## ADHESION OF THE PLACENTA.*

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ADHESION of the placenta occurs as the result of definite patho-logical change. Reviewing the histology of the placental decidua, we find it divided into a spongy and compact layer. The former constitutes the greater part of the membrane. It is composed of glandular spaces separated by scanty stromal trabeculæ. The glands are lined with epithelium which, for the most part, has undergone degeneration. Their ducts have be-come obliterated. The compact area is composed of decidual cells massed together in a layer which overlies the villi and trans-mits the vessels connecting with the placental sinuses. It is this layer which presents on the maternal surface of the detached placenta.

The separation of the placenta takes place through the spongy or glandular area of the decidua. The latter offers through its laxer tissue a favorable plane of cleavage in the presence of the uterine contractions. Preparatory to its physiological detach-ment the placenta shows degeneration in the deposit of fibrin which has replaced the syncitial cells, and in the obliteration of the arteries.

With these facts in view the histological changes underlying adhesion of the placenta assume their proper bearing. In the milder grades of adhesion an abnormal adherence between the compact and spongy layers of the decidua has been demon-strated in the detached placenta. The decidual layer in such in-stances has undergone a change into spindle-cell tissue which has invaded the septa between the glands. This gives an im-pression of undue denseness in the maternal layer. It explains also the dislodgment of portions of the spongy layer from the uterus through adhesion to the surface of the placenta. In instances of complete adhesion the decidua serotina is either totally deficient or is present only in part. In the latter case the spongy layer shows only occasional glands or remnants of glan-dular tissue. The compact layer as well becomes atrophied. The latter is also the seat of changes which impair its resistance to the invasion of the growing villi. As a consequence the latter

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penetrate the sinuses of the musculature. The villi fill out the lumina of the sinuses and become applied to their walls as a result of thrombosis. Thus the attachment between the fetal portion of the placenta and the muscular wall of the uterus becomes direct.

The supposition toward which earlier writers inclined, that adhesion occurs as a result of endometritis is, in the light of recent research, scarcely correct. It has been shown that the infiltration of the decidua with round cells, even to an extensive degree, as may occur in syphilis, may exist in cases in which the separation of the placenta occurs without the least abnormality. The presence of connective tissue in the placenta may not properly be interpreted, therefore, as a result of interstitial endometritis, but rather as the result of changes of fetal origin.

Atrophy of the mucous membrane may be regarded as a cause. The changes in the decidua bear a certain analogy to the condition found in adhesion of the placenta in myomatous uteri, where the mucous membrane has undergone atrophic change. The absence of the glandular layer in adhesion may likewise be due to atrophy. Further, the imperfect reconstruction of the mucous membrane after labor in some instances may be followed by placental adhesion. This accounts for the more frequent occurrence of adhesion in multiparous women.

We are, however, bound, in studying the subject from this point of view, to the consideration of the fetal origin of adhesion by the fact that in the majority of cases while the serotina is deficient, the decidua vera is normally present. Therefore, we may assume that in cases where the vera is normal the serotina has existed intact at an earlier period in pregnancy. Thus, the pathological condition has arisen not on the side of the mother, but through an anomaly of fetal origin. We must accept as established the fact also that in the early stages of embryonic change the relationship between the uterine area of implantation and the ovum must be normal in order to limit the destructive growth in the cells of the latter. Where this relationship fails, the villi penetrate the compact layer of the decidua. As a consequence, the invading progress of the villi bring them into direct contact with the musculature.

Such a condition is described by Freund and Hitschmann (*Winckel's Geburtshülfe*, 1905, Bd. II, T. 3, S. 2242) in reviewing the histologic findings in a specimen obtained from a four months, gravida; the embryo was 11 1/2 cm. long.

Decidua vera: this is about 1/2 cm. in thickness, well developed and distinctly separable into a spongy and compact layer. The decidual cells are normal. The glandular area presents the characteristic reticulated structure.

As to the serotina, when studied with the low power, it reveals areas in which the structure is deficient and where even the decidua is totally absent. The villi have penetrated the spaces thus formed and in some instances they are found lying directly in the sinuses. The spongy layer is practically absent, that is, in the sense of its existing in its typical aspect. Here and there, adjacent to the spaces due to loss of structure, are found occasional glands. Where the serotina remains there is a distinct structural change. The decidua is invaded here and there by a dense aggregation of Langhans's cells mingled with the decidual cells. The latter, where they are not encroached upon by the fetal cells appear characteristically rich in protoplasm with relatively small nuclei, whereas, in the neighborhood of the invading cells they have undergone hyaline degeneration. The syncytial cells have penetrated to the grandular area and have surrounded the glands and in some instances migrated to within the lumina of the latter. The infiltration has extended even to the musculature.

The presence of the trophoblast in specimens taken from placental adhesion during this early stage (four months) suggests its persistence as a pathological factor in the invasion of the maternal tissue.

