On placental structures retained in utero, and their ultimate fate; with special reference to the so-called Deciduoma malignum.
PLACENTAL TISSUE: FRESH AND OLD.

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Statements are frequently made to the effect that in "placental polypus" and "sarcoey" or "fleshy" mole, placental tissue can remain fresh and comparatively unaltered for many months after the death of the foetus. The conclusions I draw from the specimens figured in the accompanying illustrations, and from others I have examined, are quite opposed to these statements. The drawings are from sections of placental tissue which has been retained in utero for varying periods after the death or expulsion of the foetus.

Fig. 1.—Villi from placenta of fresh three to four weeks' abortion.

No. 1 is from a section of placenta in an early stage of development, that is, from a three or four weeks' abortion removed whole, and hardened at once. The villi are covered with fetal epithelium, one layer thick in some parts, two layers thick in others. The core of the villus is mucoid connective, and the blood vessels of the villus are hardly developed.
No. 2 is from a fresh placenta about four months old. It shows the fetal epithelium covering the villus reduced to one layer of cells. The core of the villus is better formed connective, still mucoid in type. The blood vessels are well developed, and contain unaltered fetal blood. Between the villi nothing but fresh blood is seen. These two sections are given to show the appearance of fresh unaltered villi at different stages of development.

Fig. 2.—Villi from placenta of fresh abortion, about four months.

No. 3 is from a two and a-half or three months' abortion. A portion of the placenta was retained in utero for a few days. The intervillous space is filled with altered maternal blood, showing commencing organisation. Strands of fibrin are seen, and between them numerous leucocytes and red blood corpuscles, which are undergoing disorganisation. The epithelium of the villi is degenerating. The cells have lost
their clear outline, the protoplasm is cloudy, and the nuclei are becoming irregular in outline, and stain in a defective manner. The connective is not much altered, but the blood vessels are compressed, and contain fetal blood in process of disintegration.

Fig. 4.—Villi from two and a-half to three months' placenta retained some weeks in utero. Organised blood clot compresses the villi.

No. 4 is from an abortion of similar age, whose placenta was retained in utero for a longer period—namely, for six or seven weeks. The maternal blood between the villi is considerably organised, and the villi are markedly degenerated. The fetal epithelium has separated from the subjacent connective in places, and the cells have lost their outline and become fused into an almost uniform layer, showing traces of nuclei in places. The connective core of the villus is compressed, and the blood vessels are obliterated, leaving no trace but a little pigment.

Fig. 5.—Villus in organised blood clot from a three months' placenta retained five months in utero.

No. 5 is more interesting. The patient, who had menstru-
ated regularly, missed two periods, and when the third period was due lost some blood and clots. When examined some weeks later the os was firmly closed, and she had seen no further discharge of blood. The uterus was so large that it was thought that the original pregnancy might be going on, or that a new one might have commenced just after a supposed abortion at the third month. She remained quite amenorrhoeic until five months after the supposed abortion, and then began to have pains and bleeding. A placental mass the size of a goose’s egg was removed, solid, firm, and fleshy in texture. Thus, five months before, the embryo had perished, and during these five months no bleeding had occurred externally. Therefore in this case, if in any one would expect to find the placental tissue as vital and unaltered as it could be five months after its function and fetal circulation ceased. The drawing shows a villus from this placenta which can hardly be described, so complete is its disintegration. Compressed by organised blood clot and separated from its fellows, it is, indeed, but a wreck of a villus.

I believe that after the fetal circulation has ceased no constructive process continues in the fetal elements of the placenta. I find no trace of division in either epiblastic or mesoblastic fetal cells of a placenta whose embryo has been dead any length of time; while karyomitotic figures are common in living villi hardened immediately after the death of the ovum. The fetal tissues may increase in size, but only through the swelling of degenerative processes. The maternal blood occupying the intervillous spaces clots and becomes organised, rendering firm and tough the originally spongy placenta. Indeed, the villi in a placental relic play a part comparable to that of a sponge graft, and afford a structure round which new connective tissue is formed, just like the fibres of a dead sponge would do. Young villi degenerate more quickly than mature villi, but their epithelium is more distinct and perfect than that of old villi. Therefore in determining the length of time a placenta has been retained, one should judge by the degree of organisation that has occurred in the blood clot between the villi, rather than by the condition of the villi themselves. Now the time occupied by the transformation of blood clot into fibrous tissue is fairly well known, so that there should be no difficulty in deciding whether any placenta has been retained for days, weeks, or months; though after fibrous tissue is once formed it doubtless undergoes very little further alteration.

The placenta has been supposed to grow after the death of the fetus in ectopic gestation. But recent work has shown that all progressive changes that occur are in the blood clot, and that none but degenerative processes occur in the villi.¹

In the present discussion on deciduoma malignum it is urged by some that fetal epiblast lives and grows in the maternal tissues, while others hold that the origin of the new growths in question is decidual cells, which are simply connective tissue cells of the uterine mucosa. It is, however, far from proved that fetal cells play any part in the matter, so that deciduoma malignum at present affords no argument against the above conclusions.

A Thesis.

On Placental Structures retained in Uterus, and their ultimate fate: with special reference to the so-called Deciduoma malignum.

Presented to the University of Edinburgh for the Degree of M.D.

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My best thanks are due to friends who have kindly added to the material and the clinical information at my disposal; to several authors who have presented me with copies of their papers; and also to the Library staff of the Manchester Medical Society.

Dr. Hepworth of Eccles has greatly aided me by taking micro-photographs for me of several sections.

Ten figures are borrowed, nine of them from named sources and the tenth from an unpublished drawing lent me by Dr. Barry Hart. The remaining illustrations I have drawn from nature.

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W. E. F.
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“It is a dull and obtuse mind which divides in order to distinguish; but it is a still worse which distinguishes in order to divide.” (Calvin).
On Placental Structures retained in Uterus, and their ultimate Fate.

Introduction

After incomplete abortion and imperfect separation of the placenta at labour, ovule-like structures retained in utero are quickly broken up, as a rule, by the activity of the organisms of putrefaction. In certain cases, however, the uterine cavity may remain free from septic infection and may retain for many weeks, larger or smaller masses of placenta; while, in the condition of missed abortion, the complete but dead ovum may remain in uterus for many months.

Although retained placental structures have long been recognised as causes of uterine haemorrhage, and, more recently, as frequent sources of septic intoxication, it is only since the year 1889 that they have been stated to be the origin of a form of malignant new growth, which is said to be new to pathology. Almost half the cases in which this has been said to occur have been recorded in connection with
with vesicular degeneration of the chorion; yet, in the remaining cases, malignant neoplasms have been derived, it is said, from placental structures which were apparently normal up to the time of the death or expulsion of the foetus. Indeed, in several cases, malignant disease of this kind is said to have followed ordinary labour with normal separation of the placenta.

These statements, if found to be correct, must render the prognosis of pregnancy more grave than it has hitherto been considered; for, to the other risks of maternity, there must be added the danger of malignant disease in a peculiarly rapid and fatal form.

It therefore seems desirable to fully investigate the changes which occur in ordinary placental tissue when it is retained in utero, and to consider the bearing of the information so gained upon the theory that placental structures may give origin to malignant new growths.

With this intention the following material was
has been examined, namely normal placenta at various stages of development, delphetic ova, apoplectic ova, fleshly moles, placental polypi, detris removed after abortions digitally and by the curette, scrapings from numerous non pregnant uteri, several specimens from ectopic gestation, three cases of malignant disease coincident with pregnancy or following it, and various carcinomata and sarcomata. The outcome of the investigation has been the discovery of some facts about the decidual cells in placental structures left in utero after the death of the fetus. These facts throw new light upon the parts played by decidual cells in the normal development of the placenta and membranes, in placental infarction, and in the ectopic placenta. So far the results are promising. For the rest they are mainly negative; for it would appear that the foetal portion of the placenta does not grow after the death of the foetus, and that it has not yet been proved that placental structures can give origin to malignant new growths.
History.

The earlier writers refer to all intra-uterine masses under the name of mole. Various new growths are included under this term by some, but, for the most part, the idea of a mole is something separate and distinct from the uteri, though growing within it. A distinction is made between true moles—the result of pregnancy—and false moles—masses of different origin. Thus, in the writings of Hippocrates, Aristotle and Galen, a true mole is described as a mass of flesh produced in utero instead of a fetus and consisting of certain membranes due to the union of male and female elements devoid of virtue, together with accumulations of menstrual blood.

Later we find grave discussions as to whether a woman can conceive a mole through the agency of the devil, through witchcraft, through the activity of her imagination or through taking a bath! Indeed most of the older literature is deeply tinged with the supernatural, and moles were long held to be the result
Fig. 1. Figure of a fleshy mole in utero; copied from Paræus Opera. Paris. 1582. Lib. 23. Cap. 33. p. 704.

Tes gryphius ad extrahendam molam.

Fig. 2. Instrument for extracting moles from the uterus figured by Paræus, loc. cit.
of incorrect or peculiar conceptions, and not as due to the death and retention of ordinary one.

1) Paré figures a uterus laid open to show, adherent to its wall, a structure with rounded elevations on its free surface, which closely resembles a pleathy mole. "Modam Tutos septem decem annos," he writes, "circuitulit usque Guilleni Ragerii," and goes on to describe the mass, which, he says, reached the size of two fists after being seventeen years in utero.

A similar case is recorded by Pieveus, who states that a true mole was found in the womb of a woman who died of a puerperal fever at the age of seventy-seven years. Paré also figures a curious instrument designed for the removal of moles from the uterus. (See Figs. 1 and 2.)

2) Primervius says that the flesh of a mole is not a tissue, but rather, a kind of parenchyma formed of a concretion of blood whose corruption is prevented because it is closely connected with the "seed" and clings to the uterine wall.

3) Dienerberch in 1685 described some retained and altered one which he recognized as such, and, in the following year, John Baptiste
Fig. 3. Altered ovum figured by Albinus.

Fig. 4. Altered ovum figured by Landsforsd.

These figures are from Vellheus, "Oovologie," pl. II.
Baptiste Langueaud published his "Materia Medica" which, with its quaint engravings and discussions, is a rare curiosity of medical literature.

Morgagni in his "De Sedibus et Causis Morborum" shows a perfect comprehension of the gross pathology of retained ovum.

Leuret expresses his opinion that a mole is merely the placenta of an aborted foetus. He mentions that "La femme de Gangeus, après avoir eu ses menstrues supprimées pendant quatre ans, rendit une mole avec beaucoup de sang, et guérit."

Allibons and Sandiford both figure retained ovum with the usual rounded elevations on the foetal surface of the placenta; in Haller's "Disputations," Schmidt mentions some cases one of which was fatal through haemorrhage.

Smellie gives a good clinical description of retained ovum-like structures, and a resume of their pathology as well as the knowledge of his time would allow. McClinmont, his editor, adding a note to the effect that the terms "mole" and "false conception" should be abolished.

At the beginning of the present century.
Vigarnus\(^{(8)}\) gives a good review of the subject and admires the use of purgatives and emetics for causing the expulsion of retained ones. Piso\(^{(9)}\) later recommends bleeding for the same purpose.

Guillemeau\(^{(10)}\) writes a good deal about moles and agrees with previous writers that most of them are retained products of conception. In 1802 Happoner's thesis at Strasburg was on his theme.

Burns\(^{(11)}\) of Glasgow gives a good clinical account of the retained corn here in his "Practical Directions" and in his "Principles of Midwifery" published in 1814.

Vellpeaux\(^{(12)}\) says that most moles are products of conception, but that a few are not. "There are no curious shapes," he writes, "that one or other of these kinds of moles cannot imitate," and he refers with scorn to the "apes, tarads, mice and divers animals of which it has pleased our credulous forefathers to deliver women." He had a good knowledge of the gross pathology. "The blood which escapes into the thickness of the decidua or between the decidua and the chorion causes the mole to assume varied forms and to acquire considerable volume." Vellpeaux also criticizes Meissen for seeming
Fig 5  Altered ova as figured by Velpeau.

Anat. of Embryology hum. 622.
He admits the occurrence of true hypertrophy of the ovum after the death of the foetus. He figures a retained ovum given to him by Baudelocque in 1823, and correctly describes the masses on the foetal surface as ancient degenerated fibrous masses which have been deposited between the chorion and the decidua.

Grannville figures what he calls an "ovum tuberculosum." "There are," he says, "in the structure of this ovum a great many swellings like tubercles. These tubercles are subsummatic, and the presence of these mortal accretions will settle the question of the regularity of the inner or secreting membrane (amnion) in the human ovum. What art has failed in demonstrating nature has shown quite manifest in her career of disease!" Thus Grannville attributes the disease which many earlier writers recognized as due to retention in utero of a dead but not previously diseased ovum. Baudelocque applies the same term "tuberculosum" to the condition. Grannville mentions seven specimens and remarks that in all of them the tubercles were on the foetal surface of the membranes. It is curious that Baudin has recently like
Fig 6. Altered ovum figured by Krause.
Granville described the haemorrhages into a dead ovum as such amniontic in position.

Krause[14] gives a good figure of a retained ovum showing the usual excrecence into the amniontic cavity.

