

AN
INAUGURAL DISSERTATION
ON

Uterine Epithelium

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Intra-uterine Life

An interesting and sublime Subject. We wish to notice man in his primary abode and in so doing. We know that we will fall short of the task that we have undertaken. Man made in the image of his Creator is the most complicated of all his works. I will not attempt to consider the various tissues that compose his complicated structure. Nor trace each of them through their various changes that they undergo, but will content myself by noting some of the most important development. The Foetus in its secluded home begins to be distinct about the third week. it is oblong swollen in the middle obtuse at one extremity though drawn to a blunt point at the other. It is vermiform in shape of a grayish white color almost without consistence varying from two to four lines in length and weighs one or two grains. At this period no organ is very distinct. The embryo is clearly surrounded by the amnion which lies quite near it in the form of a delicate membran

It becomes more consistent about the fifth week. Its head increases greatly in proportion to the remainder of the body. faint resemblance of a living being can be drawn, each one becoming more distinct until a correct diagnosis of a living being can be drawn. The heart at this period exhibits in its external form some resemblance to that of the adult. faint resemblance of the auricles and ventricles may be seen. The lungs also becoming distinct being constituted at this time of five or six lobes. The first center of ossification appear during the seventh week first on the clavicle and then on the lower jaw. It varies in length and weight, as it advances on to maturity. At term the foetus is about nineteen or twenty inches long weighs from six to seven pounds. We may conclude then according to Cazeaux, that the foetus growth is rapid for the first three months then slackens off about the middle of pregnancy and again becomes greatly accelerated during the last three months. Let us next consider the head

of the Foetus as it should merit the attention of the accoucher as being the most voluminous and least compressible part of the child and the first to which his attention is drawn in a delivery. its dimensions should be studied in order to see if they correspond with those of the pelvis. The head in the majority of cases is the part which presents during labor consequently it is very necessary that we should be well acquainted with all of its ~~changes~~ characters in order to recognize them at this time. The head of the foetus is ovoidal in form the larger extremity being posterior and the smaller anterior as in the adult. it is composed of cranium and face. Several bones enter into the formation of the cranium. These bones are not united to each other by serrated articulations as they are in the adult but are separated by membranous intervals of greater or less extent. The intervals have received the names of sutures or fontanelles. This has several advantages. It facilitates the development of the brain

and allows of a certain reduction of the diameters of the head when they are compressed in the pelvis they approach each other and may even overlap. ah! what a wise provision in nature. These membranous intervals have received different names Sagittal which extends in the foetus from the root of the nose to the superior angle of the occipital bone. The coronal which unites the parietals and frontal. The lambdoidal which unites the occipital and parietal bones. We also have fontanelles these are peculiar to childhood. The anterior is large and quadrangular and situated at the junction of the coronal and sagittal suture. The posterior is small and triangular and situated at the junction of the lambdoidal and sagittal. Let us next consider the position of the foetus. It lies curved on its anterior plain within the bags formed by the membranes. The head is somewhat flexed the chin resting on the anterior superior part of the breast. The feet are bent up in front of the latter strongly flexed

on the thighs and these again are applied to the anterior surface of the abdomen. The knees separated from each other but the heels lie close together on the back part of the thighs. The arms are placed on the sides of the thorax the forearms are flexed and thrown across the sternum so as to receive the chin between the hands. The foetus thus folded on itself constitutes nearly an ovoidal mass having its large extremity represented by the breech which is turned towards the fundus uteri. While the smaller formed by the head is directed downwards. The dependent position of the head is so common at term we are naturally led to inquire why this is the case. It has been supposed that after reaching the uterus that the head occupied the fundus for the first seven months and towards the end of gestation it reversed its position. This was the received doctrine for many years until the arguments of DeLamotte Smalley and Baudelocque subverted it.

Others say that being suspended in the amniotic fluid by the cord the head being the heaviest and acted on by gravitation that it will naturally seek the most dependent part. But I think the theory of Cazeaux is the most plausible. That is the uterus being developed during the first six months at the expense of the fundus. is spread out Superiorly but on the contrary is much contracted below does it not become evident that the pelvis extremely which from the folded condition of the lower limbs is much more voluminous than the head must naturally lie in the largest cavity that is the fundus and the head descends to the cervix. The functions of the child while it remains in the uterus are its Nutrition, respiration and Circulation. Of nutrition fewer questions have give rise to more discussions. It is generally admitted that it is furnished by the mother. but how does it get into the foetus. Some think that the liquids secreted by the internal uterine surface transudes through

the membranes so as to reach the amniotic cavity to be then taken up by the foetus. Others regard the placenta as the only means to supply the child with nutritive matter. It is necessary to admit there can be no discussion of this point until after the connection is established between the mother and child by means of allantoise. As nothing of the kind exist in early pregnancy it must be acknowledged that during this time the maternal fluid must reach the foetus by endosmosis. After arriving in the uterine cavity the ovule comes in contact at all points with the mucous membranes of the uterus. The villi of the Chorion undergo a considerable change and until the placenta is formed are all capable of imbibing the fluid secreted by the internal surface of the organ. These fluids transude through the amnion into its cavity a certain portion of them is conveyed into the body of the foetus through the canal of the umbilical vesicle

