THE NATURE OF THE TUBEROSE FLESHY MOLE

(*Syn.*: FLESHY MOLE; TUBEROSE SUBCHORIAL HÆMATOMA OF THE DECIDUA).

By D. BERRY HART, M.D.,

Obstetric Physician Royal Maternity and Simpson Memorial Hospital; Gynæcologist to the Royal Infirmary, Edinburgh; Honorary Fellow of the American Gynæcological Society; Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh.

THE tuberose fleshy mole, often termed shortly the fleshy mole, is a most striking form of abortion, and is second in interest and importance to the hydatid form alone. Its external appearance is not only characteristic, but the specimens are remarkably similar to one another in many respects. Thus, the period of gestation at which the condition occurs (second to third month), the size of the mass expelled, and of the placental portion, the characteristic elevations below the chorion, are almost invariably the same in all the specimens, and suggest to one's mind that there must be some definite mechanical cause bringing about such similarity.

Naked-Eye Anatomy of Specimens.

The most common form of tuberose mole is that of a thickened, fleshy-looking structure averaging 6 c.m. by 6 c.m. in diameter, and 1.5 c.m. in thickness. It is evidently placental in nature, with a rough, shreddy aspect, the one attached to the uterus, the opposite surface being, of course, amniotic. The amnion is separable, as usual, from the chorion beneath.

The chorionic surface presents a very remarkable appearance, as it has on it a number of finger-tip-like projections, and these average from 5 to 6 in number. On section the structures seen are amnion, chorion, with the subchorionic projections already mentioned, whilst clotted blood makes up the main mass of the thickness, resting usually on a thin layer of serotina. The subchorionic projections contain blood-clot communicating with the rest of the mass, but some of them may be empty. This form of specimen is, thus, early placenta *minus* the membranes attached to the edge (Fig. 1).

Sometimes the tuberose mole is expelled as a pear-shaped mass made up of placenta and reflexa. When laid open a small fœtus is often found; in the former variety it is less frequently present. The

specimens are quite fresh as a rule, and with no odour. This description is based on an examination of five specimens in my possession, and of those figured by Breus, Granville, Walther, Gottschalk, Neumann, Micholitsch, Davidsohn.

Clinical Features.

These are quite distinctive. The patient has the symptoms of early pregnancy, and then of threatened abortion during the second or third month. She usually imagines she has escaped miscarrying, but the uterus does not increase in growth ; she remains amenorrhœic,

FIG. 1.—AMNIOTIC SURFACE OF A SPECIMEN OF TUBEROSE FLESHY MOLE, WITH EMBRYO (NATURAL SIZE).

There are six tuberose projections. The embryo is 11 millimetres long.

and finally expels such a mole as described above, five, six, eight, eleven, or even eighteen months after conception.

The case may be exceedingly puzzling, but a consideration of the whole facts should lead to a correct diagnosis. One may, however, not make out the first case one meets with. The knowledge of the long retention of such specimens should also make one refuse to express any opinion as to the chastity of a woman who has expelled such a mole, and whose husband has been absent for a longer period than three months.

The *history*, from the medical attendant's point of view, will therefore probably be as follows : he is called to a threatened abor-

tion at the third month, and believes he has arrested it. No fresh discharge occurs, and the patient and he will agree that her pregnancy is progressing normally now. After a time, however, she will notice that her abdomen is not increasing in size, and when the medical man is again consulted he will find, on bimanual examination, the uterus still the size of a two or three months' pregnancy. If he diagnoses subinvolution of the uterus and puts down the amenorrhœa to an accidental cause, the ultimate expulsion of the mole will clear up his ideas.

Views of Previous Observers.

BREUS (1892) was the first to write at length on this subject, and his monograph is an important one. He describes carefully the clinical features and pathological anatomy of five cases, and states his views as follows: He believes that cases like the ones described form a class by themselves, and he terms the condition 'tuberose subchorial hæmatoma of the decidua.' He holds that the primary link in the chain is the death of the embryo from some undetermined and varying cause. The fœtal membranes, he believes, continue to develop for a time. The amnion and chorion he holds to be nourished by the maternal blood. The membranes will thus increase in area, and, as the amniotic fluid is small in amount, the amnion and chorion will be thrown into folds. These folds are thus preformed, and become filled with blood when hæmorrhage and ultimate abortion occurs.

WALTHER (1892), BRÖSIN (1896), and DELBANCO (1896) have also described cases.

