unpleasant effects are not severe.

Tuffier began his extension of the work from the lower extremities to the trunk of the body by operations, first on the perineum, then on the rectum, extending it

gradually to the bladder, ureter, to vaginal hysterectomies, appendectomies, hernias, and finally gastroenterostomies. Encouraged by his success in these regions, he has extended the field of operation to the kidneys and even to operations on the breast. To secure surgical anesthesia in these latter regions it is not necessary to make the injection any higher than the fourth space in the lumbar region, but it is necessary to use larger doses.

On Sept. 27 last, I had the privilege of seeing Dr. Neven, one of Tuffier's assistants, remove a small fibroid tumor from the right breast, the patient showing no signs of pain, either during the incision or the sewing up of the wound. In this instance three cubic centimeters of a 2 per cent. solution of cocain were used. Seven minutes after the injection the incision was made and the entire operation completed in about twenty minutes. There was no vomiting in this case, but the respirations were excited and sighing in character. Profuse perspiration came on during the operation, and when the woman was raised up on the table for the purpose of applying the dressing and bandage, she became extremely faint and limp, and asked for water. The faintness was not, however, greater than under similar circumstances after the use of ether or chloroform. Hot black coffee was used in this case as a stimulant.

In addition to the increased dosage, it is possible that the line of anesthesia can be carried higher up the body by a forcible injection of the cocain. In my own experience, the first case in which I used it was subjected to this method; that is, the piston was shoved home quickly and the fluid was suddenly and forcibly injected. In that case, although the operation was a vaginal hysterectomy, the tests that were applied showed that the line of analgesia extended above the breast line; and it was remarked at the time that undoubtedly an operation in that case could have been performed on the breast as painlessly as on the uterus.

At the Lariboisière Hospital it is the custom of both Dr. Tuffier and his assistants to inject the cocain slowly and steadily. Whether there was headache following the large dose of cocain in the breast case just mentioned I was unable to learn, but the other phenomena—nausea, vomiting, sweating, chilly sensations and general depression—were not so pronounced as in a case of vaginal hysterectomy for epithelioma of the cervix done on the same day by Dr. Lyot, another of Tuffier's assistants, with only 1/6 grain of cocain. It has doubtless been the observation of all of us that in many instances a small dose of morphin administered hypodermically will be followed by serious nausea, vomiting and headache, while a larger dose in the same patient will not be attended by any of these distressing symptoms. It is quite possible that the same rule will apply to the dosage of cocain in these spinal injections. Indeed, in conversation with Tuffier in the early part of this month, he expressed himself as inclined to think that the rule

* Read in a general discussion of Anesthesia by Lumbar Puncture before the Section on Obstetrics and Gynecology of the New York Academy of Medicine, Oct. 25, 1900.

1. Bier performed his first operation under medullary analgesia Aug. 16, 1898, and published a report of his first six cases in April, 1899. We now know that J. Leonard Corning, of New York, devised this method and put it on a practical basis in 1885.

would hold, and that the dosage would be rather enlarged than diminished as further experience was gained. In one case in which I saw him operate, the operation being an abdominal hysterectomy for bilateral hydrosalpinx, 1/3 grain of cocain was used. The anesthetic effect was more promptly produced, the vomiting consisted in one slight eructation about three minutes after the injection was made and before the operation was begun. There were very extensive and firm adhesions in the pelvis, but during the entire operation, even to the passing of the final stitch, the patient gave no evidence of the slightest pain or discomfort from the manipulations.

The various phenomena, the vomiting, sweating, the hurried respiration and excited pulse, are aggravated in nervous patients; the apprehension of pain and the fear that something terrible is going to happen is much more common with women than with men, and it is permissible, therefore, to attribute the exaggeration of these symptoms to nervous excitement rather than to any untoward effects of the drug. Tuffier illustrated this fact in an operation which I saw him perform on a young man of 23 years for an omental inguinal hernia, with adhesions. In this case 2/3 of a grain of cocain was injected and the patient lay as quiet and indifferent as to what was going on as he would had he been reclining in a barber's chair.

