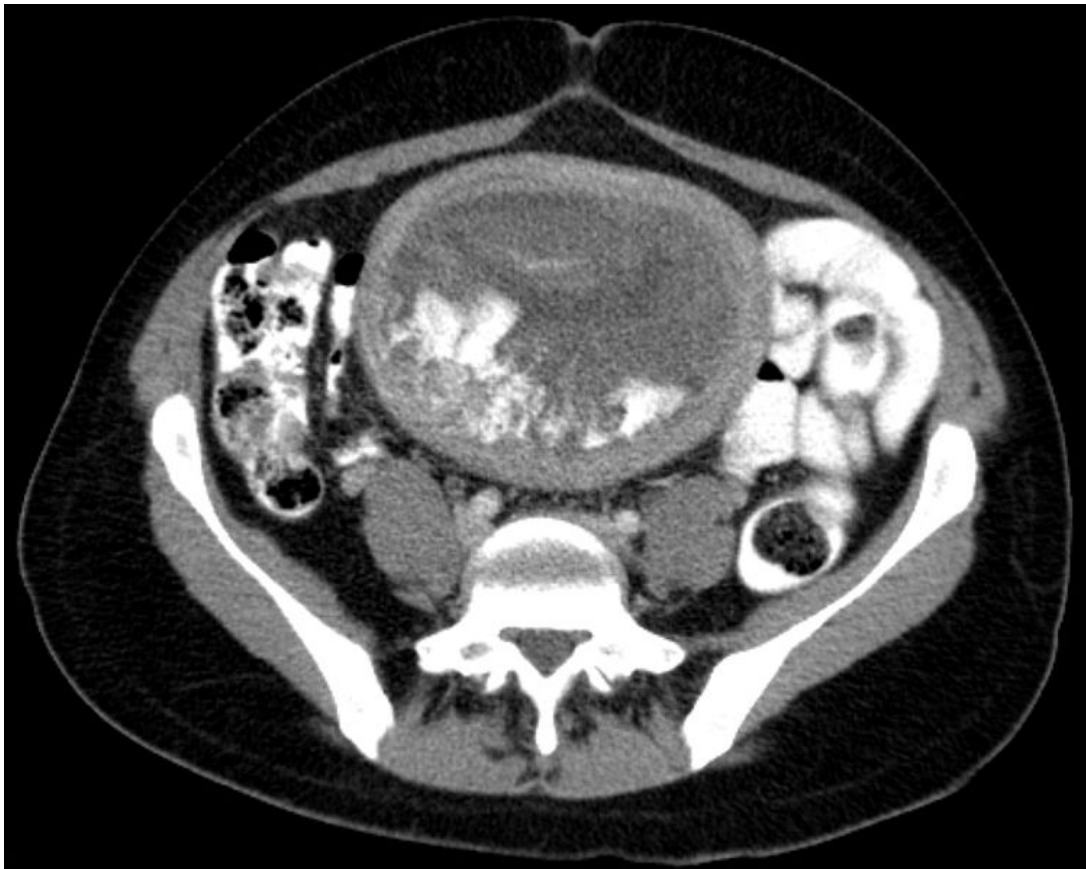


## Molar Pregnancy (Hydatidiform Moles) and Choriocarcinoma — Symptoms and Treatments

[See online here](#)

**During pregnancy, it is possible for the tissue surrounding the embryo to degenerate. Such degeneration typically manifests itself in hydatidiform moles and choriocarcinoma. These tumors are difficult to diagnose and are associated with an increased level of beta hCG. Treatment involves the complete removal of tumorous growth. The characteristics of the tumors are described in more detail below.**



### Hydatidiform Moles

#### Definition



**Image:** Sagittal CT image of a hydatidiform mole. By Hellerhoff, License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Hydatidiform moles arise from a **hydropic degeneration** of the placental chorionic villi. The vascularization of the degenerated villi is reduced and may even be completely absent. Hydatidiform moles are divided into 2 different types: **complete** and **partial**. In complete hydatidiform moles, no signs of fetal development are present. In partial moles, some hydropic trophoblastic tissue and fetal tissue may be evident.

