

HYDATIFORM MOLE: WITH A REPORT OF TWO CASES AND
CLINICAL DEDUCTIONS FROM TWO HUNDRED AND
TEN REPORTED CASES.*

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SYNONYMS. Hydatiform degeneration of the chorion; uterine hydatids; vesicular mole; myxoma chorii; blasenmole; cystic mole; hydatid mole; dropsy of the villi.

THE HISTORY OF HYDATIFORM MOLE. In a valued contribution by R. Kossman, Berlin, we are given in the German text translations of the original manuscripts on hydatiform mole from the time of Ætius von Ameda,¹ in the early part of the sixth century, to the time of Virchow, in the latter part of the nineteenth century. This literal translation of the writings of Ætius will be of historical interest.

“Concerning the Hydropic Uterus.

“When the monthly bleedings have been absent for a considerable time, and impregnation thereby prevented, then it follows that an outpouring of fluid occurs into the uterine cavity. At times certain bodies appear in the uterus, which resembles a gall-bladder somewhat, and in which the accumulated fluid is contained.

“There ensues, therefore, on the part of the sufferer an extensive spongy swelling, somewhat resembling a gaseous inflation in the lower abdominal region; and also a rumbling, such as occurs in the bowels; a feeling of weight when walking; labored respiration; foul-smelling stools; absence of monthly bleedings, and conception and irregular flowing. If the separation is especially violent, the small bodies which resemble cysts at times rupture, and from them escapes a water-colored, tough fluid.

“For the patient in whose uterine cavity the fluid is retained—and this is clearly shown by the symptoms—one must order rest in bed, emetics, and powerful enemata.”

In the above text it is probable that Ætius referred not only to hydatiform mole, but also to hydramnios and missed labor.

The next account of hydatiform mole is given by Christoph á Vega,² who advanced the theory that the sacs filled with fluid were the product of the union of the maternal humor with the male semen in the uterus. From the time of Christoph á Vega references to hydatiform mole are found with increasing frequency—many of them curious and amusing.

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Hippocrates was evidently acquainted with the condition as a cause for abortion. He states that when the "cotyledons" fill with mucus the menses become scanty; and if the woman becomes pregnant, abortion occurs after the embryo has attained considerable size.

In 1690 Antonius Vallisnieri³ wrote in a letter to Malpighi a description of a miscarriage complicated by hydatiform mole. He expressed his doubts as to the origin of the mole, but the vesicles escaped unnoticed along with the blood, or else arose from the placenta itself. Later Malpighi expressed the view that the cysts replaced the chorion. Valleriola applied liniments and potions, and finally tied a "lapis ætius" to the left leg. This "at once produced expulsion of the mole." He believed the mole to have originated from the female seed, or ovum, which was not impregnated during coitus because of the escape or destruction of the male germ.

Percy⁴ regarded the vesicles as animals (*tænia hydatidena* of Pallas), and says he has seen them move when exposed to the action of vinegar and salt. Madame Boivin⁵ believed them to be the degenerated product of unimpregnated ova. Goeze,⁶ in 1782, suggested the parasitic nature of the lesion. Ruysch thought a retained placenta was essential to the formation of hydatiform mole. Dewees⁷ speaks of the vesicles as animals of "extremely simple organization and function."

In 1795 Gregorini⁸ reported a case of hydatiform mole in which metastatic growths appeared in the lungs. This is probably the first recorded case of syncytioma malignum arising from hydatiform mole. The thesis is illustrated by a sketch of the mole, together with a foetus.

It is interesting to note that as late as the early part of the nineteenth century it was believed⁹ that conception was not essential to the development of a hydatiform mole. Dating from the writing of Velpeau,¹⁰ the lesion has been universally recognized as a degeneration of the chorionic villi. Since then it has been a question as to the cause of the degeneration of the chorionic villi and the character of the degeneration. Virchow¹¹ may be credited with having advanced the modern theory as to the pathological nature of hydatiform mole, though his views are not universally accepted. (See later.)

ETIOLOGY. Nothing definite is known of the immediate and remote causes of hydatiform mole. The age at which it commonly occurs is said to be near the end of the childbearing period. According to Bowin, 25 per cent. are found between the ages of forty and forty-six years. Schroeder reported one occurring at seventeen years of age. From the accompanying tables it is seen that the average age is twenty-seven years; that the extreme ages are thirteen and fifty-eight years, and that the greatest number occur between the ages of twenty and thirty years. As to the frequency of recurrence, it is not unusual for a woman to give birth to a second mole some months or years after the

expulsion of the first. In the second case here reported there was an interval of about twenty months between the expulsion of the first and second mole. Fritsch records a case in which there were four moles successively developed. Majer records eleven moles and a single child born of one woman.

It is stated that syphilis, anæmia, heart and kidney lesions, and tuberculosis are general predisposing factors in the production of hydatiform mole, but proof of this is wanting. The question as to whether the lesion is of maternal or of fœtal origin is not fully settled. In favor of the view of the maternal origin may be mentioned the recurrence of the mole in the same individual and by different husbands; the common occurrence late in life; the partial vesicular degeneration of the chorion in the presence of a perfectly healthy fœtus; the common occurrence of cystic degeneration of the ovaries associated with hydatiform mole; and lastly, that endometritis and nephritis commonly precede the development of hydatiform mole. In favor of the fœtal origin is the fact that in twin pregnancy one mole alone may be involved in the cystic degeneration of the chorionic villi. If, as has been stated, death of the fœtus is a cause for vesicular degeneration of the chorion, how are we to account for the rarity of the lesion in cases of missed labor and abortion, where the fœtus has remained dead for weeks and months in the uterus? The fact that in partial vesicular degeneration of the villi the fœtus may remain perfectly healthy forces us to the more probable conclusion that extensive vesicular degeneration of the chorion results in the death of the fœtus. Contrary to the evidence advanced in support of the theory of maternal origin is the occurrence of many moles prior to the formation of the placenta, at a time when there is not an intimate anatomical relation of the mole to the uterine wall. Marchand holds that hydatiform mole occurring early in fœtal life can be ascribed to a primary change in the ovum. He does not deny the possibility of other causes operating to produce partial degeneration of the chorion, and admits as highly probable that malnutrition has much to do with the development of the mole.

Van der Hoeven¹² examined ten hydatiform moles, of which nine were in the third, fourth, and fifth months of fœtal development; the tenth was in the first month. The last showed no vesicular degeneration of the reflexal placenta. Van der Hoeven reasoned that the ovum was healthy when it reached the uterus, and that it is possible that the disease was primary in the uterine wall, though not probable. In support of the theory of uterine origin he found degenerative changes in the endometrium. Virchow was the first to suggest the possible causal relation of endometritis to hydatiform mole. From the great frequency of endometritis complicating pregnancy as compared to the relative infrequency of hydatiform mole it is not likely that any direct rela-

tionship between the two lesions can be established. It would be difficult to determine whether the changes in the endometrium are primary or secondary to the development of the mole. Again, the histological changes in the endometrium associated with hydatiform mole are by no means constant. It has been suggested by Baumgart,¹³ Marchand,¹⁴ Kaltenbach,¹⁵ Krentzmann, Runge,¹⁶ Fraenkel,¹⁷ and others that the tendency to cystic degeneration of the ovum may be referred to cystic degeneration of the ovaries. Each of the above-named authors has reported a case of hydatiform mole complicated by cysts of the ovary, and in a single case there was also a cystic kidney. In my second case both ovaries were cystic, each about the size of a man's fist. By reference to the accompanying table it is seen that in only 8 of the 210 cases were cystic ovaries recognized. The number of abdominal incisions made in these cases is few—a fact which possibly accounts for the above statistics. On the other hand, cystic degeneration of the ovaries is so commonly observed as compared with hydatiform mole that it is not likely that they stand in the relation of cause and effect.

Matwejew and Sykow²⁰ reported in the Gynecological Society of Moscow a case of tubal pregnancy in which the placenta had undergone cystic degeneration, and the ovary was likewise cystic. The patient was aged thirty-two years; she had had four normal labors and three abortions. The right tube contained the ovum, which ruptured about the eighth week of pregnancy. Symptoms of internal hemorrhage followed the rupture of the tube. Abdominal section revealed a large collection of blood in the pelvis, a ruptured tube, within which there was a hydatiform mole. The author stated that the cystic ovaries were undoubtedly the cause of the cystic degeneration of the placenta.

The following two cases have occurred in the practice of the author:

CASE I.—Mrs. H., aged twenty-five years; married three years; a nullipara. Previous health always good; no menstrual irregularities; genitalia apparently normal. Had missed two menstrual periods, when she began to lose small quantities of blood. The bleeding continued to increase in amount and frequency, flowing profusely at night and but little during the day. This continued for about ten weeks, the patient becoming quite anæmic. There were the usual signs of pregnancy, and the growth of the uterus was somewhat more rapid than in ordinary pregnancy. The last of January, 1898, pain increased, hemorrhage became more profuse, and the uterus increased rapidly in size; during the night it extended two fingers' breadth higher. An examination revealed a bunch of vesicles protruding from the cervix. It was determined to enucleate the mole. A hypodermic of morphine was given; this was followed by vomiting and the spontaneous discharge of the mole, leaving no remnants in the uterus. Three years later the patient gave birth to a well-formed baby, the placenta being normal. The patient now enjoys perfect health, and is again pregnant. The mole showed a complete vesicular degeneration of the chorion; there was no evidence of a fœtus. The ovaries are apparently normal.

No menstrual irregularity or leucorrhœa has followed the expulsion of the mole.

