Treating Gestational Trophoblastic Disease

After GTD is diagnosed and staged, your medical team can recommend one or more treatment options. Doctors on your treatment team may include:

- A gynecologist: a doctor who treats diseases of the female reproductive system
- A gynecologic oncologist: a doctor who specializes in cancers of the female reproductive system
- A radiation oncologist: a doctor who uses radiation to treat cancer
- A medical oncologist: a doctor who uses chemotherapy and other medicines to treat cancer

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, psychologists, social workers, rehabilitation specialists, and other health professionals.

No matter what type or stage of GTD a woman has, treatment is available. Your treatment choice depends on many factors:

- The location and the extent of the disease are very important
- Type of GTD present
- The level of HCG (human chorionic gonadotropin in your blood,
- How long you've had the disease
- Sites of metastasis (cancer spread) if any
- Any treatment already used.

In selecting a treatment plan, you and your medical team will also consider your age, general state of health, and personal preferences.

It's important to start treatment as soon as possible after GTD has been detected. The main methods of treatment are:
*Surgery*
*Chemotherapy*
*Radiation therapy* (which is used less often)

Sometimes the best approach combines 2 or more of these methods. See Treatment of Gestational Trophoblastic Disease, by Type and Stage for information about common treatment plans.

It's important to discuss all of your treatment options, including their goals and possible side effects, with your doctors to help make the decision that's best for you. It's also very important to ask questions if there's anything you're not sure about. You can find some good questions in What Should You Ask Your Doctor About Gestational Trophoblastic Disease?

**Thinking about taking part in a clinical trial**

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials. See Clinical Trials to learn more.

**Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what's known (or not known) about the method, which can help you make an informed decision. See Complementary and Alternative Medicine
Help getting through cancer treatment

Your cancer care team should be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don’t hesitate to ask him or her questions about your treatment options.

Surgery for Gestational Trophoblastic Disease

Suction dilation and curettage (D&C)

This procedure is often used to diagnose a molar pregnancy and may be the first treatment given for a hydatidiform mole. Surgery can be the only treatment needed. It is done in an operating room in a hospital or other type of surgical center.

Most often, general anesthesia is used (you are asleep). Using a special instrument, the doctor enlarges (dilates) the opening of the uterus (the cervix) and then inserts a vacuum-like device that removes most of the tumor. The doctor then uses a long, spoon-like instrument (curette) to scrape the lining of the uterus to remove any molar tissue that remains. During this procedure you may receive an intravenous (IV) infusion of a drug called oxytocin. This makes the uterus contract and expel its contents.

After the procedure, most women can go home on the same day. Possible complications of a suction D&C are not common but can include reactions to
anesthesia, bleeding from the uterus, infections, scarring of the cervix or uterus, and blood clots. A rare but serious side effect is trouble breathing caused when small pieces of trophoblastic tissue break off and travel to the blood vessels in the lungs. Most women will have cramping in the pelvis and some vaginal bleeding or spotting for up to a day after the procedure.

**Hysterectomy**

This type of surgery removes the uterus (womb). It is an option for women with hydatidiform moles who do not want to have any more children, but it isn't often used. It is also the standard treatment for women with placental site trophoblastic tumors and epithelioid trophoblastic tumors. Removing the uterus ensures that all of the tumor cells in the uterus are gone including any that had invaded the muscle layer (myometrium). But since some tumor cells might have already spread outside the uterus, it does not guarantee that all tumors cells are removed from the body.

The ovaries are usually left in place. Rarely, when there are theca-lutein cysts (fluid-filled sacs) in the ovaries, these cysts will be removed as well. This operation is called an ovarian cystectomy.

**Abdominal hysterectomy:** During this operation, the uterus is removed through an incision that is made in the front of the abdomen (belly).

**Vaginal hysterectomy:** Less often, if the uterus is not too large, it may be detached and removed through the vagina. In some cases, the surgeon may make a small cut in the abdomen to insert a laparoscope—a long, thin instrument with a video camera on the end—to aid with the operation. This is known as a laparoscopic-assisted vaginal hysterectomy. Because there is no large abdominal incision, recovery is often quicker than with an abdominal hysterectomy. Several small holes are made in the abdomen and long, thin instruments (including one with a video camera on the end) are inserted into them to perform the operation. The uterus is then removed through a small hole made in the vagina. Again, recovery is usually quicker than with an abdominal hysterectomy. As with a vaginal hysterectomy, this approach can only be used if the uterus is not too large.