Cazzanè[15] bases his description on the work of Velpeau and says: "There is yet another mode of termination admitted by Naegle and Obhiander, I allude to the absorption of the placenta retained in the cavity of the uterus; for, although such an absorption has been observed after delivery at term, yet most of the reported cases refer especially to miscarriages."

Scanzoni[16] says that the ulceration of the chorion in a retained ovum is due to the effused blood, more or less organised, which is found between the villi. This becomes transformed into connective tissue, which becomes vascularised and adheres to the uterine wall. From this statement little advance has been made, and it is needless to refer to the numerous modern treatises which simply repeat it; or one not so complete.

Before mentioning some recently described cases
cases, it is necessary to glance at the history of opinion upon placental polypi. Their existence, it seems, was recognized by La Motte, though Kiwich is sometimes said to be their discoverer. Hoffmann describes the occurrence after normal labium of structures which would now be called placental polypi. Mursinma writes "As the internal surface of the uterus secretes mucous mucus, or at least a viscid gelatinous fluid, this may by degrees so cover the blood clot that it becomes not only ineradicable, but resembles a fleshy growth. Nay more, such a clot of blood owing to its adhesive quality may really become attached to the inner wall of the uterus, grow fast to it, and subsequently degenerate more or less into a polypoid tumour. I believe this to be the majority of growths after labour have originated in this way." Thus Mursinma understood the origin of fibrinous polypi after labour. But Kiwich states that they can occur apart from conception. The virgin uterus dilating to contain a growing blood clot. He has been severely criticized by Scanzoni. Kitian and others, who look upon the fibrinous...
Filiform polypus as formed, almost always, of blood clot deposited upon a placental relic, that is, a variety of placental polypus. Ludwig Joseph reports a case of the formation of a filiform polypus by the deposition of blood upon a fibrous polypus, and Griffith found a filiform polypus containing a trace of chorionic or decidual tissue in a woman whose last pregnancy ended 2 1/2 years previously. Mc Clintock helps towards a clearing up of this point in his memoir on uterine polypi, and Matthews Duncan speaks plainly upon it. "A bit of placenta hanging by a stalk, partially adherent, is called a placental polypus." On filiform polypus he says "Many such cases have come under my notice. They all occurred in connection with recent pregnancy and were the cause of continued loss of blood, sometimes copious, sometimes inconsiderable. In all there were outline structures in the pedicle or near the attachment of the mass."

Klasson considers a polypus placental if the bulk of the growth is formed of placental tissue covered superficially with a layer of fibrous tissue.
while he would call it fibrous if it consisted mainly of fibrous deposited upon a small piece of placenta or other structure appended to a attachment. The distinction between a piece of retained placenta and a placental polypus he considers to be "a matter of time."

Sejars and Levi describe a case in which they diagnosed carcinoma, removed the uterus, and then found that it contained only a polypus one inch long and of fibrous appearance. On section they found it to contain some placental tissue, and concluded that they should have called it a placental and not a fibrous polypus. They accordingly go on to recommend the abdication of the term fibrous polypus. This case does credit neither to the diagnostic acumen of the authors nor to their knowledge of placental literature, and it affords no reason for giving up the use of a term which is employed with a definite meaning by numerous authors.

Reference is next made to some recently described cases, showing the present state of our knowledge of the pathology of placental structures retained in utero.

Matthews
Matthews Duncan describes a multipara aged 38 who admitted at the third month, the lining of the placenta being removed three weeks later. After eight months of frequent haemorrhage the cervix was found patent and hypertrophied but not lifted while a sound passed 5½ inches into the uterus. A wanton-like mass was removed later, which was placental tissue "aline" and firmly adherent to the uterus. The patient Duncan remarks would have died if haemorrhage had not been removed. The case shows the power of a small piece of placenta in preventing involution. The cause was deciduate endometritis affecting part of the placenta and making it adherent. In two weeks after removal involution was complete.

He also mentions a multipara aged 31, who, after 5 months' amenorrhoea, complained of purulent vaginal discharge. The fundus reached above the pubis; the uterus was mobile, not tender, and the cervix was patent. The sound passed 3½ inches. 14 hours later a mass the size of an orange was expelled, which was an entire horn containing no liquor amnii, but a fetus of two months growth. The fetal surface of the placenta was covered with sound projecting masses, formed of blood clot lying beneath the chorion and in varying stages of decolourisation. The patient had a dilated...
heart and mitral incompetence, which Duncan notes probably caused the death of the foetus.

Woodman recorded that after the birth of a living child at term he found a large mass in utero attached to the placenta, which proved to be the retained undelivered placenta of a second foetus, which could not be found. Similar cases are mentioned by Edis and Malins.

Pope described a patient who after 7 months almost completely amenorrhoea complained of severe haemorrhage. The uterus was large and firm, the cervix small and hard, the os was closed, and there were no pains. Later she expelled an altered ovum containing a foetus of six weeks' growth.

Roper described an attack of thrombosis in one femoral vein with well marked "white leg". 100 days later the patient expelled an entire ovum which was probably more than 150 days old. He suggests that the attack of thrombosis and the death of the foetus were coincident and had a common cause.

Allan Doran notes that the expulsion of an altered ovum after eight months amenorrhoea about the middle of which slight bleeding occurred. He also records that a multipara aged 31, was operated
Fig. 7. Placental Polypus described and figured

Operated on for abdominal tumour and died on the 6th day. The right ovary contained an old corpus luteum. The uterus was the size usual at the end of the third month of pregnancy. A soft mass the size of a pineapple was attached by a broad and fairly distinct pedicle to the left side of the uterine cavity near the opening of the tube. This was originally described incorrectly in 1874, but was re-examined in 1895, and found to be composed partly of walls and partly of blood clot. Its macro photograph very closely resembles some of those given later.

Phillis describes a hylated ovum showing fleshy decidual hypertrophy. The amniotic cavity contained 3oz of straw coloured fluid, but no blood. There was a distinct separation between the decidua nera and the reflexa. A six week's fetus was attached by a thick cord to the rudimentary placenta. This was expelled at the sixth month. A similar case was brought to a patient who stated that she had previously expelled similar structures. This was expelled after six month's amenorrhea.

Redmond records that a multipara aged 32 retained an ovum for 13 months. The fetus died at 11 months apparently, but when at last
The ovum was expelled, no foetus was found. Though the membranes were unruptured and contained a little fluid. "The whole of the foetal surface was studded with little bladders of extravasated blood ranging in size from that of a split pea to that of a split walnut." The mass measured 6 inches by 3 inches and weighed 35\(\frac{1}{2}\) lbs.

Hautain had a patient who expelled a four-month's foetus in its amnionic sac after seven months' amenorrhoea. The placenta was retained and its detachment was most difficult, being accompanied by alarming haemorrhage. "The placenta was vascularised but extremely fatty and the foetal surface was covered with dark tuberous masses." Although growth of the ovum had long ceased the uterine attachment remained firm and vascular.

Wilson describes a case in which symptoms of abortion occurred at the third month in the second pregnancy of a patient aged 32. She continued to increase in size till term, the breasts also enlarging. After this the abdomen became smaller. Pains came on 13 months from the beginning of pregnancy, and expelled
"In placenta and membranes I about the third month compressed, the amniotic cavity containing numerous laminated, rusty blood clots. No trace of a fetus could be observed."

William Duncan mentions a patient who ceased to menstruate in May 1894. She had slight hemorrhage in September, while in May 1895 was as large as a fist and no further discharge had occurred. After irregular rise of temperature and some discharge, the cervix was dilated and an amnion was the size of a small egg was removed. Then the decidua which was cascarus and in parts contained cysts, was removed by means of a curette.

Budin gives an elaborate history of a woman aged 24 who menstruated in June 1891. She had slight symptoms of abortion in November. On November 17th she was in the condition usual at the fourth month. Her pregnancy did not advance. Though amenorrhea and enlargement of the uterus presented till June 1892, when an altered vom was expelled. The mass measured 9 cm by 6 cm and weighed 300 grammes. It consisted externally of an fibrous coat which formed two thirds of the whole.
Fig. 8. Altered Ovarium described and figured by Budin. *Femmes en couches*. Ducq, Paris, 1892.
Within the clot was an adherent mass containing no liquor amnii and no foetus. Projecting into the amniotic cavity were thirteen tumours varying in size from a nut to a pigeon's egg. Dark purple in colour they were attached by pedicles varying in size, and consisted of altered blood enclosed in sacs composed. Bendini states, if common alone, he concludes, "The histological examination, made by M. Chavane, has confirmed our hypothesis. The little red tumours examined under the microscope, were covered by amnion alone—. Where there was a sort of "pleatened" disc covered inside by the membranes and externally by clots, the characteristics of placental tissue were found." Of all the authors who have reported upon such a case, Crossville is the only one I can find who, like Bendini, describes the haematoma as the foetal surface or sub-amniotic. It is to be regretted that he does not give figures or details of the microscopic examination. Bland Sutton describes sub-amniotic haemorrhage in some eclamptic males.

Breus gives details of five cases of missed abortion. The periods of amenorrhoea were
Fig. 9. One of the altered ova described and figured by Breus. "Das subinvolutionäre hämatom der Decidua" Wien. 1892.
eleven months, eight months, fifteen months, five months, and nine months. In each case a small embroy was found of about two months growth. A few drops of liquor amnii were found in the cavity of each ovum, into which projected the usual rounded elevations formed by adherent blood effused between the chorion and the decidua. The histological features of the five specimens are described together.

The amnion showed an intact epithelium with large nuclei. Its connective tissue layer was perfectly continuous with that of the chorion, which contained no trace of blood vessels. The chorionic epithelium was well preserved and unaltered. The villi were absolutely non-vascular; their cores consisted of connective tissue like that of the chorion and amnion. The epithelium of the villi was unaltered and well preserved, except that of certain villi far removed from the cavity of the ovum. The decidua consisted of very vascular connective tissue containing numerous spindle cells and small round cells. The intervillous spaces contained very little blood and were occupied by vascular fibrous tissue or by a nearly homogeneous
homogeneous material containing numerous well-preserved decidual cells. Breus says that he could not determine whether the intervillous material was organised thrombus or metamorphosed decidual tissue or both.

The only part of this description which seems to me unusual is the statement that the epithelium of chorion and villi was for the most part unaltered and well preserved. Breus gives no drawing or photograph of this unaltered epithelium. In the interpretation of the specimens, however, Breus leaves himself open to criticism. He says that the importance and peculiarity of his cases is the presence in all of them of the rounded tumours projecting into the cavity of the amnion, and which consist of blood from the decidual vessels altered more or less according to the date of its effusion and covered by the united amnion and chorion. He next makes several questionable statements, for he says that these tumours owe their origin to growth of the membranes forming foldings and pouchings into which the escape of blood from the decidua occurs.
as a secondary and subsidiary event, he asserts that the death of the embryo must have been the primary event in the formation of these tumours, and goes on "It is a long known and often observed fact that after the death of the foetus, the membranes of the ovum can go on growing." Breus then argues as follows. Granted that the foetus is dead and that very little liquor amnii is formed, the membranes of the ovum, continuing to grow actively, must push and press themselves into the space which should have been occupied by the foetus and liquor amnii. Blood from the decidua fills the pouches and completes the formation of these tumours, which our author dignifies with the name of "das Fieberüse subchorialis Hämatom der Decidua." More briefly, Haematoma, a "mole haematoma." Lastly, Breus states that "In literature this form of molar pregnancy is nowhere described." Now the haematoma thus claimed by Breus as his own discovery is figured by Allénus, Sandiford, Granville and Rausche.
not to mention the authors of recent textbooks such as Playfair. They are described, correctly enough, by Primrose"ius writing about the year 1655, by Lemert, Velpeau, Scanloni and many recent authors. The questionable points in the theoretical part of Broom's paper all arise later, so it is not necessary to discuss them here. It is clear, however, that the "mola haematoematosa" or "Hæmatomole" is not, as the author suggests, a new and undescribed form of molar pregnancy.

Hart has recently described two cases of anemoeus or flabby mole. In the first, the patient, who was married in May 1891, ceased to menstruate in July, and had a threatening of miscarriage in October. On December 2nd the uterus was of the size usual at the end of the second month of pregnancy, the cervix was not dilated, and no haemorrhage had occurred. On June 20th, 1892, the uterus was about as long as one-fourth of a month's pregnancy, but narrower. Two days later, a mole was expelled about three inches in diameter and half an inch thick. The amniotic surface was elevated into numerous rounded bosses.
Fig. 10. Fleshy mole described and figured by D. Berry Hart. Brit. Med. Journ. Oct. 24 1906. Coloured figure sent specially to be copied for this paper.
able to figure through the kindness of Dr. Hart.

The second case I observed clinically, for acting as house physician I admitted the patient, while Dr. Hart had charge of the Buchanan Ward of the Royal Infirmary, Edinburgh. She was a woman in later middle age, who had not menstruated for eight- and a half months. She presented no sign of pregnancy except enlargement of the uterus, which was larger, narrower and fatter than a three months pregnant uterus, and was retroflexed. The cervix was not soft nor was the os dilated. The night after full examination of her case, she suffered from pain and haemorrhage; and, in the morning, I found the cervix softened and dilated, the os being lubricated by a tough mass which was easily removed. There was no further haemorrhage, but in spite of careful treatment the uterus remained large and heavy for several weeks. The mass expelled was a rounded flesh-bitten mass with the usual subchorionic haematoma. It was microscopically examined by Dr. Lowell Guillemin who reported as follows. The amnion and the chorion immediately underlying it were
Fig. 11. Field from a section made by Dr. Guilbain, Dr. Hart, and Mr. J. Feir, figured by W. S. T. by special permission. Hartmann 13, 33.

