Gestational Trophoblastic Disease Early Detection, Diagnosis, and Staging

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- Can Gestational Trophoblastic Disease Be Found Early?
- Signs and Symptoms of Gestational Trophoblastic Disease
- How Is Gestational Trophoblastic Disease Diagnosed?

Staging

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- How Is Gestational Trophoblastic Disease Staged?

Questions to Ask About Gestational Trophoblastic Disease

Here are some questions you can ask your cancer care team to help you better understand your diagnosis and treatment options.

- What Should You Ask Your Doctor About Gestational Trophoblastic Disease?

Can Gestational Trophoblastic Disease Be Found Early?

Most cases of gestational trophoblastic (jeh-STAY-shuh-nul troh-fuh-BLAS-tik) disease
(GTD) are found early during routine prenatal care. Usually, a woman has certain signs and symptoms, like vaginal bleeding, that suggest something may be wrong. (These symptoms are discussed in "Signs and symptoms of gestational trophoblastic disease"). These problems will prompt the doctor to look for the cause of the trouble.

Often, moles or tumors cause swelling in the uterus that seems like a normal pregnancy. But a doctor can usually tell that this isn't a normal pregnancy during a routine ultrasound exam. A blood test for HCG (human chorionic gonadotropin [HYO- mun KOR-ee-AH-nik goh-NA-doh-TROH-pin]) can also show that something is abnormal. This substance is normally elevated in the blood of pregnant women, but it may be very high if there is GTD.

Fortunately, even if it is not detected early, GTD is a very treatable (and usually curable) form of cancer.

Because women who have had one molar pregnancy are at increased risk, doctors can be especially careful in checking their future pregnancies with HCG tests and transvaginal or pelvic sonograms. (See “How is gestational trophoblastic disease diagnosed?”)

- References

See all references for Gestational Trophoblastic Disease

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**Signs and Symptoms of Gestational Trophoblastic Disease**

It's important to tell your doctor about any abnormal symptoms you are having during pregnancy. Your doctor may suspect that gestational trophoblastic disease (GTD) is present based on a typical pattern of signs and symptoms.

**Complete hydatidiform moles (molar pregnancies)**
Most of these signs and symptoms (except for bleeding), are seen less commonly now than in the past because they tend to occur late in the course of the disease. Most women with GTD are now diagnosed early because of the use of blood tests and ultrasound early in pregnancy.

**Vaginal bleeding:** Almost all women with complete hydatidiform (HY-duh-TIH-dih-form) moles have irregular vaginal bleeding during pregnancy. It occurs a little less often with partial moles. Bleeding typically starts during the first trimester (13 weeks) of pregnancy. Women with GTD often pass blood clots or watery brown discharge from the vagina. Sometimes, pieces of the mole resembling a cluster of grapes become dislodged from the uterus and are discharged through the vagina. This bleeding often leads the doctor to order an ultrasound (discussed later in this section), which leads to the diagnosis of a molar pregnancy.

**Anemia:** In cases of serious or prolonged bleeding, a woman's body is not able to replace red blood cells as fast as they are lost. This can lead to anemia (low red blood cell counts). Symptoms can include fatigue and shortness of breath, especially with physical activity.

**Abdominal swelling:** The uterus and abdomen (belly) can get bigger faster in a complete molar pregnancy than they do in a normal pregnancy. Abnormal uterine enlargement occurs in about 1 out 4 women with complete moles but rarely in women with partial moles. This may not be seen early in the pregnancy and is more often present in the second trimester.

**Ovarian cysts:** HCG (human chorionic gonadotropin), a hormone made by the tumor (see below), may cause fluid-filled cysts to form in the ovaries. These cysts can be large enough to cause abdominal swelling. They only occur with very high levels of HCG. Even though they can become quite large, they usually go away on their own about 8 weeks after the molar pregnancy is removed. Sometimes they can twist on their blood supply (called torsion). This can cause severe pain and is treated with surgery to remove the cyst or a procedure to drain the fluid inside the cyst.

