

The mismanagement of the third stage of labor I believe to be one of the most fruitful causes of diseases of the reproductive organs. Undue haste in the delivery of the placenta is almost sure to result in leaving fragments of the secundines within the uterus, which may and sometimes do become the source of both present and future trouble. Dr. W. D. Porter of Cincinnati, in an article on the "Third Stage of Labor," says: "Efforts at expulsion of the placenta previous to its detachment are clearly wrong."

About twenty years ago Credé published his method of delivering the placenta, a procedure familiar to us all. Suffice it to say, that it has been grossly abused to the lasting detriment of a large proportion of women, who have been subjected to it too soon after the completion of the second stage of labor. The method scientifically applied at the proper time is a very safe and efficient one. Many physicians, heedless of the results that may be produced by interfering too soon, deliver the placenta before the uterus has regained its impaired contractility, caused by the long and oftentimes violent contractions of the uterus that finally result in the expulsion of the child. The probable results of undue haste in this most important part of the physician's duty, is the retention within the uterus of placental and membranous fragments, which not only cause frequent recurring post partum pains that fret and worry the patient, destroying her rest and protracting her convalescence, but frequently become the source of sepsis which, if it does not end fatally, is almost sure to cause subinvolution, chronic endometritis, metritis, salpingitis, peritonitis, displacements, etc.

Dr. Frank C. Ferguson, in an article published in the *Indiana Medical Journal*, of 1891, sums up the matter as follows: "The complications of incomplete abortions and the retention of fragments of secundines after labor, are primary and secondary. The principal primary complications are, 1, post-partum hemorrhage; 2, septicemia; 3, pyemia; 4, acute puerperal metritis; 5, lymphangitis. Should the patient happily escape these dangerous diseases, the principal secondary complications to which she may be subjected are, 1, subinvolution; 2, prolapsus; 3, versions and flexions; 4, long continued recurring metrorrhagia and menorrhagia, which sooner or later produce profound anemia, leading oftentimes to the development of tuberculosis or other maladies."

I have not attempted to enumerate all the causes that contribute to the ill health of women, but have spoken chiefly of the most prominent causes and those which are to a very large extent preventable. When proper attention is given to the physical training and education of our girls at the time of puberty; when a radical change is made in the social life of the wealthy; when women are thoroughly instructed concerning the evil results of improper dressing, the ill effects of constipation, and the terrible results of criminal abortion, and when physicians are universally held responsible for ill health produced by the accidents of parturition, the mismanagement of labor and the lying-in period, diseases peculiar to women will be far less prevalent than they now are.

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ON INIENCEPHALUS.

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St. Hilaire defines a monstrosity as a serious deviation from the specific type, complex, apparent on external view and congenital. His classification of anomalies and monstrosities has generally been followed by teratologists since his time. A large family of monsters is characterized by a defective closure of the cranial vault or the vertebral laminae. There are many varieties according as the defect is in the cranial bones, the spine, both cranium and spine, or parts of each or both. In a large number the brain is entirely wanting or rudimentary. Such are the anencephali or derencephali, the commonest of all, the so-called frog or owl fetuses. In another class the brain is present, although the mal-development of the bones has caused all or part of it to lie outside the cranial cavity. Sometimes the posterior defect is confined entirely or mostly to the vertebral laminae and we have spina bifida, through the defect in which meningocele usually protrudes. The class in which the brain is wholly or in part outside the cranium is the exencephalian. This is subdivided into those with and those without spinal fissure.

Without spina bifida:

1. Notencephalus; brain largely outside the skull through occipital defect with posterior encephalocele.
2. Proencephalus; anterior encephalocele.
3. Hyperencephalus; podencephalus; cranial defect in vault.

With spina bifida:

1. Exencephalus proper; cranial bones rudimentary and brain lies mostly or entirely outside on the back. The spinal defect may involve a few or all vertebrae.
2. Iniencephalus; considerable or all of the brain is covered by the cranial bones, but the tilting backward of the head makes the margins of the occipital defect come closely in contact with the margins of the spina bifida so that some of the brain lies upon the spinal cord and in the spinal gutter, although covered wholly or in part by the bones of the cranial vault, which act as vertebral laminae. There may be an encephalocele or not. Ballantyne states three cardinal characteristics of iniencephalus: occipital defect, spina bifida and fetal retroflexion. The dividing line between iniencephalus and exencephalus proper is not absolute and some few cases might be classified differently by different authorities. Taruffi groups iniencephalus, notencephalus and exencephalus proper into one species which he calls "mero-acrania postero-spinalis."

Iniencephalus is a rare form of monster. Isidore Geoffrey St. Hilaire, writing in 1836, says that only three cases had been thus far reported. Taruffi, writing in 1889, says that only about twenty cases had been reported of mero-acrania postero-spinalis. I have collected every case reported in accessible literature, including an exhaustion of the Catalogue of the

Surgeon-General's Office, U. S. A., and the Index Medicus, omitting one case undoubted and one doubtful which I can not find in original or abstract. To these I add one case delivered by myself and two from the museum of Rush Medical College, dissected by me with the assistance of Dr. L. J. Mitchell and with the permission of Prof. Ludvig Hektoen.