Fig. 12. Another field from the above section.
were quite normal, and there were here and there a few villi projecting from the chorion, which were, however, almost entirely degenerated. The main mass of the sections was taken up by haemorrhaged, some old, some recent. Those further from the amniotic cavity being evidently the oldest. Beneath these was a small portion of tissue very much degenerated which appeared to represent part of the decidua serotina, and scattered among the strands of fibrin on its upper surface were a number of villi in the most various stages of preservation, some almost normal, some with their structure almost obliterated. The only common character which they presented was the fact that in all the mucoid matter of their connective tissue was greatly increased in amount." Dr. Hart has kindly given me a section of this specimen two fields from which I have figured. (Figs 11 and 12)

This completes our review of the literature of retained cordon structures themselves, as a paper of Neumann[9] gives no further information. The history of the discussion upon placental relics as possible origins of malignant new growths is introduced later.
Fig. 13. Photograph of a section of fresh placenta of about six weeks' growth, showing chorionic epithelium and fetal connective tissue forming the covering and the core of the villus.

Section by W. E. F. Phil & F. Hepworth under Zeiss 40x.
Personal Observations

I next describe in detail three cases thence investigated. Other personal observations are referred to in appropriate places or their results are embodied in the general considerations which follow. The use of terms of doubtful meaning has been avoided; but as the term chorion is still used in more senses than one, it is needful to mention that I always employ it, as defined by Minot, meaning that part of the extra-embryonic somatopleure which is not concerned in the formation of the amnion. I must also mention that I consider both the layers of cells often observed on the maternal surface of the chorion to be fetal in origin and epithelial in nature. I therefore refer to them as chorionic epithelium whether they cover the connective tissue layer of the membrane itself or the connective tissue stroma of the villi that spring from it. (See Fig 13)
Case I.

Mrs P aged 35 had a normal menstural and obstetric history till the end of the year 1895. She did not menstruate in November nor did she have any coloured vaginal discharge until June 1896. No morning sickness or enlargement of the breasts was noticed; indeed during seven months her only symptom was amenorrhoea. Finally she complained of some pelvic pain, and a brownish discharge appeared. The size of the uterus suggested pregnancy at the third month. Though the organ was larger and narrower than usual in that condition, its position was normal and its consistency was firm like that of a fibroid. The cervix was not soft and the os would only admit the tip of a finger. The examination apparently set up uterine contraction for a slightlyed ovum was expelled a few hours later with very little haemorrhage. Evolution was complete in two weeks.

When expelled, the product of conception formed an ovoid mass 2 3/4 inches long, with a shorter diameter of 1 3/4 inches. Firm and tough to the touch, its external surface was
Fig. 14. Blighted Ovum (Case I. W.E.F.)

The maternal surface of the Placenta.

actual size.
was composed of blood clot, with chorionic villi and shreds of decidual tissue arranged in patches. The placental portion of the womb was easily distinguishable from the membranes. The cavity of the womb was reached by cutting through a thin layer of shreds of decidual tissue and the united chorion and amnion. It contained no liquor amnii, no fetuses no cord and no blood clot. The membranes having been moved further and gently turned aside the fetal and maternal aspects were figured.

The maternal surface of the placenta was almost hemispherical in form, rough where the ends of villi appeared, but covered mostly by a smooth layer of blood clot, varying in colour, firmness and thickness. A dull red varied with mottlings of yellow, brown and greyish pink, was the predominating tint.

The uterine surface of the membranes was rougher and more shredsly than that of the placenta. Fragments of decidual were as well as most of the decidual reflexes adhered firmly to the chorion. But portions of the decidual were which were not united to the reflexes were doubtless lost. In parts the rough surface of the chorion was exposed.
Fig. 15. Blighted Ovum. (Case I. W.S.T.)

The central surface of the placenta actual size.
exposed. (See fig 14)

The amniotic surface of the placenta was covered elevations or bosses of varying size. The largest were half an inch in diameter, the smallest being the size of a pea. The elevations were separated by fissures, varying in depth. There was no trace of the insertion of the umbilical cord, the amnion and chorion were stretched smoothly over the surface of the fissures, and dipped down into the fissures between them. The colour of the amniotic surface was yellowish grey, the membranes being translucent. The brown, pink and red colours of the underlying structures showed clearly through them. The amniotic surface of the membranes was wrinkled and of a uniform greyish colour. (See fig 15)

A section showed that the placenta raised in thickness from 1/4 to 1/2 an inch. The membranes with the decidual tissue attached, being about 1/8 inch in thickness. The knife passed through a dense compact mass, the section being mottled yellow, brown and pink in colour with streaks and bleaches of bright-red.

A transverse slab of the placenta was embedded in cellodion and slices taken from
Fig. 16  Section through placenta of lighted ovum
(Case I. W. F.) Enlarged three diameters.
Stained with Hoechsmine.

Fig. 17  Photograph of the alive section, more
enlarged by D. Heffworth.
it with Rechert's microtome were quickly stained with pierce-carmin and washed with
bicarbonate of ammonium. So that a yellowish
cred was given to the altered blood between
the villi, and a pinkish red to the connective
tissue. One of these sections magnified
three times is figured. (Fig 16) Examined
with slight magnification they revealed
the following structure.

The upper margin of the section is formed
by the united amnion and chorion which
run over the elevations on the foetal surface
of the placenta and dip down into between them,
while many large and small villi spring
downwards from the chorion. At the
edges of the placenta the united membranes
run gently on its surface. Numerous small
villi spring from the membranous portion
of the chorion and attached to them are fragments
of decidual tissue.

The lower margin of the section is formed
by three kinds of structures, but fibrous
arranged in their layers occupies most of it. The
other two structures are groups of villi, and
patches of decidual tissue.

Examining
Examining the section from margin to margin it is seen to be composed as follows.

I. Chronic villi varying in size, and cut at different angles so as to present all kinds of outlines.

II. Patches of decidua serotina, triangular in shape, their long axes forming part of the lower margin of the section, their apices pointing upwards towards the upper margin formed by the membranes. These patches are lightly stained.

III. Structures derived from blood occupy most of the spaces between the villi. They were from laminated fibrin; old blood clot showing a few remaining corpuscles; and recent blood clot. The first blood clot does not take the fibrin, surrounded individual villi; but occupies cracks and spaces between larger areas composed of villi and fibrin. The last blood clot is stained yellowish green.

IV. Lastly certain other structures are visible on close examination of the section. These are bands and rings of lightly stained tissue variously disposed throughout the section. They surround villi or groups of villi, occur between...
Fig. 18. Photograph of part of lower margin of section through placenta of delighted ovum (Case I, W77) made Zeiss in enlarged later.
Figs 19, 20, 21.

Three fields from the upper margin, the middle and the lower margin respectively of a section through the placenta of a blebbed ovum. (Case I. W.F.) Taken together they give the structure of the whole section as seen under low power in. 1 mm. or 3. Microcosmic and known.
Fig 22.

Chorionic epithelium
Villous
Core of Villus
Chorionic or fetal epithelium

Fig 23.

Chorionic epithelium
Villous

Fig 24.

Decidual tissue
Core of Villus

Photographs from upper margin, middle and lower margin of placenta of alleged ovein by M. Hepworth.
between villi and the villi, between villi and masses of fibrin, and also surrounded entirely by fibrin. Some of them are seen to be continuous with the triangles of decidua base at the lower margin of the section. While some of them are in contact with the chorion, they are most in evidence in the lower half of the section. (See Fig 16)

Blocks of the placenta were next hardened, using alcohol, mercuric perchloride, or Lucas’s solution (Müller’s solution saturated with mercuric perchloride). Some of these were embedded and cut in paraffin wax, but a still better plan was found to be a combination of the celloidin and paraffin methods. (After 24 hours in a thin solution of celloidin in absolute alcohol and ether the block is placed in oregumum oil for 24 hours. It is then transferred to a mixture of oregumum oil and 40% paraffin and kept at 40°C for about 12 hours. The block is then embedded in hard paraffin and cut into sections with a Cambridge microtome or any instrument suitable for the paraffin method. Sections thus embedded should be cleaned with crease or and not until alone oil.)
Fig25. Section of Placenta of Blighted Ovary, (Case?)

Sections obtained by this method were stained with haemalum and eosin or picric acid. The examination of these with low and high magnifying powers gave the results detailed below. (See here figs 19 to 24)

**Amnion.** The epithelial (fetal epithelium) layer of the amnion contains a single layer of well defined nuclei of medium size, darkly stained, their long axes parallel to the surface. The cell outlines are not visible. The connective tissue (fetal mesoblast) layer of the amnion is a firm but delicate connective tissue containing relatively few fibres but numerous cells whose elongated nuclei are clearly stained. This layer is quite continuous with the connective tissue layer of the chorion, which is of exactly similar structure and origin.

The epithelial (fetal epithelium) layer of the chorion varies in different parts of the section. The cell outlines are nowhere visible. In places a double row of regularly placed, darkly stained, rounded nuclei is seen, just as in specimens of fresh placenta removed at any time from the
Fig 26  Section of Placenta y Bliched Burns (Case)

Upper margin: Hartnack 1/6. At 4.
the middle of pregnancy onwards. In other parts, rows and heaps of darkly stained nuclei, irregularly placed, but still in contact with the connective tissue of the chorion represent a more degenerated epithelium. Again in these parts the clusters and chains of dark nuclei are more or less removed from the connective tissue. In many parts of the chorion, its epithelial layer is not represented at all, the membrane being reduced to a layer of connective tissue continuous with that of the amnion. No trace of vessels is seen in the chorion.

The Villi. The core of each villus consists of delicate connective tissue (fetal mesoblast) which, in the case of these villi which are cut as they spring from the chorion, is continuous with the connective tissue layer of that membrane. There are but few fibres in this tissue, but spindle-shaped cells whose processes form a delicate stroma, are numerous and in the interstices of the stroma there are many cells with oval clearly stained nuclei; none of these cells are undergoing division, nor do they show any sign of active growth.

The epithelium covering the villi (fetal epithelium)
Fig 27. Section of Placenta of Blythed Drum (Case 5)

H. emac R 1/6. Pyro-carmine and haemalum

- Decidual Cells
- villous epithelium
- trophoblastic cells
- fetal connective tissue
- stroma of villus
- chronic epithelium
- fibrin

Recent blood
like that of the chorion itself, presents varied aspects. In some villi it appears as a double row of round darkly stained nuclei regularly arranged in a layer of protoplasmic material in which no cell outlines are visible. In others, heaps and ruins of dark nuclei remain in contact with the connective tissue. While, in others again, the clusters and groups of epithelial nuclei are removed more or less from the villi to which they belong. Many villi are entirely devoid of epithelium, and nothing representing their original covering can be seen in their neighbourhood. No trace of cell division can be seen in any of the fetal epithelial cells, most of which are represented only by their degenerated nuclei.

The villi are entirely devoid of blood vessels. The smaller ones show no trace of these structures but in a few of the larger ones small pigmented spots are seen which probably are the only traces of the fetal circulation to be found in this area. (See Fig. 19 - 24, and 27.)

**Decidua.** The patches of decidua serotina on the inner margin of the section have
Fig 2.8. Section of placenta of blighted ovum.

Lower margin, showing a patch of decidua coriacea. Hemorrhage 1/6 of 1.
have a delicate matrix of muscle type, with a few fibrils and very numerous cells. These show very perfectly the transition from the ordinary rounded connective tissue cell of the uterine mucosa into the large glandular cell, with finely granular protoplasm, large oval clearly stained nucleus with well defined nucleolus network and nucleolus. The decidual cells in these patches are not so large as those sometimes seen. They vary greatly in outline, and a large number of them are undergoing cell division, as rare mitotic figures can be observed in all stages.

In a few places the cell protoplasm is somewhat degenerated and fused. The cell outlines being lost into patches of protoplasmic material resembling fibris in appearance. The nuclei of these fused cells also appear slightly degenerated as they have lost their clearness of outline and are stained rather deeply. There is no blood vessel or uterine gland nor any trace of maternal epithelium in any of the decidual patches observed.
The intervillous space. The spaces between the villi form a continuous area bounded above by the chorion and below by the placental margin. The section often shows patches of decidua. This area is occupied by structures derived from maternal blood on the one hand, and by the rings and bands of tightly staining tissue referred to above, on the other.

There are several cracks and rents in the compact mass of villi and old blood-clot which are occupied by recently effused blood. This is stained greenish yellow by the green carmine employed. The outlines of the red blood corpuscles are very clear, some of them circular, others polygonal due to pressure. The nuclei of white corpuscles are seen deeply stained. Delicate strands of fibrin are visible here and there. In some parts of the section fine laminae of fibrin are separated by layers of red blood corpuscles. In other parts there are considerable areas of old clot in which no red corpuscles are visible; a few deeply stained nuclei are scattered about, but otherwise these areas are structureless. The greater part of the intervillous
Fig 29. Section of placenta of hystericus ovum.