**Vomiting:** Many women have nausea and vomiting during the course of a typical pregnancy. With GTD, however, the vomiting may be more frequent and severe than normal.

**Pre-eclampsia:** Pre-eclampsia (toxemia of pregnancy) can occur as a complication of a normal pregnancy (usually in the third trimester). When it occurs earlier in pregnancy (like during the first or early second trimester), it can be a sign of a complete molar pregnancy. Pre-eclampsia may cause problems such as high blood pressure, headache, exaggerated reflexes, swelling in the hands or feet, and too much protein
leaking into the urine. It affects a small number of women with complete moles but is rare in women with partial moles.

**Hyperthyroidism:** Hyperthyroidism (having an overactive thyroid gland) occurs in some women with complete hydatidiform moles. It occurs only in women with very high HCG blood levels. Symptoms of hyperthyroidism can include a rapid heartbeat, warm skin, sweating, problems tolerating heat, and mild tremors (shaking). This occurs in less than 10% of women with complete molar pregnancy.

**Partial hydatidiform moles**

The signs and symptoms of partial hydatidiform moles are similar to those of complete moles, but often are less severe. These include:

- Vaginal bleeding
- Low red blood cell count (anemia)
- Swelling of the abdomen (belly)
- Ovarian cysts
- Pre-eclampsia (toxic pregnancy)

Some symptoms that are seen with complete moles, such as frequent vomiting or an overactive thyroid gland, rarely, if ever, occur with partial moles.

Partial moles are often diagnosed after a woman has what is thought to be a miscarriage. The molar pregnancy is found when the uterus is scraped during a suction dilation and curettage (D&C) and the products of conception are looked at under a microscope.

**Invasive moles and choriocarcinoma**

These more invasive forms of gestational trophoblastic (jeh-STAY-shuh-nul troh-fuh-BLAS-tik) disease (GTD) sometimes develop after a complete mole has been removed. They occur less commonly after a partial mole. Choriocarcinoma (KOR-ee-oh-KAR-sih-NOH-muh) can also develop after a normal pregnancy, ectopic pregnancy (where the fetus grows outside of the uterus, such as inside a fallopian tube), or miscarriage. Symptoms can include:

**Bleeding:** The most common symptom is vaginal bleeding. Rarely, the tumor grows through the uterine wall, which can cause bleeding into the abdominal cavity and severe abdominal pain.
**Infection:** In larger tumors, some of the tumor cells may die, creating an area where bacteria can grow. Infection may develop, which can cause vaginal discharge, pelvic cramps, and fever.

**Abdominal swelling:** Like hydatidiform moles, more invasive forms of GTD can expand the uterus, causing abdominal swelling. HCG, a hormone made by the tumor (see “Blood and urine tests” in the section “How is gestational trophoblastic disease diagnosed?”), may cause fluid-filled cysts (called **theca lutein cysts**) to form in the ovaries, which can be large and may also contribute to abdominal swelling.

**Lung symptoms:** The lung is a common site for distant spread of GTD. Spread to the lungs may cause coughing up of blood, a dry cough, chest pain, or trouble breathing.

**Vaginal mass:** These tumors can sometimes spread to the vagina, which can cause vaginal bleeding or a pus-like discharge. The doctor may also notice a cancerous growth on the vagina during a pelvic exam.

**Other symptoms of distant spread:** Symptoms depend on where GTD has spread. If GTD has spread to the brain, symptoms can include headache, vomiting, dizziness, seizures, or paralysis on one side of the body. Spread to the liver can cause abdominal pain and yellowing of the skin or eyes (jaundice).

Sometimes, choriocarcinoma doesn’t cause symptoms, but may be suspected because a woman has a positive pregnancy test but no fetus is seen on ultrasound.

**Placental site trophoblastic tumors**

Placental site trophoblastic tumors (PSTTs) rarely spread to distant sites. More often, they grow into the wall of the uterus

**Bleeding:** The most common symptom of PSTT is vaginal bleeding. If the tumor grows all the way through the wall of the uterus, it can cause bleeding into the abdominal cavity and severe abdominal pain.

