THESIS presented for the Degree of M.D.

on

CARNEOUS MOLE: its Nature and Pathology.

by

W. J. BENNETT JONES, M.B.Ch.B. (Univ. Edin.) M.R.C.S. (Eng.)
L.R.C.P. (Lond.)
Obstetric Assistant, University College, Liverpool
Obstetric Assistant, Lying-in-Hospital, Liverpool
Late House Surgeon, Hospital for Women, Liverpool
Late Junior and Senior House Surgeon, Borough Hospital, Birkenhead.
Assistant House Surgeon, Northampton General Infirmary.

CARNEOUS MOLE

Various terms are applied to this condition, and it is well to define them -

Fleshy or Carneous Mole - a condition in which the blood infiltrates the dead ovum, and a blood clot is formed which is gradually organised and forms a fleshy mole.

In a Blood Mole the tissue of ovum is destroyed and replaced by blood clot.

In a Fleshy Mole the blood effusion is of older date, varies in colour, and may form a solid compact mass.

Tuberose Fleshy Mole: If the blood effusions cause bulgings in the Amniotic cavity it is called a Tuberose Fleshy Mole.

Macroscopic appearance of specimens: Carneous Mole generally a thick fleshy looking structure, elliptical in shape. Average size 7.5 c.m. in length, 6 c.m. in breadth and 2 c.m. in thickness. The surface attached to the uterus is rough and shreddy, the inner surface being smooth and is the Amnion. Sometimes a small shrivelled foetus is found in the Amniotic Cavity. Of twenty four specimens examined ten of them showed a number of small rounded projections on the amniotic

Fig. I

Large Tuberose Fleshy Mole.

surface due to blood being poured into the intervillous spaces, which clots and causes bulging of the chorion and amnion and produces the condition already termed Tuberose Fleshy Mole.

Description of specimens:-

1. Large Tuberose Fleshy Mole with deformed foetus, see fig. 1 Mole 9 c.m. in length, 8 c.m. in breadth and 3.5 c.m. in thickness.

Irregular surface. Amniotic cavity contains a foetus 2.25 c.m. by 1.5 c.m. in diameter, and 1 c.m. in thickness.

The upper part of foetus is shapeless. No upper limbs seen, but two dark specks can be made out at the sides representing the eyes. Hinder part of foetus well formed. Two lower limbs seen. On left foot there are four digits, on right foot three digits.

Generative organs not distinct. Cord inserted .75 c.m. above the pubes, only 1.5 c.m. long and shows no torsion.

2. Non Tuberose Fleshy Mole - 6.5 c.m. by 6.5 c.m. in diameter, and 2.5 c.m. in thickness. Foetus well formed 3.75 c.m. in length, both extremities seen. Sex not recognisable.

3. Fleshy Mole - most markedly tuberose on the Amniotic surface. 8.c.m. in length, 6.25 c.m. in breadth, and

Fig II
Tuberose Fleshy Mole.

2 c.m. in thickness. Shrivelled foetus 1.25 c.m. long. Limb buds seen.

4. Tuberose Fleshy Mole.- 5 c.m. in length 4.5. c.m. in breadth, and 1.75 c.m. in thickness. Foetus 2 c.m. in length, showing both upper and lower limb buds, branchial arches, and two dark specks for the eyes.

5. Tuberose Fleshy Mole. - 6 c.m. by 4.5 c.m. in diameter and 1.5 c.m. in thickness. No foetus seen. Fig.II.

6. Fleshy Mole. - 3.5 c.m. in length, 2.5 c.m. in breadth, and 1.5 c.m. in thickness. Small amniotic cavity. Foetus .3 c.m. in length scarcely visible. Large blood clot between chorion and decidua at lower part 1.25 c.m. thick.

7. Fleshy Mole. - 3 c.m. by 2.5 c.m. in diameter 1 c.m thick. No foetus.

8. Fleshy Mole. - 2.5 c.m. in length, 2 c.m. in breadth, and 1 c.m. in thickness. No foetus. External surface very smooth.

9. Fleshy Mole. - 5 c.m. by 4 c.m. by 2 c.m. Small amniotic cavity and no foetus.

10. Fleshy Mole.- 6 c.m. by 5 c.m. in diameter, and 3 c.m. in thickness. Quite solid, no amniotic cavity, no foetus.

Fig III

Large Fleshy Mole.

11. Tuberose Fleshy Mole.:- 9 c.m. in length, 6 c.m. in breadth, 4 c.m. thick. Large amniotic cavity, thickness of wall 1.25 c.m. No foetus seen.

