ON THE FATE OF THE HUMAN DECIDUA REFLEXA.

BY CHARLES SEDGWICK MINOT, S.D.

THE decidua reflexa is a distinct membrane up to the end, it is said, of the fifth month of gestation, and after that period it can no longer be found. Exactly at what time it disappears, is not established by observation, though the fact of the disappearance has long been known. Nor have we had hitherto any definite knowledge as to how it disappears, although its gradual attenuation and increasing transparency during the first four or five months have been familiar to us since the publication of Coste's magnificent atlas. The view most generally accepted has been that it fused with the decidua vera, and that, accordingly, the layer of decidua nearest the chorion during the latter half of pregnancy represents the decidua reflexa.

I have had opportunity to study four well-preserved, normal pregnant uteri of two, three, five to six, and seven months' gestation, respectively. These show that at two months the decidua reflexa is undergoing hyaline degeneration, that at three months the degeneration is considerably more advanced, and that by the sixth and seventh month the reflexa can no longer be found. These observations justify the theory that the reflexa degenerates and is completely resolved.

I will review briefly the actual observations.

First, the reflexa at two months. It starts from the edge of the placental area with considerable thickness, which is rapidly lost, most of the reflexa being a thin membrane, and the thinnest point being opposite the placenta. The examination of sections show that the entire reflexa is undergoing degeneration, which is found to be the more advanced the more remote the part examined is from the placenta. The chorion have lies very near the reflexa, being separated only by chorionic villi, which are very much altered by degeneration, their ectoderm having become a hyaline tissue which stains darkly, and their mesoderm showing clearly the partial loss of its cellular organization. In the region half-way between the base and the apex of the dome of the reflexa, the tissue of the decidual membrane shows only vague traces of its original structure; only here and there can a distinct cell with its nucleus be made out, for most of the cells have broken down and fused into irregular masses without recognizable organization. Ramifying through the fused detritus there are two layers of so-called "fibrine"—or, in other words, of a hyaline substance, which, like the "canalized fibrine" of the chorion, stains very deeply with the ordinary histological dyes (carmine and logwood). The fibrine is much more developed upon the inner or chorionic than upon the outer side of the reflexa. It forms on the inner side a dense network, which, on the one hand, fuses with the degenerated ectoderm of the chorionic villi wherever the villi are in contact with the decidua; and, on the other hand, ramifies more than half-way through the decidua, the ramifications being easily followed owing to the hyaline character and deep staining of the "fibrine." Upon the outside the fibrine forms a thinner layer, and shows its network structure in many sections much less clearly.

In the uterus three months' pregnant I find essentially the same conditions except that the degeneration is farther advanced, since the traces of cellular structure in the reflexa are still more vague and the fibrine

is more developed. The membrane is much thinner than at two months; the thickness is about two-thirds of what it was. In the fresh specimen the membrane appeared much more transparent than before. In all the parts examined, I found leucocytes present, and in the region of the reflexa near the placenta they are very numerous and conspicuous; it is natural to conclude that they are concerned in the resorption of the degenerated tissue. In a section not far from the base of the reflexa the three layers are distinct as at two months, there being a thicker inner and a thinner outer fibrine layer, while between them is a stratum in which remains of cells are seen; occasionally is an appearance which suggests a surviving decidual cell, and nearer the placenta the phantoms of cells become distinctly cells and true decidual cells can be made out. The inner fibrine layer is much denser and its meshes smaller than in the two months' specimen, the trabeculae of fibrine having become thicker during the month elapsed.

The relations of the amnion and chorion to one another in a uterus of seven months I have already described and illustrated in detail in my article "Uterus and Embryo."¹ I will recall only that the chorion lies directly against the decidua; between the chorionic mesoderm and the decidual tissue, extends a layer of epithelioid cells, which I interpreted as the modified ectoderm of the chorion, a view which I still hold. Of a membrane between the chorion and the decidua there is no other trace.

Those who conceive that there is a fusion between the reflexa and the vera, are forced to seek for traces of the former membrane next the chorion. They may assume either that the epithelioid layer is the remnant of the decidua, which forces them to leave the fate of the chorionic epithelium unexplained, or that the upper stratum of the decidua is the reflexa which is fused with and acquired the same structure as the underlying vera. If my observations on the degeneration of the reflexa are correct, and correspond, as there is sufficient ground to believe they do, to normal conditions, then both assumptions as to the persistence of the reflexa involve the further and very improbable assumption that the degenerated tissue is removed and replaced by fully organized cellular decidual tissue. It is obviously more in accordance with our knowledge of degenerative changes to assume that the hyaline metamorphosis is necrotic, and is succeeded by the disintegration and removal of the tissue. This accounts in a satisfactory manner for the absence of the decidua reflexa during the sixth and seventh month. The relations of the membrane at this period have been well described and figured by an admirable observer, Dr. G. Leopold, whose views and one of whose drawings have been incorporated by Prof. O. Herting in his "Entwickelungsgeschichte."² Leopold holds that the epithelioid layer is the reflexa; but what has just been said suffices, I think, to show that this view is untenable.