But as soon as the vascular connection is established between the maternal and foetal placenta begins to be formed the nonplacental villi of the chorion tend gradually to waste away. It now becomes a question whether the nutritive matters supplied by the mother can penetrate into the amniotic cavity through the two membranes of the ovum without collecting to an appreciable amount during the passage or are they absorbed by the vascular radicles of the foetal placenta and introduced into the body by means of the umbilical cord. It is certain that the fluid is supplied by the mother as it is more abundant as the child is less developed and its quantity diminishes in proportion to the advancement of gestation. Now the contrary would be true were it furnished by the foetus. It has been ascertained that foreign matter introduced into the stomach or veins, have been discovered in the blood of the foetus. That it is furnished by the mother &

think is a settled point from numerous experiments that have been performed during the state of pregnancy. This fluid must be nutritive as it possesses albumine osmazom and some salts. Admitting that it is furnished by the mother and possesses nutritive qualities it remains to be shown how it gets into the body of the foetus. It may reach it by cutaneous absorption secondly by the intestinal canal. When mixed with the foetal blood the nutritive elements supplied by the mother are like the chyle in the adult. it is supposed to change one portion going to the nourishment of the body and the other thrown off which forms the meconium. Some authors speak of foetal respiration I should think it to be nothing analagous with that of the adult. Secretion of the foetus I will only notice three. the bile urine and meconium. The liver is the largest of all the organs at three months its texture is soft and pulpy. The gall bladder is quite small. At five months the

Secretions of bile begins and continues to increase until the end of pregnancy. The secretion of urine and meconium is slow and not very great.

Circulation. This is somewhat different from that of the adult which must be noticed in order to make it the more comprehensive. It is well known that the heart in the adult is composed of four cavities (viz) two Auricles and two Ventricles, each auricle corresponds with its fellow ventricle. We see in the foetus as the blood enters one auricle it then passes into the other auricle ~~and~~ This dividing wall has an opening which is called the foramen of Botal which becomes smaller as the pregnancy advances and is wholly obliterated after birth.

In the adult the pulmonary artery divides into two large branches one for each lung these ramify throughout its ultimate tissue distributing therein the venous blood derived from the right ventricle. The blood is next taken up by the radicles of the pulmonary veins and

carried back by them to the left auricle. Its vascular circle is interrupted in the foetus in which the two pulmonary arteries are very small although their common trunk gives origin to a voluminous canal which opens directly into the arch of the aorta and is called the ductus arteriosus. The abdominal aorta bifurcates so as to form the primitive iliac arteries, and each of these again divides into two branches the hypogastric and the external iliac. In the foetus the hypogastric seems to be continuous with a large vascular trunk called the umbilical artery, but this is nearly obliterated in after life. The two umbilical arteries run forward and inwards along the lateral and superior parts of the bladder and soon curve forward so as to reach the inner surface of the anterior abdominal wall along which they ascend to the umbilicus then pass along the cord and ramify in the placenta. Let us next see what is the course of the blood

in the foetus. The blood carried to the foetus by the umbilical veins a part is distributed to the liver where it probably undergoes some purification and thence is brought back by the hepatic veins to the vena cava. while another portion is sent directly on to the vena cava. The blood contained in the vena cava inferior is therefore a mixture of that which returns from the inferior extremities of the foetus and of that poured into the liver by the vena porta with the addition of that portion contributed by the umbilical vein. This compound reaches the right auricle through the ascending vena cava where it only mixes partially with the blood of the upper extremities which has been brought back by the descending vena cava because in passing into the auricle the ascending vena cava is directed towards the foramen of Botal and hence its blood passes in a great measure through this opening into the left auricle and thence into the left ventricle.

By the contraction of the latter the blood is then forced into the aorta, its impetus being broken against the great curvature of this artery and the blood then passes into the vessels which arise from the arch and is distributed through them to the head and superior extremities a very small portion of it only reaches the descending aorta and the lower part of the body. The blood after having thus supplied the upper half of the body is collected by the veins which by their successive union form the superior vena cava. The latter compels it into the right ventricle where a small quantity of its blood mixes with that brought by the ascending cava but much the largest part passes directly into the pulmonary artery. This vessel sends but a trifling portion to the lungs the rest being thrust into the ductus arteriosus which discharges its contents into the aorta. The whole now descends to the inferior part of the latter vessels.

where a small portion of it is sent through the arterial trunks to supply the inferior extremities while much the largest portion is driven into the umbilical arteries and is carried by them back to the placenta there again to be taken up by the radicles of the umbilical veins to traverse the same rout