12. Fleshy Mole.:- 6 c.m. by 4 c.m. by 3 c.m. Amniotic Cavity smooth; foetus well formed, both lower limbs seen.

13. Tuberose Fleshy Mole.:- 8 c.m. by 6 c.m. in diameter and 4 c.m. in thickness. Amniotic cavity of good size; foetus is shapeless.

14. Fleshy Mole, - 5 c.m. by 3.5 c.m. by 2 c.m. Outside very rough and shaggy. On section quite solid, no amniotic cavity and no foetus seen.

15. Fleshy Mole. - 7 c.m. by 5 c.m. in diameter and 3.5 c.m. in thickness. Amniotic cavity large. Foetus well formed, upper and lower limb buds seen.

16. Large Fleshy Mole. - 9 c.m. by 7 c.m. by 5 c.m. Amniotic Cavity of good size, very small shrivelled foetus seen. Fig. III.

17. Tuberose Fleshy Mole. - 6 c.m. by 4.5 c.m. by 3 c.m. Amniotic cavity containing a shrivelled foetus.

18. Tuberose Fleshy Mole. - 5 c.m. in length 4.5 c.m. in breadth, and 1.5 c.m. in thickness. Small Amniotic cavity containing a shrivelled foetus.

Fig IV

Tuberous Fleshy Mole.

19. Fleshy Mole. - 6 c.m. by 6 c.m. by 1.75 c.m. Small Amniotic cavity but no foetus.

20. Fleshy Mole. - 8 c.m. by 6 c.m. by 4 c.m. Large Amniotic cavity and a well formed foetus of four weeks.

21. Tuberose Fleshy Mole. - 7 c.m. by 5 c.m. by 2.5 c.m. Irregular on surface, amniotic cavity present but no foetus. See Fig. IV.

22. Fleshy Mole. - 6.5 c.m. by 5.5 c.m. by 1.75 c.m. Mole pale in colour, and resembling the uterus in its pear-shaped form. No Amniotic cavity present.

23. Tuberose Fleshy Mole. - size 7 c.m. by 6 c.m. in diameter and 2.5 c.m. in thickness. Large Amniotic cavity containing a shrivelled foetus.

24. Carneous Mole. - 6 c.m. by 5 c.m. by 2 c.m. Very small amniotic cavity. No foetus.

Microscopical Anatomy of Carneous Mole:- Before discussing the microscopical sections it is well to review the opinions at present held concerning the development and structure of a normal placenta, and more especially that of a villus.

Great addition to our knowledge has been recently furnished by the careful examination of young ova, especially by Peters of Vienna.

On referring to Leopold's Atlas "Uterus und Kind" we find that the placenta is made up of amnion and chorion, the latter sending out abundant villi which touch the basal serotina with their tips. The maternal blood flows round these villi in the intervillous spaces and the basal serotina sends processes up to the chorion called chorio-basal septa.

The blood vessels bearing maternal blood to the intervillous ~~species~~ 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 Amnion is usually described originating as in chick by somatopleuric folds rising up and coalescing, thus cutting off amnion and embryo from the temporary chorion. In order to attach the embryo once more to the chorion, the allantois was supposed to grow out, so

as to bring the embryo into relation with the chorion.

In Peters' Ovum, however, we find the amnion formed, and yet still embedded in mesoblast, that is, it is not formed by free folds. The development of the chick therefore does not explain the amniotic development in human foetus. In the guinea-pig, however, we find that the amnion develops by the central breaking down of an ectodermic plug, and this probably takes place in the human foetus.

Allantois:- We have no evidence that the allantois enters into the formation of the placenta. According to Ballantyne in sympodia the placenta can be well formed when there is no allantois.

Again we have no evidence that the umbilical vesicle itself ever takes any part in the formation of the placenta. As shown by Young and Robinson the two primitive dorsal aortae of the embryo run backwards side by side and end in the yolk sac or umbilical vesicle. With the formation of the Allantois, however, they pass out on the body stalk to the chorion. The umbilical arteries are thus the direct continuation of the dorsal aortae, and the placenta is an organ of the chorion vascularized by the two dorsal aortae which merely run alongside of the allantois as it tunnels the hinder end of the embryo.

Peters' Ovum was 1.6 m.m. in length, .8 m.m. in

breadth, and .9 m.m. in thickness. It contained an amniotic cavity which was completely closed. Between the amnion and chorion there were several layers of mesoblastic cells, the amniotic cavity being embedded in mesoblast. This supports the view that the amnion is not formed by the folding of the somatopleure; but that the amnion and embryo are formed from a solid mass of epiblast cells, the central cleavage of which produces the amniotic cavity.

