A NEW OBSTETRICAL OPERATION FOR SELECTED CASES OF OBSTRUCTION TO PARTURITION OFFERED BY THE CONTRACTING PELVIS.

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The operation I am about to describe is variously known in literature as pubeotomy, hebotomy, and lateralschnitt (lateral section), and is resorted to for the purpose of widening the bony pelvis, by section of the body of the pubic bone, in order to render delivery per vias naturales possible.

Without entering into a discussion of the relative merits or demerits of the various appellations given this operation, I shall hereafter refer to the same under the name of "Pubiotomy," believing the latter to be the most significant and logical of the three.

There is no condition in medicine imposing greater responsibilities upon the physician or exacting more good judgment and ripe experience on his part than the management of labor obstructed by a contracted pelvis. The supreme question paramount is the choice of a mode of procedure whereby safety to both mother and child can be secured.

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During my sojourn in Dresden last fall it was my good fortune to be enabled to observe several cases of pubiotomy in the service of Professor Leopold, of the Königl.-Sachsiche Frauenklinik. The simplicity and ease with which the operation is performed and the exceptionally good results obtained impressed me to such an extent that when I later arrived in Budapest for a brief residence in the Frauenklinik of the Royal Hungarian University, I took occasion to discuss the operation with Dr. Scipiades, first assistant of the clinic, who promised me that the same would be put into execution at the very first opportunity that should present itself. This opportunity came about the middle of February, and was closely followed by another about a week later.

For obvious reasons I do not feel at liberty to report these cases in detail; suffice to say that each case was brought in from the outside, while in labor at full term; the one a III para with a history of previous difficult labors and still births after accouchement forcé; the other a II para, whose first pregnancy terminated in manual delivery by breach of a living child, who, however, only survived about two months. In each case a generally contracted flat rachitic pelvis was diagnosed. In the first the true conjugate diameter measured 8.2 cm., in the second 7.8 cm.

In each case the Doederlein subcutaneous pubiotomy was done, after which the traction forceps were applied and living children delivered. At the time of my departure from Budapest, the end of February, both the mothers and the children were doing well.

The operation of pubiotomy was first conceived and suggested about eighty-five years ago by Champion de Bar-le-Duc. It was later executed by Stoltz and popularized by Gigli, who invented a very ingenious saw wherewith to divide the pubic bone. This saw is an ordinary piece of steel wire, about 30 cm. in length, roughened throughout its extent so as to practically resemble a very fine file, and terminating at each extremity in a small loop. Since then a number of gratifying clinical reports have kept pouring into the literature from a variety of sources. Among others, Gigli, Pestalozza, van de Velde, Leopold Meyer, Ferrari, Doederlein, Leopold, Zweifel, Schauta, Bürger, Küttner, Sellheim, Franque, etc., report an aggregate of about fifty cases, with results satisfactory to both mother and child.

On this continent, as far as I could determine from a careful search through the literature, the operation has not yet been attempted, and with one single exception there is no reference to the

same to be found in our literature. This exception is furnished by the American Yearbook of Medicine and Surgery, 1905, where a short and decidedly unfavorable reference to the operation is made. This reference is apparently based on the unfortunate experiences of Baumm and Hart. The former lost two patients of sepsis, in one of which accidental communication was established between the pubiotomy wound and the vagina, and in the other between the pubiotomy wound, vagina and urinary bladder. Dr. Hart's patient, to quote his own words, "died on the third day from exhaustion, with no local symptoms." "Necropsy showed acute fatty degeneration of tissues, probably due to chloroform."

Van Cavenberghe made a very painstaking and extensive experimental study on the cadaver of the effects of pubiotomy on the dimensions of the pelvis. His mode of procedure was to first carefully determine the exact measurements of the following diameters: 1. Distance between the anterior, superior and spinous processes. 2. Distance between two furthest points in the iliac crests. 3. Distance between the two tronchanters. 4. Conjugata externa. 5. Conjugata diagonalis. 6. Conjugata vera. 7. Distancia bi-sacroiliacae. 8. Transverse diameter. 9. Right diagonal diameter. 10. Left diagonal diameter.

He then divided the bone and separated the fragments successively to the extent of 1, 2, 3, 4, 5 and 6 cm., remeasuring each of the above diameters at each successive separation of the severed fragments. As a result he found an actual increase in each diameter at each and every separation.