### Types of hydatidiform mole

<b>Complete mole</b>	<b>Partial mole</b>
46, XX	Triploid
All villi are edematous and completely surrounded by a trophoblastic proliferation	Some villi are edematous and partially surrounded by a trophoblastic proliferation
<b>No fetal parts</b>	<b>Fetal parts</b>
<b>Higher risk for choriocarcinoma</b>	<b>Lower risk for choriocarcinoma</b>

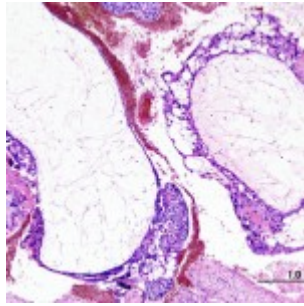
## Epidemiology

The incidence of hydatidiform moles is **20 times higher** in Southeast Asian countries, including **China** than in the USA or Europe. Women under 20 or over 40 years of age are also at a higher risk.

## Etiology

The tumorous change seen in hydatidiform mole occurs due to the fertilization of a **defective egg** from which the maternal genetic material has been lost. The paternal set of chromosomes reduplicates itself, often in an XXX configuration. Triploid chromosome sets are a common occurrence in partial hydatidiform moles.

## Pathogenesis



**Image:** Histological picture of a molar pregnancy. HE staining.  
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In a hydatidiform mole, **hydropic** or fluid-filled **cysts** appear. These are typically the size of a hazelnut and are connected to each other via small peduncles. Because the cysts are not vascularized during the course of proliferation, the **supply of blood and oxygen is deficient**. As such, the fetus is no longer viable.

The proliferation of trophoblasts leads to the release of increased amounts of **beta hCG**. This means that a higher-than-usual concentration of the hormone can be measured in the serum.

## Clinical symptoms

**Vaginal bleeding** occurs in early pregnancy. This means that a hydatidiform mole is an important differential diagnosis in patients with bleeding during pregnancy. Bleeding due to a hydatidiform mole is often distinguished by the presence of clear vesicles in the bloody discharge.

Lutein cysts form on the ovaries due to the excessive production of beta hCG. Non-specific symptoms such as hyperemesis gravidarum and nausea may also occur.

## Diagnosis

Generally, there is a discrepancy between the size of the uterus and the gestational age (the uterus is significantly bigger than expected). A **sonographic** examination usually reveals an irregular distribution of hypoechoic (**cystic**) and hyperechoic (**solid**) areas.

In complete hydatidiform moles, no fetal tissue is present; in partial moles, fetal development with abnormalities may be detected. Abnormalities might include growth retardation or other deformities. A **significantly increased level of beta hCG in the serum** is also an important indication, with the concentration expected to be around twice as high as in a normal pregnancy. Beta hCG is the tumor marker for a hydatidiform mole.