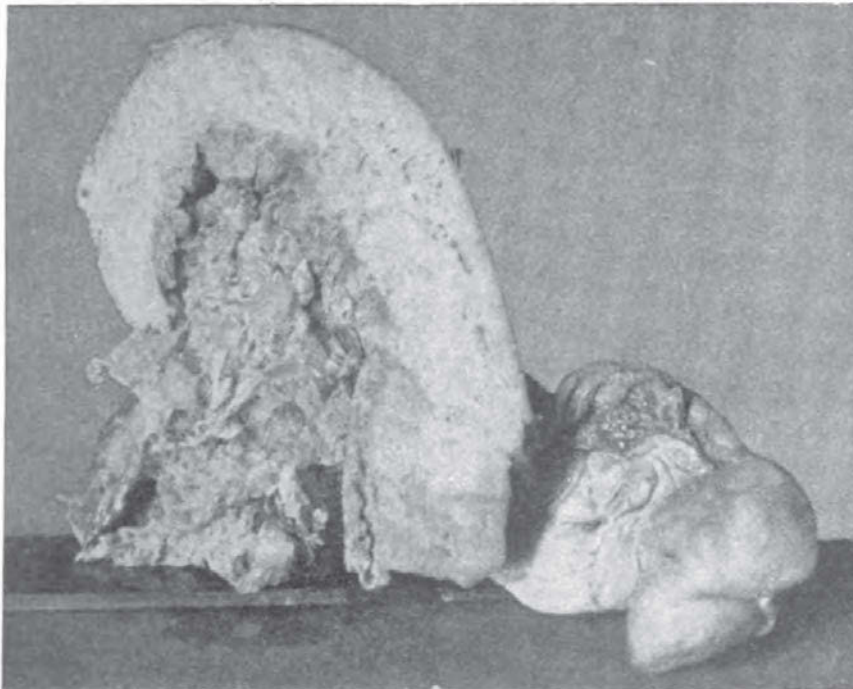
CASE II.—Mrs. N., aged thirty-eight years; married fourteen years; number of children, five; no abortions. Labor and puerperium normal at all times. Began menstruating at sixteen years of age; no menstrual irregularities; duration of flow, five days; no dysmenorrhœa; no leucorrhœa. Since the birth of her last child she has had two hydatiform moles. The first terminated by means of the curette at the end of the fourth month of pregnancy. The date of the last menstruation was April, 1898, and the mole was removed August 24, 1898. For two months prior to the removal of the mole there was a serosanguineous discharge, and the patient became weak and anæmic. The second mole was removed June 25, 1900, the last menstruation having been March, 1900. Her first symptom was a rigor, followed by a slight rise of temperature and a serosanguineous discharge, which began about June 6th. The uterus enlarged more rapidly than in normal pregnancy. In the light of the previous experience with a hydatiform mole it was believed that a similar condition existed. The patient was removed to the German-American Hospital. On examination the uterus was found to be symmetrically enlarged, extending one-third the distance from the pubis to the umbilicus. It was of doughy, elastic consistency, and freely movable. The cervix was patulous to the index finger. On either side of the uterus was a movable, cystic swelling, the size of a man's fist, and connected to the horn of the uterus by a pedicle. The conditions being not unlike those of the previous mole, and the debilitated condition of the patient demanding interference, it was determined to explore the uterine cavity. Ether was administered. Upon dilating the cervix small, transparent vesicles escaped, and the diagnosis of hydatiform mole was confirmed. In the effort to enucleate the mole the hemorrhage was alarming—so much so that the procedure was abandoned, the cervix and vagina packed with gauze, and a hysterectomy resorted to. A supravaginal amputation of the uterus was done, and the uterus with the mole intact, together with the tubes and both cystic ovaries, were removed. An uninterrupted recovery followed. The uterus when removed was uniformly soft and regular in outline. It measured 20 cm. in length, 18 cm. in the greatest transverse diameter. The wall of the fundus measured 1 cm. in thickness. Both ovaries contained multiple small cysts, enlarging each to about the size of a man's fist. The tubes were normal, and there were no adhesions or other abnormalities in the pelvis. On opening the uterus the mole was found almost completely enveloped in a firm coagulum of blood. The entire chorion had undergone vesicular degeneration; the vesicles were transparent and ranged in size to that of a hazelnut. Separating the mole from the uterine wall was a thin, tough, greenish-colored membrane. The placental site was located on the left antero-lateral aspect of the uterus.

MICROSCOPIC EXAMINATION. *The Decidua Vera.* The glands do not differ essentially from those of normal pregnancy. In size, number, and general outline there is nothing unusual. The secreting epithelium of the glands is partially lost; the remaining cells are cubical or flattened. In the gland lumen are many desquamated and degenerated

epithelial cells and not rarely free blood and leucocytes. The decidual cells present no anomalies in structure; as in normal pregnancy they present a variety of forms, the greater number being polygonal or spindle-shaped. In the compacta they are more uniformly spindle-shaped, with elongated nuclei. Free blood together with groups of leucocytes are found between the decidual cells and in the musculature.

The Decidua Serotina. On the surface of the decidua serotina is a thin, fibrinous layer in which decidual cells are scattered. The decidual cells are round, polygonal, and spindle form, with large, round, granular nuclei. The glands are large, irregular in form, and the secreting

FIG. 1.



epithelium flattened or cubical. Bloodvessels are intimately associated with the decidual cells, and free blood is found in the decidua and musculature.

Chorionic Villi. It is observed that the intensity of the stain is subject to great variation, particularly in the connective tissue stroma. The larger the villus the fainter is the stain; while in the largest villi the central portion of the stroma utterly fails to take a stain, thereby showing complete degeneration and loss of tissue. At the periphery of the villus, where the stroma seldom if ever is wholly lost, there is a faint stain, showing but partial degeneration. This is best shown by the Van Gieson stain. Great variations in staining are also shown in the epithelial layer, the cells lying nearest the stroma taking the stain

more faintly than those at the periphery. The non-degenerated connective tissue of the villus is of the embryonal type; the cells are elongated, having spindle-shaped nuclei. There is not the degree of development into fibrillæ as described by Webster¹⁸ in the chorion of the fourth month, but it resembles in point of development the villus

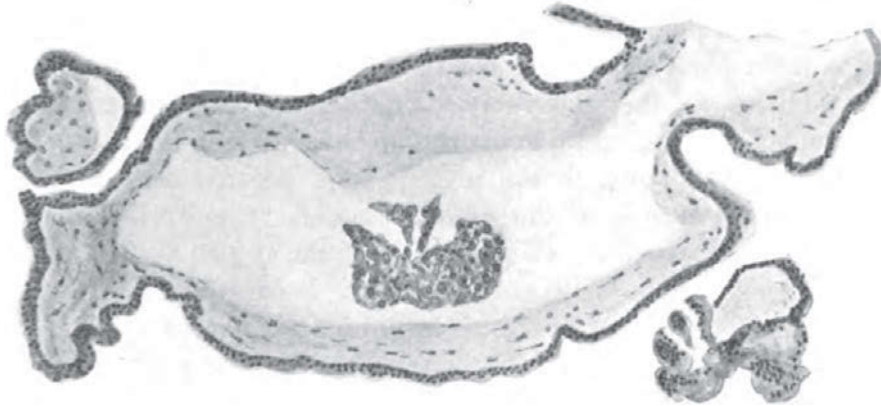
FIG. 2.



of four to six weeks' development. The first evidence of degeneration in the connective tissue is shown in the indistinct outline of the cell body, which becomes a granular substance beset with stellate cells containing a granular nucleus, and from which radiate fine fibrillar processes. Finally the formed elements disappear, and there is left an irregular space filled with clear serous fluid. At the periphery, in

close touch with Langhans' layer, there always remains more or less connective tissue, arranged in concentric layers, which is more fibrillar than that of the centre of the stroma. In none of the villi is the stroma wholly degenerated. The degeneration of the stroma is in

FIG. 3.



direct proportion to the size of the villi; in the smaller villi there is little if any degeneration. The process seems to be a granular degeneration or necrosis, with subsequent absorption, leaving spaces which fill with serum. I have not been able to demonstrate mucoid degeneration, as was first affirmed by Virchow. Storch took issue with Vir-

FIG. 4.



chow on this point, and, after him, the lesion is spoken of as "cystoid degeneration of Storch." Other authorities, while agreeing with Storch, disagree as to the manner by which this "cystic degeneration" is brought about. Merkle and Giese call it a secondary œdema due to an inhibited formation of the placenta. Koster and Rumler believe

it to be an œdema of the stroma resulting from interference with the circulation through the pedicle of the vesicle.

Kreutzmann¹⁹ also takes issue with Virchow. He says: "Vesicular mole is the result of an irregular proliferation of the epithelial parts of the chorion, with hydropic swelling and consecutive necrosis, manifested especially in the larger vesicles. The superficial stratum of the stroma—that which is near the living epithelium—remains unchanged, but the inner parts become liquefied."

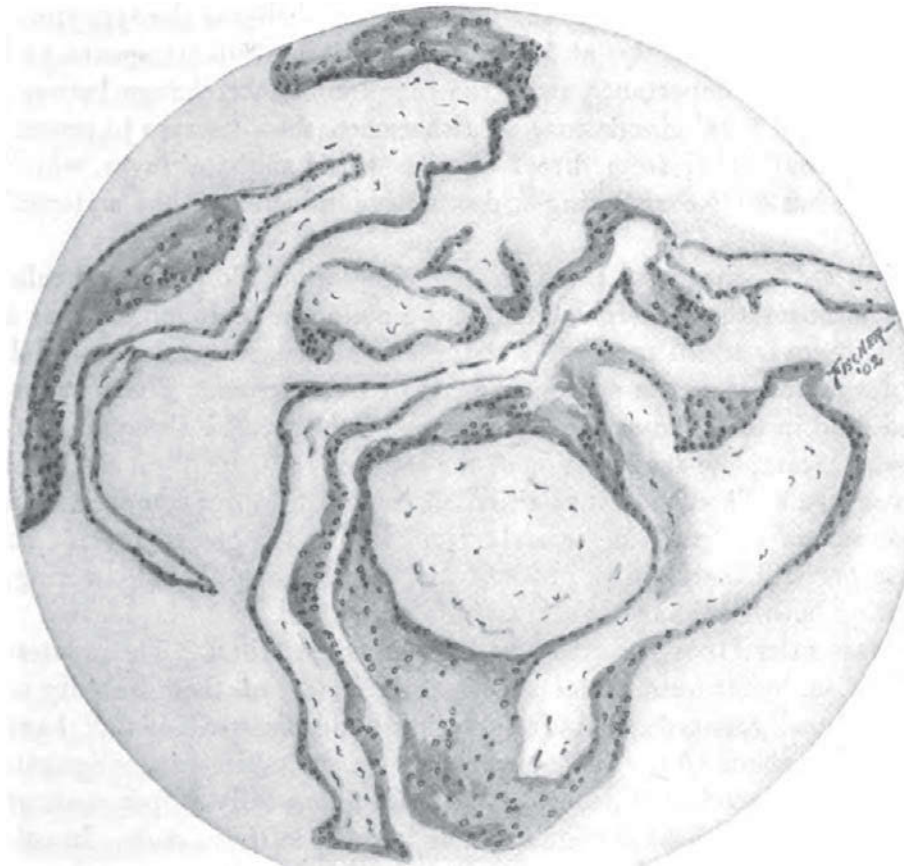
In addition to the above-named authorities may be mentioned Marchand, Fraenkel, and Neumann, who believe in the cystic degeneration theory as opposed to the myxomatous degeneration theory of Virchow. They speak of the proliferation of the epithelial elements as being coincident with the liquefaction of the stroma.