**Abdominal swelling:** As they grow within the wall of the uterus, PSTTs may cause the uterus to enlarge.

**Epithelioid trophoblastic tumors**

The most common symptom of an epithelioid (ep-ih-THEE-lee-oyd) trophoblastic tumor (ETT) is vaginal bleeding. Other symptoms will depend on where it has spread. For
example, if it has spread to the lung, the patient may cough or have shortness of breath. ETTs have also spread to the intestine, where they can cause abdominal (belly) pain, nausea, and vomiting.

Many of the signs and symptoms of GTD could also be caused by other conditions. Still, if you have any of these, it's important to see your doctor right away so the cause can be found and treated, if needed.

- References

See all references for Gestational Trophoblastic Disease

How Is Gestational Trophoblastic Disease Diagnosed?

Gestational trophoblastic (jeh-STAY-shuh-nul troh-fuh-BLAS-tik) disease (GTD) is most often found either as a result of abnormal signs or symptoms during pregnancy or from the results of certain tests during routine prenatal care. These may lead the doctor to order other tests.

Blood and urine tests

Blood and urine tests can be used to help diagnose GTD.

Human chorionic gonadotropin (HCG)

Trophoblastic cells of both normal placentas and GTD make a hormone called human chorionic gonadotropin (HYOO-mun KOR-ee-AH-nik goh-NA-doh-TROH-pin) or HCG, which is vital in supporting a pregnancy. HCG is released into the blood, and some of it is excreted in the urine. This hormone has 2 chemical components, and the commonly used blood and urine tests measure one of these, called beta-HCG (HCG).
HCG is normally found only in the blood or urine of pregnant women. In fact, finding HCG in urine is the basis of most pregnancy tests.

A complete mole usually releases more HCG than a normal placenta, so finding higher than expected HCG levels in the blood can be a sign that a complete mole is present.

However, not all women with GTD have HCG levels that are higher than those seen in a normal pregnancy. For example, most women with partial moles, placental site trophoblastic tumors, and epithelioid (ep-ih-THEE-lee-oyd) trophoblastic tumors have normal or only slightly increased HCG levels.

HCG tests can also help tell if GTD may be present after a pregnancy or miscarriage, as the level of HCG should normally fall to an undetectable level soon afterward.

Along with helping to diagnose GTD, blood HCG levels are also very useful in women already known to have GTD. They can be used to:

- Help estimate the amount of GTD that is present in a patient's body. Higher levels of HCG may mean that there are more tumor cells in the body.
- Determine if treatment is working. HCG levels should drop to normal after treatment.
- Detect GTD that has come back after treatment

It's especially important to monitor HCG levels during treatment and follow-up to make sure the disease is going or has gone away, or has not returned. The HCG test is generally very accurate. In rare cases, patients may have abnormal substances (antibodies) in their blood that interfere with the HCG test. When these patients' blood samples are tested, the HCG levels appear higher than they really are, a situation known as phantom HCG. In some cases, women have been diagnosed with GTD when it is not actually present. A sign of phantom HCG is having high blood levels of HCG, but normal urine levels (because the abnormal antibodies are not present in urine). If doctors notice that the blood (or serum) levels of HCG are high but the urine levels are not, they can order special tests to distinguish between truly elevated HCG levels and phantom HCG.

**Other blood tests**

Other tests may provide indirect evidence of GTD. For example, red blood cell counts can detect anemia (having too few red blood cells), which can be caused by uterine bleeding. Human placental lactogen (hPL) is a marker that may be used to follow up patients with placental site trophoblastic tumors.
For women diagnosed with GTD, blood tests are often used to watch for side effects from chemotherapy. Blood cell counts are done to watch the health of the bone marrow (where new blood cells are made), and blood chemistry tests can be used to check the condition of the liver and kidneys.

