

Of the Umbilical Cord.

509. THE *umbilical cord* is known to all, but its structure is not equally so. It is formed of

two arteries, and one vein, whose diameter is larger than those of the arteries. This structure is not however always the same, since we have seen many cords with only one artery.

510. These vessels, whose origin is already known, according to par. 484, wind round each other, like the twigs which form the handle of a basket: sometimes the arteries creep round the vein, like ivy round a tree; and sometimes the vein does the same round the arteries. This vein often folds itself into a kind of loops of different lengths, or forms itself into a species of knots, subject to become varicous. These vessels are closely bound by the cellular tissue of the *chorion*, and send off no branch in the whole length of the cord.

511. They divide and subdivide on the internal face of the *placenta*, to form the *plexus* mentioned in par. 483; and they separate from each other at the posterior part of the *umbilical ring*. The vein ascends along the great *falx* of the *peritonæum*, towards the *scissure* of the *liver*, to enter the *sinus* of the *vena porta*; and the arteries descend towards the lateral parts of the *fundus* of the bladder, from whence they make a turn towards the *iliac* arteries, of which they are almost always a continuation.

512. The *umbilical* vein, as it approaches the *sinus* of the *vena porta*, sometimes divides into two branches, one of which, known by the name of the *veinous canal*, is inserted into the *vena cava inferior*. When this bifurcation does not take place, the *veinous canal* rises from the *sinus* of the *vena porta*; and that is what we find most frequently.

513. Another kind of cord rises from the top of the bladder towards the *umbilicus* of the *fœtus*, where it terminates; that is the *urachus*, already mentioned in par. 506. It is almost always ligamentous throughout, and has no cavity, at whatever period we examine it.

514. We discover no nerves in the cord, any more than in the *placenta* and membranes; therefore those parts are insensible.

515. The *chorion* and *amnion* furnish a common sheath to the three umbilical vessels; and the skin of the *fœtus* advances about a finger's breadth on the cord, but growing thinner and thinner. It is always at the place where the skin terminates that the cord falls off from the *umbilicus*, at whatever distance from it, it be tied and cut.

516. The length of the cord varies very much, but it is commonly from twenty to twenty-two

inches: the two extremes which I have seen, have been from six to forty-eight inches. There has since been seen another cord of fifty-seven inches, forming seven turns round the child's neck*.

517. When the cord is much longer than usual, it may not only turn itself round the child's neck or other parts, but also form knots upon itself, as I have seen many times. These knots cannot however cause the child's death, as many accoucheurs have advanced, nor even influence its development so far as to make it appear smaller at the time of birth.

518. Some of these knots are formed during pregnancy, and even very early; but there are cases where they are not formed till the instant of the expulsion of the child: it is easy to explain the mechanism of their formation in both cases. At whatever time they may be formed, they can never draw themselves so tight before delivery, as to oppose the course of the blood in the *umbilical* vessels: the reason of it is so evident, that it would be useless to state it here.

519. If this truth is incontestable, we must at-

* M. L'Heritier, master in surgery, was a witness of the fact at the Hotel-Dieu of Paris,

tribute to some other cause than a knot on the cord, the death of a child born with the cord knotted; as well as the delicacy and weakness of others born in the same manner. When the cord ties itself in a true knot, says M. *Levret*, the child dies, or at least is born much emaciated (voyez L'Art des Accouchemens, § 305). This opinion, which other accoucheurs held before M. *Levret*, and which some have adopted since, could not be the fruit of a series of observations. Eight or ten examples of robust children whom I have seen born with knots on the cord, appear to me fully sufficient to invalidate such an opinion.

520. Not only a single knot may be formed on the cord, without influencing the development of the child; but several also may be formed on it with as little inconvenience. I have several times found two, and the child was as large as usual.

521. A single knot, or even several at a certain distance one from the other, present nothing but what we can easily account for; but we cannot so clearly conceive how the cord can be tied in a triple knot, and interwoven like a mat, as I have seen it. The fact appeared to me so extraordinary, that I have caused it to be engraved,

engraved, to give an idea of it to those who have not an opportunity of seeing it* : I preserve it in spirit of wine. The child who was born with the cord tied in this manner, was at least of seven pounds weight, and in very good health †. The triple knot was about a foot from the *umbilicus* ; and the cord, which was thirty-six inches long, formed two circulars round the child's neck. The knot was drawn as tight as any knot in those circumstances can be.

523. The shortness of the cord, whether natural, or arising from its being twisted round the neck or other parts of the child, can produce no obstacle to delivery before the head is without, though the contrary has been believed. After the head is delivered, the circulars which surround the neck may be drawn so tight as to compress the jugular vessels, and cause a swelling and lividity of the face. Some inconveniences may also result from it to the woman, either before or during labour : as a dragging or separation of the *placenta*, and even a rupture of the cord. But, to produce these, the *uterus* must contain a great deal of water, and the child must execute very considerable movements.

* See the seventh plate, fig. 2, 3, 4.

† This child was born May 14, 1786.

524. I know no example, whose reality cannot be doubted, of a rupture of the cord either totally or in part before the full period of gestation, though M. *Levret* and others quote several; but we are certain it may take place at that time, and that a very considerable extravasation of blood may result from it, into the cavity of the membranes.—See par. 1084.

525. The thickness of the cord varies very much: sometimes it is very slender, and sometimes very thick, which in the latter case arises from the repletion of the cellular membrane. That membrane may putrefy without any injury to the well being of the child, provided the *umbilical* vessels be exempt from corruption. The example of children born with the cord putrefied is therefore not at all surprising.

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M I D W I F E R Y:

TRANSLATED FROM THE FRENCH

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B A U D E L O C Q U E,

B Y

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