The cases recorded below divide themselves into three general classes. The first includes those without protrusion of the brain beyond the box formed by the cranial bones and the open vertebræ. This class may be called *iniencephalus clausus*. The second includes those having a small encephalocele and, with the first, comprises the typical iniencephalic class. The third includes those cases where the occipital opening is large enough to allow the escape of a large portion of the brain. The last two might be called *iniencephalus apertus*. Of the iniencephali clausi I have collected nine cases, viz.: By Fleck⁴⁵, Royal College of Surgeons of England⁶, Coffin⁸, Yocum⁹, Landucci¹⁰, Ballantyne^{11 2} (two cases), my own case and one from Rush College Museum.

My case is as follows: Primipara, 25 years old, in sixth month of gestation, abdomen enlarged correspondingly, twins, male. One was normal and appeared to be five and one-half months along. This one lived for twenty hours in an incubator. It is 10 inches long, weighs 590 g., has finger nails half out to ends of digits and undescended testes. The second was dead and somewhat macerated, 6½ inches long, weighed 190 g. There was a common placenta and chorion, two amnia and two cords. The smaller twin presented the appearance of great shortening of the back. From back of head to anus is only ¾ inch, while from chin to pubes in front is 4¼ inches. The face looks forward and upward, while the cranium is turned sharply backward, covering most of the dorsum. The neck is edematous and has no furrow between chin and sternum. The abdomen is very protuberant. Dissection shows the parietals overlying the upper two-thirds of the spinal column. Cutting the fibrinous attachments of the cranial bones to the spine and turning the head forward reveals an extensive spina bifida as far as the second lumbar vertebra. All the cranial bones are normal except the occiput. The basilar portion articulates with the atlas, but the bone broadens out so as to leave a large foramen magnum, which opening is continuous with a large defect in the squamous portion and makes a figure eight with the latter opening. The squamous plates of the occiput are represented only by an acute triangle on either side of the opening articulating anteriorly with the parietal. The margins of the bony defect in the occiput are closely attached to the ends of the widely divergent transverse processes of the cervical, dorsal and first lumbar vertebræ. Thus it will be seen that the spinal canal is covered above by the remnants of the occiput and the parietals which form a sort of roof along the dorsum. At the bottom of the spinal canal lies the cord and over it, contained in the cranium, lies the brain. Thus we have an *exencephalus*, for while the brain does not escape into the outer world, yet it does lie partly outside of the cranium and in the spinal canal. The defect is in the occiput or "inion" and therefore the variety is "iniencephalus."

The cervical spinal column curves downward and forward, making a concavity with the dorsal portion which turns backward under the cranium. The cerebral hemispheres are apparently of normal size.

The first Rush College case is an unmarked specimen without history. Female, Beclard's center in the femur present, nails to ends of digits and otherwise apparently of full term. The length is only 12¼ inches, but the shortness is explained by the marked foreshortening of the back due to the tilting backward of the head. The face looks forward and upward, leaving very little furrow below the chin. There is an opening in the abdomen near the navel, allowing some of the viscera to be outside the body.

Dissection reveals a complete spina bifida to the tip of the coccyx. The cranium extends as far as the lumbar region, attached ligamentously to the transverse processes as in the former case and forming a roof over the spinal canal. There is no encephalocele. There is much lordosis of the cervical spine and right scoliosis of the whole column, so that the ribs are so irregular as to deform the chest. The opening in the occiput consists of a large foramen magnum 1½ x 1½ inches. The width of the spinal cleft is at its maximum 1½ inches. There is slight talipes varus of both feet.

Of *iniencephalus apertus* first come those with small encephalocele. Of this class I have collected eight cases, viz.: By Dugés^{2 1}, Potthoff⁵⁴, Cruveilhier,^{13 14} Drew and Jackson¹⁵, Lawther¹⁶, Vernier¹⁷, Remfrey¹⁸ and the second case found by me in Rush College.

This last is marked 140 and is without history. Female, toe nails less than half and finger nails two-thirds out to tips of digits; apparently about seventh month.

Beside the usual tilting back of the head and shortening of the dorsum there are two soft tumors upon the back. One protrudes from a bony defect in the skull to the right of the median line and hangs over the right shoulder, measures 2¾ x 2¼ inches and is shown by dissection to be an encephalocele. In the median line, and occupying the lower two-thirds of the dorsal region, is another tumor covered by membrane and allowing the cleft spine to be felt beneath. It measures one and one-fourth by fifteen-sixteenth inch and is shown by dissection to be a meningocele. The opening in the cranium through which the lateral tumor escapes is between the rudimentary plates of the squamous occiput which, in the form of acute triangles, are articulated with the parietals at the lambdoid suture. The bony defect here is continuous with the enlarged foramen magnum below, and forming a figure eight with it. The margins of the foramen lie flat upon the spinal column and are ligamentously attached to the bony margins of the spina bifida. Thus the occiput covers the spinal canal, causing the shortening of the back of the fetus. There is complete spina bifida to the tip of the coccyx, widest under the cranium. There is lordosis of the cervical and kyphosis of the lumbar vertebræ. The axis of the spinal column is also turned to the right in the cervical and dorsal regions (right scoliosis).