A case of complete placenta previa which recently came under observation at the Philadelphia Lying-in Charity (Boyd and Wilson) presented clinically the condition described above. A pluripara, aged forty-one, was admitted on account of sudden profuse hemorrhage occurring in the middle of the ninth month. Placenta previa was diagnosticated. It was noticeable on examination that the lining of the partially dilated cervical canal was thick and yielding. On introducing the speculum this proved to be an overgrowth of decidual tissue in the canal. In extracting the placenta it was found to be densely adherent and in its removal the overgrown portion which had invaded the cervical canal was so adherent to the edge of the external os that it was practically inseparable from it. It was difficult to determine where the decidual tissue ceased and the mucous membrane at the edge of the os began. In the detachment at this point shreds of decidua were necessarily left on account of the

difficulty experienced in making a clean detachment. This, of course, is not altogether exceptional and has been recorded by Weiss, Keilmann, Küstner, and others. It is, however, an illustration of the invasion of the maternal tissued by the serotina and of the tendency for the latter to become adherent where the proper source of nutriment is deficient through badly vascularized or degenerated tissue.

In this connection it is interesting to note that the decidual tissue has been found to have invaded the muscular tissue in the neighborhood of the Cesarean cicatrix in the uterine wall extending even to the serosa and causing rupture of the uterus in a succeeding pregnancy. (Brodhead, AMER. JOUR. OBST., vol. lvii, No. 365, May, 1908.)

The occurrence of adhesion more frequently in multiparous women is not of sufficient importance to exclude the possibility of it in practically any case that may come under observation. Primiparous women are perhaps less liable. The absence of symptoms during labor makes it impossible to foretell adhesion.

It is possible to determine the presence of an adherent placenta only by the occurrence of bleeding in the third stage of labor or by retention. The amount of bleeding depends upon the extent of adhesion; in partial adhesion the hemorrhage is likely to be severe; in instances of complete adhesion there may be no bleeding. The recurrence of uterine contractions and the upward displacement of the uterus fail to appear. But the actual knowledge that adhesion exists comes with the failure to expel the placenta by compression. In making traction upon the cord a characteristic backward pull will be communicated from the point of placental attachment. If in badly conducted cases the traction be too vigorous, the fundus will disappear from beneath the palpating hand and the placenta as it appears at the vulva will be followed by a smooth mass—the uterine surface covered with amnion—indicative of artificial inversion, an accident easily met with where the diagnosis of adhesion has not been suspected.

Complete adhesion is usually described as a rare condition. It occurs frequently enough, however, to demand that a careful examination be made in instances in which efforts at expulsion fail after a proper interval. In the presence of bleeding the operator allows no time to be lost, but in the absence of bleeding the expectancy which permits him to wait may place the patient in danger from the shock which follows when the artificial

detachment is deferred.  In all doubtful cases careful intrauterine palpation should be made.  Without this complete adhesion may be overlooked, as the uterus may even be fairly well contracted, thus giving the impression of normal involution in the presence of incarceration of the detached placenta.

In cases of partial adhesion the bleeding begins with the separation of the nonadherent portion.  It is usually so extensive as to demand the introduction of the hand within the uterus to determine the degree of adhesion, and to hasten the extraction of the placenta.  The fingers are to be pushed up until the point of beginning detachment of the placenta is reached, and by a side-to-side motion are insinuated rapidly between the placenta and uterine wall.  The direction of cleavage should be away from the fetal surface, otherwise the compact surface of the placental decidua will remain attached to the uterine wall and will interfere with contraction.  As a result the hemorrhage will continue. Allowance should be made for the thinning of the musculature at the point of attachment, but the operator's hand, which is used for palpation applied to the fundus, will serve as a guide. As the placenta is detached, the hand grasping it is to be rotated. The membranes will thus be dislodged and expelled as the hand is withdrawn.

In most cases the compact layer of the decidua comes away with the placenta.  Notwithstanding this, a marked unevenness of the placental site is often found.  This is usually composed of muscular tissue and is the result of local hyperplasia due to pathological attachment.  Remnants of placental tissue which are sometimes responsible for the formation of placental polyp are not apt to remain as the result of complete adhesion.  They are more apt to occur from the breaking away of a placental lobule in spontaneous extrusion or in the process of expression.  A difficulty sometimes arises through the denseness of the membranes at the periphery of the placenta.  Here·the adhesion between the chorion and decidua is such as to make it almost impossible to penetrate the membranes.  Thus considerable time may be lost in attempting to find a point at which cleavage begins.  It may be even necessary to begin the separation at a point considerably removed from the placenta.  The manual detachment of the placenta is sometimes accompanied by severe shock, not always the result of bleeding.  The indication for packing the uterus is usually, however, not present.  Some authors allude to the danger of uncontrollable hemorrhage, but although

this danger is to be reckoned with, usually the complete removal of the placenta is followed by uterine contraction.   One point should be borne in mind, however, that is, that copious bleeding may follow detachment of the placenta by reason of the line of cleavage not corresponding with that layer of decidua in which the minute vessels are normally constructed.   Thus the protection to hemorrhage may be lost by the continuation of the vascular supply to the intervillous spaces of adherent remnants.   Such hemorrhage would not be as severe as that due to failure of contraction at the placental site, but at the same time it might be more continuous.

The deductions, therefore, to be drawn from this review of the subject are, first, that adhesion of the placenta occurs through overgrowth of the fetal portion from the necessity in some instances of securing the proper source of nutriment; second, in a practical sense, that the presence of complete adhesion should be suspected in cases where in the third stages of labor efforts at expression fail, especially in the absence of bleeding.

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