Tandler made a very careful anatomical study of pubiotomy, and, among other things, came to the conclusion that, when properly performed, its preference over symphsiotomy is not to be underestimated.

Thus the consensus of opinion of the clinician, the experimenter and the anatomist tends to show that the operation in properly selected cases may be performed with impunity and safety for both mother and child.

Pubiotomy stands as a compromise between relatively indicated Cesarian section and symphysiotomy on the one hand, and induction of premature labor, prophylactic podalic version and craneotomy or perforation of the living child on the other. It is indicated in all cases of contracted pelvis with a minimum true conjugate diameter of 7 cm. where the disproportion between fetal head and maternal pelvis is sufficiently great to obstruct further progress of labor and

where, after a period of watchful expectancy, it becomes evident that further inactivity will endanger the health or life of either mother or child or both. The following conditions must be present: The child must be viable, the os dilated and the cervix effaced.

The special instruments required for this operation are: a Gigli saw, already described above; a director or saw-carrier, and two saw handles or grips. The director consists of a handle 18 cm. long. Running off at right angles with and to the left of this handle is a tapering arm which is curved backward in a semi-oval form, so as

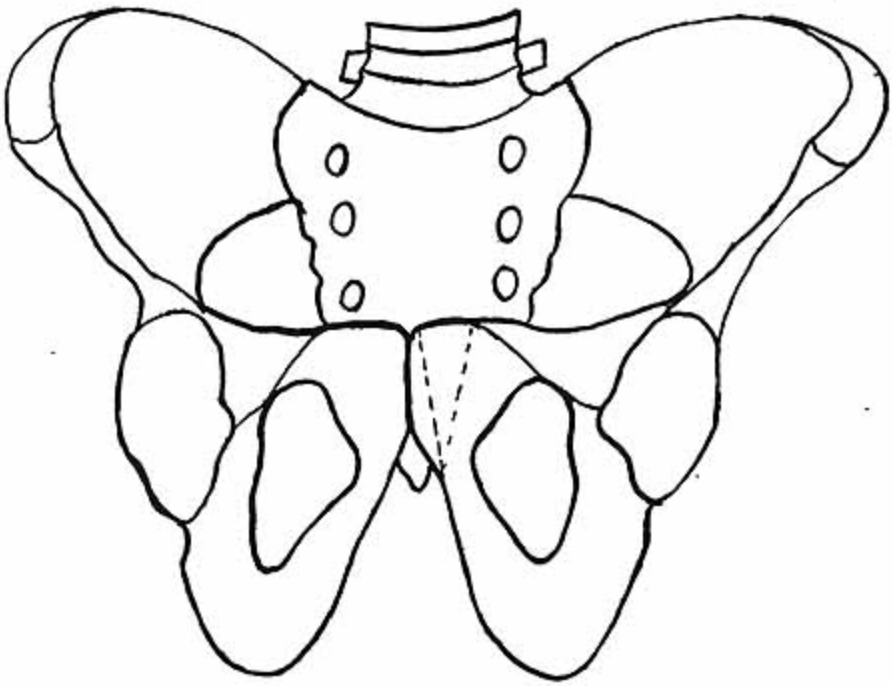

Fig. 1. Gigli's pubic section from the upper-inner angle of the body of the pubis to the descending ramus, and Van de Velde's section from the public spine to the same point.

to resemble a large perineal needle, and which terminates in a small hook formed by indentation. The saw handles or grips consist each of a hook, which is attached to a small horizontal bar. Besides these, the operator is provided with a scalpel, scissors, tissue forceps, hemostatic forceps, needles, silk, catgut, etc.

The technic of the operation, which may be performed on either side of the pelvis, varies slightly in the hands of different operators. Gigli begins his incision at the upper inner angle of the body of the

pubis and carries it downward and outward toward the middle of the labium majus, where the inner border of the descending ramus of the os pubis is to be felt, severing in its train all of the tissues down to the bone. He then introduces the saw-carrier at the upper angle of the wound and by means of two fingers of the left hand in the vagina, guides the carrier downward, close to and alongside the posterior surface of the body of the pubis to the inner border of the descending ramus, where it is seen to emerge at the lower angle of his wound.