NEUMANN (1897), criticising Breus' views, describes eight cases where similar subchorionic protuberances existed with *older fœtuses;* he criticises rightly the view that the amnion and chorion grow after fœtal death. The largest embryo in Breus' cases was 17 m.m. long, but Neumann had in his specimens fœtuses of 2·5 c.m., and even 10·5 c.m. long. He urges that the subchorial hæmatoma of Breus is not a special form, but merely a fleshy mole, and cannot be separated from it. He urges that the protuberances arise from subamniotic blood-gushes, and that these, and not the death of the embryo, are the primary cause, and that the membranes do not grow after the death of the embryo. He holds, finally, that the fleshy mole can occur at various periods of pregnancy. Breus has replied hotly to this criticism by Neumann, and the latter has again restated his views. Breus urges that eight of Neumann's ten cases are not fleshy moles, and are thus not available for criticism of his views.

GOTTSCHALK (1899) inclines to Breus' views, but states his belief that the early chorio-villous capillaries are not present, and thus the embryo dies after the yolk-sac has become atrophied. The further changes he gives as Breus does.

DAVIDSOHN (1901) distinguishes between a blood mole and a fleshy mole as follows: In the blood mole the tissue of the ovum is destroyed and replaced by blood-clot; while in the fleshy mole the blood effusion is of an older date, varies in colour, and may form a solid, compact mass. He regards Breus' subchorial hæmatoma of the decidua as differing from these both in result and clinically. This form of mole is never more than the size of a fist, has its characteristic tuberosities, and is retained for several months *in utero*—*i.e.*, the woman's amenorrhœa is prolonged, and the apparent two to three months pregnancy is quite out of proportion to the often large number of periods missed. Davidsohn gives a good summary of the various views, considers Gottschalk's theory untenable, and passes on to consider his own two cases, where he made a careful microscopical examination. The important part is his description of the compact layer of the basal serotina,* which he speaks of as retaining its characteristics, although the decidual cells are smaller, while at some points it is necrotic or infiltrated with blood and lime-salts. In his second specimen he speaks of the basal serotina as totally necrotic—'Die Decidua basalis ist total necrotisch.' He makes the important statement that the chorion is not devoid of bloodvessels, and this, of course, is against Gottschalk's hypothesis. He himself urges that a primary hydramnios gives the explanation of the condition.

I have now only to add, to complete this summary, that in 1899 I accepted Breus' view as to the primary death of the embryo, but withdraw that adhesion now, owing to my ascertaining some conditions to be described presently; and that Fothergill, in the same year, drew attention to the part decidual cells play in causing absorption of villi—'Decidual cells destroy fœtal epithelium and organize blood-clot.'

Micholotisch (1901) has also described a case of mole with the additional rare condition of some hydatiginous degeneration of the chorionic villi. The drawing appended to his paper shows the condition well.

I now wish to consider the nature of the tuberose fleshy mole so far as my own specimens are concerned, and begin by discussing—

* The basal serotina or decidua basalis is the ordinary serotina; the reflexa in the decidua capsularis.

Normal Placental Structure in its Bearings on the Changes in the Tuberose Mole.

I take this up as follows:

1. *General architectural structure of the placenta; the intervillous circulation.*

2. *Physiological thrombosis of the sinuses in the basal serotina and uterine wall.*

3. *Structure of villi.*

1. I here take up what may be termed the architectural features of the placenta, and conveniently for this purpose we may study the schematic drawing Leopold gives of its structure in Plate XXX. of his atlas 'Uterus und Kind.' We see there the placenta made up of amnion and chorion, the latter sending off abundant villi which touch the basal serotina with their tips. The maternal blood flows round these villi in the intervillous spaces (Fig. 2).

The basal serotina sends processes towards and up to the chorion. These we may term 'septa cotyledonis' or 'chorio-basal septa.' The bloodvessels bearing maternal blood to the intervillous spaces pass up these septa and open on the free lateral surfaces of the latter, while the maternal blood is returned from the intervillous spaces by vessels whose mouths open on the free surface of the basal serotina between the bases of the chorio-basal septa. The free surface of the basal serotina is the large-celled layer, and nearer the uterine wall is the spongy layer where the tuberose mole usually separates and is cast off. In the former, one sees sections of bloodvessels, thin-walled and venous or arterial. They are difficult to distinguish unless one keeps in mind Waldeyer's points of difference (see these at p. 33 of his paper, and also in Minot's 'Embryology,' p. 372).

The special points thus to be noted are as follows: (*a*) A certain number of the chorio-basal septa unite the basal serotina and the chorion; (*b*) blood flows into and out of the intervillous spaces, passing through the basal serotina; the marginal sinus also returns blood from the intervillous spaces (sinus of Meckel).

2. *Physiological Thrombosis of the Sinuses in the Basal Serotina and Uterine Wall.*—Friedländer was the first to point out that during and after the eighth month of pregnancy some of the sinuses in the uterine wall below the placental site become blocked. He believed this to be due to an accumulation of granular cells in the sinuses, to blood-clotting, and to the development of young connective tissue.