Bloodvessels in the villi are difficult to demonstrate. Webster in describing the chorion of the sixth week of development says: "Most of the villi have capillaries. These consist simply of a tube of small, flat, endothelial cells around which the connective tissue is somewhat condensed, though to a different extent in various places." No bloodvessels were seen in the large cystic villi; and when seen in the small, less degenerated villi they appear thicker-walled than is described by Webster (*vide supra*). No calcareous deposits were seen in the villi. The most significant changes centre in the epithelial elements of the chorion. There is seen an active and very irregular proliferation of the epithelial cells, with a tendency to invade the uterine structures to a degree not seen in normal pregnancy. Before degenerative changes are noted in the stroma the epithelial layers proliferate to an unusual degree. This proliferation of epithelium is particularly marked at the tips of the villi. The larger the villi the greater the proliferation. This proliferation, while similar in character, is to a greater degree than is found in normal pregnancy of the same age, and may surpass that found at any time of pregnancy.

In the syncytium and Langhans' layer of the small villi there is little change from the normal. As the villi enlarge through degenerative changes in the stroma and proliferation of the epithelial elements there are seen in the periphery of the villi, particularly at the distal end, clumps and buds of protoplasmic bodies taking a deep stain and containing irregular groups of nuclei. Irregular vacuoles are seen in these protoplasmic bodies. The protoplasm is finely granular, and takes a fainter stain than do the nuclei. The buds and clumps of protoplasm take a deeper stain than do the remaining portions of the epithelium. Here and there in the larger villi irregular nests of syncytium are seen in the stroma of the villi. These, according to Van der Hoeven, are *prima facie* evidence of malignancy. A careful study of my specimens relative to this phase has led me to the conclusion that such is often,

though not always, an accidental finding, due to tangential cutting of the villus, and not to an active invasion of the stroma by the epithelial elements. These changes in the syncytium and Langhans' layers are essentially hyperplasia and necrosis of the cell elements; the protoplasm increases in amount and the nuclei in size and number. The vacuoles are in number and size directly proportionate to the amount of epithelium, and are doubtless due to degenerative changes from malnutrition. Coagulation necrosis of the syncytium is more or less in evidence

FIG. 5.



throughout the specimen. With the death of the foetus there is loss of the foetal blood supply to the villi. This does not necessarily result in necrosis of the villi, providing the maternal blood supply is sufficient to provide the needed nourishment; on the contrary, the villi may continue to grow.

According to Marchand, the foetal blood is of minor importance in supplying nourishment to the villi. As evidence of this he has demonstrated necrosis of the stroma in the presence of a foetal blood supply and in the absence of a syncytial covering. His conclusion is that the

syncytium exercises a governing influence over the maternal blood supply to the stroma of the villi; when destroyed the stroma will undergo degenerative changes. Marchand asserts that well-formed stroma is found only where the maternal circulation is adequate and the syncytium intact.

It is found that in partial moles where the maternal circulation is less disturbed the necrosis of the stroma is correspondingly less. It would appear, then, that the remote cause of the necrosis of the chorion lies in the failure on the part of the maternal circulation leading to degeneration of the connective tissue, and to a serous exudate which finally replaces the stroma of the villi. Peters²⁰ believes the syncytium to be a sort of endothelial layer lining the intervillous spaces and exercising some important part in the function of interchange between maternal and foetal circulation. Furthermore, that it serves to protect the maternal blood from direct contact with Langhans' layer, which probably has some coagulating or destructive influence on the maternal blood.

With a disturbance of the maternal circulation the reciprocal relations between the maternal and foetal circulation is altered, and, as a result, there is added to necrosis of the stroma a serous exudate, with the formation of cystic spaces, filled with clear serum. The accumulated fluid in turn causes further necrosis of the stroma through compression; complete degeneration of the connective tissue fibres is seldom if ever seen. There is always a limited amount of fibres compressed in a concentric manner immediately beneath the Langhans' layer. In the larger villi there is also pressure necrosis of the epithelial covering, affecting both Langhans' layer and the syncytium.

MALIGNANT DEGENERATION OF HYDATIFORM MOLE. The greatest interest in hydatiform moles centres in the fact of their liability to undergo malignant degeneration. Solowij and Krzysz-Kowski²¹ have shown that about 10 per cent. of hydatiform moles become malignant. On the other hand, it is generally recognized that fully 40 per cent. of the cases of syncytioma malignum arise from hydatiform mole. In collecting reported cases of hydatiform mole I have found a scarcity of case-reports of non-complicated hydatiform mole; that cases are seldom reported unless they have undergone malignant degeneration. For this reason it is impossible to arrive at any exact estimate of the frequency of hydatiform moles and of their malignant degeneration. Referring to the following table of reported cases, which includes all I am able to find in the literature, it appears that 16 per cent. of hydatiform moles become malignant. For the reason stated above it is probable that this percentage is far too high.

From the very onset the difficulties involved in dealing with the many mooted questions concerning the malignancy of hydatiform mole

appear insurmountable. The intimate blending of foetal and maternal structures, together with the secondary processes of degeneration, are so complicated and are so subject to variations that it is difficult and at times impossible to distinguish the benign from the malignant. Indeed, Van der Hoeven²² goes so far as to state that all hydatiform moles are malignant; that the proliferation of the epithelial elements of the chorion (syncytium, Langhans) assumes a malignant type in the invasion of the uterine musculature and connective tissue stroma of the villi. He further reasons that if this tendency on the part of the epithelial elements to proliferate is not marked, or if the mole is expelled or removed before the epithelium invades the uterine tissue beneath the line of cleavage (within the compact layer of the decidua), there can be no recurrence. If left behind in the uterine tissue the epithelial elements continue to proliferate and to be carried to distant parts

FIG. 6.



of the body by way of the blood stream, there forming metastatic malignant epithelial growths.

Neumann²³ studied 8 cases of hydatiform mole; 5 were not followed by malignant changes, 3 died of syncytioma malignum. In the 5 so-called benign moles the epithelium of the chorion proliferated to an unusual degree, but did not invade the connective tissue of the stroma, while in the 3 malignant moles the connective tissue stroma was invaded by syncytial giant cells. Neumann arrived at the conclusion that the earliest evidence of malignancy lay in the invasion of the connective tissue stroma of the villi by the epithelial elements of the chorion. As suggested by Pierce,²⁴ the "view of Neumann is not generally recognized, and with right, for cases of nephritis and lead poisoning have since been described where the same cells were found in the stroma of normal villi; hence their presence can have no pathological significance in hydatiform mole."

It is evident from the observations of Veit,²³ Webster,¹⁸ Pick,⁷⁷ and others that the invasion of the deep structures of the uterus, and even of structures beyond the uterus, by chorionic epithelium, is not evidence *per se* of malignancy; that, on the contrary, syncytial masses are found in the uterine musculature, and are deported to distant parts of the body by veins in normal pregnancy; that soon after the termination of pregnancy they disappear. The transition between benign and malignant chorio-epithelial elements is a gradual and imperceptible one, just as is true in the transition of all benign hyperplastic growths into the malignant types; and to differentiate them is manifestly impossible. There undoubtedly exists an intermediate stage between the benign and malignant. Berry Hart examined a hydatiform mole in which the epithelial changes were identical with those described in the malignant type; no recurrence followed the expulsion of the mole. Both the syncytium and Langhans' cells participate in the proliferative changes, but to a varying degree. There is, likewise, great variation in the rate of growth in the epithelial elements, the explanation not only lying inherent within the cell elements, but also in the degree of resistance offered by the uterine tissue.

Two of the cases described by Kworostansky²⁸ were in the second month of pregnancy—one a benign hydatiform mole, the other a syncytioma malignum. It is of the greatest interest to compare these two cases from an anatomical point of view. In the benign mole there was unusual proliferation of the syncytium and Langhans' layer, forming a loose connection with the decidua serotina; in the veins of the serotina both syncytial and Langhans' cells were found in limited numbers. The decidua vera was invaded to a lesser degree; no epithelial elements were found in the uterine musculature. In the placental site were evidences of endometritis, as demonstrated in scrapings removed six weeks after the expulsion of the mole. The case recovered without recurrence. The author states that the patient, aged twenty-four years, was anæmic, and that this impoverishment of the blood afforded insufficient nourishment to the villi, thereby exciting the chorio-epithelioma to extend deeper into the uterine musculature in order to obtain greater nourishment. Sufficient nourishment not being provided by the stroma of the villi, necrosis follows. In the second case, which was malignant, there was also extreme anæmia. The epithelial elements behaved similarly to that of the first case, only to an exaggerated degree, apparently differing only in the degree of epithelial invasion of uterine structures. The syncytial cells invaded the intermuscular spaces and veins of the uterus as far as the parametrium. Atrophy and necrosis of the decidual and muscular elements followed; bloodvessels were changed to blood lacunæ.

In comparing my specimen of benign hydatiform mole with one

having undergone malignant changes, it was advisable to select for comparison not only one of similar age, but also one that had been removed together with the uterus, as was mine. In this way we avoid certain retrogressive changes and the disturbance of anatomical relations which would otherwise mislead. Two such cases have been reported—one by Poter and Vassmer, the other by Neumann.²³ In both these cases the essential variation from my own case appears to lie in the more marked proliferation of the syncytium and Langhans' cells and in their extended invasion of the uterine veins and musculature. While it is not to be expected that a benign mole may be recognized from a malignant mole by the naked eye, yet it is worth while to observe that Pautz²³ and others have found in malignant moles that the villi rarely attain large size, are firm, and have a long, slender pedicle, giving to the mole the appearance of soft, cooked rice.

Ladinski,³¹ in a recent clinical review of deciduoma malignum, reported a case of hydatiform mole followed by malignant degeneration (reported too late to be inserted in the accompanying tables). He collected thirty-three similar cases, and concluded that malignant degeneration occurred most frequently in cases where mole pregnancy terminated in the fourth month. It does not appear that the length of time that a mole remains *in utero* has any influence upon its disposition to become malignant. In twenty cases Ladinski finds the average time of appearance of syncytioma malignum is eight weeks after the mole has been expelled.

DIAGNOSIS. The rate of growth of the uterine tumor is the most constant and characteristic sign of hydatiform mole. With few exceptions, the size of the uterus is greater, even to double that of the normal pregnant uterus of a like period. At twelve weeks it has been found larger than the average pregnant uterus at full term. The growth is not usually symmetrical; in a number of cases the uterus is found to be proportionately broad. Furthermore, the rate of growth is not uniform. Near the time of expulsion the uterus frequently assumes a very rapid growth, soon to be followed by uterine pains and profuse hemorrhage. Within twenty-four hours the uterus may ascend two or three fingers' breadth.