**Other lab tests**

**Examination of the placenta**

After a woman gives birth, the placenta is taken to the lab to be examined. Sometimes an unsuspected choriocarcinoma (KOR-ee-oh-KAR-sih-NOH-muh) is found.

**Tests of spinal fluid**

If symptoms suggest GTD might have spread to the brain or spinal cord or if there is a high HCG level but no tumors are seen on any radiology studies, spinal fluid may be checked for signs of tumor spread. This procedure is called a lumbar puncture or spinal tap. For this test, the patient may lie on their side or sit up. The doctor first numbs an area in the lower part of the back over the spine. A small, hollow needle is then placed between the bones of the spine and into the area around the spinal cord to and some of the fluid can be collected through the needle.

**Imaging tests**

Imaging tests use sound waves, x-rays, magnetic fields, or radioactive substances to create pictures of the inside of your body. Imaging tests may be done to help find out whether a tumor is present and to learn how far it may have spread.

**Ultrasound (sonogram)**

Ultrasound can identify most cases of GTD that are in the uterus, and will likely be one of the first tests done if your doctor suspects there may be a problem.

**How it works:** This test uses sound waves to produce images of internal organs. A small microphone-like instrument called a transducer gives off sound waves and then picks up the echoes they make as they bounce off body tissues. The echoes are converted into a black and white image by a computer. That image is then shown on a computer screen.
**What it's like to have the test:** During an ultrasound exam, you simply lie on a table while a technician or doctor moves the transducer on the part of your body being examined. Most ultrasounds are done with the transducer placed on the skin after it is first lubricated with gel.

To diagnose GTD, a different type of ultrasound called *transvaginal ultrasonography* is most often used. In this procedure, a small transducer is placed into the vagina. This allows for good images of the uterus for women suspected of having GTD during the first trimester of their pregnancy.

**What doctors look for:** In a normal pregnancy, ultrasound imaging shows a picture of the developing fetus inside the womb.

In a complete molar pregnancy, however, no fetus can be seen on an ultrasound. Instead, the ultrasound detects the large, grape-like swollen villi that are typical of GTD. Rarely, the ultrasound may show a "twin" pregnancy in which one of the twins is a normal fetus and the other is a hydatidiform (HY-duh-TIH-dih-form) mole. This occurs less than 1% of the time.

In a partial molar pregnancy, ultrasound can show an abnormally formed placenta. If a fetus is seen, it is often deformed.

Ultrasound can also be used to help find out if a mole is invading local tissues. If blood levels of HCG are still elevated after the mole has been removed, more exams may need to be done.

**Chest x-ray**

A chest x-ray may be done in cases of persistent GTD to see if it has spread to your lungs, which is very unlikely unless the cancer is far advanced. However, CT scans of the chest are done more often if your doctor suspects spread outside of the uterus. Either test can be done in an outpatient setting.

**Computed tomography (CT) scan**

This test may be done to see if GTD has spread outside the uterus, such as the lungs, brain, or liver.

The CT scan is an x-ray test that produces detailed cross-sectional images of your body. Instead of taking one picture, like a regular x-ray, a CT scanner takes many pictures as it rotates around you while you lie on a table. A computer then combines
these pictures into images of slices of the part of your body being studied. Unlike a regular x-ray, a CT scan creates detailed images of the soft tissues in the body.

Before any pictures are taken, you may be asked to drink 1 to 2 pints of a liquid called oral contrast. This helps outline the intestine so that certain areas are not mistaken for tumors. You may also receive an IV (intravenous) line through which a different kind of contrast dye (IV contrast) is injected. This helps better outline structures in your body.

The injection may cause some flushing (a feeling of warmth, especially in the face). Some people are allergic and get hives. Rarely, more serious reactions like trouble breathing or low blood pressure can occur. Medicine can be given to prevent and treat allergic reactions. Be sure to tell the doctor if you have ever had a reaction to any contrast material used for x-rays.

CT scans take longer than regular x-rays. You need to lie still on a table while they are being done. During the test, the table moves in and out of the scanner, a ring-shaped machine that completely surrounds the table. You might feel a bit confined by the ring you have to lie in while the pictures are being taken.