Leopold next showed that the same condition was present in

the serotina about the end of pregnancy, and confirmed Friedländer's observations. He believes, however, that the condition is produced by wandering cells passing through the sinus walls. Gulland and the writer, however, found the same conditions present in the pregnant uterus at the seventh week. In the compact layer of the serotina were found venous sinuses where the endothelium lining

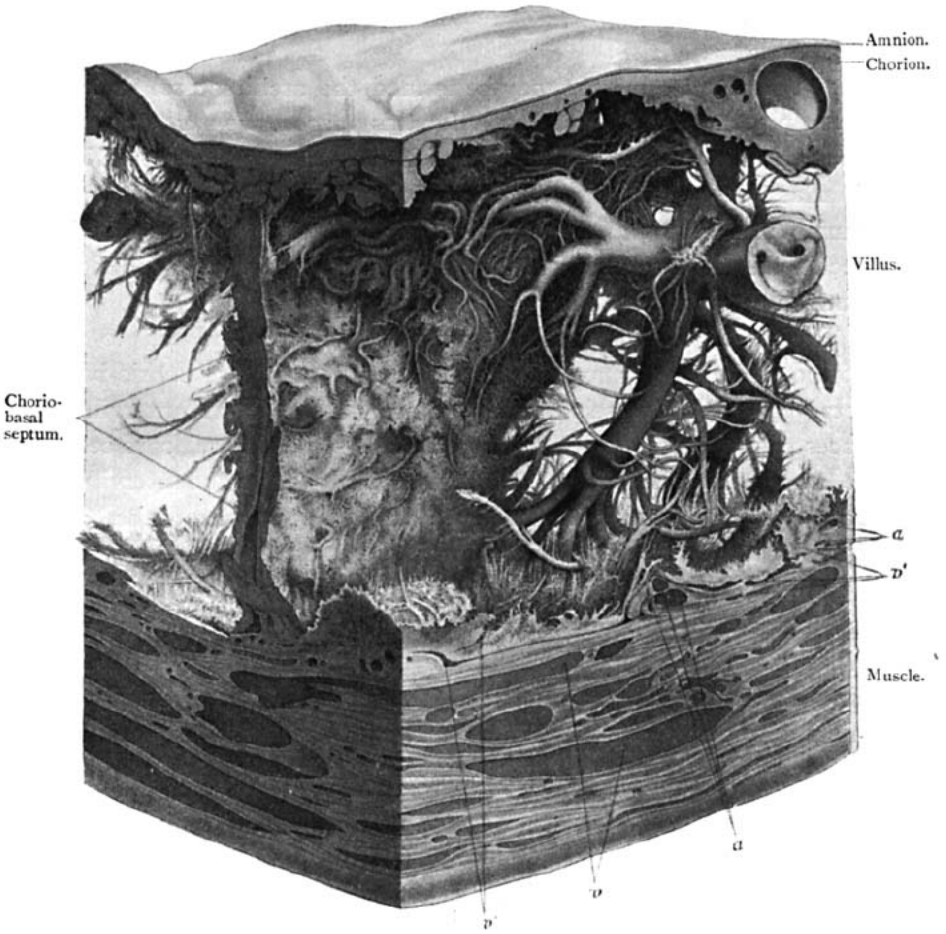

FIG. 2.--STRUCTURE OF FULL-TIME PLACENTA (LEOPOLD).
a = Serotina. Note relations of vessels to serotina.

them was beginning to proliferate, while others were blocked entirely with young connective tissue.

3. *Structure of Villi.*—I do not consider this fully at present, but point out that the villi possess a core of myxomatous tissue (mesoderm), with a double or triple layer of epithelium outside (ectoderm). The villi are thus somatopleuric processes, and are bathed in the maternal

blood. Gulland and I also pointed out, that where the tips of the villi touched the basal serotina, phagocytic action was going on, with absorption as its result, and thus a degeneration layer was formed, which I had previously noted in the third-stage placenta.

Microscopical Anatomy of the Tuberose Mole in the Author's Specimens.

For this purpose I examined three specimens by the celloidin method, as the sections are brittle, and apt to break when the ordinary paraffin procedure is followed. The part examined was large enough to give the lateral boundaries of the characteristic tuberosities developed beneath the chorion.

On examination, the sections of two were found to include the structure from amnion to the large-celled layer of the basal serotina, so that the specimens had separated at the spongy layer. The parts shown are therefore amnion, chorion, villi and intervillous spaces, with the large-celled serotinal layer.

The amnion and chorion are well preserved, and call for no special remark. The amnion is naturally a tough elastic membrane, and both are away from phagocytic action. The intervillous spaces are occupied with effused clotted blood, in which one can see scattered decidual cells and villi, both much altered, and recognisable more from their outline than from their structure.