Hemorrhage is usually the first symptom to attract the attention of the patient. Preceding the hemorrhage is a period of amenorrhœa extending over one, two, or three months—rarely longer. In a single case hemorrhage appeared in the third week of gestation, and again as late as the fifth month. The usual time of occurrence is in the second and third months. It is occasionally stated that the hemorrhage is more profuse at night. This was true in my first case, there being very little loss of blood during the day and profuse bleeding at night. As a rule, the hemorrhage is at first slight, gradually

increasing in amount and frequency, finally becoming continuous and in such quantities as to cause more or less anæmia. Hemorrhage is always to be feared at the time of the expulsion of the mole; this is particularly true when the mole is far advanced and when firmly adherent to the uterus. It has been known to recur within a week in a case that did not prove to be malignant, but such an event is exceptional. Where malignant degeneration has followed the birth of a mole hemorrhage is known to have recurred nine days after the mole was expelled, and as late as four and one-half years. Consulting the accompanying tables, it is seen that hemorrhage, ushering in malignant changes, first appears in the first and second months, with about the same frequency as in the fifth and sixth months following the expulsion of the mole. We may formulate the dictum that hemorrhage

FIG. 7.



recurring weeks and months after the expulsion of a hydatiform mole is suggestive of malignancy, and demands immediate and thorough investigation into the cause.

Nausea and vomiting are present in a larger percentage of cases than is common to pregnancy. Severe and uncontrollable vomiting occurred 18 times in the 210 collected cases. The explanation probably lies in the unusual distention of the uterus.

Pain in the back and pelvis is complained of in nearly all cases, but does not usually develop until hemorrhage has persisted for some time. Not infrequently pain is absent until the hemorrhage is profuse and the cervix dilating.

In extensive degeneration of the chorion the foetus dies early and is absorbed. We then have none of the physical evidences of a foetus. In partial degeneration of the chorion the development of the child

may not be hindered, and there may be no clinical evidences of vesicular degeneration.

The consistency of the uterus is a subject of some importance from a diagnostic point of view. Poter reported eleven cases of hydatiform mole, in three of which he observed irregular contractions of the uterine wall. These contractions were localized over a limited area, and were transient, lasting but a few minutes and reappearing at variable intervals. To the examining finger they might easily be mistaken for intramural fibroids. Poter does not claim this is a reliable sign, but suggests that further investigation of the phenomena be made.

An early diagnosis of hydatiform mole is of importance because of the liability to malignant degeneration. While, as a rule, there will be the usual clinical signs of a mole some time before malignant changes develop, there is always the possibility of early malignant transformation, and it is not possible to detect these early malignant changes. Our only safeguard lies in the early recognition of the mole and in its immediate removal.

Will the microscope supply an infallible means of making an early diagnosis of malignant degeneration of the mole? We do not accept the statement of Van der Hoeven and Neumann that epithelial invasion of the stroma of the villi is the earliest and at all times reliable evidence of malignancy. As has been stated, such findings are not uncommon in normal pregnancy. Marchand failed to find the stroma invaded in a malignant mole, and Ruge found such invasion in an undoubted benign mole. In my second case there was epithelial invasion of the stroma of the villi. Two years have elapsed since the removal of the mole, and no sign of malignancy has developed.

In a case reported by Poter the mole went on to the time of full-term pregnancy. Neumann's cells were found in the stroma of the villi. On the twenty-sixth day after the mole was expelled hemorrhage recurred to a slight degree. The uterus was curetted, and a microscopic examination of the scrapings showed no evidence of malignant invasion; recovery followed. This case shows how difficult, and at times impossible, it is to determine the character of a hydatiform mole. In the light of our present knowledge we must always make a guarded diagnosis in the early stage; and at no time can a diagnosis be made with absolute certainty from the expelled mole. The invaded decidua, and if possible the underlying musculature, will alone afford evidences of malignant invasion prior to the development of metastasis. In the case reported by Schmidt a diagnosis of malignancy was first made from a microscopic examination of a metastatic growth which appeared in the vagina. The uterus was not removed, and recovery followed the removal of the vaginal growth. When hemorrhage recurs

days or weeks after complete removal of the mole the uterus should be curetted and the scrapings examined for active and extensive invasion of the uterine tissues. Large nuclei, rich in chromatin and mitotic figures, together with a tendency on the part of the protoplasm to separate into individual cells or chains of cells, is, according to Voigt and Gottschalk, suggestive of malignancy.

We are forced to the conclusion that as yet we have no certain means of making an absolute and early diagnosis of malignant degeneration of a hydatiform mole. The clinical signs, together with the gross and microscopic appearances, are all to be carefully considered. In view of our inability to make an absolute early diagnosis, vesicular degeneration of the chorion, however limited, demands immediate interference, to be followed by a period of at least three years of watchful expectancy; and if, at any time following the expulsion of the mole, hemorrhage recurs, the uterus is to be curetted and a microscopic examination made of the scrapings.

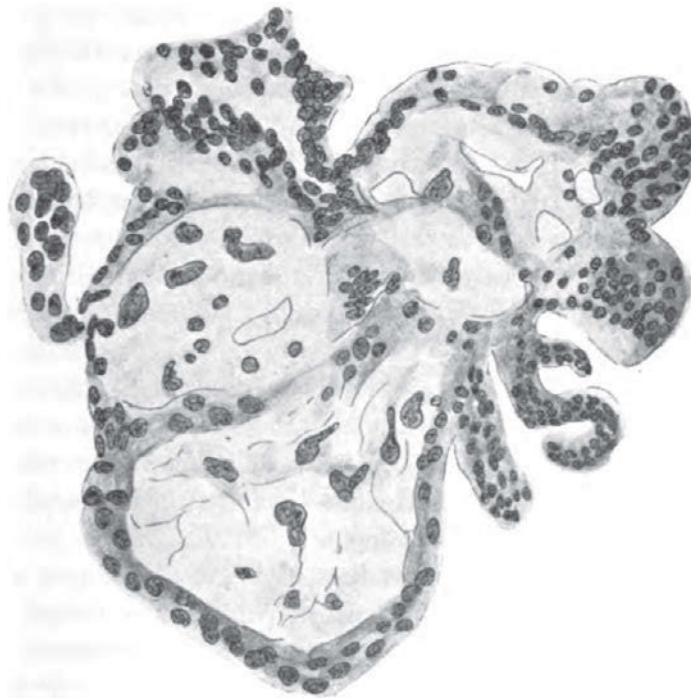
PROGNOSIS. Regarding the prognosis of hydatiform mole, experience teaches us to look with suspicion upon all cases, even months and years after the removal of the mole. It is seldom that serious consequences occur while the mole is *in utero*. Malignant degeneration, rupture of the uterus, fatal hemorrhage—all these have occurred with the mole *in situ*, though such happenings are, fortunately, rare. We have learned to fear remote results—*i. e.*, a repetition in subsequent pregnancies and malignant degeneration of retained chorio-epithelium. Heitzman estimated the mortality at 13 per cent. These statistics were gathered at a time when chorio-epithelioma malignum was not recognized. It is generally accepted that 10 per cent. of hydatiform moles undergo malignant degeneration. This estimate is generally accepted as approximately expressing the death rate of hydatiform mole; but it is far too small, as shown by the following data deduced from the accompanying tables. Death from hemorrhage and, to a lesser degree, from septic infection and rupture of the uterus add materially to the death rate, bringing the mortality to near 25 per cent.

In the 210 cases here recorded there were 49 deaths—a mortality of about 25 per cent. Of this number 32 died of syncytioma malignum (16 per cent.), 7 died from hemorrhage (4 per cent.), 4 died of septic peritonitis (2 per cent.), 1 died of general sepsis, 1 from uræmia, 1 from endocarditis and nephritis, one from meningitis, and 2 from unknown causes. The author does not regard these statistics as expressing actual facts. There is doubtless a tendency to report all cases resulting fatally and to overlook those having no special point of interest in their course and termination.

The later in pregnancy we have to do with vesicular degeneration of

the chorion the more grave the prognosis, because of the difficulty in removing the mole—the greater liability to rupture of the uterus and to malignant degeneration. It has been stated, and it will bear repetition, that the removal of a hydatiform mole is imperative as soon as the diagnosis is established. There can be no temporizing, however limited the vesicular degeneration and however early or late the condition is recognized. Where but a small area of the placenta is involved the diagnosis is not made until the termination of pregnancy; hence the question of interference will not arise during pregnancy, but the same degree of watchful expectancy must be exercised after the ter-

FIG. 8.



mination of pregnancy. While all agree as to the disposition that shall be made of the mole, it is always a grave question as to what shall be our attitude toward the uterus after the mole is expelled. Solowiz²¹ has advised hysterectomy in all cases, and surely this would be the logical conclusion were we to agree with Van der Hoeven that all hydatiform moles are malignant.

Recognizing the frequency of malignant degeneration of hydatiform mole, and finding our most reliable and early evidences of malignant invasion in the decidua, we indorse the advice of Butz, who would curette the uterus ten or twelve days after the expulsion of the mole, for the purpose of removing remaining foetal elements and of making a microscopic examination of the scrapings to detect a possible malig-

nant invasion, as shown by active proliferation by the chorio-epithelium. Doubt will occasionally arise after such a procedure, and where such doubt exists the uterus should be removed on suspicion.

Respecting the influence of hydatiform mole upon future childbearing, it is observed that healthy children are born subsequent to the expulsion of the mole, and that there does not appear to be acquired an added tendency to abortion. Contrary to the statement made by most text-books, it is the exception for a woman to give birth to more than one mole. In the 210 cases but two women gave birth to two moles, one to four (not recorded), one to five (not recorded), and one to eleven. It is furthermore seen that conception is possible very soon after the expulsion of the mole. On the other hand, a period of twenty years of sterility, and in two instances ten years, have preceded the development of the mole. It is correctly stated that multipara are more liable to hydatiform mole than are primipara. In the 210 cases 42 were primipara, 139 multipara, and 29 not recorded.

TREATMENT. Since we are ignorant of the essential and predisposing causes of hydatiform mole, no prophylactic measures can be instituted. In not a few of the reported cases, where hemorrhage was severe and even threatened the life of the patient, prior to the expulsion of the mole the attending physician resorted to vaginal tampons to check the hemorrhage, and at the same time administered ergot. The hemorrhage has in this manner been controlled, and not infrequently the uterus has been made to contract and expel the mole. By reference to the accompanying tables it will be seen that transfusion was made where hemorrhage had caused collapse either before or after the expulsion of the mole.

In all cases the mole is to be removed by the finger and placental forceps, only resorting to the curette when it is found impossible to remove the placental tissue by the finger and placental forceps. In the following reports of cases I have noted that the curette has often been used to remove the mole and as an aid to the finger in cleaning out the uterine cavity after the expulsion of the greater portion of the mole. In the cases where hemorrhage continued after the expulsion of the mole the bleeding was checked by curettage. While in no case was there an apparent bad result from the use of the curette, it is evident that the dangers of perforating the uterus must be great, because of the overdistention and weakening of the uterine wall by invading placental tissue. Too great caution and conservatism cannot be used in the employment of the curette.