Showing laminated fibrin, decidual tissue and structureless fibrin. PH & HEPWORTH

Zeiss \( \frac{1}{60} \)
intervillous space is occupied by fibrin in innumerable lamellae which are arranged concentrically round the villi, parallel to the chorion or to the inner margin of the section. Single cells and rows or groups of cells lie amongst the layers of fibrin in some parts of the section, and these must next be described together with the larger cellular areas of lightly stained tissue referred to above.

When examined with high magnifying powers these areas are seen to consist of very large cells with clear outlines rounded, oval or polygonal in shape. Their protoplasm is clear, their nuclei are large and of various form, round, oval, oblong and triangular forms predominating. These nuclei stain clearly but not darkly. They have a clean outline and nuclear network. The nucleolus is usually distinct, but rare mitotic figures are abundant and show that the cells in question are in process of active reproduction. Besides the larger bands and rings whose disposition has been described above, these large cells occur in small groups, in rows and singly.
Figs 30 and 31.

Fig. 30-31. Two sections of placenta of bluebanded ovum showing cores of villi, chorionic epithelium of villi, fibrin and decidua cells.

Hastings 1. Dec 4. Picrocarmine and haemalum
Figs 32 and 33.

Sections of placenta and yolk-sac ovum. Photos by Otherworth.
So arranged they may be seen between layers of fibrin, between villous epithelium and fibrin, between villous epithelium and villous connective tissue. Smaller cells of similar appearance occur in similar positions but do not form large patches. Direct continuity can be traced between these areas of large cells and the triangles of decidual tissue on the uterine margin of the section. It is therefore clear that the large cells forming the rings round villi and the areas between them as above described are decidual cells, produced by cell division of the decidual cells of the synctium. The cellular areas which in part occupy the intercellular space are thus seen to be extensions of the decidua from the maternal toward the fetal surface of the placenta.

The description of these sections is completed by the observation that, taking any field, two of the tissue elements in question are present in inverse proportion, namely the fetal epithelium and the decidual cells. Where there is much fetal epithelium there are few
few decidual cells and vice versa. Feeding
the whole section it must be noted that
the decidual tissue is most abundant in
the lower half of the section - nearest the
uterine wall, in this half of the section
hardly any foetal epithelium is visible. In
the upper half of the section however, foetal
epithelium is abundant and the decidual
tissue is relatively small in amount.

In this specimen then we have direct proof
that the mass of villi and blood clot of
which a retained placenta is composed can
be invaded by cells derived by division
from those of the decidua. In their advance
from the decidua towards the chorion these
cells strip off from villi and destroy
the foetal epithelium. They also attack
the pelvis in the intervillous spaces, and
replacing what they remove by cells formed
by their own division, they refill the
intervillous spaces with a delicate, large-
celled tissue. The connective tissue struma
of the villi seems to oppose much greater
resistance to the attacks of the advancing
decidual
Case II

The patient, aged 18, had good general health and physical development. She began to menstruate at the age of 14, and continued to do so regularly, though sometimes painfully, until five months before the illness in question. She then missed two periods, and at the end of the third month had a haemorrhage which she described as a profuse and painful period. Two months later she began to suffer from pelvic pain accompanied by a coloured discharge. After this had continued for eleven days she was very anaemic. Her temperature was normal, her pulse rapid and feeble. The breasts were tender...
Fig 34. Retained placenta. (Case II (1st)).
Amnionic surface. Actual size.
but not enlarged, the areola was dark, no secretion could be expressed. A facsi-
linea nigra was visible and there was
dullness on percussion for one finger's breadth
above the pubic symphysis. The size and
shape of the uterus suggested pregnancy
early in the fifth month. The cervix was
soft and the os externum admitted the tip
of a finger. The vagina was plugged with
gauze after some glycerine had been
injected through a small catheter into the
cavity of the uterus. The next morning the gauze
was removed; and, after it, a solid mass the
size of half an orange, with some recent
blood clot. There was no further haemorrhage
and involution was complete in three weeks.
The mass, which was figured at once,
is roughly hemispherical in shape, its greatest
diameter being three inches and its greatest
thickness 1 1/2 inches. It consists of a placenta
whose maternal surface is covered by layers
of blood clot varying in colour and toughness,
but all more or less decapitated, the surface
only being covered with fresh blood. No trace
of membranes, decidua vera or reflexa,
embryos.
Fig 35. Section of retained placenta (Case II. 6797)

upper margin. Hartnack 1 & 63.
Case II

embryo or cord was found. On the fleshy surface the placenta, a concavity 2 1/2 in.
in diameter is covered by amnion. This membrane is smooth, but is raised into
several gentle elevations. It is grey and translucent, and a small yellow cyst
lies under it near the edge of the placenta.

This specimen was examined by the
methods employed in the previous case
and its features are described below.

Amnion and Chorion. These membranes
are united completely. Their respective
connective tissue layers forming a
contiguous sheet of tissue whose mucous
stroma contains few fibres but many
cells. The epithelial layer of the amnion
in section
shows a single row of clearly stained
nuclei whose long axes are parallel to the
surface. The epithelium of the chorion
consists of a double layer of darkly
stained rounded nuclei embedded in a small
amount of cell protoplasm in which
no cell outlines are visible. The epithelium
is nowhere separated from the connective
tissue layer of the chorion. Numerous
villi are cut as they spring from the
membrane, in which no blood vessels 
are visible, though a few traces of 
red blood pigment indicate the positions which 
vessels have occupied.

Villi. The above description of connective 
tissue and vessels of the chorion applies 
equally to those of the chorionic villi.

The epithelium of the villi however consists 
mainly, as seen in section, of single rows 
of round or slightly ovoid nuclei connected 
by mere traces of cell protoplasm in which 
no cell outlines can be detected. In some 
of the smaller villi the nuclei are arranged 
in double rows. In the most part the 
epithelium remains in contact with the 
connective tissue core of the villi, though 
in parts it is more or less removed. Where 
villi are embedded in decidual tissue they 
have no epithelium near them, or a 
scattered epithelial nuclei are seen 
amongst the decidual cells.

Decidua. The decidual serotina is 
represented by a few patches of typical 
decidual tissue containing large cells.
Fig 36. Section of retained placenta (Case II, W.D.)

Near lower margin, showing villi, blood clot in intervillous space, and decidua basalis. One villus is half embedded in decidua, and the decidual cells are seen destroying its epithelium.

Extramuch 1/6 Oct 3.
These are mostly separated from the mass of the villi by numerous layers of blood clot and do not show any active changes. In parts where they have remained in close relation to the uterine wall and to the fetal portion of the placenta, the decidual cells are seen to be in process of cell division, demanding the neighbouring villi of their epithelium and organizing the fibrin in the intervillous spaces.

**Intervillous Space.** This contains nothing but substances derived from the maternal blood, namely, fresh blood clot, fibrin strands and dilated red corpuscles in alternating layers, and closely packed layers of fibrin. A number of round, deeply stained nuclei are scattered throughout the clotted blood. In parts a few decidual cells are seen invading the fibrin.

In this case the fœtus and membranes were doubtless expelled at the end of the third month of pregnancy, and the placenta was retained in uterus two months and twelve days longer. There was more bleeding in this than in the previous case, the decidua was much torn up, and accordingly the process of organization.
organisation of the dead retained structures by the decidua cells went on more slowly and is seen much less perfectly than in the other case. An early stage in the formation of the bean-like bodies on the foetal surface of retained placenta is well seen.

Case III.

Mrs. D. is a strong healthy young woman aged 31 years. Her first labour occurred in July 1894, and was normal. In July 1895, while still suckling her child, she had a discharge of blood which lasted for several days. The child was weaned, and during the next twelve months, she suffered from very irregular haemorrhages, which alternated with menorrhagal discharge. At times profuse bleedings followed one another in rapid succession, and though she was once or twice amenorrhoeic for five or six weeks...
at a time she never suspected herself to be pregnant. In July 1896, after three weeks of continuous bleeding, anaemia was excessive, the heart was feeble, the pulse thin and rapid, and the temperature normal. There was no sign of pregnancy in the breasts, abdomen, or vagina. The uterus was large but not soft; the cervix was firm and the os would not admit the tip of a finger. The sound passed easily for 3½ inches. Under ether, Hegar’s dilators were employed, after which the finger recognised two distinct polypoid structures and some small sessile masses of firm consistence, on the anterior wall of the uterus near the fundus. The sessile masses were curetted away, the polypi being removed with a pair of forceps and their seats of attachment then scraped. The streaks of the polypi were clearly felt, and were tough and resistant. The size of the uterus was normal two weeks later, during which time no bleeding occurred. Recovery from the anaemia was rapid and complete. Since her illness the patient has menstruated as regularly and painlessly as before her first pregnancy.
Fig 37. Two placental polypi, actual size.

(Case III. W.B.)
Case III.

The two polyloid masses were figured. The larger measured 1 in. x 2 in. x ½ in. and was kidney shaped, the two pedicles being at one end. Its surface was smooth and was covered with fresh blood. Yellow patches of old clot showing through. The smaller polyplis resembled in size and shape a rabbit's heart.

The sessile masses were pieces of placenta about the size of a thumb nail, firm and tough and covered with fibrin.

Sections were prepared by the combined paraffin and cellulosic method and stained with haemalum and eosin. The appearances are as follows.

Examination with low magnifying powers showed that the pedicles of the polyplis consist of large strong villous stems. In the central portion of each mass are numerous smaller villi. The outer portion of each consists of blood clot in which a few villi are embedded. Between which are wide areas of structureless material crowded with darkly stained round nuclei of small size.

Under higher powers it is seen that no trace
Section of placental polypus

Case 111. W.H. Hardwick 1 (c. 3.)
1 g 39 Section of placental polypus Case III V R T.
Haemochromatosis 10 oc 4. Eosin and haemalum

1 g 40 Section of sessile placental mass
Case III V R T. Haemochromatosis 1 oc 4.
Case III.

Trace of blood vessels exists in these sections. The connective tissue cores of the villi are more dense than usual in structure, more fibroblasts and spindle cells are present, and the cells with oval nuclei lying in the interstices of the stroma are less numerous than usual. The epithelium of the villi is present everywhere in a degenerated form. No cell outlines are visible, the cell protoplasm is small in quantity, the nuclei stain darkly and form double or single rows which are in contact with the villous connective tissue. The blood clot contains few recognisable corpuscles and no fresh blood.

The areas of structureless material appear to be due to inflammatory processes as the character and grouping of the round cells which are abundant in it shows that they are lymphocytes congregated in enormous numbers around certain points. No decidua cells can be found in the two polyloid masses. In the sessile fragments of placenta however there are patches of decidua tissue from which newly formed large cells are seen spreading into...
into the surrounding fibroma just as in
the two other cases above described.
The appearance of the uterine and blood clot
in these fragments does not differ from
that already described.

The presence of enormous numbers of
leucocytes in these placental polypi adds to
their interest. There was no clinical evidence
of septic infection in the antecedent history of
the case; but the appearance of the sections
makes it evident that pyogenic organisms
had gained entrance to the uterine cavity and
attacked these polypi. In one of them at
a certain point near the surface, the appearance
presented was exactly that obtained by
making sections through a small abscess
cavity. It is noteworthy that the vesicle
fragments of placenta, which were well attached
to the uterine wall, and were being organised
by decidual cells, had not shown any sign
of having been attacked by septic organisms.
The activity of these being confined to the polypi
which were composed entirely of dead tissue.
The history was so defective that it is impossible
to say at what date pregnancy occurred, or

when
when it was followed by the abortion in which these placental relics were left in utero. From the size of some of the villous stems it is certain that pregnancy must have advanced for nearly three months, and the changes in the sessile masses indicate that these had been retained dead in utero for at least a similar period, but possibly much longer.
Etiology

Having reviewed the work of previous authors, and described in detail three cases illustrating the pathological details to which I wish to call attention, I am now in a position to enter upon a more systematic and critical consideration of our subject, in the course of which I shall be able to indicate the bearing of recently observed facts upon certain debated points in placental pathology and, especially, upon the relation of placental structures to malignant disease.

Etiology

In trying to form an estimate of the circumstances which lead to the retention in utero for considerable periods of uterine structures, it is necessary to avoid the introduction of extraneous considerations. Thus we are not concerned with the causes of abruption as such, nor yet with the causes of retained placentae after labour.
It must be noted that retention of placental structures is much more common after abortion than after labour near term, both because abortions frequently fail to attract attention and remain untreated, and also because the degenerative changes which prepare for the expulsion of the ripe placenta have not begun or have not far advanced at the date of abortion as Morgagni remarks, "The placenta of an immature fetus is for the most part closely apposed to the uterine as sour and unripe apples to their stalks."

Again, in some cases it would appear that pathological changes in the maternal placenta have caused both the death of the fetus and also undue adhesion of the placenta to the uterine wall. In other cases, however, it would seem that the death of the fetus having occurred from one of several reasons, the retention of the ovum follows simply because there is not enough disturbance of the status quo to cause its expulsion.