The chorionic vesicle in Peters' ovum was lined by a thin layer of mesoblast, while the epiblast took the form of a mass of cells which was not solid, but sponge-like in arrangement.

The irregular processes constituting this mass of epiblast formed a network between the ovum and the tissue in which it was embedded, and the spaces in the network were filled with maternal blood.

The term "trophoblast" used by Hubrecht is now generally applied to foetal epiblast. This reticulum of rapidly proliferating epiblast cells, taking no part in the formation of the embryo, serves to fix the ovum to the maternal tissue and to some extent appears to absorb nourishment from the latter, while its processes serve as path-finders for the core of the permanent villi. The trophoblastic cells become the epithelial

covering of the villi.

In the lacunae between the processes of the trophoblast in Peters' ovum, the maternal blood was in some places in contact with a layer of flat and irregular cells. In other places the lacunae were lined by a layer of nucleated cells, whose outline were completely lost. The outermost portion of the trophoblast in contact with the maternal blood must be regarded as the earliest syncytium. The pressure of the maternal blood, and the chemical action of the blood plasma appear to produce a fusion of the outermost trophoblastic cells, which is closely resembled as pregnancy advances in the formation of the syncytium covering the chorionic membrane and the permanent villi. The first true villi appear to be formed by the extension of the chorionic mesoblast into the strands of trophoblast which first connect the ovum with the decidua, while the villi grow straight from the chorion as stalks of epiblast which in turn are penetrated by the mesoblastic stroma. Capillaries appear in some of the villi during the second week and by the end of the first month the villi have been vascularized by the foetal vessels, with the exception of those near the pole of the ovum farthest removed from the serotina.

The covering of a villus:- There are two layers -

superficial and deep. The deep layer known since 1882 as Langerhans' layer, consists of one or, in places, two rows of cells with lightly staining protoplasm, rounded and deeply staining nuclei. In parts apparently continuous with the superficial layer this row of cells is in other places clearly distinguished from it.

The superficial layer is the much debated syncytium or plasmodial layer; it varies greatly in thickness and consists of deeply staining, granular and finely reticulated protoplasm. Vacuolated in parts, it shows no cell outlines, but contains nuclei which vary in size and outline and stain very deeply Some observers say that the nuclei in the superficial layer stain as a rule somewhat lightly; but in the twenty-four cases examined the nuclei in the syncytium stain deeper than in Langerhans' layer. Dr. Prowse of Thompson Yates Laboratory, Liverpool, after the examination of several sections had independently arrived at the same result. Both layers, syncytium and Langerhans' layer are seen in the early ovum, but in the later months they are pressed upon and Langerhans' layer gradually disappears, becoming transformed into the syncytium.

Webster, Peters, Katschenko believe the trophoblast to be the origin of both Langerhans' "Zellschicht" and the syncytium. Minot speaks of a common ectodermal origin for the "Zellschicht" and syncytium.

On one point all observers are agreed, namely, the mesoblastic origin of the central core of the villus, but it is the epithelial or external covering to this core which has given rise to such discussion. In the fully formed villus of the second or third week, we find an outer plasmodial layer (the syncytium) composed of highly refracting protoplasm very rich in granules, taking on a deep rich stain with eosin, having no cell wall, and well supplied with vacuoles. In it are seen numerous darkly stained nuclei, varying greatly in size and shape; many are elongated and flattened as though subjected to pressure from without and lie scattered throughout the protoplasm, in places massed together, in others sparsely distributed. This layer is the syncytium. In direct contact with the foregoing is another layer composed of more transparent cubical cells having a definite cell outline and containing a single nucleus. To this layer little attention was paid by early observers, and it was not till 1882 that Langerhans published his classic description of the "Zellschicht". Speaking of the points of distinction between the "Zellschicht" and what he called the epithelial (syncytial) layer, he says "The Zellschicht consists for the most part of polyhedral sharply defined "cells, whose lines of division can, in most places, "be distinguished except where the layer is thin, con-

"taining clear, almost transparent protoplasm, poor in "granules with large spherical, seldom flattened nuclei "and usually a nucleolus".

Langerhans further emphasizes the variety of form these cells may assume; from tall cylindrical rods to the small spherical or flattened shape, according to the thickness of the cell layer, and the pressure to which they are subjected.

Of the syncytium he writes "that it lies closely "over the Zellschicht filling up all depressions in its "upper surface and sending down processes between the "cells".

Cullen says "It is doubtful whether Langerhans' "layer in reality consists of epithelial cells".

Some believe that it probably represents nothing more than the outlying stroma cells which have of necessity assumed a marginal arrangement.