When the mole is expelled spontaneously it is imperative to explore the uterine cavity with the finger, to make sure that all placental tissue has been removed. After the expulsion of the mole the patient should be under the supervision of a physician for a period of not less than

three years, during which time occasional bimanual examinations are to be made. The possibility of metastatic growths arising must be borne in mind. All suspicious new-growths in the vagina are to be removed for microscopic section, and all disorders of the lungs are to be regarded with suspicion, fearing metastatic invasion. Hemorrhage from the uterus at any time during the period of watchful expectancy demands an exploratory curettage and microscopic examination of the scrapings. Where there is unmistakable evidence of malignant invasion of the uterine tissue, or where there is a reasonable doubt as to the true nature of the invading epithelium, no time should be lost in performing hysterectomy. It happened with Shauta, as well as in my own case, that hemorrhage was so great in the attempt to remove the mole that hysterectomy was resorted to. In my own case the general clinical signs suggestive of malignancy, the near approach to the climacteric, and the presence of bilateral ovarian cysts gave added support to the radical procedure.

SUMMARY. 1. Nothing definite is known of the immediate and remote causes of hydatiform mole. It most frequently occurs between the ages of twenty and thirty, and is two and one-half times as frequent in multipara as in primipara. Neither general nor local disease is positively known to have a direct bearing upon the development of the mole.

2. The weight of evidence is in favor of a maternal origin, the vesicular degeneration of the chorionic villi resulting from a disturbed maternal circulation. Failure on the part of the maternal circulation causes a degeneration of the connective tissue stroma of the villi, together with serous infiltration or œdema. The syncytium and Langhans' cells penetrate deeper into the decidua, where the nutrition is adequate—a fact which accounts for the unusual proliferation of these epithelial elements in hydatiform mole.

3. There is no proof that cystic degeneration of the ovaries has any influence upon the development of cystic degeneration of the ovum. The former is so common as compared to the latter that it is not likely they stand in relation of cause and effect.

4. Malignant degeneration of hydatiform mole occurs in about 16 per cent. of all cases. No sharp line can be drawn between benign and malignant hydatiform moles. Syncytial invasion of the connective tissue stroma of the villi and of the uterine musculature occurs under normal conditions, and cannot be regarded, in hydatiform mole, as evidence of malignancy unless found to a marked degree.

5. It follows that a macroscopic and microscopic examination of discharged vesicles will not determine the benign or malignant character of a mole.

HYDATIFORM MOLE.

Case No.	Age	Children	Abortions	Puerperium	No.	Age.	Symptoms and course.	Duration of symptoms.	Termination.	Remote results.	Reference.	Remarks.
1	21	0	0	.....	1	8-10 weeks.	Hemorrhage; rapid growth of uterus; uncontrollable vomiting.	24 days.	Induced.	Death from septic peritonitis.	I. Edgar.	Septic infection started from the lacerated cervix.
2	24	3	1	Normal.	1	12 wks.	Hemorrhage began tenth week; no pain.	2 wks.	Induced.	Recovery.	Kworostansky, Arch. f. Gyn., 1901, lxii.	Hemorrhage returned in one week, curettement was followed by recovery.
3	25	2	0	"	1	.....	Began with hemorrhage 10th week.	10 wks.	Spontaneous.	"	Poten, Monat. f. Geb., xiv. 43.	At 4½ months uterus was one finger breadth above umbilicus.
4	47	0	0	.....	1	12 mos.	.....	.....	"	"	Ibid.	Uterus at level of the umbilicus.
5	22	0	0	.....	1	8 wks.	.....	.....	"	"	Ibid.	Uterus at level of the umbilicus.
6	29	5	0	Normal.	1	.....	Recurring hemorrhage.	.....	Induced by finger.	Decidua malign.	Schauta, Cent. f. Gyn., 1886, 248.	Watery fluid continued to escape after removal of mole; two weeks later hemorrhage returned.
7	40	4	0	"	1	.....	Hemorrhage began in fourth month.	.....	"	"	Pick, Berl. Med. Woch., 1897, 1070.	Malignant growth in vagina found while mole was in utero.
8	22	...	...	.....	1	4 mos.	Hemorrhage.	.....	Spontaneous.	"	Ibid.	Malignant growth in vagina; mole was apparently benign.
9	23	1	1	Normal.	1	3 mos.	Hemorrhage.	3 wks.	"	"	Tannin, Arch. f. Gyn., 1895, 94.	Hemorrhage returned five months after mole was expelled.
10	36	8	0	"	1	40 wks.	Uterus slightly larger than normal.	.....	"	Recovery	Poten, Monat. f. Geb., xiv. 3.	Mole ceased to grow during last month; when expelled it showed degenerative changes; this speaks against Van der Hoeven's theory of malignancy of all hydatid moles.
11	32	5	0	"	1	5 mos.	Hemorrhage began in 5th week; uterus at level of umbilicus end 4th mo.	19 wks.	Induced.	"	Ibid.	Double ovarian cyst.
12	30	2	0	.....	1	.....	Uterus size of full-term pregnancy; edema of feet; albuminuria.	.....	Hysterectomy.	"	Ibid.	
13	23	4	2	Normal.	1	10 wks.	Hemorrhage and pelvic pain began in 9th week.	8 wks.	Induced.	Decidua malign.	Gebhard, Zeit. f. Geb., xxxvii. 480.	Hemorrhage returned fourteen days after mole was removed; hysterectomy done one week later.
14	42	9	0	"	1	16 wks.	Hemorrhage and pelvic pain began in 8th week.	8 wks.	"	Recovery	v. Franque, Zeit. f. Geb., xxxiv. 199.	

15	16	17	18	19	20	21	22	23	24	25	26	27
41	26	22	42	51	35	28	30	39	35	29	26	33
...	...	1	7	8	3	4	8	8	...	2	1	5
...	...	0	0	1	...	1	0	...	...	0	...	0
...	...	Normal.	"	"	"	"	"	"	Normal.	...	...	...
...	1	1	1	1	1	1	1	1	1	1	1	1
...	...	About 16 wks.	4 wks.	...	...	4 mos.	7 mos.	7 mos.	...	4 mos.	...	...
...	...	Sudden profuse hemorrhage; no pain; bleeding lessened; uncontrollable vomiting at this time (about middle 4th mo.); later sudden profuse hemorrhage.	Sudden flowing, with clots, followed by abdominal pain and some vesicles; three w'ks later she again bled profusely.	Sudden profuse bleeding.	"	Sudden profuse bleeding following partial abortion.	Hemorrhage slight in 4th and 5th month.	Hemorrhage in 3d mo.	Swelling of ankle and legs; flooding in 5th mo.	Hemorrhage.	"	"
...	6 wks.	13 days.	3 mos.	8 wks.	2 wks.	2 mos.	.....	4 mos.	.....	.....	.....	.....
...	Spontaneous.	Induced.	Induced (curette).	Spontaneous.	Induced.	"	"	Spontaneous.	"	Induced.	Spontaneous.	"
...	Syncytionoma malign.	Syncytionoma malign.	"	"	"	Recovery	"	"	Death.	"	"	Recovery
...	Schmidt.	R. Winkler.	Buist.	Buschbeck.	Kruser.	Madden, Trans. Roy. Acad., Ireland, 1888, vi. 295.	Ibid.	Triffith, Sr., Obst. Soc. London, 1888, 82.	Ross, Brit. Med. Jour., 1898, p. 1814.	Lamaestre, Bul. de la Soc. Anat., 1846-47, 326.	Hooker, Bost. Med. and Surg. Journ., 1837, 91.	Haines, Dublin Quart. Journ., 1850, 201.
...	Metastatic growth found in vagina in thirteenth week of pregnancy; uterus was normal and remained so; first proliferation of epithelium of chorion travelled by blood stream to perivaginal tissue; recovery after removal of vaginal growth, uterus not removed; probably recovery due to early removal; mole in utero may have been malignant, but expelled.	Became malignant one year after expulsion of mole; metastasis in lungs. Followed by cerebral hemorrhage six months later. Post-mortem found syncytioma of left occipital lobe similar to syncytial masses found in uterus.	Hemorrhage returned nine days later; curetted and carbolic acid applied; returned again in a few days, and a month later hysterectomy; syncytioma found in uterus; left ovary cystic. Mole preceded by one year of amenorrhoea; after expulsion hemorrhage recurred at frequent intervals; soon a fetid blood discharge followed.	Endometritis present; metastasis of right lung.	Mole remained in uterus two months, then removed by curette; hemorrhage continued throughout the two mos.	Miscarried at seventh month; mole partially retained six months; very anaemic.	No autopsy.	Hydatids weighed 6 or 7 lbs.; death due to peritonitis; condition of ovary not stated.	Subsequent portion of mole expelled two weeks later.			

Case No.	Age	Children	Abor-tions	Puerpe-rium	No.	Age	Symptoms and course.	Dura-tion of symp-ts.	Termina-tion.	Remote results.	Reference.	Remarks.
28	28	...	...	.....	1	.....	Hemorrhage in 3d mo.	.....	Induced.	Recovery	Hewitt, Lancet, 1862, 369.	Uterus above umbilicus end of third month.
29	25	2	...	.....	1	2 mos.	"	.....	"	"	Hutchinson, Ibid., 1851, 411.	
30	27	2	...	.....	1	.....	"	.....	"	"	Jamison, Ibid., 1867, 259.	
31	23	2	...	.....	1	.....	"	.....	"	"	Hunter, Ibid., 1846.	Living child born; portion of placenta degenerated.
32	30	2	1	.....	1	.....	Uncontrollable vomiting; hemorrhage 24 months; Hemorrhage 2d month; persistent nausea and vomiting.	.....	"	"	Harrington, Clin. Rep., Chicago, 1878, 387.	
33	29	...	1	.....	1	.....	"	.....	"	"	Humphrey's Chi. Med. Journ., 1878, 176.	
34	30	2	...	.....	1	3 mos.	Hemorrhage 5th week; vomiting severe.	.....	Spontaneous.	"	Jackson, Bost. Med. & Surg. Journ., 1864, 138.	Well-developed fetus; cord and large portion of placenta normal.
35	47	11	0	Normal.	1	10 wks.	Continuous hemorrhage, pelvic pain; cachexia.	.....	Induced.	Death from septic infection.	Soloway & Kryzkowski, now Gekarskie, 1900, Nos. 22 and 28.	Last pregnancy five years prior to expulsion of mole.
36	38	7	0	"	2	.....	Hemorrhage.	.....	.....	Decidua malign.	Lonberg and Manns-heimer, Monatsch. f. Geb., 111.	
37	48	8	2	"	1	9 wks.	"	.....	.....	"	Bacon, Amer. Journ. of Obst., 1895.	Hydatid mole expelled three years previous; healthy child born later, then followed second mole.
38	42	2	0	"	1	4 mos.	"	.....	.....	"	Petalozza, Centrl. f. Gyn., 1896, 175.	Hemorrhage returned five months after mole was expelled; metastasis in broad ligaments and lungs.
39	42	2	0	"	1	.....	Hemorrhage.	5 mos.	Spontaneous.	"	Apfelsted and Aschoff, Arch. f. Gyn., 1. 515.	The uterine musculature was penetrated by the mole.
40	40	3	0	.....	1	.....	"	.....	.....	"	Neumann & Schanla, Centrl. f. Gyn., 1896.	Died from metastasis.
41	44	2	0	Normal.	1	8 wks.	Irregular hemorrhage.	2 mos.	Spontaneous.	"	Lindfors, Centrl. f. Gyn., 1896, 6.	Nodule in vagina during pregnancy; cystic degeneration of both ovaries; metastasis in lungs.
42	33	5	0	"	1	.....	Hemorrhage.	.....	Induced.	"	Scherer, Arch. f. Gyn., 191.	Hemorrhage returned fourteen days after mole was expelled; metastasis in lungs, liver, and brain.
43	43	12	4	"	1	5 mos.	"	.....	"	"	Zondrk, Zeit. f. Geb., xxxvii, 157.	Hemorrhage returned in two weeks; hysterectomy, recovery.
44	23	...	...	.....	1	.....	"	.....	"	"	Gebhard, Zeit. f. Geb., 1898, 39.	Hysterectomy three weeks after mole was removed.