The temperature present in a large proportion of cases is undoubtedly due to a mild form of sepsis, the infection being carried in by the needle as it passes through the skin. If this explanation is correct, the needle devised by Dr. Leonard Corning, in which he passes a smaller needle through a trocar thrust into the skin, would tend to avoid, if it did not completely obviate, the possibility of infection. The same object could be accomplished by the little procedure suggested by Dr. Bodine, of first incising the skin with a bistoury and passing the needle in at the bottom of the incision.

The practical question suggests itself: When is this method to be used in preference to general anesthesia by ether or chloroform? Accepting Tuffier's dictum that the method is absolutely safe, is it as well for the patient? Many men as well as women suffer profound shock even from the sight of blood; in many the constant apprehension lest they might suddenly suffer great pain is a serious element of depression; and the conversation of the surgeons, the consciousness of some unforeseen accident in the midst of an operation, are the unfortunate factors in a surgical case. It is true that occasionally, perhaps frequently, conditions arise in the course of an operation in which it is important to know the desire of the patient in reference to extending the originally contemplated operation, and of course the spinal anesthesia affords an opportunity for this.

Whether or not it will prove a safe method of anesthesia in cases suffering from heart complications, or kidney involvement, can only be determined by more extended experience. Tuffier has had one death in a series of over two hundred cases in which this method had been used, but autopsy confirmed the previous conviction that any other form of anesthesia was contraindicated.

From my experience with the method, and from what I saw and heard from Tuffier and his assistants at the Lariboisière Hospital, I believe that the method can be relied on to produce anesthesia in all cases demanding gynecologic or abdominal operations. The

failures may be accounted for in various ways: escape of the solution through the puncture, too long bevel of the needle point, or to using stale solutions of cocain, or to boiling the solution for the purpose of sterilization. It is an accepted fact that boiling a solution of cocain destroys its potency to a greater or less degree. Tuffier uses a solution of cocain prepared in the laboratory. The cocain is first dissolved in sterile or distilled water, then sealed in glass bulbs and subjected for one hour on two successive days to a temperature of 175 F. This solution may be drawn from the bulb directly into the syringe or poured into a sterile glass and drawn into the syringe from it. Van Horn & Co., at my instigation, have had some bulbs made and have placed on the market a solution of cocain sterile and ready for use. Tuffier declares in his latest article on the subject, that he regards the method as absolutely safe. He does not hesitate to declare, however, that its safety depends on the most rigid asepsis in every detail. This, I think, we are all ready to accept. The great danger is that in carelessness in some of the many details unfortunate consequences may follow and the method be brought into disrepute.

Dr. W. W. Keen, of Philadelphia, has successfully substituted, in at least one case, beta-eucain for the cocain solution in his use of the method, on the ground that this drug can be boiled when in solution without impairing its efficacy, and that it is less toxic than cocain, and therefore safer.

It may be said that in gynecology there are both psychologic and esthetic considerations why the method should not be used, but in appropriate cases it offers a means of anesthesia when general anesthesia may be positively contraindicated. I shall continue to use it in my clinical work and thereby contribute my experience, as far as it may go, to determine the actual and relative value of the procedure.

PURPURA HEMORRHAGICA OR SCORBUTUS?

A CLINICAL SKETCH.*

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Since encountering the case shortly to be detailed the writer has been inclined to the belief that the condition known as purpura hemorrhagica is not a distinct morbid entity. Buck¹ describes it as a disease of the skin, characterized by the development of variously sized, smooth, reddish or purplish hemorrhages which do not disappear under pressure. Quain² calls it a diseased condition in which circumscribed effusions of blood take place into the upper layers of the cutis and beneath the epidermis, occurring with or without certain constitutional symptoms or in the course of various diseases, and attended by hemorrhages under and from the mucous membranes as well as into various serous cavities. Oliver³ states that purpura resembles scurvy, differing from it in that it is not specially associated with deprivation of any particular kind of food. Struempell⁴ points out the only difference between scurvy and purpura is that in the latter there is no hemorrhage from the gums.

The cause of purpura as an independent condition is not clear. It is generally believed, however, to be

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