**Magnetic resonance imaging (MRI) scan**

Like CT scans, MRI scans provide detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. The energy from the radio waves is absorbed and then released in a pattern formed by the type of body tissue and by certain diseases. A computer translates the pattern into a very detailed image of parts of the body. A contrast material called gadolinium is often injected into a vein before the scan to better see details. This is different than the IV contrast used for CT scans.

MRI scans are a little more uncomfortable than CT scans. First, they take longer often up to an hour. Second, you have to lie inside a narrow tube, which is confining and can upset people with claustrophobia (a fear of enclosed spaces). Special, "open" MRI machines can sometimes help with this if needed. The machine also makes buzzing and clicking noises so some centers provide headphones with music to help block this out.

MRI scans are most helpful in looking at the brain and spinal cord. They are most likely to be used to scan the brain if GTD has already been found to have spread elsewhere, such as to the lungs. Sometimes they are used to look to see if the tumor has grown into the wall of the uterus.
Positron emission tomography (PET) scan

A PET scan is sometimes useful if your doctor thinks the cancer may have spread (or returned after treatment) but doesn’t know where. PET scans can be used instead of several different imaging tests because they scan your whole body. Still, these tests are rarely used for GTD.

PET scans involve injecting a form of radioactive sugar (known as fluorodeoxyglucose or FDG) into the blood. The amount of radioactivity used is very low. Cancer cells in the body grow rapidly, so they absorb large amounts of the radioactive sugar. A special camera can then create a picture of areas of radioactivity in the body. The picture is not finely detailed like a CT or MRI scan, but it provides helpful information about your whole body.

Some machines are able to perform both a PET and CT scan at the same time (PET/CT scan). This allows the radiologist to compare areas of higher radioactivity on the PET with the appearance of that area on the CT.

Other tests

Doctors can often be fairly certain of a diagnosis of GTD based on symptoms, blood test results, and imaging tests, but the diagnosis is often made after a procedure called a D&C (dilation and curettage) in patients with abnormal bleeding. The cells from the tissue removed during the D&C are viewed under a microscope. The cells from different types of GTD each look different under the microscope. Sometimes complete and partial moles may be hard to tell apart when they are examined under the microscope early in the first trimester. If so, other tests may be needed to distinguish the 2 types of mole. Some tests, called cytogenetics, look at the number and type of chromosomes of the mole. Other tests may look at certain genes that only come from the mother to see if it is a partial mole versus a complete mole. (D&C is described in "Surgery for gestational trophoblastic disease.")

- References
See all references for Gestational Trophoblastic Disease

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How Is Gestational Trophoblastic Disease Staged?

Staging is the process of finding out how far a cancer has spread. Doctors use this information to choose the type of treatment that offers the best possible results.

Molar pregnancies (complete and partial moles) are usually completely removed during a D&C (or, rarely, a hysterectomy), so they don't need to be surgically "staged." Staging is more useful for persistent Gestational trophoblastic (jeh-STAY-shuh-nul troh-fuh-BLAS-tik) disease, including invasive moles and choriocarcinomas (KOR-ee-oh-KAR-sih-NOH-muhs).

Gestational trophoblastic disease (GTD) classification

Most cancers are staged based on how large they are and whether they have spread to lymph nodes or distant sites. Then treatment is decided based on the stage. Stage is also used to predict a patient’s outlook. But because treatment for GTD is usually effective regardless of the extent of the disease, other factors such as a woman’s age, length of time since pregnancy, and HCG level are more useful in predicting a woman's outlook (prognosis). These factors are taken into account in a scoring system.

Prognostic scoring system

In the United States, most cancer centers use a system that describes women with persistent GTDs according to their outlook, based on several factors.

- **Age**
  - Younger than 40  
  - 0
  - 40 or older  
  - 1

- **Preceding pregnancy**
  - Molar pregnancy  
  - 0
  - Abortion (includes miscarriage)  
  - 1
  - Birth (term pregnancy)  
  - 2

- **Time since pregnancy**
  - Less than 4 months  
  - 0
The numbers are then added up, and the overall score determines a woman’s risk level.