Of the third class, namely, *iniencephalus apertus* with large encephalocele, I have collected five cases, namely: By Hull²⁰, Gros²¹, Budin²², Rogers²³ and Bonnaire²⁴. As in most classifications, the distinction between iniencephali and exencephali proper becomes indefinite at the boundaries. A few cases might, by different authorities, be classed in either category. One such case is reported by Poelman²⁵, but this seems to be an *exencephalus* proper with cyclops. Taruffi³, in the section on mero-acrania

posterior-spinal, mentions ten cases collected by him where the cranial defect was in the occiput. This class he considers synonymous with the iniencephalus of St. Hilaire. Only one of these do I think a true iniencephalus and that is one reported by Hull and already referred to by me. Beside these of Taruffi, I find reference to two whose original reports I am unable to find. One is a specimen depicted in Ahlfeld's Atlas⁵ and shows a skull with enlarged foramen magnum, therefore may be iniencephalus or notencephalus. Vrolik⁸² also depicts a skull with similar defect, but further particulars are wanting. St. Hilaire states that one of the three cases of iniencephalus reported up to his time was by Burkhardt³⁶ but I can nowhere find original or abstract of the latter's article.

A résumé of the twenty-two cases collected by me shows a few interesting facts. In all cases there was a marked tilting back of the head and extension of the cranium on to the dorsum. The rhachischisis extends to the sacrum or farther in ten cases, to the last dorsal in two, to the middle dorsal region in four, through the cervical region in three and not stated in the rest. Anterior spina bifida in two, diaphragmatic hernia in four, hydramnios in six, club foot in three, hydrocephalus in one, umbilical hernia in one, celosomia in two, deformities or displacements of the alimentary tract in eight, myelocoele in one. In one the external oblique took an origin from the clavicle and in another the gluteus maximus from the occiput. Four were born living, seven dead and the rest not stated; two were male, seven were born of primiparae, four of multiparae and the rest not stated. Only twice is it stated that there was twin pregnancy, in seven not stated and in the rest the language would imply single births.

The group of monsters exhibiting cranio-rhachischisis is a numerous one. Anencephalus occurs once in 7,143 births³⁷ and about two-thirds are female³⁹. Of the exencephalians the least rare is notencephalus; the proencephali are rather more rare and the podencephali rarest in the human species but common among animals. The exencephali proper and iniencephali are both very rare, the latter the most.

There are two important sets of views as to the etiology of such monstrosities. The pathologic theory explains the anomaly by disease of the fetus itself acting early in its history and depending for the different forms of anomaly upon the date of beginning.

The embryologic theory now held by the majority of authorities, explains malformations by arrest of development, usually from pressure at an early embryonic period. Dareste⁴ considers the cause to be pressure and adhesion of the amnion to the tissues developing beneath it. He experimented with the eggs of birds, chiefly by unequal heating of different parts of the egg during artificial incubation, and was even able to a certain extent, by varying the point of greatest warmth, to produce different forms of monster at will. The arrest of development of the amnion, consequent on his treatment of the egg, modified the evolution of the different parts of the embryo by the compression it exercised upon them. The cranio-rhachischisic monsters he took to arise from compression and adhesion of the cephalic hood of the amnion which tended to shorten and flatten the cerebral vesicles.

Curious and interesting tales are told by ancient and medieval writers about all sorts of possible and fabulous monsters, but teratology practically begins

with St. Hilaire in the first half of the nineteenth century. His classification of monsters and anomalies remains satisfactory to almost all the wants of teratologists today. Later teratologists have devoted themselves to the etiology of the subject, as is evidenced especially in the experimental work of Dareste and his followers. The fields for experiment as well as for observation are relatively so small that the advance has been also small, still much has been and is being done. Teratology is pathologic embryology and the advance of the former must depend largely upon that of the latter. Although experiment will in the future, as in the past, do much to clear up these obscure problems, yet we will continue to be largely dependent upon careful descriptions of carefully made dissections.

(For discussion see Society Proceedings, page 417.)

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A New Tapeworm.—In the journal of the College of Science of the Imperial University of Tokyo, Professor Ijimi of Tokyo, and Professor Kurimoto of Nagasaki, describe an enormous tapeworm which they denominate "bothriocephalus sp." It measured 10 meters in length and 25 millimeters in breadth at the broadest portion. Its expulsion was brought about with a dose of extract of male fern.—*New York Medical Journal*.