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TARNIER'S PRINCIPLE OF FORCEPS ROTATION IN OCCIPITO-POSTERIOR POSITIONS.[1]

BY

W. REYNOLDS WILSON, M.D.,

Philadelphia.

(With two illustrations.)

BEFORE entering upon the discussion of artificial rotation it may be well to define what is understood in the present connection by the term "occipito-posterior position." The mere engagement of the head at the inlet with the occiput posterior belongs to the initial stage of labor. It foretells little of the future of labor and is usually only a temporary position. On the other hand the fixation of the head in the cavity of the pelvis with the occiput directed toward one or the other of the iliac joints means a condition of arrested labor which requires the application of forceps under circumstances which usually make it impossible to accomplish delivery favorably without artificial rotation. It is the latter condition to which we shall refer in the following remarks.

In the first place, is there a possibility of so applying the forceps in this position as to fully control the rotation of the head?

[1]Read before the Gynecological Section of the College of Physicians, October 15, 1903.

Theoretically the ideal application of the forceps is that with the blades applied to the sides of the head and with the concave borders directed toward the occiput. This latter condition permits flexion to take place within the grasp of the instrument and establishes a parallelism between the longtudinal axis of the head and the long axis of the blades. There is, however, in reality, no such symmetrical application of the forceps in posterior positions, whether they be right or left; in other words, it is impossible to properly apply the forceps in this position to opposite lateral regions of the head, at the same time grasping the head so that the concave borders of the blades are directed toward the occiput. The writer is aware that this assertion is in opposition to those who teach the application of the blades in reversed position, a maneuver, which, in comparison to other methods, is unscientific, as well as to those French writers who teach that the posterior deflection of the occiput is but a temporary stage in the evolution of the head, and that it is possible to convert the oblique position manually into a transverse position. They teach that it is possible, while the head is transverse, to apply the forceps to the sides of the head with one blade opposite the sacrum and the other opposite the pubic symphysis, the concave border of the blades looking toward the occiput. Such an application will give the operator control of the head and permit him to rotate the occiput still farther around until the latter comes under he symphysis.

In theory this is a satisfactory solution to the problem, but practically, in the majority of cases, the oblique position of the head, where it can be overcome at all by manual deflection, is only changed temporarily. As soon as the hand is withdrawn the head is again deflected, before the application of the forceps can be carried out.

The classic application, with the blades applied to the sides of the head while the latter is in an oblique position (namely, for instance, in an R. O. P. position, with the blades in the left oblique diameter), is equally disadvantageous. In the first place, the desirable relationship between the blades and the head, referred to above—that is, in which the concave border of the blades is directed toward the occiput, as in L. O. A. position—is lacking. In the second place, owing to the imperfect flexion of the head which usually exists in these cases, the forceps necessarily grasps the sides of the head in a vertical direction with the points of the blades impinging upon the submastoid regions. The danger of injury to the child is thus greatly increased. These disadvan-

tages are entirely outside of the impracticability of such an application arising from the fact that, as soon as the handles are depressed in the attempt to lock the blades, especially in high applications, the blades rotate at once to the sides of the pelvis, irrespective of the position of the head. It, therefore, appears that practically the application in the transverse pelvic diameter is the most feasible—that is, grasping the head in one or the other of its oblique diameters running between the frontal and parietal regions, according to the position of the head in the pelvis. This prohibits any instrumental control of the head with a view to rotation, the operator relying entirely upon traction with the instrument. Therefore, the question as to the possibility of controlling the rotation of the head while it is still high within the pelvic cavity is answered in the negative.

If, therefore, early rotation in difficult cases is not feasible we are confronted with the question: Can artificial rotation by the forceps be carried out favorably at a later stage in labor? If it can, it is to be considered as justifiable for the reason that the excessive traction made necessary by the impossibility of controlling early rotation is at great risk to the child. Therefore, upon the rapidity with which ultimate rotation is accomplished will depend very often the child's safety. As to the mother, it is to be remembered that in spontaneous deliveries in posterior positions rotation occurs as a rule as the head impinges upon the perineal floor. In difficult cases, however, owing to the absence of molding and the want of flexion, rotation is delayed. As a result the head descends obliquely and the wide separation of the blades distends the perineum and causes serious rupture. If, therefore, the head can by artificial rotation be carried out of its oblique position as it passes the bony outlet the mother's interests are most favorably guarded.