Roberts, in his text book of Gynaecological Pathology, follows Eden in saying that Langerhans' layer is a specialised stratum of connective tissue corpuscles of the stroma.

Minot, Katschewko, Kuppfer, Spee, Webster, Peters, Berry Hart, Fothergill believe in the common origin of both syncytium and Zellschicht (Langerhans' layer) and also that both layers are derived from foetal ectoderm.

We shall give a short resumé of the chief views that are held as to the origin of the so-called epithelium covering a villus. It is stated to be

1. Single and of maternal origin derived from the uterine epithelium (Turner).
2. Maternal, derived from the connective tissue of the uterus, i.e. from the decidual cells (Ercolani.)
3. Two-fold. (a) The inner layer of cells derived from connective tissue of villus (the Zellschicht of Langerhans) and (b) an outer layer, the foetal ectoderm (Langerhans).
4. Double, the inner layer of foetal epithelium, and over it the endothelium of the dilated maternal blood spaces of the placenta (Winkler).
5. Double, the inner being maternal of decidual origin, the outer maternal from the endothelium of the blood vessels (Tafani and Romiti).
6. Double, the inner layer being epithelium and foetal in origin, the outer derived from the epithelium of the uterine glands (Jassinky).
7. Double, both layers being foetal, derived from foetal ectoderm (Minot, Webster, Peters, Berry Hart).
8. Three-fold - a double foetal layer, and a maternal layer of the endothelium of the blood vessels (Keible)
9. Three-fold, all layers decidual in origin (Schroder von Roth).

According to Minot, Kuppler, Spee, Fothergill and Berry Hart the syncytium is derived from the foetal ectoderm.

Webster says "the foetal origin of the syncytium "cannot now be denied. It has been clearly pointed "out in different manuals, especially by Van Beneden, "Hubrecht and Duval".

German authors believe in the common ectodermal origin of the "Zellschicht" and the syncytium and that the syncytium arises first and Langerhans' layer is derived secondarily from it.

Hofmeir, writing in 1896, expressed the same opinion.

Minot has shown very clearly in his elaborate description of the human chorion that the epithelial layers of the villi are already formed before the connective tissue core has penetrated its tip. They are at first clumsy cylinders which grow to a millimetre in length before they begin branching. They arise as was shown long ago by the observations of Costi as outgrowths of the ectoderm only, the hollowness of the villi is to be specially noted. This point Minot demonstrated in the chorion of a five weeks old ovum and it had been previously observed that villi of a much earlier date show a well marked double layer of cells.

After discussing the various opinions held as to

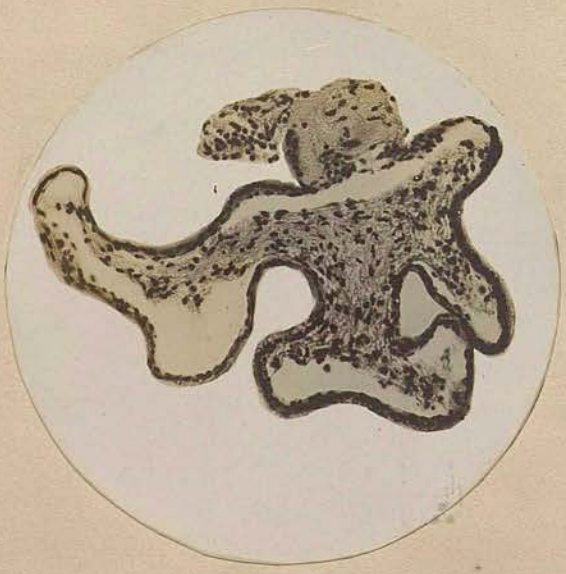


Fig. V.

The epithelium covering the villus is seen separated from the connective tissue core of the villus.

the origin of these two layers Minot says "when we "consider the precision and exactitude of Katschewko's "observations which actual specimens enable us to veri- "fy, there is in my judgment no reason left for differ- "ing from the conclusion that both layers are parts of "the foetal ectoderm".

The microscopical examination of many sections, especially those of very early villi lead us to believe in the common origin of both syncytium and Langerhans' layer (Zellschicht), and that both are derived from foetal ectoderm, and have a different origin from the connective tissue core of the villus which is mesoblastic in origin.

In support of this view we find:-

1. The great proliferation of these layers in early villi which become thinner as pregnancy advances.
2. Both layers of the epithelium stain deeply with haematoxylin, and the nuclei of the syncytium stain deeper than those of Langerhans' layer. The protoplasm of the connective tissue core of the villus has a marked affinity for eosin stain.
3. In many sections of early villi the epithelium covering the villus is seen quite separated from the connective tissue core of the villus. See Fig. V.
4. In one section examined the epithelial cells of the deeper layer were so pressed upon that they looked like

Fig. VI.