Van de Velde commences his incision at a point immediately to the inside of the pubic spine and carries it vertically downward to

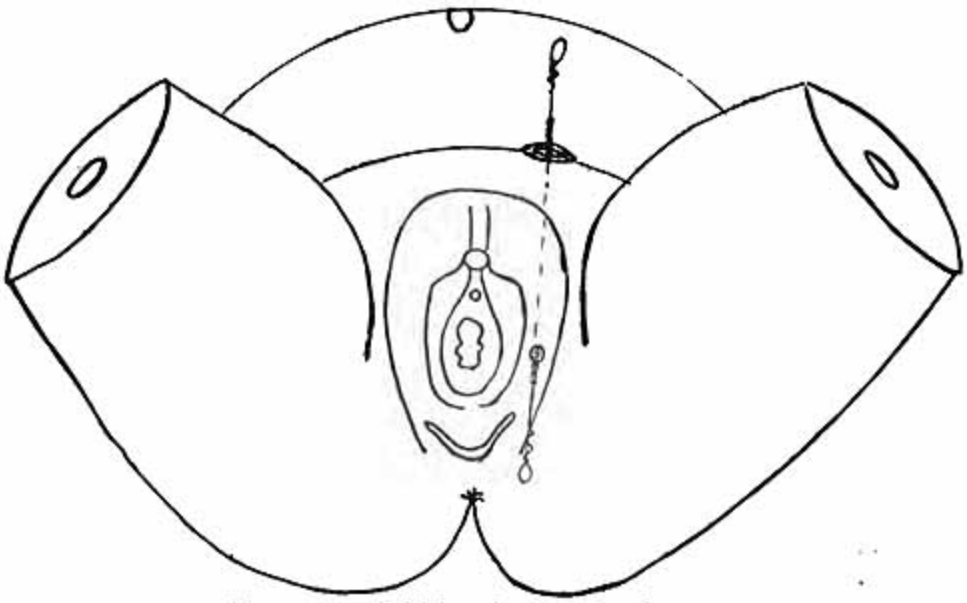

Fig. 2. Doederlein's subcutaneous pubeotomy.

the point in the labium majus similar to that of Gigli. In his incision he only divides the integument and subcutaneous fat, leaving the muscles intact. He then introduces his left index finger into the lower angle of the wound until he feels the inner border of the descending ramus. At this point he introduces the saw-carrier, directing it from below upward, along the posterior surface of the pubis to the upper angle of his wound.

The operation that appeals to me most strongly is the so-called subcutaneous operation of Doederlein.

Doederlein makes a small incision, about 2 cm. long, over the

spine of the pubis, cutting all the tissues through down to the bone. He then introduces his index finger into the wound, and with it bluntly dissects away all retropubic structures, thus creating a tunnel running along the posterior surface of the body of the pubis from the spine above to a point in the inner border of the descending ramus vertically opposite, below. He then inserts the saw-carrier from above downward through the said tunnel between his finger and the bone. When the tip of the carrier is felt or seen bulging the skin, he makes a small counter-incision, just large enough to permit the point of his instrument to emerge.

This practically represents the most important differences in the modus operandi by the various operators. From this point on the further steps in the operation are similar. After the introduction of the carrier, a Gigli saw is hooked into it by means of one of its loops and the carrier withdrawn, and, of course, with it the saw pulled up or down, as the case may be, into position. A grip is now attached to each end of the saw and in fifteen to twenty up and down strokes of the saw the bone is severed in twain and the fragments spring apart to the extent of one or two finger widths. One experience common with all operators at this juncture is hemorrhage, which is more or less profuse. It is, however, generally only venous in character and easily controllable by pressure. This hemorrhage, according to Tandler, is due to injury to the corpus cavernosum clitoridis, which he advises to ligate as a preliminary to the operation.

To accomplish this he recommends an incision 3 cm. in length running parallel with and about 1.5 cm. above the inner border of the descending ramus of the pubis. Next the subcutaneous fat is dissected away in the direction of the border. Here the corpus cavernosum clitoridis, covered by the ischiocavernous muscle is to be found; incise the periosteum along the bony border and by means of blunt dissection detach the crus of the corpus cavernosum from its insertion into the bone. Introduce a double ligature to include corpus, periosteum and muscle, tie them and cut between. The next step in the Tandler operation is to separate the periosteum from the posterior surface of the body of the pubis and to introduce the saw-carrier from below upward to the inside of the pubic spine where, after piercing the rectus abdominis at its outer origin, it is allowed to emerge through a small cutaneous incision made for that purpose. A Gigli saw is then caught by the carrier and placed in position by the withdrawal of the latter. The grips are now attached to the saw and the bone divided. At this point the operator usually proceeds with the delivery of the child.