A very important point is that at the sulcus bounding the base of the characteristic chorionic tuberosities, already described, one can see a chorio-basal septum persisting, but with a curved outline, instead of the normal straight one already described (*vide* Figs. 3 and 4).

In the large-celled layer very evident changes are present. One can note villi in various stages of absorption, some with epithelium fairly intact, others with it completely absorbed, and only the core left. The most important feature is the blocking of the thin-walled sinuses, whose lumen is invariably blocked with organized connective tissue. With care they can be distinguished from villi, and some are especially easy to pick out, owing to their curved outline (Fig. 3).

The view my preparations indicate seems to me to be the following:

1. There is an undue blocking of the serotinal sinuses in the large-celled layer. This leads to—

2. A slow engorgement of the intervillous circulation. This will bulge out the chorio-basal septa, and as these tack down the

chorion at definite points, the amnion and chorion will bulge up between. This produces the tuberose swellings (Figs. 3 and 4).

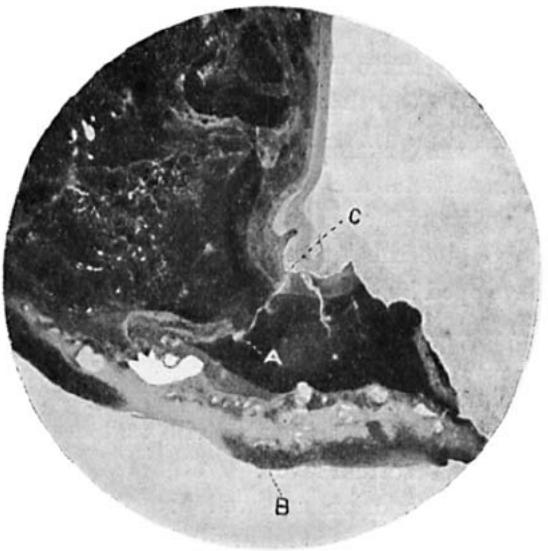

FIG. 3.—FROM MICROPHOTOGRAPH OF SECTION AT EDGE OF TUBEROSE SWELLING (C).

A, Chorio-basal septum, bulged; B, serotina, with thrombosed sinuses and villi. The dotted line at C passes through amnion.

FIG. 4.—DIAGRAM TO SHOW RELATIONS OF SEROTINA, CHORION WITH AMNION, AND CHORIO-BASAL SEPTA IN TUBEROSE FLESHY MOLE.

The amnion and chorion, with tuberosity, are above; the serotina is below, and the two bulged vertical chorio-basal septa are seen joining serotina and chorion.

3. The embryo dies as the result of this interference with the circulation, and its death is 'secondary.'

4. The placenta becomes a thrombosed mass, and is retained a certain time before expulsion.

I agree with Breus that the tuberose fleshy mole is a distinct form of fleshy mole. I differ from him in that I make the death of the embryo secondary and not primary. The primary link in the chain of events is the excessive clotting in the serotinal sinuses from a cause as yet unknown; then follow the other stages I have described.

LITERATURE.

BREUS: 'Das tuberöse subchoriale Hæmatom der Decidua. Eine typische Form der Molenschwangerschaft,' Leipzig und Wien, 1892.

DAVIDSOHN: 'Zur Lehre von der Mola hæmatomatosa.' *Archiv für Gynäk.*, Bd. LXV., Heft 1.

FOTHERGILL: 'On Fleshy Mole.' *Brit. Med. Jour.*, 1896, ii.

FRIEDLÄNDER: 'Physiologisch-anatomische Untersuchungen über den Uterus,' Leipzig, 1870.

GOTTSCHALK: 'Ueber einen Fall von sogenanntem subchorialen tuberösen Hämatom.' *Zeitsch. für Geburts. und Gynäk.*, Bd. XL., 1899.

GRANVILLE: 'Graphic Illustrations of Abortion and the Diseases of Menstruation,' London, 1834.

HART: 'Nature of Fleshy Mole.' *Brit. Med. Jour.*, October 24, 1896.

HART: 'Selected Papers,' W. and A. K. Johnston, Edinburgh and London.

HART and GULLAND: 'Structure of Human Placenta.' *Edin. Obst. Trans.*, vol. xvii.

LEOPOLD: 'Uterus und Kind,' Leipzig, 1897; also 'Studien über die Uterusschleimhaut,' Berlin, 1878.

MICHOLITSCH: 'Ein Fall von Breus'scher Hämatommole mit blasenähnlicher Degeneration der Chorionzotten.' *Archiv für Gynäk.*, Bd. LXV., Heft 1.

NEUMANN: 'Das sogenannte tuberöse subchoriale Hæmatom der Decidua.' *Monats. für Geburts. und Gynäk.*, Bd. V., S. 108; see also pp. 522 and 623.