That the membrana decidua reflexa should degenerate and disappear no longer seems strange, since recent investigations have shown that in many placental mammals there occurs an extensive pseudo-pathological destruction of the mucosa uteri during gestation; these changes which are best known in the rabbit,³ may vary considerably in character, and are exceed-

¹ Journal of Morphology, vol. ii, 422-425, cuts 33, 34.

² Third Edition, p. 216, 217; fig. 147.

³ Cf. Minot, Biol. Centralbl., 1890.

ingly remarkable, both for their extent and for their numerous modifications, so that we need feel no surprise at the entire destruction of the decidua reflexa in man, nor at form of the destruction being unlike the forms heretofore found in other mammals.

As to the purpose or advantage of the sacrifices of maternal tissue, we are in the dark. The same is true of the causation of the degeneration, although we must regard it as the result of a reflex nervous activity. It is becoming more and more evident that the nerves have a profound influence upon organization, and it is no strained hypothesis which places the structure of the mucosa uteri under the immediate control of the nervous system.

A NEUROPLASTIC OPERATION.

DESIGNED FOR THE RESTORATION OF NERVE TRUNKS THAT HAVE BEEN DESTROYED BY INJURY OR DISEASE.

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THROUGH the connections of a tumor with an important nerve, and from the fact that such a growth derives its origin from the nerve or its close vicinity, it occasionally happens that an excision of the tumor necessarily sacrifices a section of nerve. A similar destruction of nerve tissue may attend the crushing and tearing of soft parts incident to severe railroad and machinery accidents, thereby impairing the usefulness of a limb, to a serious degree. In the cases where a nerve so injured is large enough to permit the operation to be described, the latter offers a chance for the restoration of nerve function that can be gained in no other way. Although I have had no opportunity as yet to make a practical test of its value, I am encouraged in the belief that it may be of worth, through some experiences in the junction of nerves that have been severed but not otherwise injured. Others of the profession may have cases before me, that can be helped by its application, and upon that ground alone, though it is against my preference, I will not defer its publication.

Operation. — For convenience, the severed ends of the nerve may be described as three inches apart. Pick up the nerve with a tenaculum or needle, and transfix it with a silk suture. The latter is useful in place of forceps for regulating the tension of a nerve during its dissection, without bruising its tissue. Care must be taken not to exercise too much traction, or the suture will tear through the nerve. Open the nerve sheath for three and one-fourth inches in either direction from the wound by following one of the divided ends, or in both directions for one and three-quarters inches. Then, having measured the distances accurately, partially divide the nerve trunk, in a vertical direction to its axis, at the required point, and split the nerve to a point within one-third of an inch of its end; thus,

N is the other severed end, to which the flap is to be joined by fine sutures, the flap being sufficiently long to avoid tension; thus,

From the character of the injury, it is possible that, in some instances, it will be more convenient to take a flap on one side of the wound, from the superior half of the nerve, and on the other side, from the under half of the nerve. This change would not materially alter the technique of the operation, as shown by the following diagram:

Should any tension be produced by either method the flaps are of insufficient length.

The method adopted for joining the ends should be governed by the accessibility of the nerve trunks without excessive or unnecessary dissection. A pair of dividers will be found convenient for measuring distances.

The operation, which has not, so far as I am aware, been described or employed before, may be suitably termed "Neuroplastic," and will, I hope, meet the commendation of surgeons who may have occasion for its use.

REPORT ON PROGRESS IN DERMATOLOGY.

BY JOHN T. BOWEN, M.D.

LUPUS FROM INOCULATION.

THE dermatological clinic at Breslau that has produced so many scientific papers of late years, afforded an opportunity to Dr. Jadassohn, the assistant physician, to report two interesting cases of tubercular infection of the skin.¹

The etiological identity of lupus and tuberculosis is now recognized by all but a very few observers, yet much remains to be explained. The manner in which the tubercular infection takes place, the peculiar clinical features that distinguish lupus from other tubercular lesions, especially those upon the skin, are matters of which our knowledge is still very limited. The author speaks well when he says that it is only by the publication of carefully observed individual cases, that we can hope to obtain a basis for more systematic investigations.

CASE I. His first case is that of a butcher, twenty years of age, who had received, eighteen months previously, a cut on the end phalanx of his right forefinger while engaged in his occupation. The wound did not heal. Nearly a year after the injury there appeared a lesion upon the lower arm of the same side, and very soon afterward a nodule upon the upper arm, which opened spontaneously and evacuated a considerable quantity of pus. When seen at the hospital he exhibited an ulcer upon the forefinger with thin edges, somewhat undermined and in places dentated. The floor was shallow with soft granulations, between which were isolated collections of pus. The movement of the joint between the second and third phalanges was much limited. At the upper end of the forearm were three small ulcers lying in a line with one another, similar in character to the lesion of the

¹ Virchow's Archiv., Bd. 121, Hft. 2.