

may injure the infant's throat, as occurred in a case that came under my notice the other day, and almost proved fatal to the child from subsequent swelling and inflammation of the gullet. You may sometimes observe little excrescences here and there about the funis, pouching out something like a varicose vein, or, again, little masses of jelly-like substances. Whatever may be the physical peculiarities of the umbilical cord, this remarkable gelatinous sheath at once encloses and protects the blood vessels that serve as the media of communication between the fœtus and the placenta. The one vein called the umbilical vein conveys arterialised blood from the placenta to the fœtus; and the two arteries, called the hypogastric, return the blood from the fœtus to the placenta for aëration. The first thought that occurs to us is, *why* this singular transference of function—a vein taking on the duties of an artery, arteries of a vein? A great physiological problem goes to this apparent divergence. During intra-uterine life the pulmonary circulation remains in abeyance; hence the blood required for the nutrition and growth of the fœtus can only be aërated in the maternal system, and this again through the interposition of that wonderful fœtal appendage, the placenta, which is at once dependent and independent of the maternal organism, and may be regarded rather as a parasitic than an integral portion of it; its function is purely temporary, and it is thrown off soon after the birth of the infant.

Pursuing our subject, we will briefly trace the course of the blood in the vessels of the umbilical cord, as it flows from the maternal to the fœtal, and from the fœtal to the maternal systems, having the placental structure interposed between the two circulations, and I will italicise certain anatomical points special to fœtal life.

The arterial blood brought from the placenta in the umbilical vein is in part, and at once, conveyed by the *ductus venosus* to the vena cava ascendens, thence to the right auricle of the fœtal heart, passed through a large aperture between the auricles (called the *foramen ovale*) to the left auricle, transmitted to the left ventricle, by which it is propelled into the ascending aorta, which supplies the branches that proceed to the head and upper extremities, returning thence through the jugular and subclavian veins to the right auricle *for the second time*. Directed by the *Eustachian valve* it then enters the right ventricle, which in adult life sends the blood to the lungs for aëration; in

the fœtal, through a temporary channel called the *ductus arteriosus* to the descending aorta, for the blood supply of the trunk and lower extremities; and then divides into the common iliacs, and these into the internal iliacs, which become the hypogastric arteries, and return the blood along the umbilical cord to the placenta for re-oxygenation. There is also a fœtal portal circulation, which we need not dwell upon here. Its purpose is to pass a portion of the blood from two branches of the umbilical vein that unite with the portal vein, returning the blood from the intestines into the substance of the liver, thence to be conveyed to the vena cava inferior by the hepatic vein, and thus to deplete the blood before it returns to the placenta, as one would strain off impurities in a water filter.

I have merely outlined these interesting physiological points, in order to direct your attention to the fœtal circulation, and commend it to your thoughtful study, as we shall find it has an important bearing upon early infantile life, and to my mind is one of paramount interest.

Having thus far digressed from, we will now return to our duties, and that is commonly to "separate" the infant from the placenta. There are two modes of doing this—by cutting or torsion. In the former ligatures are required; there can be little doubt that the latter is the more effectual of the two, and *after* the expulsion of the placenta it can be done without difficulty. In cases of spontaneous tearing of the cord, which of course does not often occur—such as the infant falling from the mother whilst she is in a standing position, or falling off the bed, in the absence of assistance—nothing can exceed the perfection with which nature does her work. I venture to assert there would never be umbilical hæmorrhage in her hands! However, if this plan be effectual it is far from being expedient, and we therefore rely upon our routine resources of scissors and thread. What sort of scissors? I have mentioned in a previous paper that the safest and best are a small pair of *round-ended* ones—drapers' scissors, in fact—and every Obstetric Nurse should have a pair; and rough thread is far better than glazed. And at this point let me give my young Nursing readers a word of caution—*never* to hurry the separation; let the pulmonary circulation be thoroughly established first, aided by the invaluable efforts of the infant in that direction by cries. It is but a too common practice of the "incapables" of our sex (of *course* there are none in the other) to separate with such desperate

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