## Differential diagnosis

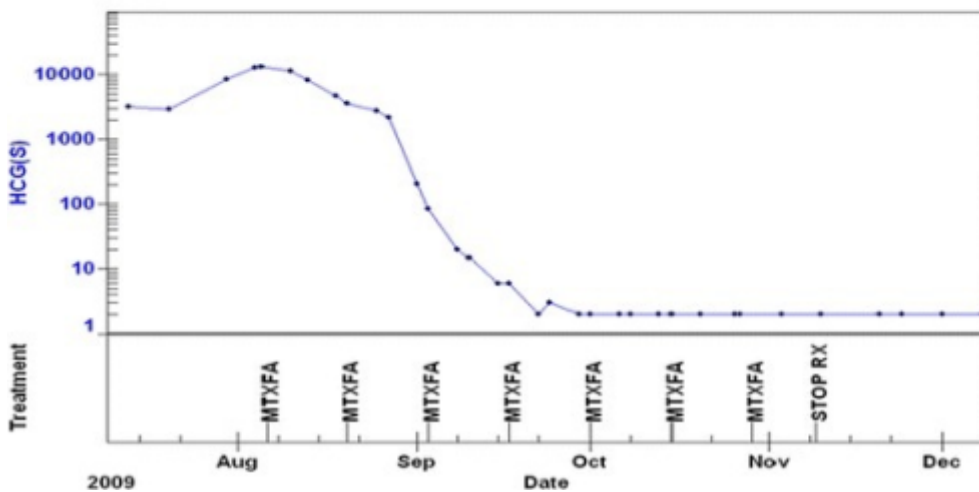
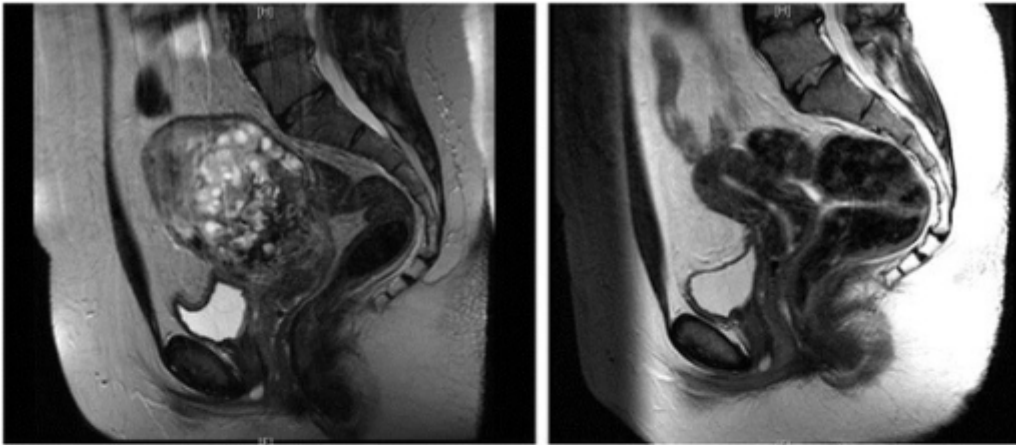
From a diagnostic point of view, a workup for **spontaneous abortion** should also be carried out, since this can also cause bleeding in early pregnancy.

## Treatment

Initially, light bleeding is treated conservatively, with prostaglandins or oxytocin administered to stimulate **spontaneous expulsion** of the mole. Thereafter, the curettage of the uterine wall should be carried out as carefully as possible to avoid

perforations. In cases of more severe bleeding, the preceding step should be skipped, and **curettage** should be performed immediately. A **hysterectomy** may be performed as a last resort.

Since choriocarcinoma can develop from a hydatidiform mole, regular monitoring of beta hCG levels is essential.



*Image:* Post-molar pregnancy gestational trophoblast tumor. Pre- and post-treatment MRI scans of the pelvis showing a large uterine mass prior to treatment and a normal scan at completion. The treatment graph shows the fall and normalization of the hCG level with low-dose methotrexate chemotherapy treatment. The patient completed treatment, subsequently had a healthy baby, and was cured of this malignancy. By openi, License: [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

## Invasive Hydatidiform Mole

### Definition

An invasive hydatidiform mole is a **benign** tumor. Due to its **invasive growth**, it frequently creates a malignant perforation. It is also commonly referred to as a **chorionepithelioma**.

### Epidemiology

An invasive hydatidiform mole is significantly more common in Asia than in the Western world. In Asian countries, chorionepithelioma occurs in about 1 in 20,000 births. Older

pregnant women and first-time mothers are at the highest risk.

## Etiology

In 50% of cases, an invasive hydatidiform mole occurs following a **previous non-invasive hydatidiform mole**. The tumorous change can also occur following an **abortion** or **ectopic pregnancy**. Rarely, it occurs spontaneously during pregnancy.

The development of an invasive hydatidiform mole occurs due to a **movement of trophoblast cells into the endometrium**. Metastasis occurs as soon as the trophoblast cells reach the bloodstream. Typical sites of metastasis include the **lungs, bones, liver**, brain, and vagina. However, these generally respond well to treatment.