In other words, some of the cases in
question are positively caused; while others are, rather, negat
dively conditioned. In the one class placental structures are actually kept in utero, in the other class they remain there because they are not expelled. Speaking very generally it may be said that when portions of an ovum remain long in utero there is unusual adhesion, while when complete and are retained it is simply because they are not expelled. Thus Matthews Duncann refers to the cause of a case of placental polypus as "decidual endometritis affecting part of the placenta and making it mildly adherent." Hart's case, where there was great difficulty accompanied by serious haemorrhage, in removing an altered ovum, falls into this class. Hart has examined cases of true adherent placentae after labour, and found changes in the spongy layer of the serotina rendering it more tough and fibrous than usual. Cases of true adhesion then are generally placental polypi, sessile fragments of placenta, placenta without membranes and
and a few complete one.
But most retained complete one are
ultimately naturally expelled or are
casually removed digitally, their expulsion
as a rule being accompanied by but-little
bleeding. Doubtless these fetuses may die
from various causes, which do not so
affect the nervous mechanism of the
uterus as to cause expulsive contractions.
When this occurs under certain negative
conditions the omnia may be long retained.

An important condition is the absence
of septic infection, as the entrance of
pyogenic or other organisms into the uterus
in any quantity rapidly and entirely alters
the aspect of cases of this kind. It has
even been suggested that the prolonged
retention in uterus of dead placenta has become
more common since the introduction of
antiseptics. Another condition is the
absence of any considerable degree
of haemorrhage. For where haemorrhage
is a leading symptom we never find
prolonged retention of complete omnia and
haemorrhage is always presmonitory of their
ultimate
ultinate expulsion.

While it is clear that, in cases which are under observation through-out, retention of dead ovum-like structures could be prevented by accurate diagnosis and active treatment, it is doubtless equally true that in some cases retention is favoured by inadequate attention, and may be actually caused by incorrect treatment. Thus there is no doubt but that the employment of ergot has sometimes prevented the expulsion of a dead ovum, while the use of certain uterine sedatives has in some cases killed the organ to rest when, left alone, it would have expelled what is practically a foreign body.
Pathology.

When placental tissue is retained in utero under the conditions just referred to, changes occur which vary (1) with the amount of blood effused into the ovum and decidua; (2) with the position of the placenta, and (3) with the stage at which development has arrived at the time of death of the fetus. To enter into the details of these variations would serve no purpose which cannot be attained by a general description.

When the fetal heart ceases beating and the blood in the vessels of the fetal circulation no longer moves, these vessels are quickly obliterated. In what is known as placental infarct it is stated that proliferation of the cells lining the fetal vessels fills up their lumina and so stops, in certain areas, the fetal circulation. Another view is that thrombosis occurs in the vessels of certain portions of the placenta, layer after layer of fibrin being deposited upon the walls of the vessels till their channels are obliterated.
foetus neither of these processes is observed. The fetal blood simply evacuates in the vessels, its serum is absorbed, the red corpuscles degenerate and soon are represented only by a few crystals and amorphous granules derived from their decomposition. The thin walls of the vessels approach one another, and in the case of the small vascular loops contained in the villi, all trace of their previous existence is rapidly lost. These changes I have observed in several cases of abortion in which the expulsion of the dead ovum was delayed for a few days or for two to three weeks. In specimens longer retained the only traces of vessels to be seen are small tracks of blood pigment in the situations of the larger fetal vessels.

The condensed and concentrically arranged connective tissue surrounding them representing the vascular walls.

Definitive fetal blood supply, the chorion and its villi still form the walls of the great intervillous space in which maternal blood is present. Doubtless in many cases in which extensive hemorrhage into
into the ovum and decidua occurs. The clotting of the maternal blood in the intervillous space either precedes and causes, or else quickly follows the death of the fetus. For in aseptic cases I have found the whole intervillous space filled with complete blood clot, corpuscles being everywhere abundant. But in other cases I have found many villi surrounded by numerous layers of fibrin including no red corpuscles, indeed considerable groups and bundles of villi may be firmly bound together and embedded in fibrin. This indicates that, when the maternal circulation continues in the intervillous space after the death of the fetus, the fetal epithelium which lines that space, being denuded by the loss of its fetal blood supply, acts as a foreign body, upon which layer after layer of fibrin is deposited by the maternal blood flowing over it. Thus the intervillous space may be completely thrombosed. Eden has shown that this occurs during the life of the fetus in areas of the placenta where fetal circulation is cut off by the obliteration of
I contain foetal vessels.

The amnion and chorion gradually become firmly united, their mesodermal layers forming one sheet of connective tissue, which is more firm than in living ovum at any period of pregnancy; not that there is any alteration in the numerical relationship of cells and fibres, but that whole structure is compressed.

The amniotic epithelium remains for a very long time apparently unaltered, as in all the specimens I have seen the nuclei were clearly stained and preserved their outline and arrangement, and cell protoplasm was visible through small in quantity. Cell outlines were not visible in the specimens longest retained.

"The epithelium of the chorion itself undergoes the same changes as those observed in the epithelium of the chorionic villi, but more slowly, as it is further removed from the decidua, whence are derived the cells which attract it."

The changes which occur in the villi, the fibrin and blood clot in the intervillous space and
and the decidua serotina when ovular structures are retained for considerable periods in utero have been described in connection with the cases reported above. It is therefore only necessary to recapitulate them here.

Briefly, then the chorionic epithelium first degenerates and then gradually disappears. The connective tissue of the villi becomes compressed but MARSHALL does not alter for a very long time, and slowly tends to disappear as the masses of decidual cells advance.

The blood appears into the decidua as well as that in the intervillous space is gradually decolourised and transformed into laminated masses of filamentous material which are ultimately replaced by masses of decidual cells. The decidua, whenever it continues to be nourished by the maternal circulation remains living and active. Its cells proliferate freely and spread from the maternal aspect of the placenta towards the chorion and amnion. They remove from the villi the degenerated chorionic epithelium which gradually disappears. They also invade the filamentous material and gradually remove it, replacing it by a delicate matrix.
Section of a sessile fragment of placenta retained five months in utero after abortion, showing the intervillous spaces turned into connective tissue surrounding the bases of villi

Hematoxylin and eosin and haemalum
large-celled connective tissue. This fills
the intervillous space and ultimately encroaches
upon the connective tissue core of the villi.
It is finally vascularised by the vessels of
the uterine mucosa. (Seanzóni 16)

The logical conclusion of this process would
be the formation of a wrinkled placental
structure into a mass of connective tissue
of decidual origin. To such a mass
Heartmann and Tannert 46 would apply the
name "deciduoma benignum". It is
possible to imagine the return of a
mass of this kind into the tissue from which the
decidua is derived, namely uterine mucosa,
and in this connection it is interesting
to remember that Cushing 15, Nagel,
Osier, and others believe that absorption
of placenta has occasionally occurred.

The effect upon the uterine of the retention
within it of ovine structures varies with
genital conditions. Thus the result of
the retention of a fragment of placenta
needs no long description, for it is completely
stated in the one word subinvolution.
If a complete ovum be retained and the uterus be carefully examined from time to time it is seen that it either remains the same size, gradually decreases in size or enlarges very slowly. The explanation of this three-fold possibility is as follows:

Bulb is lost through the absorption of the contents of the amniotic cavity, for the liquor amnii usually disappears completely and the embryo often dies so. As the space enclosed by the amnion passes from an actual cavity into a potential one, the content of the uterus becomes smaller and the organ itself follows the reduction in bulk of its content. If, however, blood continues to be expelled from the uterine vessels into the substance of the ovum, the loss of bulk due to the absorption of the liquor amnii may be balanced or exceeded by the gain of bulb due to the expelled blood which is added to the mass of the ovum. This explains the cases in which the uterus maintains its size or increases slowly after the death of the foetus while the absorption of liquor amnii accounts...
accounts for the decrease in size often observed.

The blebs or elevations projecting into the amniotic cavity of a retained ovum are easily explained without supposing like Breus' that the amnion and chorion grow actiively after the death of the foetus into folds and pouches. For as the fluid disappears from the amniotic cavity, its walls, though not increasing in area, approach one another by assuming an irregularly convoluted surface. The united amnion and chorion are not attached to the uterine wall by villi and processes of decidual tissue, but uniformly, but along certain lines. In situations where they are but loosely bound down the maternal blood accumulates between chorion and decidua, so forming the familiar sub-chorionic haematoma of literature. The lines of firm attachment of the membranes to the decidua form the furrows between the various elevations on the fetal surface.
Fig 42.

Section showing the junction of
the decidua serotina and the fetal
portion of a healthy placenta of
4 $\frac{1}{2}$ months. The epithelium remains
on the villi where it is in contact with fresh
maternal blood. Where the villi are
in contact with decidua then epithelium
is removed by the decidual cells.

Kratin $\frac{1}{2}$ to $\frac{1}{4}$. Eosin and Haemalum.
Two interesting points have been brought into view by this study of retained ova. In the first place it is seen that the decidual cells have what modern pathologists might call a phagocytic action. They destroy chorionic epithelium and also, though much more slowly, they attack chorionic connective tissue, besides consuming the fibrinous material in the intervillous spaces derived from altered maternal blood. Secondly, they have a reconstructive function for they destroy the contents of the intervillous space only to replace it by connective tissue, in one word they organise it.

It is peculiarly interesting to note that during the advance of normal pregnancy decidual cells exercise their "phagocytic" function. In those portions of villi which, during the normal development of the placenta, become embedded in the decidua undergo exactly the same changes as do the villi of a retained dead ovum. First they lose their vascularity, then their epithelium is stripped off and destroyed.
Section through the membranes of a four month's abortion. The villus embedded in decidua has been described as its epithelium. Date: 26th of April.
by large decidual cells which enwrap round them, and they are firmly embedded in the delicate vascular cellular tissue of the decidua. Then connective tissue cores are, even during normal pregnancy, reduced in size, and the smaller ones may disappear. I have observed that the same fate befalls the chorionic villi which do not form part of the placenta. In other words, the often described atrophy of the villi of the chorion laeve is a process inaugurated by changes in the fetal circulation which deprive these villi of their blood supply, and is completed by the phagocytic action of the large cells of the decidua reflexa and decidua vera.

Thus while it has been shown that very early in pregnancy the chorionic epithelium has a phagocytic action on the surface of the maternal tissues both in several lower animals and in homo (Hart), this early activity of the fetal tissues is followed by a passive condition which passes about the middle of pregnancy into a condition of actual degeneration (Hart).
The decidual tissues, however, which are to begin
with, passive relatively to the fetal epithelium,
soon gain new force. The superficial layers
of the decidua become compact and active
and the large decidual cells destroy the
fetal epithelium with which they may come into
contact.

Again a recognition of the phagocytic
and clot-organizing powers of the decidual cell
clears up another debated point in placental
pathology. For in the condition known as
placental infarction we have an illustration
of a process exactly paralleled to that observed
in retained dead placenta. The material
filling the spaces between the compressed
and desiccated villi of a placental infarct
has been the subject of much discussion.
According to Hofmeier and his followers
the condition originates in the decidua and
the fibrinous intervascular material is
then degenerated decidual tissue. Von Fränque
holds that proliferation of the decidual cells
forms masses of tissue which surround and
compress the villi. In beginning the process,
AeRennmann and others hold that placental
infarction
Section of a small "placental infarction" in a full term placenta apparently healthy. Living child, normal separation of placenta. (This confirms Elders view that infarction is normal in the latter half of pregnancy). The intervillous space is thrombosed, decidual cells are entering the fibrinous material. Hartman.
Infarction begins with fetal vascular changes which obliterate the circulation in certain areas of the placenta. Congestion occurs if the fetal epithelium in these areas is said to follow, and the intervillous fibrinous material is regarded as lining degenerated chorionic epithelium. It has been shown, however, by J.W. Eden, that

the process begins with obliteration of the fetal circulation in certain areas, which causes degeneration of the chorionic epithelium in these areas. The intervillous material is neither degenerated epithelium nor degenerated decidua tissue, but fibrin deposited from the maternal blood upon the decidualized wall whose fetal circulation has been arrested. We can now see that what von Franchet takes for primary proliferation of the decidua is simply the process of organization by decidua cells of a thrombus of the intervillous space, which arises its origin to primary changes in the fetal circulation.
Next, it is interesting to compare the changes in dead ovum retained in uterus with those which occur in Ectopic gestation after the death of the foetus. These latter changes have been well described by Hart, Webster and others. The villi are all denervascularized, their epithelium is observed in varying stages of degeneration, while they are embedded in blood clot, in masses of fibrin and of haematoxylin crystals, and, in more advanced specimens the altered villi are surrounded by connective tissue which contains connective tissue corpuscles, leucocytes and fairly numerous blood vessels.

Dr. Hart writes me that the origin of the connective tissue corpuscles in his specimens is not clear. I have now no doubt that they are derived from decidual cells which spread from the tubal mucosa into the blood clot filling the intervillous spaces, destroying fetal epithelium and organizing the fibrin as they advance. Sections from ectopic material sent me by Dr. Walter of Manchester are almost indistinguishable from some of my sections of ovum retained in uterus. The question
question of growth of the ectopic placenta after the death of the foetus can conveniently be discussed together with the more general question.

Does the Placenta grow after the Death of the Fetus? 9

While there is no lack of statements by fairly modern authorities to the effect that placental tissue can grow apart from the life of the foetus, it is seen on careful examination that in almost every case the statements are general ones, and that the authors were thinking of hydrid or vesicular degeneration of the chorion as well as of ordinary placental tissue. Thus Jacquinot says "Moles, with or without embryos, which originate in pathological processes on the part of the womb retain undue vitality and endow the uterus with a tolerance which is only very rarely shown towards even dead in all parts."