Case No.	Age	Chil- dren.	Abor- tions.	Puerpe- rium.	No.	Age.	Symptoms and course.	Dura- tion of symps.	Termina- tion.	Remote results.	Reference.	Remarks.
67	36	6	...	.....	1	3½ mos.	Hemorrhage; vomiting severe.	.....	Induced.	Recovery	Fifield, <i>Bost. Med. and Surg. Jour.</i> , 1857-58, 197.	
68	25	...	...	.....	...	6 mos.	Hemorrhage slight.	.....	"	"	Foot, <i>Med. and Surg. Reporter</i> 1860, v. 34B.	
69	45	0	...	.....	1	3 mos.	Sudden flooding; rapid failure of health.	.....	Spontane- ous.	Death.	Finnell, <i>New Jer. Med. Rep.</i> , 1855, viii, 370.	Death ten days after expulsion of mole; cystic ovaries not recorded in autopsy.
70	29	3	...	.....	1	.....	Alarming hemorrhage.	.....	Induced.	Recovery	Haulgrave, <i>Brit. Med. Journ.</i> , 1893, 453.	
71	13	0	...	.....	1	4 mos.	Vomiting severe.	mos.	"	"	Dass, <i>Indian Medical Gazette</i> , 1892, 378.	
72	15	0	0	.....	1	4 mos.	Hemorrhage severe	.....	Spontane- ous.	"	<i>Ibid.</i> , p. 379.	
73	35	10	0	Normal.	1	.....	Hemorrhage.	.....	Induced.	"	<i>Ibid.</i>	
74	27	5	...	.....	1	.....	"	.....	"	"	Pilliet, <i>Nouv. Arch. d'Obst.</i> , 1893, 22.	
75	...	...	...	.....	...	.....	Bloody watery discharge	.....	Spontane- ous.	"	Earle, <i>Chic. Med. Jour. Exam.</i> , 1877, 52.	
76	19	0	0	.....	1	15 wks.	Hemorrhage began 8th week.	3 mos.	Induced.	"	Githens, <i>Peoria Med. Month.</i> , 1880-81, 137.	Healthy child after mole.
77	35	1	0	.....	1	.....	.....	.....	.....	"	Hewitt, <i>Trans. C. Obst. Edinb.</i> , 1870, 237.	Three hydatid cysts.
78	33	4	0	.....	1	.....	Hemorrhage.	.....	Spontane- ous.	"	<i>Ibid.</i> , 1860, 112.	
79	24	1	...	.....	1	.....	"	.....	"	"	<i>Ibid.</i> , 251	
80	29	1	...	Dystocia.	1	3 mos.	Hemorrhage in 10th week; no pain.	2 wks.	"	"	Godson, <i>Obst. J. G. B. & I.</i> , 1878-79, 701.	
81	27	3	0	.....	1	.....	No hemorrhage; rapid growth of uterus.	.....	"	"	<i>Ibid.</i>	
82	27	2	0	Normal.	1	4 mos.	Hemorrhage in 3d mo.	.....	Induced.	Death.	Lamaestre, <i>Bul. de la Soc. Anat.</i> , 1846-47, 326.	Abdomen as large in three months as is the rule in eight months; death from hemorrhage.
83	34	4	0	"	1	6 wks.	Hemorrhage.	.....	Spontane- ous.	Recovery	Jacquart, <i>Mem. de la Soc. de Biolog.</i> , 1860.	Vesicles escaped in the bloody discharge.
84	22	2	1	.....	1	.....	Hemorrhage began 2d month; pain, nausea.	.....	Induced.	"	Leuers, <i>Lancet</i> , 1890, 954.	
85	21	0	0	.....	1	12 wks.	Vomiting severe; hemor- rhage.	7 wks.	Induced.	"	<i>Ibid.</i>	
86	...	...	...	.....	1	.....	Hemorrhage.	.....	Spontane- ous.	"	Dunn, <i>Bost. Med. and Surg. Journ.</i> , 1886, 612.	Alarming hemorrhage.
87	35	4	...	.....	...	.....	Anasarca, anemia, hem- orrhage 3d month.	.....	.....	.....	Faddock, <i>Phys. and Surg.</i> , 1886, 241.	Hydatids weigh bed; seven pounds fetal liver attached to mole; normal child born in subsequent pregnancy.

88	Uterus size of eight months at two months; enlargement due to coealed hemorrhage.
89	25	1	0	Normal.	1	2 mos.	...	Copious flow on 15th week; no pain.	...	4 wks.	Spontaneous.	Recovery	Lawrence, Trans. Obst. Soc., London, 1890-91, xxxii, 65.				
90	37	0	0	...	...	4 mos.	...	Vomiting, slight hemorrhage	...	...	Induced.	"	Craigin, Med. Comm., Shattuck, Boston Med. Journ., 1888, 358.
91	30	2	1	Normal.	1	...	...	Vomiting and pain.	...	...	Spontaneous.	"	Languevin, Journ. de Ther. Med., xxii, 248.
92	40	12	0	"	1	3 wks.	...	" " "	...	Few days.	"	"	Gilbert, Bul. de la Soc. Anat. de Paris, 1856, 463.				
93	19	2	0	"	1	...	...	Hemorrhage began in 5th week.	...	...	"	"	Dauzats, Archiv. de Toccol., 1877, 561.
94	38	10	0	"	1	6 mos.	...	Nausea, vomiting, hemorrhage began 12th week; uterus grew rapidly during 4th month.	...	5 mos.	"	"	Budin, Ze. Prog. Med., 1875, 190.				
95	42	5	0	"	1	...	...	Hemorrhage.	...	...	Induced.	"	Hamon, Gaz. des Hop., 1858, p. 283.
96	17	0	0	...	1	5 mos.	...	Pain in hypogastrium; hemorrhage	...	4 mos.	Spontaneous.	"	Robin, Ibid.				
97	...	1	0	Normal.	11	5 to 7 months	...	...	...	...	...	Recovery	Majer, Wurt. Corresp. Bl., 1843, No. 38.
98	26	2	0	"	1	4 mos.	...	Hemorrhage at time of expulsion.	...	...	Spontaneous.	"	Magnin, Jour. de Med. et de Chir. Pract., 1881, li, 501.		
99	21	0	0	...	1	5 mos.	...	Hemorrhage sudden and profuse in 18th week.	...	...	"	Recovery	Maslowsky, Centr. f. Gyn., 1882, 144.		
100	48	6	0	Normal.	1	5 wks.	...	Hemorrhage.	...	...	Induced.	"	Krabbel, Langebeck's Archiv., 1878-79, 23.		
101	48	8	...	...	1	4 mos.	...	Bloody discharge for 4 months.	...	4 mos.	Spontaneous.	"	Jackson, Amer. Journ. Med. Sci., 1853, 375.		
102	26	mult.	...	...	1	8 wks.	...	Hemorrhage 8th week.	...	...	Induced.	"	See Med. Brief, 1889, p. 219.
103	25	1	...	...	1	6 mos.	...	Hemorrhage late; rapid growth of uterus.	...	...	Spontaneous.	"	Fruitnight, Am. Jour. Obst., 1890, 54.
104	27	3	0	...	1	4 mos.	...	Hemorrhage for 1 1/2 mos.	...	2 1/2 mos.	"	"	Levers, Lancet, 1890, 954.				
105	25	5	0	Normal.	1	4 1/2 mos.	...	Nausea and vomiting, oedema of legs, hemorrhage for 11 weeks.	...	3 wks.	"	"	Oliver, Ibid., Sept. 21, 1889, 592.				
106	30	8	0	"	1	3 1/2 mos.	...	Slight hemorrhage.	...	...	Induced.	"	Parish, Trans. Obst. Soc. Phila.		
107	27	8	0	"	1	4 mos.	...	Hemorrhage at 5th week.	...	...	"	"	Poole, Dub. Jour. Med. Sci., 1881, lxxv, 423.		
108	26	8	0	"	1	4 mos.	...	Hemorrhage at 4th mo.; rapid growth of uterus.	...	...	Spontaneous.	"	Ibid.		

Mole double the size of a full-term placenta.

Transfused blood because of hemorrhage. Last pregnancy ten years before the mole developed.

All of the eleven moles were of five to seven months' development.

Last childbirth ten years prior to mole; abdomen large as five months' pregnancy in fifth week; collapse from loss of blood. Last child stillborn; at time of expulsion of cysts abdomen as large as full-time pregnancy.