## Clinical symptoms

Typically, the patient will have an **enlarged, soft uterus** that does not shrink independently. This may be accompanied by recurrent vaginal bleeding that continues despite the evacuation of a hydatidiform mole or termination of pregnancy. Significantly **increased beta hCG levels** continue to be present in the blood. Organ-specific symptoms typically occur once **metastasis** has taken place.

## Diagnosis

As a first step, the **beta hCG value should be determined**. The results of a sonographic examination will be similar to those obtained in the case of a non-invasive hydatidiform mole. In addition, irregular tumorous regions will be visible in the myometrium.

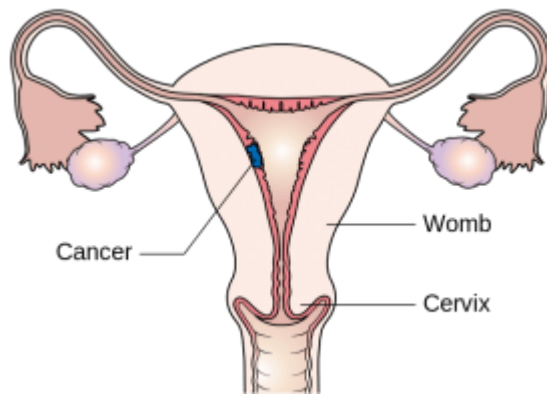
From a histological perspective, invasive hydatidiform moles are distinguished from complete hydatidiform moles by the increased **trophoblast proliferation** and **invasion of the myometrium**. The diagnosis can be confirmed using **curettage**; however, this is not always possible. Depending on the site of metastasis, a further diagnostic aid, such as a chest X-ray, may be needed.

## Treatment

**Chemotherapy** is the method of choice. Despite the occurrence of metastasis, this type of tumor has a good prognosis. Once a year of follow-up care has passed, it no longer represents a contraindication for pregnancy.

## Choriocarcinoma

### Definition



[Image](#): Diagram showing stage 1 choriocarcinoma. By Cancer Research UK, License: [CC BY-SA 4.0](#)

Choriocarcinoma is a **malignant trophoblast tumor** that consists of degenerated chorionic villi. At a histological level, the villi can no longer be detected; only **anaplastic cells** are present.

## Epidemiology of choriocarcinoma

Choriocarcinoma is one of the **rarest carcinomas** occurring in the female genital tract. It accounts for about 1% of all female tumors.

## Etiology of choriocarcinoma

Choriocarcinoma frequently develops from a **hydatidiform mole** or following spontaneous abortion. Occasionally, it occurs after a normal pregnancy. If occurring after a normal pregnancy, tumorous growth does not always appear immediately. The period of latency may last months or even years.

Risk factors include the age of the woman, first pregnancies and previous abortions.

## Clinical symptoms

From a clinical perspective, it is not possible to distinguish choriocarcinoma from an invasive hydatidiform mole. As with an invasive hydatidiform mole, the **uterus is soft and enlarged** and is slow to shrink. Vaginal bleeding is typical. If metastasis has occurred in the vagina, blue or hemorrhagic metastases may be seen during a clinical examination. Systemic symptoms, including fatigue, tiredness, and weight loss, are frequently reported.

Choriocarcinoma should always be suspected when there is a **latency period of 4-6 months** between the end of the pregnancy and the appearance of the tumor, when a significantly **raised concentration of beta hCG** is measured in the blood and when **hematogenous metastasis** is detected in the liver, bones, and CNS.

## Diagnosis

The diagnostic procedure is similar to that for an invasive hydatidiform mole. It is important that **curettage** is carried out and that the **beta hCG concentration in the blood is determined**. **Chest X-ray, MRI, and sonography** of the abdomen could also form a part of the diagnostic process.

## Treatment

Treatment of choriocarcinoma is **chemotherapy**-based, often using methotrexate; 5-6 cycles of cytostatic therapy are typically deployed as treatment. This depends on the levels of **beta hCG**. The concentration of the hormone should be monitored at regular levels since it serves as a **tumor marker**.

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