The remark of Sir J. F. Simpson 53 "If the embryos die in early embryonic life and
The fetal appendages continue to live and vegetate, expulsion may not supervene for several months" is shown by the context to have reference to hydrated malleus generally of not exclusively. Several classical writers refer definitely to increase in size of the ordinary placenta retained after death of the foetus, and recognise that this is due to the addition of blood, not to real growth. Thus Morgagni (2) agrees with Rynschi on this point and mentions that does not confirm the statement of Wawerus that dead placenta can grow. Velpeau takes the same view, and criticises Meissner for upholding the contrary. Spiegelberg says "Great liveliness of the placenta in comparison with the foetus is especially seen in conjunction with dead and long after all with macerated foetus. It depends upon hypertrophy of the decidua and its prolongations. It appears that the maternal portion of the placenta continues to grow for some time after the death of the foetus."

Delone (4) thinks increase in the bulk of
retained placenta is due to aedema and not to hypertrophy. Some quite recent writers, however, support the view that the foetal elements can grow after the death of the foetus. Mortensen \(^{55}\) describes material derived from nine cases, in one of which the womb was retained 5 1/2 months and the placenta presented appearances which led him to believe that the villous tissue had increased in size. Klasson \(^{27}\) comes to the same conclusion upon evidence derived from a placental polypus which was in utero about a month. Breus \(^{41}\) lightly takes for granted the growth of the foetal appendages, and bases upon it his theory explaining the formation of his so-called "mola haematomatosa".

Hartmann and Lampel \(^{46}\) state that the essential placental tissues may sometimes increase, but as they term the result of this increase a "deciduoma hemopna" it is fair to assume that they refer to the maternal structures so agreeing with Spiegelberg.

Lawson \(^{56}\) while trying to prove post mortem growth of the ectopic ovum, said at the London
Obstetric Society. "In cases of intrauterine pregnancy when the foetus dies prematurely and is retained in utero, a huge placenta is frequently found. In the interesting condition known as pleo-hydatid mole, we find additional evidence in support of our case." When asked whether he referred to the foetal or to the maternal or to both portions, Mr. Fair replied "To the foetal portion only." Dr. Griffith then said that:

"Before allowing placental growth in ectopic cases after the death of the foetus, we ought to have undoubted proof of intrauterine post-mortem growth in cases where the elision remained attached to the uterus for some weeks. As far as the evidence on this point is certainly against any such theory." These remarks occurred in a discussion which has been continued in writing for several years and in which Buckmaster, Bland Sutton, Herman Thomson and others have taken part. Hart's 50 denial of the occurrence of post-mortem placental growth may be referred to, also Webster's 51 emphatic confirmation of it. The views they urge is that increase in size is due entirely to repeated additions of expelled blood to the placenta.
placental mass, and I note that this view is now being quoted as final by Doran, Eden and others.

As to my own observations on this point, I have not altered from the views expressed in the British Medical Journal in May 1846. Though since then I have examined a great quantity of material with special reference to the question I have found no trace of enlargement or of cell division in any cell of foetal origin in uterine or septic pregnancy after the death of the foetus. That foetal elements may increase in size by absorption during degeneration according to Delaroche I do not deny. I agree with Spiegelberg and Hartmann and Tanser that the maternal part of the placenta remains active, adding that the proliferation of decidual cells and organization by them of the dead placenta does not appear to cause any increase in bulk. The main cause of this increase in bulk R, is as described by Hart and Webster, the addition of maternal blood to the mass of the placenta from time to time.
Do malignant neoplasms originate in Placental Tissue?

So much has been written on this question recently that it would be unwise to give a full review of the literature, but a full bibliography is appended, and sufficient conclusions are mentioned to indicate the course the discussion has taken and to show the state of chaos at which it is now arrived. The papers referred to, except quite recent ones, are arranged in an order which is histological rather than chronological as this course seems gaining twice over the ground. Though certain cases connected with vesicular degeneration of the chorion are mentioned it is only in passing, for we are dealing here with the relation of malignant disease to ordinary placental tissue.

In 1889 Sanger described the case of a woman, married four months, who had an incomplete abortion at the eighth week after stumbling out of a railway carriage. The uterus was emptied a month after the miscarriage; but six months later the woman died. Post mortem examination showed that the uterine mucosa was smooth...
throughout; but the uterus was enlarged by several sarcomatous masses, while metastases were found in the lungs, ribs, diaphragm, and elsewhere. On microscopic examination the new growths showed elements which Sänger concluded were derived from decidual cells and he named the growth "decidroma malignum," a term which in 1893 he changed in favour of sarcoma deciduocellularare. This case, in which it is easier to imagine that the sarcoma caused the abortion than that the abortion caused the sarcoma, was followed up by Pfeiffer, who reported a case, which he named and explained similarly, following long after recovery from a molar pregnancy. Chiari is stated to have accepted the new theory in relation to two cases which he reported as carcinoma uteri in 1877. Lehmann reports three cases, following Sänger's nomenclature and theory. One of these was a case belonging to Köttnitz in which normal confinement was followed by "placental polypus," death occurring within two months of confinement from malignant disease of the uterus and metastases in the lungs and elsewhere. Cases of hydatid
male followed at longer or shorter intervals by malignant disease have since been described by Bacon, Mange, Löhlein, Nové-Josserand and Lacancé & Dannen. Kupferstein reports a case following labour at the seventh month. Ruge, in a critical paper, and all the authors above mentioned adhere to Langer's views and nomenclature, and maintain that a special kind of sarcoma uteri originates in connection with pregnancy from certain maternal cells, the enlarged connective cells of the uterine mucosa, in short, from decidual cells.

Kossmann writing upon the case which Löhlein describes as a sarcoma decidual-cellare considers that it was a "syncytial carcinoma." Now as the syncytium is according to Kossmann derived from the epithelium of the uterine mucosa, he agrees with Löhlein in holding the growth to be of maternal origin while he differs from him in thinking it a carcinoma and not a sarcoma.

Whitridge Williams describes a case in which a pea sized tumour appeared in the right labium majus on the eighth day of a febrile purpura, which grew rapidly and the patient died three months after
after confinement. Numerous centres of malignant disease were found in and around the uterine and in the lungs, liver, kidneys, spleen and left ovary. These the author thinks were derived, in part at least, from maternal epithelial structures of a synovial nature.

None of the above authors derive the neoplasms in question from foetal structures, but many have done so. Thus Marchand describes the case of a girl aged 17, who had a bleeding growth in the vagina, which was removed, the uterine mucosa being then perfectly normal. The vaginal growth recurred, and the patient died of septicemia or pulmonary embolism. Post mortem the left tube was found to be enlarged by a new growth of the same structure as the vaginal one, namely composed of a mixture of plasmoidal and cellular elements. Now whether with or any recognisable product of conception was found. Yet because the growth somewhat resembled those recently described in connection with pregnancy, Marchand assumes that the girl must have had an ectopic pregnancy in the left tube, and that from its placenta the mischief started. He gives the growth a combined
combined foetal and maternal origin, deriving
the cellular elements from foetal epithelium and
the plasmaloidal elements from maternal epithelium.
While "cancerous of the serotina" is the name he
thinks most suitable for these growths. He also
describes a case in which vaginal hysterectomy was
done on a woman aged 34, nine months after a
normal confinement at term. The growth was
composed of cellular and plasmaloidal elements
similar to those observed in Mr. cases. Mrs.
decidual cells Marchand says do not enter
into the formation of these recently described
growths, which he states are all of the same
kind, and all of which he would derive from
both foetal and maternal epithelium as modified
in the placenta.

Gottschalk gives the case of a multipara aged
42 who, after six weeks amenorrhoea, had
uterine haemorrhage and then malignant
disease. At the end of six months her uterus
was removed, and seven months later she died
of malignant disease with metastases in the lungs,
kidneys and elsewhere. Which histologically resembled
the uterine tumour. The interesting feature of this case
is that no proof clinical or histological is given

That
that the woman was pregnant at all, however assuming that she had had an abortion, Gittenshler concludes on purely histological grounds, that the new growth was of fetal origin, being derived from the stroma of the chorionic villi and also from their epithelium, the large cells from the stroma, the placoidia from the epithelium. Thus he would have us believe in a growth stated to be a mixture of sarcoma and carcinoma both of fetal origin.

Fräbel describes the case of a woman who died of malignant disease of the uterus 20½ months after recovering from a molar pregnancy. The growth Fräbel states was a carcinoma derived from chorionic epithelium.

Hartmann and Taupel describe a patient whose symptoms appeared several months after parturition at term. They name the growth chorionic cellular sarcoma and consider it to have been derived from fetal structures.

Drs. Rutherford Morrison and Herbert Spencer reported upon cases of malignant disease which they held to be of placental origin at the London Obstetric Society in April 1896. In Dr. Spencer's case symptoms began on the 26th day of a previously...
previously ordinary pyrexia. Fretful discharge of blood and fragments of growth continued till the patient, a 2-year-old aged 27, died ten and a half weeks after delivery. Neoplasms were found in the uterus and cervix uteri and in the lungs, and were described as large cells sarcoma with the typical sign of tumor; but the author's opinion of the origin of these elements was not definitely stated. At the same meeting J. W. Eden read a critical paper in which he subjected a good deal of literature to close examination. At the next meeting of the society the subject was discussed by Dr. Kinnear, Webster, Bland Sutton and the present writer; all the speakers indeed, except Mr. Spencer, supported Dr. Eden in his critical attitude. The result of the discussion was practically, first, there is nothing to be gained by applying new names to sarcomata and carcinomata derived from maternal structures, though more or less coincident with pregnancy; second, no proof has been given that any malignant neoplasm has been derived from fetal structures; third, if it should happen that such a growth is proved to exist, which may occur in connection with hydatid mole, it would have to be called a chorionic.
chorionc carcinoma or sarcoma as the case may be. But not certainly, a deciduoma.

Various writers however have accepted the "deciduoma malignum" as a pathological entity which they consider to be new, and describe under the original name of Dinges. Thus Roger Williams writing on uterine neoplastic pathology, gives it a place, as does Sinclair writing in Clifford Allbutt's new textbook. So also McNaughton Jones and Winter. But Rogers discuss the subject in recent publications. Still more recently Julia Coe reports the case of a woman aged 30 who died two months after her fourth normal labour. There was a uterine neoplasm containing large cells and placental masses with metastases in lung and ovary. The authoress considers this to be a case of deciduoma malignum which she holds to be a distinct pathological entity arising from the products of conception; but she does not state whether it is carcinomatous or sarcomatous in nature or whether it is fetal or maternal in origin.

Reimche believes in the existence of a chorionc malignum derived from fetal elements, but asserts that no true case of deciduoma malignum has
has yet been described, pointing out that no one has demonstrated the transition between decidual cells and the large cells of the sarcomata in question. He further states that the so-called sarcoma deciduocellular is not derived from the uterine mucosa at all, but from the muscular wall of the uterus.

Durante, in a critical paper, derives the growths in question from the ectoplacenta or its later representative, the syncytium. He therefore gives them a foetal origin, and thinks they would be best named "ectoplacental epithelioma."

The discussion above outlined is of great length, and is largely composed of theoretical considerations and personal animadversions. Rather than add to literature of this nature let us take a broad common sense view of the facts in question. There are four tissue elements under consideration, namely:

1. Foetal connective tissue or stroma of villi.
2. Foetal epithelium or covering of villi.
3. Maternal epithelium or lining of uterine glands.
4. Maternal connective tissue of uterine mucosa, including decidual cells.
A diagram may be used, though the elements are not seen all together and undegenerated in nature.

- amnion
- chorion
- villus
- intervillous space
- decidual cells
- glands
- maternal connective

**Fig 45.**

We have authors who derive the new growths in question from elements 1 and 2, e.g., Gotsehalsch; from 2 alone, e.g., Fränkel, Durante; from 2 and 3, e.g., Marchand; from 3 alone, e.g., Rosenmüller; and from 4, alone, e.g., Länger.

But the discussion is now assuming a simpler form, and two main questions at present await decision. For we may bracket together (1 and 2) the elements of the chorion and may consider that any malignant growth originating in either of them might suitably be called a chorionoma malignum. If epithelial the growth would be chorionic carcinoma; if mesodermal, it would be chorionic...


First Question

epithelial choriocarcinoma: Thus:

epithelial mesoblastic choriocarcinoma malignum sarcoma.

The first question is then, does "choriocarcinoma malignum" exist?

Again taking together the maternal elements (3 and 4) of the decidua, epithelial and mesoblastic, a malignant growth derived from either of these might doubtless be called a decidua malignum. If epithelial it would be a decidua carcinoma, if mesoblastic a decidua sarcoma. Thus:

epithelial mesoblastic decidua — decidua malignum sarcoma.

The second question is then, does the so-called decidua malignum differ in any way from cancer or sarcoma of the uterus, and is it caused by pregnancy?

The question whether fetal elements can invade the maternal organism is a very different one from the question whether the uterine mucosa modified by pregnancy can produce a cancer or a sarcoma differing essentially from corresponding growths arising in the uterine mucosa apart from pregnancy.