It occurred to me that the more proper thing to do at this stage is, first to close all of the external wounds with silk or catgut sutures, taking care that the same embrace periosteum, muscle and skin, and to seal them with a dressing of flexible collodion, thus completing the operation and at the same time guarding the wounds against possible infection.

The further management of labor must be conducted on obstetrical lines. An effort should be made to engage the head by means of Hofmeier's impression method; if successful the patient may either be permitted to recover from the influence of the anesthetic and labor allowed to terminate spontaneously, or an ordinary forceps applied and the child delivered. If unsuccessful, the traction forceps should be applied and the fetus extracted while its mother is still under the influence of the anesthetic.

The after treatment consists in a simple binder around the pelvis, or if preferred, the same may be strapped with strips of adhesive plaster.

In about two weeks a well-formed callus is usually observed and in three weeks the patient is in fit condition to resume her usual vocation.

Van de Velde reports several cases where he not only entirely omitted the pelvic binder or immobilization of the pelvis after pubiotomy, but on the contrary, even encouraged pelvic movements by rotating the limbs, etc. As a result, he found that this mode of treatment did not hinder a firm union of the fragments at all, and in addition a permanent increase in the diameters of the lateral half of the pelvis on which the operation was done was obtained, thus producing a noticeable asymmetry between the two lateral halves of the pelvis. A skiagraph taken shows the space between the median line of the symphysis and the inner border of the obturator foramen to be larger on the pubiotomized side than the corresponding space of the opposite side. Actual measurements showed an increase of 2 cm. in the space between the anterior superior spinous process and median line of the pubic symphysis on the operated side and no change at all on the unoperated side.

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Remarks: I intentionally omitted a comparison of symphysiotomy and pubiotomy for the reason that the same has been gone over a great deal in the German as well as in the Italian literature. Symphysiotomy has of late years been almost entirely abandoned, even by some of its ablest and most successful advocates, and has but few and

unenthusiastic adherents today in the wake of modern aseptic methods and vastly improved technic. Symphysiotomy, from a surgical viewpoint, is not a correct operation. A surgeon will hesitate to cut into a joint, especially in the face of the fact that isolation from contaminating influences of the immediate environments is practically impossible. Some of the other points urged against symphysiotomy is hemorrhage, which is usually very severe and occasionally almost uncontrollable; danger of injury to the bladder, urethra and vagina, which are in close proximity to the wound; extremely prolonged post operative convalescence; resulting union usually ligamentous and infirm, frequently no union at all; the operation can only be undertaken in properly regulated and well adapted operating rooms.

With pubiotomy the case is entirely different; one is not called upon to enter a joint, here simply a fracture of bone is produced. Call it a surgical fracture, if you please, in contradistinction to an accidental or pathological fracture. Hemorrhage is less severe, easily controllable and even avoidable. The wound is away from important organs and lochial flow and injury to them more easily evaded. Convalescence is more rapid and the result is a firm bony union with a perfectly restored pelvic function. Another advantage in these, more frequently emergency cases, is the fact that the operation may be undertaken with perfect impunity in the home of the patient.

I am asked whether the pelvis can always be securely immobilized and whether union is always sure to follow. In answer to this I will say that the thoracic cavity is considerably more motile than the pelvic, especially when the patient is at rest, and still union of fractured ribs is by no means a rarity. Of course, fractures of the pubis will unavoidably be amenable to the same laws governing fractures in other bones, and delayed union may be expected in syphilitic cases or in those of malnutrition, and for that reason the history of the patient should be carefully inquired into. Lacerations of the soft parts by the edges of the fragments are not likely to occur because the fragments would yield to the pressure of the fetal head, and besides no such observation is, so far, reported by operators. Hematomas have been observed by Sellheim; they were located retropubically, and he ascribes them to the anomalous distribution of the arterioles.

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