For these operations, the patient is either asleep (general anesthesia) or sedated and numbed below the waist (regional anesthesia). A hospital stay of about 2 to 3 days is common for an abdominal hysterectomy. Complete recovery takes about 4 to 6 weeks. The usual hospital stay for a vaginal hysterectomy is 1 to 2 days and the recovery time is 2 to 3 weeks. A similar recovery is expected for a laparoscopic hysterectomy.
Hysterectomy results in the inability to have children. Some pain is common after surgery but usually can be well controlled with medicines. Complications of surgery are unusual but could include reactions to anesthesia, excessive bleeding, infection, or damage to the urinary tract, the intestine, or to nerves.

Surgery (suction D&C or hysterectomy) removes the source of disease within the uterus, but it does not get rid of cancerous cells that may have already spread outside the uterus to other parts of the body. To be certain that no cancer cells remain, blood HCG levels are carefully checked at regular time points after surgery. If HCG levels stay the same or start to rise, doctors often recommend that women have chemotherapy. Most women with hydatidiform moles, however, do not require chemotherapy.

**Surgery for metastatic tumors**

Even when gestational trophoblastic disease has spread to distant areas of the body, it can often be treated effectively with chemotherapy. But in some rare cases, surgery may be used to remove tumors in the liver, lung, brain, or elsewhere, especially if chemotherapy is not shrinking the tumor(s).

- References

See all references for Gestational Trophoblastic Disease

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**Chemotherapy for Gestational Trophoblastic Disease**

Chemotherapy (chemo) uses anti-cancer drugs that are injected into a vein or given by mouth. These drugs enter the bloodstream and reach all areas of the body, making this treatment useful for cancers that have spread to distant organs (metastasized). Gestational trophoblastic disease (GTD) is one of the few cancers that can almost always be cured by chemo no matter how advanced it is. The best indicator of which drug to use is the **prognostic score**.
The drugs that can be used to treat GTD include:

- Methotrexate (with or without leucovorin)
- Actinomycin-D (dactinomycin)
- Cyclophosphamide (Cytoxan®)
- Chlorambucil
- Vincristine (Oncovin®)
- Etoposide (VP-16)
- Cisplatin
- Ifosfamide (Ifex®)
- Bleomycin
- Fluorouracil (5-FU)
- Paclitaxel (Taxol®)

To reduce the risk of side effects, doctors try to give the fewest drugs at the lowest doses that will still be effective. As a general rule, women who need to get chemo and fall into the low-risk group (see How Is Gestational Trophoblastic Disease Staged?) are given a single chemo drug. Women who fall in the high-risk group usually receive combinations of drugs, often at higher doses.

**Single drug treatment**

**Methotrexate:** Chemotherapy with methotrexate alone can be used in most women with low-risk disease. Methotrexate can be injected into a vein or a muscle every day for 5 days. This can be repeated again after a rest period based on the HCG level. Another way to give methotrexate is to give a larger dose once a week. Again, the treatment is continued as long as needed, based on the HCG level.

Another option is to give methotrexate along with folinic acid (also called leucovorin). Leucovorin is not a chemo drug, but instead is a type of vitamin related to folic acid that reduces the toxic effects of methotrexate. In this course of treatment, methotrexate is given on days 1, 3, 5, and 7, and leucovorin is given on days 2, 4, 6, and 8. Each cycle has 8 days of drug treatment, followed usually by a 7-day rest period and then the cycle is repeated. This method has more treatment days, so it may be less convenient. In all cases, methotrexate is given in cycles that are repeated until blood levels of HCG remain normal for a few weeks. Vitamins such as folic acid can make methotrexate less effective and so should not be taken with this drug unless directed by your doctor.

**Actinomycin-D:** Another option is to give actinomycin-D instead of methotrexate. This drug may be especially useful in patients with liver problems, because it is less toxic to the liver than is methotrexate. Actinomycin-D is given in a vein (intravenously, or IV)
every day for 5 days, followed by several days without treatment. It is also given as a larger single dose once every 2 weeks. This schedule seems to have fewer side effects while still working well. Either way, the cycles are repeated until HCG levels have stayed in the normal range for several weeks.

**Etoposide**: It is given IV, every day for 3 to 5 days, followed by several days of treatment. This is used much less often by itself than either actinomycin or methotrexate.

**Combinations of drugs**

Women with higher-risk disease will receive combinations of drugs such as methotrexate, actinomycin-D, and cyclophosphamide. Other drugs such as etoposide, vincristine, and cisplatin may also be used.

Some of the more commonly used combinations include:

- **MAC**: methotrexate/leucovorin, actinomycin-D, and cyclophosphamide or chlorambucil
- **EMA-CO**: etoposide, methotrexate/leucovorin, and actinomycin-D, followed a week later by cyclophosphamide and vincristine (Oncovin)
- **EMA-EP**: etoposide, methotrexate/leucovorin, and actinomycin-D, followed a week later by etoposide and cisplatin ("platinum")
- **VBP**: vinblastine, bleomycin, and cisplatin
- **BEP**: bleomycin, etoposide, cisplatin

**Possible side effects**

Chemo drugs work by attacking cells that are dividing quickly, which is why they work against cancer cells. But other cells, such as those in the bone marrow, the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells are also likely to be affected by chemotherapy, which can lead to some side effects.