Second Question
In the literature of the subject, maternal and fetal structures are hopelessly confused, and the first requisite towards a clear understanding is to keep the above questions distinct. We shall therefore consider them separately, but before doing so it is well to note that a great deal of the confusion that has arisen is due to the loose employment of terms such as plasmidium, syncytium, trophoblast, trophophorrigia and ectoplacenta.

The origin of the "plasmidial masses" observed in some of the growths described is indeed the main crux in the situation. Authors begin by observing masses of protoplasmic material vacuolated and reticulated and containing nuclei. Having read that embryologists have observed, between the ovarian and the decidua, in certain lower animals and occasionally in man, structures which may be roughly described in the above terms, our authors conclude that the nucleated protoplasmic masses in their tumours must have the same origin as the nucleated plasmoidia of embryologists. Next, having been attracted by the word "syncytium" as used in embryology, they
they introduce it into their pathological vocabulary to describe any nucleated mass of protoplasmic material. Now, however, comes the difficulty that embryologists have not as yet decided exactly what they mean to signify by the use of this popular word. This the pathologist solves by adhering to the view of his favourite embryologist, and deciding that this tumour is derived from a foetal or a maternal source accordingly. In embryology terms such as syncytium are doubtless useful; but I am not sure that even the embryologists are quite so continuing to unravel as to the unique of nucleated plasmodia seen in their respective specimens, assuming to begin with that they are all of the same nature. Such plasmodia are observed in all tissues whose formation is rapid and whose life is short. The decidua for instance is rapidly formed for a temporary purpose. Early in pregnancy degenerations occur both in its epithelial and in its connective tissue elements, which lead to fusion of the cell protoplasm and loss of cell outlines; the nuclei remain, clouded and staining peculiarly. Thus two kinds of maternal plasmodia are formed.
From maternal epithelium, i.e., lining of uterine glands during pregnancy.

1.

Fetal epithelium, i.e., buds of chronic epithelium.

3.

From carcinoma of the lung in a man.

5.

From cancer of the lung in a man.

6.

Fig. 46. "Multinucleated masses of prolapsmic material" mentioned by various authors. The six groups are of different origins.

Haematoxylin & Eosin in haemalum.
Eden has described and figured these derived from decidua cells, and others have done so for those derived from maternal epithelium. Again fusion of the cells of the chorionic epithelium is well known to produce nucleated vacuolated plasmadia which are described and figured by all placental authorities under various names. In various new growths masses of rapidly dividing cells with no function, no proper blood supply produce similar nucleated plasmadia. Such structures are mentioned by Eden, Kanski, and others. I have figured some "nucleated plasmadia" of various origins, not to prove anything new, but to illustrate what is well known. Each body must in nature must be considered upon its own merits, and views derived by false analogy from one to another are positively valueless. That yet other structures may simulate plasmadia, such as those in question, will appear later.

In considering the question "does chorionic malignancy exist?" some analysis is necessary, for we have to deal with cases which fall into three categories, namely cases of malignant disease derived from...
from placental structures left in utero after (1) after complete separation of the placenta, (2) after placental polypi and incomplete or missed abortions, and (3) after vesicular degeneration of the chorion.

(1) After complete separation of the placenta, the tips of certain chorionic villi are left embedded in the deep layer of the uterine muscosa. These, it is stated, though usually rapidly absorbed, may persist under certain conditions. The "granul cells" often observed in decidual relics are stated to be kinds of epithelium from such retained tips of villi. On this subject the work of Kustner should be referred to, as also that of Lusson. In the cases of chorionic carcinoma recently described after labour with a normal third stage, it from these tips of villi that the new growth is said to have originated.

Now it is well known (Hart, author Be) that the tips of villi embedded in the decidua are quickly devascularized and rapidly lose all their epithelium, as the hands, as I have shown. If the decidual cells, then, an epithelial-metastatic growth can arise after partition.
partition from cells which are always destroyed very early in pregnancy is an idea which calls for no further attention. Post-partum carcinoma must be explained in some other way than this.

(2). Some of the cases of carcinoma following placental polyps and incomplete abortion have been said to be derived from fetal epithelium. The earlier part of this paper has shown that in these conditions the fetal structures do not grow, and that the fetal epithelium rapidly degenerates and is disintegrated and absorbed by the proliferating decidua cells. There is thus strong reason a priori for rejecting the theory that the fetal epithelium of a retained placental structure can form a neoplasm. No proof whatever has been given that the cells in question are of fetal origin; indeed the whole theory is a gratuitous assumption.

(3). But it is further stated that during or after pregnancy complicated by disease of the chorio, with necrotic degeneration, uterine neoplasms have a special tendency to form. Though several authors who describe malignant disease
disease of the hydrated mole do not accise fetal elements of any share in the process, yet some describe the neoplasms as choriocarcinomata, and Potter thinks considers that a mixture of sarcoma and carcinomata is derived from the stroma of the walls and then covering.

The relationship of malignant disease to hydrated mole is somewhat beyond the scope of this paper, but it may be stated that, though there is no a precise evidence that molecular chorion cannot cause malignant disease, there is certainly as yet no proof that it can do so. As the verdict in the case against ordinary placental relics is "not guilty," so in the case against hydrated mole, a Scottish verdict of "not proven" must be pronounced.

In dealing with the question, "Are there new growths caused by pregnancy and derived from the decidual?," it is convenient to separate the so-called decidual carcinomata from the more frequently described sarcomata decidua-cellularae.

The fate of the maternal epithelium being
the uterine glands and covering the surface of
the uterine mucosa at the beginning of pregnancy
has been well described by Hart and others. A
recent paper by Lawson describes the reformation
of the epithelium during the preperium more
fully than any previous publication. Portions of
uterine epithelium which take the form of
nucleated plasmobodia become, according to Lawson,
embedded in the deep layers of the decidua during
pregnancy, and break up, at its end, to reconstruct
the glands and covering of the new mucosa. Though
it is easy to say that a carcinoma derived
from uterine epithelium and producing symptoms
in connection with pregnancy is caused by pregnancy
and derived from cells modified by pregnancy, it
is a statement most difficult of proof. The only
fact urged in defence of the statement is that certain
nucleated plasmobodia have been observed in
a few cases of cancer observed after pregnancy.
But as mentioned above, nucleated plasmobodia
are not confined to the decidua, and their presence
in a uterine cancer is no proof that the growth
was caused by pregnancy. The proof of a negative
view is always difficult, and it is not possible in a few
words to show that the cases in question are all
cases...
examples of the coincidence of cancer and pregnancy. I believe, however, that this could be done if the cases were carefully investigated. I will briefly describe two cases, which in certain hands, might have been made to afford examples of the so-called decidual carcinoma.

A patient aged 33 had a normal labour in June 1896. The imperforium was pelvic, and discharge continued for six weeks. She was then admitted to a hospital suffering from pelvic cellulitis. A large abscess in the right side of the pelvis was opened in the inguinal region, and gradually healed up. The cervix was at this time in a sloughing condition which was thought to be due to an acute septic process. After three months in hospital she was sent home, but was seen again on Nov 6th 1896 when she was found to be the subject of uterine malignant disease so advanced that operation was impossible. In February 1897 she was admitted to a workhouse infirmary where I saw her. She was extremely exhausted and almost unfit to be examined. The body of the uterus could be palpated above the pubes and was firm and reaching...
reaching both sides of the pelvis. The cervix was completely destroyed, and the ulcerated surface extended some distance down the vagina whose walls were hard and rigid. On March 3rd she died. The uterus and appendages were removed with some of the dense tissue which filled the pelvis. No metastatic deposits were found in the lungs, liver, kidneys or other organs. The left ovary was normal. The right ovary was enlarged to about twice its natural size and contained a considerable mass of necrotic tissue like that found in the uterus. The tubes were both small and shrunken and adhered considerably to surrounding viscera. The upper part of both broad ligaments were still thin in places but contained masses of new growth. The posterior wall of the bladder was infiltrated considerably, and the anterior wall of the rectum slightly. The cervix was absent, as the ulcerated surface extended almost straight across the uterus at the level of the os uteri. The body of the uterus measured three inches in breadth and the same from back to front. The uterine cavity was much reduced in size and its opposite walls...
Fig. 47. Section of cancer of uterus following pregnancy, under a very low power, showing proliferation of the glandular epithelium, and invasion of the myometrium. Field close to peritoneal surface.

Fig. 48. Section of cancer of uterus following pregnancy. Haematoxylin & Eosin. Haemalum
walls adhered to one another in places. The remaining mucosa was red and rough. The muscular wall was of normal consistency at the fundus, but below the openings of the tubes it was soft and friable and much thickened, its measurement being 1 by 1 1/2 inches. The peritoneum over the uterus was the seat of old inflammatory changes.

Various portions of the uterus, ovaries and broad ligaments, bladder and pelvic connective tissue were hardened and cut in paraffin. The infiltrating neoplastic tissue was of the same nature wherever it was found. Sections of the uterine wall showed that the disease had commenced in the uterine glands, proliferation of the epithelium almost or entirely obliterating the lumina of these structures. The myometrium was almost entirely replaced by new tissue repeating the structure of the altered glands from the mucosa right through to the peritoneum. These changes had not affected Professor Delphine says the fundus. This neoplasm might be called a cylindrical epithelioma, or a malignant adenoma and equal justice. But the ordinary term carcinoma uteri describes
Fig. 49 Section of Cancer of Uterus following pregnancy. 

Histology: 

- Showing epithelial cells of the new growth, and some remnants of myometrium which might be described as "masses of vacuolated and nucleated proliferative material."
It was enough. It is a cancerous growth derived from the epithelium lining the uterine glands, and probably began in those of the cervix.

There is no difficulty in finding in the sections of this growth structures which might be described as masses of vacuolated and reticulated protoplasmic material containing nuclei which stain deeply. Some of these I have figured. They might be named syncytium with as much reason as some structures to which the term has been applied. But as careful examination shows that they are remnants of myometrium cut transversely to the length of their filaments and nuclei, I prefer not to mention them in the description, and do not attempt to prove by their presence that the growth originated in placental structures.

This malignant change in the uterine glands doubtless began some time before parturition. Its rapidity may have been hastened by pregnancy and perhaps also by the cellularity which followed.

The second case may be briefly dismissed. Dr. Donald of Manchester diagnosed carcinoma cervicis in a patient who had suffered from haemorrhage coming on suddenly after two months.
months amenorrhoea. The body of the uterus was large and soft. The signs of cancer in the cervix were slight, though characteristic. He performed vaginal hysterectomy, and at the operation formed the opinion that the patient was or had been pregnant. Examination of the specimen, which he kindly forwarded to me without delay, revealed exactly the same changes as those described in the previous case. The uterine cavity was lined by a thick decidua vera, and the deep layer of the serosa, the reflexion also being represented. The contents of the ovum had been overlooked in the haemorrhage which occurred before the operation. This then was an instance of conception in the presence of cervical malignant disease, in which early interference prevented the possibility of any mistake as to the relation of the two conditions. Here we are as sure that pregnancy did not cause the cancer as we are that the cancer did not cause pregnancy. If however the case had remained unobserved until the whole uterus was involved, and had then fallen into the hands of an exponent of the recent view, it might have been differently interpreted.
interpreted.

But the majority of instances of the so-called deciduoma malignum are described as sarcomata, - sarcoma decidu-cellulare, - and are said to be derived from the well known decidual cell, that is from the round cell of the uterine mucosa, modified by pregnancy.

Against this view there are two lines of argument. The first is embodied in the statement that the round cells of the uterine mucosa may be enlarged and altered in various conditions not connected with pregnancy, and that therefore the presence of large cells resembling decidual cells in a sarcoma does not prove the growth to be derived from the decidua. Thus Ellen 77 states that "the decidua" is characteristic of pregnancy, but not "the decidual cell" in spite of Friedländer's contrary view. Catherine 87 describes the production of cells like decidual cells in the uterine mucosa as the result of mechanical irritation, and Overlack observed a similar phenomenon after phosphorus poisoning. Kauflack 85 says that "decidual cells" are often met with in diseased conditions of the uterus quite apart from pregnancy. As for
instance in uterine sarccoma. I have not been able to confirm these statements personally, though I have examined 27 specimens of uterine mucosa with this point in view. As the results were negative they are not worth stating. If however the authors just mentioned are correct it is clear that no advantage is to be derived from calling a uterine sarccoma a sarccoma deciduo-cellulare because it is diagnosed soon after pregnancy.

The other argument against Sänger's view is that of Reinicke who states that the growths in question are not derived from the mucosa at all, but from the myomereum. He points out that no one has traced any direct connection between decidual cells and those of the described sarc coma.