Case No.	Age	Children	Abortions	Puerperium	No.	Age.	Symptoms and course.	Duration of symps.	Termination.	Remote results.	Reference.	Remarks.
109	...	0	0	.....	1	3½ mos.	Nausea and vomiting.	.....	Induced.	Recovery	Rooker <i>Bost. Med. and Surg. Journ.</i> , 1868, 216.	
110	35	1	0	Normal.	1	2½ mos.	Hemorrhage constant.	.....	Spontaneous.	"	Routh, <i>Lancet</i> , 1860, 597.	
111	23	0	0	.....	1	4½ mos.	Nausea and vomiting; slight hemorrhage beginning at 4th month. Profuse hemorrhage.	2 wks.	Induced.	"	Sackett, <i>Obstet. Gaz., Cinch.</i> , 1881-82, 174.	
112	30	6	0	Normal.	1	5½ mos.	Profuse hemorrhage.	.....	Spontaneous.	"	Schultz, <i>Zeitsch. f. Wunds. u. Geb.</i>	
113	53	10	1	.....	1	5 mos.	Nausea and vomiting, severe pain; much hemorrhage after 2d month.	.....	"	"	Schewen, <i>Brit. Med. Journ.</i> , 1873, 101.	
114	29	0	0	.....	1	4 mos.	Nausea and vomiting, hemorrhage began at 4th month.	.....	Induced.	"	Smith, <i>Jour. Am. Med. Assoc.</i> , 1887, 686.	
115	?	2	0	Normal.	1	3½ mos.	No hemorrhage; large uterus.	.....	"	"	Ibid.	
116	13	0	0	.....	1	3 mos.	Much pain, flooding one week before birth.	.....	Spontaneous.	"	Smyth, <i>British Med. Journ.</i> , 1873, 61.	
117	...	...	...	.....	1	.....	Jaundice.	.....	Spontaneous.	"	Thomas, <i>Ibid.</i> , 1883, 912.	
118	30	3	0	Normal.	1	4¼ mos.	Slight hemorrhage.	.....	"	"	Thompson, <i>Proc. Conn. Med. Soc.</i> , 1880, 60.	
119	24	2	0	"	1	3 mos.	Hemorrhage began in 2d month.	.....	Induced.	"	Underhill, <i>Am. Jour. Obstet.</i> , 1879, 185.	Uterus larger than at full term.
120	25	0	0	.....	1	4 mos.	Some hemorrhage.	.....	Spontaneous.	"	Van Dyke, <i>Med. and Surg. Rep.</i> , 1883, 10.	
121	25	20	0	.....	1	12 wks.	Hemorrhage.	10 wks.	Spontaneous, followed by per-ovular with fluger.	Deciduoma mal.	Fränkel, <i>Arch. f. Gyn.</i> , 48-80.	Returned to hospital in twenty-one months; deciduoma malignum.
122	30	2	0	Normal.	1	4 mos.	Hemorrhage.	3 mos.	Induced.	"	Cazin-Segond, <i>La Gynaecologie</i> , 1896.	Deciduoma malignum, operated nine months after mole was expelled.
123	30	6	0	"	1	5 mos.	Hemorrhage.	.....	"	"	Müller, <i>Verh. f. Gyn. Congress</i> , iv, 341.	Hemorrhage great when mole was removed, and returned in a few weeks.
124	55	3	0	Normal for 10 yrs	1	3 mos.	Continuous hemorrhage from 6th week.	Several weeks.	"	"	Mayer, <i>Arch. f. Gyn.</i> , 1888, xxxiii, 64.	Difficult to remove adherent mole; hemorrhage profuse, and returned eleven months later.
125	..	..	..	.....	1	.....	.....	.....	.....	"	Kaltenbach, <i>Cent. f. Gyn.</i> , 1890.	Symptoms of malignancy developed one and half years after mole was expelled.
126	34	2	0	Normal.	1	.....	Hemorrhage began in 4th month at intervals of 6 to 8 weeks.	.....	Spontaneous.	"	Nove-Josserand, <i>Cent. f. Gyn.</i> , 1890, 255.	In 4th month uterus was size of a full-term pregnancy; hem'bage returned one month after mole was expelled.

127	47	6	1	Normal.	1	7 mos.	.....	Induced.	Decidu- oma, mal.	Zohlein <i>Ibid.</i> , 1890.	Malignancy devel'ed eighteen months after mole was expelled.
128	35	7	2	.....	1	6 mos.	Severe hemorrhage.	"	"	Menge, <i>Zeit. f. Geb.</i> , 1894, xxx. 323.	Severe hemorrhage return'd six months after mole was expelled.
129	18	0	0	.....	1	2 mos.	Began with profuse hemorrhage 8th week.	"	"	<i>Ibid.</i>	Uterus was at the umbilicus in eighth week; much loss of blood when mole was removed.
130	45	8	2	.....	1	12 wks.	Continuous hemorrhage.	Spontaneous.	"	Butz, <i>Archiv. f. Gyn.</i> , 1901, xlii. 1.	One year after mole was expelled patient bled from the lungs, and died in a few days.
131	22	0	0	.....	1	8 wks.	Continuous hemorrhage.	Induced.	"	<i>Ibid.</i>	Bilateral cysts of ovaries and interstitial endometritis.
132	36	9	6	Post-part. hemor- rhage.	1	.....	Hemorrhages with liquid discharges containing cysts.	Spontaneous.	Recovery	Ashley, <i>Lancet</i> , 1860, 319.	Frequent discharges of fluids containing cysts.
133	...	...	...	.....	...	.....	Hemorrhages.	Induced.	"	Atthill, <i>British Med. Journ.</i> , 1878, 334.	
134	42	8	3	Albumin- uria.	1	.....	Hemorrhage, albuminuria.	Spontaneous.	Death.	Barnes, <i>Trans. Obst. Soc.</i> , Edinb., 1865, 117.	Cause of death uremia; cystic ovary, uterine fibroid.
135	36	1	1	Nephritis	1	.....	.....	"	Recovery	Woodman, <i>Trans. Obst. Soc.</i> , 113.	
136	24	...	...	.....	1	4 mos.	.....	"	Death.	<i>Ibid.</i>	Uterine tumor apparently seven mos. at three and a half mos.; had nephritis and anasarca and endocarditis; both ovaries cystic.
137	37	2	...	.....	1	3 mos.	Hemorrhage and anasarca.	"	Recovery	Bartlett, <i>Brit. Med. and Surg. Journ.</i> , 1846, 95.	Uterine tumor at sixth week as large as at six months; threatened death from hemorrhage.
138	24	...	...	.....	1	.....	Hemorrhage and anasarca.	Induced.	Death.	Bass, <i>State Med. Assoc. of Texas</i> , 1885, 382.	Post-partum hemorrhage cause of death.
139	49	12	...	.....	1	.....	Hemorrhage and anasarca.	Spontaneous.	Recovery	Brookless, <i>Ibid.</i> , 1851, 80.	Death threatened from hemorrhage.
140	41	8	6	.....	1	4 mos.	Hemorrhage and anasarca.	"	"	Bethune, <i>Canada Lancet</i> , 1875, 161.	
141	25	0	...	.....	...	.....	.....	.....	.....	Bennett-Rich, <i>Louisville Med. Jour.</i> , 1872, v. 337.	Dead fetus of five months expelled with mole; lay dead in uterus three months.
142	...	...	...	.....	1	13 mos.	Hemorrhage.	Induced.	Recovery	Barnes, <i>Lancet</i> , 1886, 249.	Death threatened from hemorrhage; size of uterus of seven months at three months.
143	83	8	1	.....	1	4 mos.	Hemorrhage.	"	"	Phamplim, <i>New OrL. Med. and Surg. Journ.</i> , 1885-86, 275.	
144	37	...	...	.....	1	5 mos.	Hemorrhage.	Spontaneous.	"	Clark, <i>Mich. Med. News</i> , 1882, 89.	
145	47	12	...	.....	1	4 mos.	Hemorrhage.	"	.....	Campbell, <i>Mich. Med. Journ.</i> , 1888, 61.	

Case No.	Age	Children.	Abortions.	Puerperium.	No.	Age.	Symptoms and course.	Duration of symps.	Termination.	Remote results.	Reference.	Remarks.
146	21	1	0	Normal.	1	4 mos.	Nausea and vomiting severe; hemorrhage began in 2d month.	2 mos.	Spontaneous.	Recovery	Depaul, Mem. de la Soc., 1850, 88.	
147	...	0	0	.....	1	14 wks.	Hemorrhage.	.....	"	"	Follin, Ibid., 1849, 67.	
148	46	4	0	Normal.	1	7 mos.	Hemorrhage.	.....	"	"	Germain, Bul. de Acad. Roy. de Med., 2d serie, 1858-59.	
149	36	3	...	"	1	8 mos.	Hemorrhage began in 6th month after quickening.	.....	"	"	Ibid.	
150	37	8	0	"	1	3 mos.	Hemorrhage began in 3d week.	7 wks.	.....	Death.	Georgie, Memosabellen, 1883, xxviii, 80.	Cause of death, hemorrhage; both ovaries were cystic.
151	28	4	0	"	1	.....	Hemorrhage continued 3 weeks.	.....	Induced.	Recovery	Ibid.	
152	49	1	0	"	1	.....	Hemorrhage.	.....	Spontaneous.	"	Garner, Bul. de Soc. Anat., 1859, 128.	
153	37	3	...	"	1	.....	Pelvic pain, vomiting, edema of feet; dyspnoea began 12th week; hemorrhage began suddenly in 16th week.	.....	"	"	Flamm, Rüst. Mag., i.	Mole weighed six pounds.
154	37	0	0	.....	1	5 mos.	Edema of face and feet; hemorrhage began in 2d month.	10 wks.	"	"	Dulac, Gaz. heb. de Med. et de Chir., 1884, 77.	Complicated by septic infection, anæmic convulsions.
155	34	3	1	.....	1	.....	Profuse hemorrhage in 6 to 7 months.	.....	Induced.	Recovery	.....	Vesicles expelled with blood; twin pregnancy; fetus and placenta normal; no sign of other fetus; mole was complete; fetus weighed 2 lbs., and was living.
156	29	1	0	Normal.	1	6 mos.	In 3d month had vomiting, pelvic pain, palpitation; hemorrhage not spoken of.	4 mos.	Spontaneous.	.....	Melcien, Gaz. des Hop., 1853, 482.	Mole expelled and followed by a well-formed fetus and placenta.
157	24	0	0	.....	1	.....	Hemorrhage in 5th mo.; uncontrollable vomiting.	.....	Induced.	Recovery	Marsh, New York Med. Journ., 93.	
158	40	5	0	Normal.	1	2 mos.	Profuse hemorrhage; fever developed late in the puerperium.	.....	"	.....	Wendel, Frauenarzt, Berlin, 1887, 478.	Uterus size of five months' pregnancy.
159	26	...	...	.....	1	4 mos.	Haematemesis for 6 wks.; profuse flooding in 3d month.	2½ mos.	"	Recovery	Croom, Edinb. Med. Jour., 1887-88, xxxiii, 297.	Blood transfused.