- Women with a score of 6 or less are at low risk and tend to have a good outlook regardless of how far the cancer has spread. The tumor(s) will usually respond well to chemotherapy.
- Women with a score of 7 or more are at high risk, and their tumors tend to respond
less well to chemotherapy, even if they haven’t spread much. They may require more intensive chemotherapy.

**FIGO anatomic staging**

The International Federation of Gynecology and Obstetrics (FIGO) developed a staging system based on the extent of the GTD as follows:

**Stage I:** The tumor is still within the uterus.

**Stage II:** The tumor has grown outside the uterus into other genital structures (like the vagina or ovaries). It has not spread outside the pelvis.

**Stage III:** The tumor has spread to the lungs; and it may also involve genital structures such as the vagina or vulva.

**Stage IV:** The tumor has spread to distant organs such as the brain, liver, kidneys, and/or gastrointestinal tract.

**Stage grouping**

*Stage grouping* is a process that some doctors use that combines the prognostic score and the anatomic stage. This is listed as the anatomic stage, followed by the letter A if the prognostic score was low risk or B if the prognostic score resulted in high risk.

**Stage IA:** The tumor has not spread outside the uterus, and the prognostic score puts you at low risk.

**Stage IB:** The tumor has not spread outside the uterus, and the prognostic score puts you at high risk.

**Stage IIA:** The tumor has grown outside of the uterus but not beyond the vagina or pelvis, and the prognostic score puts you at low risk.

**Stage IIB:** The tumor has grown outside of the uterus but not beyond the vagina or pelvis, and the prognostic score puts you at high risk.

**Stage IIIA:** The tumor has spread to the lungs, and may or may not also involve genital structures such as the vagina or vulva. The prognostic score puts you at low risk.

**Stage IIIB:** The tumor has spread to the lungs, and may or may not also involve genital
structures such as the vagina or vulva. The prognostic score puts you at high risk.

**Stage IVA:** The cancer has spread to distant organs such as the brain, liver, kidneys, and/or gastrointestinal tract. The prognostic score puts you at low risk.

**Stage IVB:** The cancer has spread to distant organs such as the brain, liver, kidneys, and/or gastrointestinal tract. The prognostic score puts you at high risk.

Another option combines the anatomic stage with the actual prognostic score number (separated by a colon). An example of this is II:5.

If GTD comes back after treatment (recurs), the disease is "restaged." This takes into account where the disease is in the body, along with the prior treatment.

- **References**
  See all references for Gestational Trophoblastic Disease

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**What Should You Ask Your Doctor About Gestational Trophoblastic Disease?**

It is important to have honest open discussions with your medical team. You should feel free to ask any question, no matter how minor it might seem. Among the questions you might want to ask are:

- What kind of gestational trophoblastic (jeh-STAY-shuh-nul troh-fuh-BLAS-tik) disease do I have?
- Has my cancer spread beyond the uterus?
- Can the stage of my cancer be determined and what does that mean? What is my prognostic score?
- How much experience do you have treating this type of disease?
Are there hospital centers that specialize in the treatment of this disease?

What are my treatment choices? Which do you recommend? Why?

Am I eligible for a clinical trial?

Does one type of treatment reduce the risk of recurrence more than another?

What are the side effects and other risks of each treatment?

How will you monitor my response to treatment?

Based on what you've learned about my cancer, what are my chances of being cured?

What should I do to be ready for treatment?

How long will it take me to recover from treatment?

When can I go back to work after treatment?

How soon after treatment can I have sex? Will I need to use birth control?

What are the chances that my cancer will come back (recur)? What would we do if this happens?

Will a specialist in gynecologic oncology be involved in my care?

Will I be able to have a normal pregnancy later on?

How soon after treatment can I get pregnant?

References

See all references for Gestational Trophoblastic Disease

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