Villus showing what may be termed a basement membrane, probably due to the deeper layers of epithelial cells being pressed upon.

a basement membrane separating the connective tissue core from the epithelium covering the villus. See fig. VI.

5. The villi arise as outgrowths of the ectoderm only. Later on the mesoblast which forms the connective tissue core of the villus grows into these processes, and the epithelial layers of the villi are already formed before the connective tissue core has penetrated its tip.

Structure of a villus:- It consists of a core of connective tissue of a myxomatous type. Cells polyhedral with branching processes which unite forming a loose meshwork. Each villus has two or more capillaries. In old villi the core becomes more fibrous, and the outline of capillaries is more distinct than in very early villi.

The epithelium covering the villus is made up of large polygonal epithelial cells, containing large oval or round nuclei. They are similar in appearance to decidual cells and have been mistaken for them.

The epithelium consists of two layers.

1. Deep or Langerhans' layer which is next to the connective tissue core and consists of oval or polygonal cells with large nuclei.

2. Outside Langerhans' layer is a nucleated protoplasmic layer the syncytium.

We shall now describe the changes observed in villi

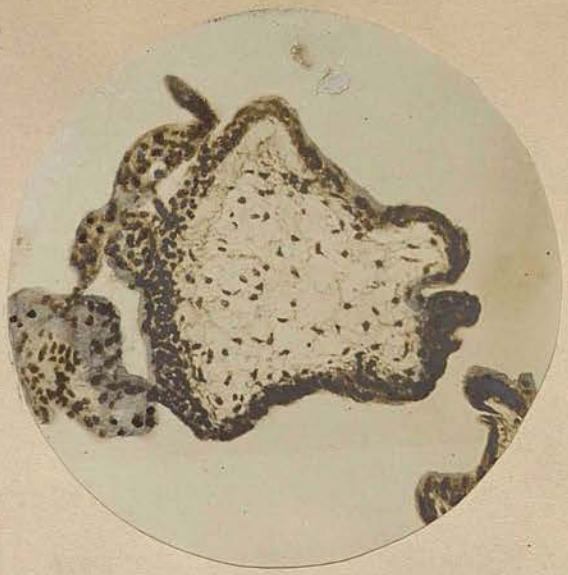


Fig VII

Villus of early ovum.

Fig. VIII

Villus of full time pregnancy.

at different periods:

1. In the early ovum the connective tissue core of the villus is an open meshwork like myxomatous tissue.

It is in early villi that the epithelial covering is most marked and consists in some places of several layers of cells, in other parts two layers can be made out. The deeper cells form Langerhans' layer, the surface cells become flattened and form the snycytium. See Fig. VII.

2. In the villi of full time pregnancy the connective tissue core becomes a little more fibrous, and the capillaries are well seen in each villus being more evident than in early villi,

The epithelium covering the villus also shows changes, the syncytium gets thinner, the cells of Langerhans' layer are pressed upon and become more flattened, and are transformed into the syncytium so that in a full time villus the epithelium may in some places be thinned down to one layer - the syncytium; but in other places the epithelium is seen thinned out into two layers - the Langerhans' layer and the syncytium.. see Fig. VIII.

3. The villi of Carneous Mole show marked changes. The connective tissue core of myxomatous tissue is converted into what looks like firm fibrous tissue, no cell spaces exist, and the lumen of the capillaries

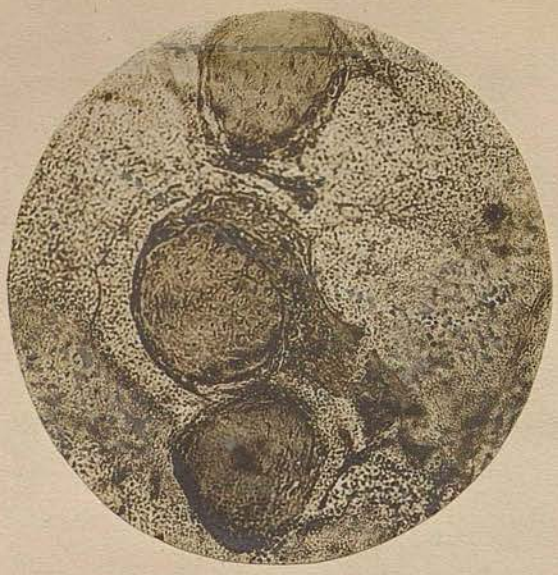


Fig IX

Villi of Carneous Mole.