The danger from rotation should be kept in mind. The vaginal wall may be easily caught by the edge of the blade and lacerated, or by forcibly twisting the blades the vagina may be drawn from its loose connective tissue base with a resulting separation of the surrounding muscles from their fascial attachment. Tarnier has demonstrated (*Precis d'Obstétrique*, Ribemont-Dessaignes and Lepage, Paris, 1897) the method of rotation. A violation of the principle involved means serious injury to the mother's soft parts. If rotation were attempted without regard to this principle, about to be described, we should be in the unhappy dilemma of either

injuring the pelvic floor by traction upon the widely separated blades in an oblique application to the head in an immovable position or of injuring the vagina by improper rotation of the blades within it.

The error in attempting to favor rotation of the head by the forceps by the usual method lies in a preconceived idea that in order to rotate the blades concentrically with the axis of the pelvis it is necessary to rotate the handles upon their long axis. Tarnier has shown that if such a movement is carried out the blades will describe a cone of revolution, the base of which is traced by the points of the blades within the pelvis. The diameter of the base of this cone is greater than the pelvic excavation. In other words, the points of the blades in being swept in a circle are so far removed from the axis of the pelvis as to injure the vagina. To state it in other words, the radius drawn from the axis of revolution to the tips of the blades is greater than can be safely accommodated within the pelvis.

Tarnier recommends as a remedy for this, or rather as a safer and more effective method of rotation, rotation of the handles in such a way as to permit the ends of the handles to describe a wide circle of revolution, leaving the tips of the blades as a fixed point. Thus the cone of revolution is traced by the ends of the handles without the pelvis. Under these circumstances the greater the diameter of the base of the cone the less the deviation of the points of the blades from the axis of rotation. Practically, the procedure may be simplified by pressing the ends of the handles toward that side of the pelvis in the direction toward which the presenting part of the head is to rotate, without any attempt to rotate the handles. The difference in direction between the blades and the axis of the handles insures a more or less extensive rotation of the former when this procedure is carried out. A persistence in this lateral pressure will result in a gradual change in the position of the handles, so that they will be found to describe a circle of rotation as the head changes its position, yielding to the direction imparted to them by the altered position of the blades.

The leverage which comes into play by the application of the pressure to the ends of the handles makes it necessary for only a moderate degree of pressure to be used. The result of such pressure in favoring rotation is a guide as to the wisdom of continuing it. Where such lateral pressure applied to the ends of

the handles is apparently not effective, one of three possible influences prevents rotation: (1) The attempt at rotation may be made too early. (2) The head may be too large to undergo rotation. (3) The natural tendency may be for the occiput to rotate posteriorly, or in an opposite direction to that in which artificial rotation is attempted.

A study of each case by this test will enlighten the operator as

FIG. 1.

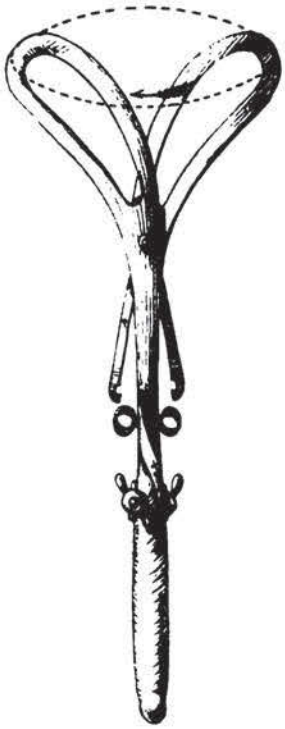

FIG. 2.

(After Ribemont-Dessaignes and Lepage.)

In the first figure the base of the cone of revolution is described by the ends of the handles without the pelvis. In the second figure the base of the cone of revolution is described by the points of the blades within the pelvic cavity.

to the advisability of attempting artificial rotation in order to terminate labor. Where rotation has been successful by this method it involves a reapplication of the forceps, which has become inverted, before the head is fully extracted, a procedure which is described in the text-books as the double application of Scanzoni.

The above described method is, of course, independent of Tarnier's principle of axis traction, and although the traction forceps,

by the freedom which they permit to the movements of the head, are indicated in such impacted posterior positions they exert no positive influence in favoring rotation.

The maneuver described above may be carried out, however, with equal success with the Tarnier or Sympsom forceps as with the ordinary obstetric forceps.

1709 SPRUCE STREET.