Case No.	Age	Sex	Parity	Menstruation	Duration	Hemorrhage	Induced	Recovery	Notes
160	23	...	...	...	6 mos.	Hemorrhage.	...	...	Davis, Clin. Lancet, 1887, 665.
161	21	...	...	...	...	Slight hemorrhage in 7th week, increase to flooding.	"	"	Tall, Brit. Gyn. Jour., 1887, 282.
162	27	4	1	...	9 mos.	Hemorrhage.	"	"	Roeser, Gaz. de Gyn., 1886-86, 74.
168	23	1	0	Normal.	...	Severe vomiting, hemorrhage profuse and sudden.	Spontaneous.	"	Zwischen, Med. Rec., 1894, 3069.
164	28	3	0	"	...	Vomiting; repeated hemorrhages, usually at night.	Induced.	"	Furniss, Med. Rec., 1895, 269.
165	32	5	0	"	4½ mos.	No bloody discharge.	Spontaneous.	"	Ibid.
166	32	4	0	"	4 mos.	Nausea, vomiting.	Induced.	"	Ibid.
167	24	0	0	...	4 mos.	Nausea, vomiting, albuminuria; no hemorrhage.	"	Death.	Ibid.
168	22	0	0	...	3 mos.	Nausea, vomiting.	Spontaneous.	Recovery	Ibid.
169	23	0	0	...	3½ mos.	Uncontrollable vomiting, bloody discharge.	"	"	Ibid.
170	40	18	1	Normal.	4½ mos.	Slight pain, no hemorrhage; no unusual distention of uterus.	Induced.	"	Cremen, Dub. Journ. Med. Sci., 1858, xxv. 473.
171	28	1	...	"	7½ mos.	Slight pain, hemorrhage commenced 4th month; some over-distention of uterus.	Spontaneous.	"	Crossman, Brit. Med. Journ., 1867, 24.
172	17	0	0	...	8 mos.	Hemorrhage 7½ months.	Induced.	"	Edls, Ibid., 1871, 853.
173	42	7	1	Normal.	4½ mos.	Uncontrollable vomiting, pain, hemorrhage at 3d month; great distention.	Spontaneous.	"	Edwards, Lancet, 1847, vol. i.
174	32	?	...	...	...	Slight hemorrhage.	Induced.	"	Heble, Wien. med. Presse, 1871.
175	36	7	0	...	3 mos.	Slight hemorrhage.	"	"	Koch, Zeit. f. W. Mds. u. Geb.
176	40	?	...	...	3½ mos.	Nausea and vomiting; hemorrhage.	Spontaneous.	"	MacGill, Amer. Jour. Med. Sci., 1827, 240.
177	25	1	0	...	4½ mos.	Nausea, vomiting, hemorrhage at 3½ months.	"	"	Mellor, British Med. Journ., 1865, 282.

Case No.	Age	Chil- dren.	Abor- tions.	Puerpe- rium.	No.	Age.	Symptoms and course.	Dura- tion of symps.	Termina- tion.	Remote results.	Reference.	Remarks.
178	17	0	0	.....	1	4 mos.	Constant nausea and vomiting; oedema of feet; hemorrhage at 6th month.	10 wks.	Induced.	Recovery	Miller, Trans. Med. Sci., W. Va., 1879, 488.	
179	50	7	3	.....	1	2½ mos.	Nausea and vomiting; hemorrhage at 6th wk.	6 wks.	Spontane- ous.	"	Moorehead, Lancet, 1863, 395.	Sterile for past twenty years before mole.
180	50	10	0	.....	1	3½ mos.	Bloody discharge con- stant, beginning 6th wk.	8 wks.	"	"	Moore, Dublin Quart. Med. Sci., 1868, 473.	Sterile for ten years before mole.
181	...	3	0	.....	1	6 mos.	Pain severe, hemor- rhage at 4th month.	2 mos.	"	"	Morris, Boston Med. Journ., 1845, 1, 17.	
182	32	6	...	.....	1	8½ mos.	Pain in chest.	.....	"	"	Ibid.	Weight of mole six pounds.
183	...	...	...	.....	1	6 mos.	Uterus larger than at term.	.....	Induced.	"	Moses, St. Louis Contr., 1879, 104.	
184	19	0	...	.....	1	3 mos.	Nausea and vomiting; slight hemorrhage after 2d month.	1 mo.	"	"	Mundell, Journ. Amer. Med. Assoc., 1888, 592.	
185	29	...	...	.....	1	6 mos.	Constant nausea and vomiting; oedema of feet; hemorrhage severe 2d month; great disten- sion.	4 mos.	Spontane- ous.	"	Murphy, Obst. Gaz., Cincinnati, 1880, 111.	
186	25	5	...	Normal.	1	4½ mos.	Slight bleeding 9th wk.; later abdominal pain.	9 wks.	Induced.	"	Gerson, Univ. Med. Mag., Philadelphia, Kempf, Ind. Med. Journ., 1898, 53.	Extreme anaemia.
187	...	...	...	.....	1	11 wks.	Excessive vomiting, hemorrhage in 9th wk.	.....	"	"	Nariman, Ibid., 1898, 838.	
188	26	9	0	"	1	8 mos.	Had flooded 7 times.	.....	"	"	Kennedy, Univ. Med. Mag., 1889-94, 677.	
189	24	2	0	"	1	.....	Uncontrollable vomit- ing 9th month; contin- uous hemorrhage.	.....	"	"	Hengey, Med. News, 1894, 381.	
190	52	8	0	"	1	.....	Hemorrhage; no pain.	4 wks.	Spontane- ous.	"	Gillette, Med. Rec., 1896, 15.	
191	18	1	0	"	1	11 wks.	Hemorrhage 6th week.	4 wks.	"	"	Champneys, The Prac- titioner, 1896, 15.	Sepsis followed; cured three times.
192	40	mult.	0	.....	1	10 wks.	Hemorrhage 6th week; pain in 8th week	4 wks.	"	"	Ibid.	Cause of death peritonitis.
193	33	0	0	.....	1	.....	Hemorrhage and pain late.	.....	"	Death.		Thought to be a soft fibroid; two mos. after mole was excised septic symp- toms developed. Patient died, prob- ably from syncytoma malignum and septic peritonitis.
194	18	1	0	Normal.	1	.....	Severe pain in pelvis in 6th month; no less of blood until this time.	2 wks.	Induced.	"	Ibid.	
195	25	0	0	.....	1	.....	Severe hemorrhage in 5th week.	.....	Spontane- ous.	Recovery	Dirmoser, Wien. Med. Woch., 1896, 432.	

196	23	0	0	0	0	1	5 mos.	Hemorrhage.	.....	Spontaneous.	Recovery	Hastings, Canada Practitioner, 1896, 203.	
197	22	0	0	0	1	1	.....	.....	.....	"	"	Cronkite, Med. Rec., 1897, 239.	
198	22	2	0	0	1	1	.....	Quickening felt; hemorrhage at 7th mo., slight; great abd. enlargement.	3 mos.	"	"	Anderson, W. Lond. Med. Repository, 1827, xxviii, 40.	Mole weighed five pounds.
199	16	0	0	0	1	1	6 mos.	Weak, anemic, pain, no hemorrhage; rapid growth of uterus.	.....	"	"	Jno. Andrew, Glasgow Med. Journ., 1832, lxviii, 74.	
200	...	1	1	1	1	1	4 mos.	Nausea, slight spitting of blood; no hemorrhage; uterus size of 6 months' pregnancy.	.....	"	"	Ibid.	Mole weighed seven pounds.
201	...	0	0	0	1	1	4 mos.	Nausea; no hemorrhage; spitting of blood; abnormally large uterus.	.....	Spontaneous and induced.	"	Ibid.	
202	...	1	0	0	1	1	.....	Rapid growth of uterus.	.....	Induced.	Death.	Armstrong, Liverpool & Surg. Rep., 1874, 53.	Death from hemorrhage at time of delivery.
203	30	...	...	...	1	1	term.	Hemorrhage slight from 5th month.	4 mos.	"	Recovery	Bernardy, not reported.	Profuse hemorrhage in labor.
204	36	7	0	0	1	1	10 wks.	Hemorrhage at 8th wk.; moderate distention.	2 wks.	"	"	Borden, Med. News, 1884, xiv, 703.	Only four cysts in placenta; no fetus.
205	38	4	1	1	...	...	4½ mos.	Constant vomiting; emaciation, hemorrhage beginning 2d month.	10 wks.	"	"	Bryan, British Med. Journ., 1872, 464.	
206	...	0	0	0	1	1	5 mos.	.....	.....	Spontaneous.	"	Chrono, Lancet, Nov. 11, 1843.	
207	35	9	0	0	1	1	2½ mos.	Vomiting, ankles swollen, no hemorrhage.	.....	"	Death.	Chunn, Maryland Med. Journ., 1882, 550.	Heart lesion. Died of post-partum hemorrhage; size of six months pregnancy at two and a half months. Healthy child born since mole, and patient again pregnant. Both ovaries cystic, patient now in good health.
208	25	0	1	1	1	1	4 mos.	Extreme anæmia; rapid growth of uterus.	10 wks.	"	Recovery	Findley, not reported.	
209	36	5	0	0	2	2	15 wks.	Extreme anæmia, continuous hemorrhage; rapid growth of uterus; rigor, slight temperature	.....	Hysterectomy.	"	Ibid.	
210	...	...	...	...	1	1	8 wks.	Pain in pelvis 5th week; hemorrhage severe in last few days.	3 wks.	Induced.	Decidua mal.	Bonnaire & Tetuille, Rev. de Gyn. et de Chir., 1901, No. 4.	Death five weeks after mole was removed; hysterectomy performed.

6. The length of time a mole remains *in utero* does not influence its disposition to become malignant. Those expelled in the early months are as likely to become malignant as those of late development.

7. The diagnosis cannot be made with certainty without seeing the vesicles. These vesicles are seldom expelled spontaneously before the abortion is in progress (4 times in 210 cases); hence it is that the diagnosis is rarely established until the expulsion of the mole, either spontaneous or induced.

8. The most constant clinical evidence of the presence of a mole is the rapid development of the uterus. Uterine hemorrhage is an early and almost constant symptom. The irregular shape and consistency of the uterus are important diagnostic factors.

9. In view of the tendency of hydatiform mole to undergo malignant degeneration, our only safeguard lies in early recognition and immediate removal, however limited the degeneration may be.

10. Ergot and vaginal packs will control the hemorrhage, and will often excite the uterus to contract and expel the mole. The curette should not be used, for fear of perforating the greatly stretched and weakened walls.

11. After the mole is expelled always explore the uterus with the finger, irrigate, and pack with antiseptic gauze.

12. Two weeks after the birth of the mole it is well to curette the uterus and examine the scrapings for syncytial invasion, and, if found in the act of proliferating, hysterectomy should be performed.

13. A period of about three years of watchful expectancy should follow the expulsion of a hydatiform mole. In the event of uterine hemorrhage an exploratory curettage must be made for microscopic examination of the scrapings. All new-growths in the vagina and lungs are to be regarded with suspicion.

14. The tables are a summary of statistics derived from the accompanying reports of 210 cases: Average age of patient is twenty-seven years; extreme ages are thirteen and fifty-eight years. Largest number of moles born of a single woman is eleven. Eight of the 210 cases had cystic degeneration of the ovaries. One hydatiform mole developed in the Fallopian tube. Malignant degeneration occurs from one week to four and one-half years after the expulsion of the mole, as evidenced by the recurrence of hemorrhage. Maternal mortality in hydatiform mole is 25 per cent. Causes of death: Syncytioma malignum, 16 per cent.; hemorrhage, 4 per cent.; septic peritonitis, 2 per cent.; general sepsis, uræmia, nephritis, endocarditis, meningitis, each 0.005 per cent.; two of unknown cause.

15. Contrary to the usual statement that there is a tendency to the development of two or more hydatiform moles, it is found to be the great exception.

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For further references see accompanying tables of reported cases.