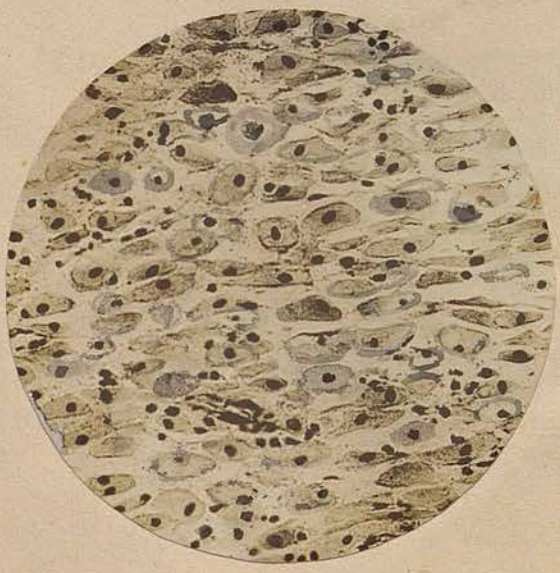


Fig X

Decidual cells.

has been obliterated.

The epithelium also is greatly modified, in many places there is no epithelium at all, and where it exists it is converted into a double or sometimes single layer of flattened cells being pressed upon by the blood in the intervillous spaces. see Fig. IX.

We shall now pass on to describe decidual cells, they are important because they have been mistaken microscopically for the cells in Langerhans' layer. The decidual cells first begin to form in the outer portion of the mucosa, but at the end of the first month affect the whole of the compact layer and extend beyond it. The cells vary indefinitely in size and shape, generally polygonal or oval cells rich in protoplasm containing oval or vesicular nuclei.

In some of the cells two distinct nuclei are visible. The nuclei in the decidual cells are much smaller in relation to the cell than the nuclei of the trophoblastic cells i.e. Syncytium and Langerhans' layer; in other respects the cells resemble one another.

See Fig. X.

Origin of decidual cells: Decidual cells in the uterine muscle originate from the connective tissue and the muscle fibres.

Cullen ~~Gluuen~~ states that typical decidual cells are also derived from the endothelium of the blood-vessels.

Clinical Features: The patient has symptoms of early pregnancy and then of threatened abortion during the second or third month, but the patient thinks she has not miscarried as nothing but blood has come away. The uterus, however, does not increase in size, the patient remains amenorrhoeic and finally expels the mole in from four to nine months after conception.

Cases are on record when a mole has been retained for eighteen months.

If the patient is seen at the time of threatened abortion, there are the usual signs of pregnancy, morning sickness, enlargement of the breasts. Per vaginam: vaginal walls soft. Bimanually: uterus enlarged size of second or third month of pregnancy. The haemorrhage stops and the pregnancy is supposed to go on normally; but if the patient is seen in a month ot two afterwards there is still amenorrhoea, breasts usually smaller, the uterus has not increased in size, and is not so soft as before.

Short history of the cases.

Case 1. Mrs. M. age 32, children six, no abortions. Last period February 8th. Profuse haemorrhage set in on June 28th. and continued till the expulsion of carneous mole on July 11th.

Case 2. E.R. age 42, children five. Haemorrhage began end of first month and continued till the mole was expelled

on Nov. 8th. at the end of second month.

Case 3. Mrs. McB. age 29, children five, no abortions, Menstruation always regular. History: amenorrhoea for seven months; on June 2nd haemorrhage set in lasting till the mole was expelled on June 14th.

Case 4. Carneous Mole expelled the day after the close of the twenty-ninth week of gestation. Mrs. G. age 39, children eight. In the fourteenth week a blood stained discharge commenced and thereafter the mammary and abdominal signs of pregnancy became gradually diminished. Patient's appetite failed and she had frequent headaches. On June 29th 1900 the mole was expelled at the close of the twenty-ninth week of gestation.

Case 5. Mrs. A. Abortion at the fourth month in 1892. Full time labour, child still born in 1893. Another abortion in 1895. Menstruation regular up to February 1900, and patient calculated full time labour as due December 3rd. 1900.

Intra-uterine death of foetus took place in the tenth week May 1st to May 8th. The dead ovum remained in utero till the estimated full term of pregnancy. On December 3rd, 1900 slight labour pains set in. Prof. Briggs saw the patient on Dec. 6th. three gum elastic bougies were introduced into the cervix, and a Carneous

mole was expelled on Dec. 9th. The specimen showed a dead foetus within a shrivelled amniotic sac.