I have at present under observation a case of sarccoma uteri whose symptoms date from pregnancy and which recalls the case of Whitridge Williams. A patient now aged 25 years, who had had three normal labours previously, was confined for the fourth time on November 3rd, 1895 after an ordinary pregnancy. In April 1896, she went into hospital complaining of pain...
pain and a discharge which was sometimes yellow and sometimes brownish. She had had no menstrual period since the confinement, but was very anaemic. At this time her state was noted by the house-surgeon as follows:

"Cervix firm and very irregular, difficult to define, as irregular masses of firm material project into the vagina behind it and on both sides. Uterus firmer and slightly enlarged." On April 12th, 1896, the patient was examined under chloroform and her condition was thought by the physician in charge to be due to pelvic cellulitis. She was discharged a month later. She informs me that before she left the hospital she began to feel great tenderness and soreness of the external genitals. Later on ulceration of the left labium majus developed, and at the present time (April 1897), the appearance of her pudenda is as figured. The patient is thin and anaemic; her lungs, heart and circulation, alimentary and nervous systems are normal. There has been continuous yellow discharge from the vagina and from the ulcerated surface. There is dullness extending 1½ inches above the pelvic symphysis, but no tenderness.
Fig 30. The vulva of a patient with sarcoma uteri whose symptoms dated from parturition. The ulcerated surface is mainly the left labium majus, but it extends backwards (the left of the drawing) about 3/4 in behind the anus which therefore does not show.
The uterus is large and pressed by firm masses of tissue on each side of it and behind it, which fill the vaginal roof and prevent definite mapping out of the organs. The cervix is irregular and soft, the os admitting the tip of a finger. The cervix is surrounded by firm tissue, the upper part of the vagina being much contracted. Below this there is a band about an inch wide in which the vaginal wall feels soft and elastic all round. The lower third of the vagina has hard walls the surface being ulcerated. The left labium majus is enlarged, its internal surface and part of the external are ulcerated and present a raw, easily bleeding surface extending forward as far as the clitoris and backward to almost an inch behind the anus, this is continuous with the ulcerated inner surface of the right labium majus. The labia minora are destroyed. The condition of the pelvic organs suggested sarcoma. Under the vulva resembled epithelium. I therefore removed with the aid of curette, a portion of tissue from the ulcerated surface of the left labium. Sections of this show the growth to be a round cell sarcoma whose cells are larger.
Fig 51. Section from sarcomatous ulcer

1. Section from sarcomatous ulcer of left labium majus in a patient with sarcoma uteri which first caused symptoms after parturition. The bodies stained red are thrombosed bloodvessels without visible walls.

Haematoxylin 1/7, Ace 3. Eosin and haemalum.
than usual, but smaller than those of a typical large cell carcinoma.

This case appeared to be in many respects like those said to be caused by pregnancy. I therefore found the medical man who attended the patient at her labour on November 3rd, 1895, and from him obtained information which shows that the connection between pregnancy and malignant disease was in this case at least a mere coincidence. There was severe haemorrhage during labour, and the cervix was described in notes made at the time as "rigid and edematous—adenoma cervicis?"—"Perforated vertex and delivered after making face present. Female child. Two sutures put in cervix." It would doubtless be interesting to examine sections of tissue from the uterus itself, but the patient is too ill and her case is already so clear that no one would be justified in further interference.

Apart from the fact that the cervix was diseased at the time of labour, it would be easy to bring this forward as a case of sarcoma dating from the peripherium and to maintain that the cells composing the growth are of decidual origin. It might even be suggested that...
that the disease began in the decidua during pregnancy, but did not interfere with its course. Such a view however would be opposed to common sense and experience. The cells, though, viewed singly, they closely resemble decidual cells, could not on any grounds be identified with them. The case is one of carcinoma concurrent with pregnancy, but there is no sign of the existence of any causal relationship between the conditions.

The conclusions on this whole question which I consider justified at this date I would summarise as follows:

1. The term deciduoma malignum is both unnecessary and misleading, since it has not been shown that sarcomata or carcinomata originating in the uterine mucosa during or after pregnancy are caused by pregnancy so that they differ essentially from uterine neoplasms in no way connected with that condition.

2. Fetid elements as they occur in ordinary pregnancy terminated by labour, or in normal ovum-like structures retained in uterus after abortion.

Deciduoma

Conclusion
abortion do not originate malignant neoplasms.

3. Foetal elements as they occur in vesicular degeneration after abortion have not as yet been proved to have origin to malignant neoplasms.

4. The prognosis in parturition, placental polypi, fibroid nodule, incomplete and missed abortion—the prognosis of pregnancy in short; has not been rendered more serious by recent attempts to demonstrate a directly causal relationship between pregnancy and malignant disease.

So far as this paper treats of cancer and sarcoma of the uterine, it is entirely negative. Amongst the negative conclusions, I consider that endometrial structures remain in situ under the death of the foetus do not undergo any circumstances give rise to malignant new growths; and therefore I make no reference to malignant disease in the concluding paragraphs on the clinical aspects of our subject.
Clinical Remarks.

Clinically speaking, cases of retention of dead placental structures fall into two groups, namely those in which patients complain of uterine haemorrhage, and those in which amenorrhoea is a leading symptom, and the patient is anxious for information about the state and stage of a supposed pregnancy.

A review of recorded cases shows that when haemorrhage is frequent and severe it is due to a portion of placenta which is retained, while amenorrhoea marks the retention of complete ovum. Cases of this nature are so familiar clinically that some apology is perhaps needed for introducing the above statement here. For my excuse I would refer the reader to the reports of the case Kitson versus Playfair, which contain some remarkable evidence by experts.

The symptoms and signs of pregnancy generally have disappeared when cases of retained foreign structures come under observation. Any case in which they are present may be classified as one of abortion. In this connection however we must except amenorrhoea.
and enlargement of the uterus.

In cases where fragments are retained the uterus is large and soft, the cervix is somewhat soft, and the os is more or less open. The organ in short is in a condition of imbibition, its size depending upon the stage to which pregnancy had advanced before the expulsion of the body of the ovum. When the whole ovum is retained the uterus is enlarged, but is firmer, longer and narrower than in pregnancy still advancing. The os is closed as a rule, and the cervix firm to the touch. The organ may remain the same size for weeks and months; it may gradually decrease or very gradually increase.

As to the termination of these cases it may be stated that cases of retention of mere fragments usually call for operative interference, either on account of haemorrhage or because of septic processes. I find no record of the natural cure of placental polypi.

Cases in which complete ovum are retained in utero seldom assume a septic aspect. Expulsion of the ovum generally occurs naturally, and is not as a rule accompanied by
by much bleeding. It generally takes place within four or five months after the death of the ovum, and is not commoner at the natural term of pregnancy than at other dates. Indeed, the longer the retention in utero of the ovum the more unusual is the case. Several well authenticated cases are recorded of expulsion after 13 months amenorrhoea. Carpenter mentions a case of 18 months' retention, and a similar one is described in the Pacific Medical and Surgical Journal for 1869. The historical cases of more prolonged retention of the products of conception are not well vouched for.

After complete evacuation of the uterus involution is usually rapid and complete even in old standing cases. Retroposition or retroversion appear to retard it greatly.
Diagnosis.

That the diagnoses of retained placental structures is not easy is shown by the rarity of cases in which it is recorded that the condition was recognised before examination of the specimen. Theoretically the diagnosis presents no difficulty, for if a history of the symptoms of abortion or of the symptoms of pregnancy can be obtained no mistake should be possible: For waiting will always show, in the amenorrhoeic cases, whether pregnancy is advancing, whether the ovum is dead, or whether we have to do with necrotic degeneration of the chorion. Practically, however, the history of pregnancy or abortion is not always to be obtained, and we must leave it out of account, relying on the size, shape and consistency of the uterine and the changes it may undergo in the course of a few weeks. Hunt has well described the difficulty of forming an opinion, as also have Baden and Broca. Points of interest will be best indicated by briefly considering the differential diagnosis. Pregnancy. Advancing pregnancy may
Diagnosis.

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Points of interest will be best indicated by briefly considering the differential diagnosis.

Pregnancy. Advancing pregnancy may
Diagnosis

be simulated in cases with amenorrhea either with or without a history of the symptoms of threatened abortion. The distinction is made by waiting and observing the rate of growth of the uterus, and watching for the appearance of other signs of pregnancy. When expulsion of a foetus is followed by closing of the os and continued amenorrhea, it must be remembered that pregnancy may be advancing with a second foetus in utero.

Vesicular degeneration of the chorion. This may be simulated by the retention of a dead normal ovum accompanied by occasional catamenial discharge. The distinction is afforded by the absence of rapid growth of the uterus such as characterizes hydatid mole, and by the firm consistency of the uterus.

Subinvolution. We must look upon cases in which fragments of placenta are retained as cases of subinvolution, but to complete the diagnosis, the cause of subinvolution must be ascertained. This will often be impossible until the uterine cavity is explored. Cases in which an ovum is retained...
Diagnosis

retarded are distinguished from subinvolution by the firmness of the uterus, closure of the os, firmness of the cervix, and absence of all but occasional haemorrhage.

Placenta. These may be simulated so closely that exploration of the uterine cavity may be necessary to complete the diagnosis in the absence of history. Careful bimanual examination may reveal irregularities of form and consistency which may obviate the necessity for dilatation of the cervix. The two conditions may be present together.

Uterine Polyps. The presence of mucous or fibromucinous polyps or of fibromucous polyps formed round either of these may exactly simulate placental polyps. The distinction may be completed only after removal and microscopic examination of the polypi.

Malignant Disease. The large uterus and irregular discharges have suggested the presence of malignant disease, as in the case of Legg and Long when hysterectomy was done for placental polyps. Exploration of the uterine cavity may be necessary to complete the diagnosis. It must be remembered that
that malignant disease may begin before
during or soon after pregnancy, and that
therefore the two conditions may be concurrent.
Abortion, as the conditions which we are
considering form a part of the general subject
of abortion, it is needless to establish a
distinction where there is but little difference,
and that "a matter of time" only (Klasson)
Prognosis.

In considering the prognosis in cases of retained
devitalized structures it is again necessary
to distinguish between those with much
bleeding and retention of placental fragments
and those with amenorrhoea or occasional
bleeding and the retention of a whole round.
The former class of cases is much more serious
than the latter for the following reasons:
1. The haemorrhage is sometimes fatal and
generally produces anaemia and the usual
symptoms resulting from it besides rendering
the patient more than usually liable to
septic infection.
2. The uterine being more patulous and a large
portion of intravascular surface being free instead
of adhering to an ovum, septic organisms
enter the uterus more easily, and their
toxic products are more easily absorbed.
Thus haemorrhage and sepsis are the risks
when small fragments of placenta are retained.
As a rule, neither gives trouble in a fleshy mole
or blighted ovum. The difference is identical
with that between incomplete abortion and missed
abortion.
abortion.

This point made clear, the prognosis in general may be said to be entirely favourable for complete cure usually come away safely even if left entirely alone, and placental fragments are easily removed.

Recovery will be rapid if there has not been much haemorrhage, if there is no septic intoxication, and if the uterus is not displaced. Either of these complications may prolong it indefinitely.

Malignant disease is no more likely to follow retention of the products of ordinary conception than it is to follow normal parturition. Its occurrence in connection with either is rare, and is merely a coincidence.

Conception often occurs very soon after the removal from the uterus of retained placental structures.
Treatment.

**Prophylaxis.** This consists in 1. The prevention of abortion, 2. The treatment of threatened abortion, 3. The treatment of actual abortion, and 4. The treatment of the third stage of labour.

**Palliative Treatment.** As the diagnosis is not easy to make, often passes during which it is necessary to treat haemorrhage, if this is a symptom. The methods need not be detailed. The important point is to recognize the time when palliative treatment must be given up in favour of active measures directed towards emptying the uterine cavity. The indications for active treatment are briefly, (1) excessive bleeding and, (2) signs of septic infection of the patient.

**Treatment.** When it is ascertained that small ovaline structures are retained in utero causing subinvolution, and also when the existence of placental relics is only suspected, it is right to...
to administer an anesthetic, dilate the os, with
begins a misdirected and explore, and
empties the uterine cavity, employing the
after treatment usual in cases of everything.

When however a complete dead ovum is
retained causing no symptoms except
amnionitis where there is no reason for hurried
active interference. The natural termination
of these cases is so favourable that the
advantage of artificial emptying the uterus
without symptomatic indication is doubtful.

Again Dr J Y Simpson* writes "Occasionally,
when one of twins dies early, it is expelled and
the uterus closes, pregnancy going on with the
other of the twins till full term." This evidence leads
to the practical deduction that when a dead foetus
is expelled and the uterus notwithstanding remains
large and apparently distended, its further contents
should not be in any way interfered with under
the hope that a living twin may be retained and
be carried onward to the full term of pregnancy.

This remark has an obvious bearing upon cases
other than those in which a foetus is expelled,
if however haemorrhage is severe, or the symptoms
call for evacuation of the uterus, or indeed if
it is quite certain that the uterus contains a dead and non-living ovum, active treatment is indicated. Hot doucheing may suffice to cause expulsion, but clamping is not advisable as it may expose the patient to greater risk of sepsis than other measures. The same applies in the case of densities left in utero. Packing the vagina with gauze or distending it with an indiarubber bag is very satisfactory, and if an ounce of glycerin can be injected into the uterus before filling the vagina, expulsive pains generally follow in a very few hours. If these measures are not followed by natural expulsion or easy digital removal of the ovum, an anaesthetic should be employed, when dilatation can be completed with solid instruments or rubber bags, and thereafter the uterus can be emptied with the fingers or any convenient instrument.

The after-treatment—usual in abortion—is generally sufficient; but it may be necessary to add treatment as used in cases of retention. The manipulations needed in emptying the uterus in cases where difficulty is met with are well described by A. R. Simpson in a paper on the complete evacuation of the uterus.

200 Orme Street
Manchester. April 97.

William Edward Fothergill.
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