The side effects of chemo depend on the type and dose of drugs given and the length of time they are taken. Common side effects of chemotherapy drugs include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
• Low blood counts
  Because chemotherapy can damage the blood-producing cells of the bone marrow, the blood cell counts might become low. This can result in:

  • Increased chance of infections (from too few low white blood cells)
  • Easy bruising or bleeding (from too few blood platelets)
  • Fatigue (from too few red blood cells)
  
  Most of these side effects are short-term and tend to go away after treatment is finished. There are often ways to lessen these side effects. For example, drugs can be given to help prevent or reduce nausea and vomiting. Do not hesitate to discuss any questions about side effects with the cancer care team.

  Along with the effects listed above, some side effects are specific to certain medicines:

  • Common side effects of methotrexate are diarrhea and sores in the mouth. This drug can also cause mild liver damage which is seen as changes in certain blood tests (liver enzymes). Some women have inflammation of the eye (conjunctivitis), pain in the chest or abdomen (belly), irritation in the genital region, or skin rash. Hair loss and blood side effects do not usually occur with single-drug methotrexate therapy.
  • Actinomycin-D can cause fairly severe nausea and vomiting. This can be prevented by medicines given before chemo. Treatment with actinomycin-D or combination therapy is more likely to result in hair loss. Your bone marrow's ability to produce blood cells may be affected, which in turn may lower the ability of your immune system to fight infection.
  • Bleomycin can cause lung problems. These occur more often in patients who smoke.
  • Cyclophosphamide and ifosfamide can cause some nausea and hair loss. They can also cause bladder irritation and rarely cause severe lung problems.
  • In rare cases, etoposide treatment has been linked with the development of leukemia several years later. Cisplatin has also been linked to this, although it occurs less often than with etoposide. But doctors still consider these drugs important to use because their benefit in curing the cancer outweighs the small risk of leukemia.
  • Vincristine and cisplatin can damage nerves (called neuropathy). Patients may notice tingling and numbness, particularly in the hands and feet. Cisplatin can also cause hearing loss and kidney damage. These side effects may persist after treatment stops.
You should report any side effects or changes you notice while getting chemotherapy to your medical team so that they can be treated promptly. In some cases, the doses of the chemotherapy drugs may need to be reduced or treatment may need to be delayed or stopped to prevent the effects from getting worse.

To learn more, see Chemotherapy.

- References
  See all references for Gestational Trophoblastic Disease

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## Radiation Therapy for Gestational Trophoblastic Disease

Radiation therapy uses focused high-energy x-rays that penetrate the body to reach and destroy cancerous cells.

Radiation isn't often used to treat gestational trophoblastic disease (GTD), unless it has spread and is not responding to chemotherapy (chemo). Radiation may then be used to treat sites where the cancer may be causing pain or other problems. It may also be used if GTD has spread to the brain.

The type of radiation therapy most often used in treating GTD is called external beam radiation therapy. In this type of radiation therapy, the radiation is aimed at the cancer from a machine outside the body. Having this type of radiation therapy is much like having a diagnostic x-ray, except that each treatment lasts longer and the treatments are usually repeated daily over several weeks.

Side effects of radiation can depend on what area is treated and can include:

- **Nausea and vomiting**, which tends to be worse if the abdomen (belly) or pelvis is treated
- Skin changes, ranging from mild redness to blistering and peeling
Hair loss in the area being treated
Diarrhea (if the pelvis is being treated)
**Fatigue** (tiredness)
Low blood counts
To learn more, see Radiation Therapy.

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

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**Treatment of Gestational Trophoblastic Disease by Type and Stage**

The following are the standard treatment options according to the type of gestational trophoblastic disease (GTD) and the stage and prognostic group of the disease. These treatments are discussed in more detail in surgery, chemotherapy, and radiation therapy.

**Hydatidiform moles (complete and partial moles)**

For women who may wish to have children in the future, the standard treatment is to remove the tumor by suction dilation and curettage (D&C). Women who no longer wish to have children may be able to have a hysterectomy (removal of the tumor and entire uterus) instead. A hysterectomy ensures no tumor remains within the uterus but, like a D&C, it does not treat tumor cells that may have already spread outside the uterus.

Rarely, a hydatidiform mole occurs as part of a "twin" pregnancy, where there is a normal fetus along with the mole. In this case, the pregnancy is watched closely and typically allowed to continue. The mole is then treated after delivery.