Notes on the case: During the period of pregnancy she was unaware of the death of the foetus. She had subjective sensations of foetal movements until the end of the sixth month. The symptoms noted during the last six months of pregnancy were sickness which was frequent after food, almost continuous headache, and pain at the bottom of the back, no loss of flesh. Menstruation absent during pregnancy. Breasts continued distended up to the expected full term.

Per vaginam uterus rather hard, the size of a four months' pregnant uterus.

Case 6. Carneous Mole expelled three weeks before the calculated full time pregnancy. S. F. age 27, children three. History: always unwell, discharge sometimes thick and red, othertimes pale watery. Bleeding commenced during the third week in July (in the twentieth week of pregnancy, prior to that she had symptoms of pregnancy). After the bleeding started the vomiting ceased, breasts shrivelled, abdomen decreased in size. In lower abdomen she felt a burning sensation and a heavy weight.

Nov. 15th. Physical examination: Breasts shrivelled and flaccid looking. Areola darkened, recent striæ observable. Uterine enlargement equal to a third

month pregnant uterus.

Treatment: two gum elastic bougies were passed into the cervix, and twelve and a half hours later an almost completely dried ovum was expelled. The date was three weeks before full time.

Case 7. Tuberose Fleshy Mole expelled after three months amenorrhoea. M.E.D. age 27, children four. last baby two and a half years old. Amenorrhoea for three months, and the patient thought she was pregnant. On July 26th she had a flooding and this continued to a less extent every day up to Wednesday, August 6th. when labour pains set in, and the Carneous mole was expelled.

Case 8. Tuberose Fleshy Mole expelled six months after conception. Mrs. J. age 27, children one. Shaw Street Hospital. History: four months amenorrhoea, then bleeding commenced and persisted for two months. Per vaginam: uterus size of three months pregnancy, rather hard.

The cervix was dilated and the tuberose mole expelled.

Case 9. Carneous Mole expelled at the end of nine months. Mrs. L. age 32. Amenorrhoea for three months, then bleeding and the patient thought she had aborted. The bleeding stopped but recurred in three months after and persisted for a week. The haemorrhage stopped

once more, but came on again in three months, and the mole was expelled. The mole was the exact shape of the uterus and was pale in colour. No foetus seen.

Case 10. Tuberose Fleshy Mole expelled at the end of the ninth month. Mrs. E.L. age 40. children eleven, abortions one, youngest child two and a half years old. Amenorrhoea for nine months. The mass was expelled on December 15th 1901. There was a large amniotic cavity and a shrivelled foetus.

Of the other fourteen cases examined there was no history to be obtained in three instances; but the other eleven cases had a similar history, namely, symptoms of early pregnancy. Amenorrhoea for one or two months, then flooding about the second or third month, and the patient thought she had miscarried; but more often she believed it had not gone so far as a miscarriage as no formed material had come away. She remained amenorrhoeic and the mole was expelled in one or two months after, namely, three to five months after conception. Of the twenty-one cases in which the history was obtained, in no instance was the mole retained in utero longer than the full time pregnancy, in four cases only was the mole retained to full time.

Nature of the condition:- It is evidently due to haemorrhage. In the twenty-four cases examined

microscopically the blood was found in the intervillous spaces.

Is the blood foetal or maternal?

Bland Sutton says the blood is foetal, and that nucleated red blood corpuscles can be seen, and he also states that the position of the blood is between the chorion externally and the amnion internally.

But the examination of the above cases lead us to believe that the blood is maternal for the following reasons:-

1. No nucleated red blood corpuscles were seen even in the earliest moles.
2. The large size of most of the fleshy moles is too great to be accounted for by haemorrhage from such small shrivelled foetuses.
3. The position of the blood; in all the cases examined the blood was found in the intervillous spaces.

Friedlander 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 became 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 Friedlander's observations. He believes, however, that the condition is produced by wandering cells passing through the sinus walls.

Berry Hart and Gulland 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 them was beginning to proliferate, while others were blocked entirely by young connective tissue.

Berry Hart maintains that the primary link in the chain is the excessive clotting in the serotinal sinus from a cause as yet unknown, and that the death of the embryo is secondary.

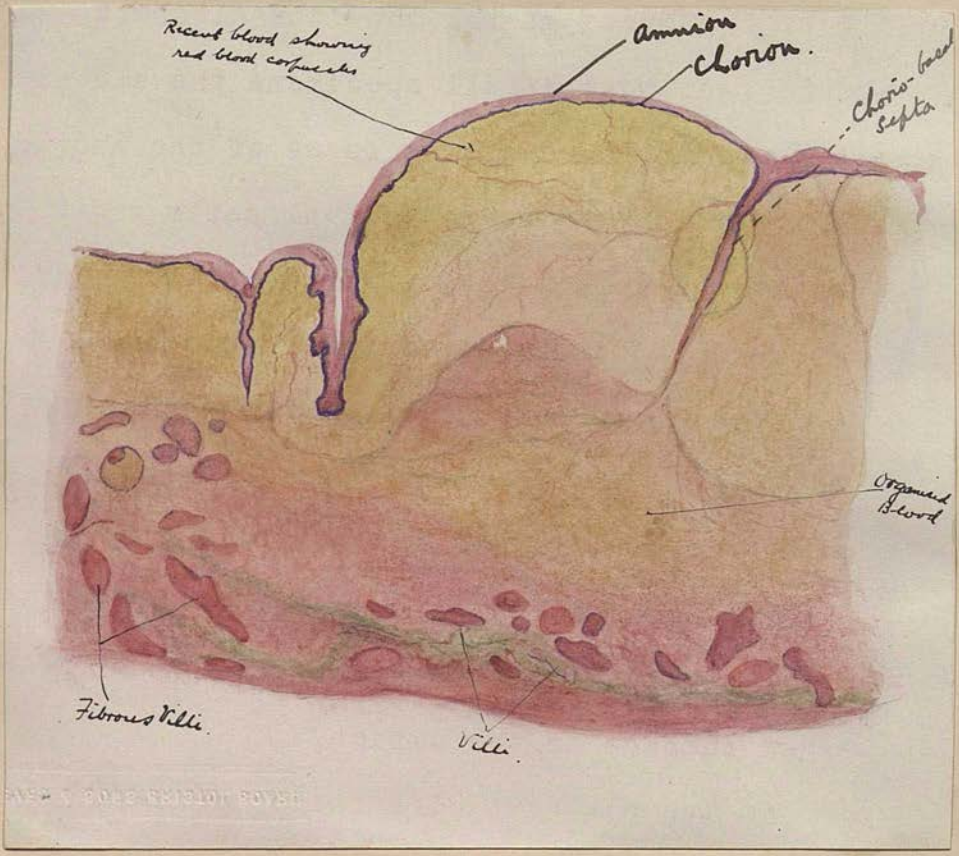
Breus holds that the primary link in the chain is the death of the embryo from some unknown cause. The foetal membranes , he believes, continue to develop for a time.

Neumann maintains that the condition arises 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.

Davidsohn is of opinion that primary hydramnios is the explanation of the condition.

The examination of the preparations lead us to the

Section of Carneous Mole



following conclusions:-

1. There is haemorrhage and blocking of the serotinal sinuses by maternal blood.
2. The condition is not a sudden one but a gradual process It begins at the bases of the choriobasal septa, as is shown by the fact that in all specimens the old and more organised blood is found at the bases of the choriobasal septa amongst which are seen decidual cells and fibrous villi; while there is a gradual transformation from organised blood at the bases of the chorio-basal septa to quite recent blood seen just under the chorion.

   See Drawing.
3. This slow engorgement of the intervillous circulation leads to clotting of blood which bulge up the amnion and chorion, causing the tuberose swellings to be seen on the inner surface of the amnion.
4. This interference with the circulation causes the death of the embryo which is secondary.
5. The whole ovum and placenta becomes a thrombosed mass which is usually retained for a certain time and then expelled.

REFERENCES

BALLANTYNE, "Edin. Obstet. Trans. XXXIII, 1897-8

BLAND SUTTON, "Diseases of Tubes and Ovaries".

BREUS, "Das tuberose Haematom der Decidua" Leipzig und Wien,

DAVIDSOHN, "Zur Lehre von der mola haematomatosa" Archer, Zur Gynak Bd 65 Heft I.

FOTHERGILL, On Fleshy Mole, Brit. Med. Journal, 1896 II

HART and GULLAND, "Structure of Human Placenta"
Journal of Obstetrics and Gynaecology, Vol. I, Nos. I,II,III,

LEOPOLD, "Uterus und Kind", Leipzig 1897.

MINOT, "Human Embryology", 1892.

PETERS, "Ueber die Einbettung des menschlichen Eies", Vienna,

PROWSE, "The Relation of Vesicular Mole to Chorion Carcinoma"

ROBERTS, "Text Book of Gynaecological Pathology".

WEBSTER, "Human Placentation", Chicago, 1901.

YOUNG and ROBINSON, Studies from the Anatomical Department, C College, Vol. II, 1900