In either case, once the tumor is removed, a pathologist will look at it with a microscope for signs of choriocarcinoma or other malignant changes in the specimen. If there are
none, then patients are carefully monitored with frequent measurements of blood HCG (human chorionic gonadotropin) levels. The levels should drop and become undetectable within several months. If not, there may still be mole tissue deep in the uterus (an invasive mole) or elsewhere in the body.

Doctors recommend that women avoid becoming pregnant during the first year after diagnosis because pregnancy would raise HCG levels and make it harder to know if any molar tissue is left or if there is choriocarcinoma. Oral contraceptives may be used, but intrauterine devices (IUDs) should not be used at this time because of the risk of bleeding, infection, or other problems. Sometimes IUDs can cause problems that can look like tumor left in the uterus.

If the blood HCG level begins to rise or is still detectable after a reasonable time (often around 4 to 6 months), it means that the patient has persistent GTD (such as an invasive mole or choriocarcinoma). This will need to be treated with chemotherapy (chemo). Chemo will also be needed if the pathologist finds choriocarcinoma in the tissue sample. About 1 in 5 women will need chemo after a molar pregnancy.

**Stage I low-risk gestational trophoblastic tumors**

This can be either persistent gestational trophoblastic disease (where the HCG level hasn't dropped to normal after treatment of a molar pregnancy) or a choriocarcinoma or placental site trophoblastic tumor that was found in the curettage specimen. The tumor is still confined to the uterus, and the prognostic score is less than 7.

Chemo with either methotrexate (with or without leucovorin/folinic acid) or actinomycin-D is the recommended treatment for stage 1, low-risk disease. Surgery to remove the uterus (hysterectomy) may also be advised, particularly for women who no longer want to have babies. It may reduce the amount of chemo needed.

Chemo is given until there are no longer any signs of cancer, based on levels of HCG in the blood (the HCG level should return to normal after treatment). If the initial chemo drug does not get rid of the tumor, a second drug may be tried. If the HCG level is still detectable, more intensive chemo with a combination of drugs may be needed.

Placental-site trophoblastic tumor (PSTT) is treated with hysterectomy. Chemo is usually not helpful. Since HCG is often not found at high levels in the blood with PSTT, levels of another hormone called human placental lactogen (hPL) may be checked and watched over time.

Epithelioid trophoblastic tumor (ETT) is also treated with hysterectomy. The HCG level
may be slightly elevated, and if it is, it will be checked again after surgery. Chemo is not helpful in treating these tumors.

**Stage II/III low-risk gestational trophoblastic tumors**

These tumors have spread to the genital structures or to the lungs, but the prognostic score is less than 7. Chemo with either methotrexate (with or without leucovorin) or actinomycin-D is the only treatment needed in most cases. If a single drug does not get rid of the tumor, treatment with combination chemo is usually effective. In rare cases, the tumors are surgically removed and chemo may be given. Blood HCG levels are measured after treatment and should return to normal.

PSTTs and ETTs do not respond well to chemo, so they are treated with a hysterectomy (surgery to remove the uterus).

**Stage II/III high-risk gestational trophoblastic tumors**

These tumors have spread to the genital structures or to the lungs, and the prognostic score is 7 or higher. Standard treatment is usually an intensive combination chemo regimen such as EMA-CO (etoposide, methotrexate/leucovorin, and actinomycin-D, followed a week later by cyclophosphamide and vincristine). A combination of cisplatin and etoposide may be given before the EMA-CO is begun. Other drug combinations, such as EMA-EP (etoposide, methotrexate/leucovorin, and actinomycin-D, followed a week later by etoposide and cisplatin), might also be used, although they could be reserved for use if the EMA-CO regimen isn't effective. In rare cases, the tumor is surgically removed and chemo might be given. Blood HCG levels are measured after treatment and should return to normal.

PSTTs and ETTs do not respond well to chemo, so they are first treated with a hysterectomy (surgery to remove the uterus).

**Stage IV gestational trophoblastic tumors**

These tumors need intensive treatment because they have spread to distant sites such as the liver or brain. Combination chemo such as the EMA-CO regimen is the standard treatment. If the cancer has reached the brain, radiation therapy to the head is often used as well. In some cases, the tumor is surgically removed and chemo is given. Sometimes methotrexate is given into the spinal fluid to treat tumors that have spread to the tissues around the brain and spinal cord. Blood HCG levels are measured after treatment and should return to normal.
PSTTs and ETTs do not respond well to chemo, so they are treated with surgery to remove the uterus and to remove tumors elsewhere in the body. Chemo may be tried for advanced cancers, using the same combinations that are used for other types of gestational trophoblastic disease.

**Recurrent gestational trophoblastic tumors**

A tumor is called *recurrent* when it come backs after treatment. *Recurrence* can be local (in or near the same place it started) or distant (spread to organs such as the lungs or bone). The type of treatment used depends on where the cancer recurs and what treatment the woman has already received.

For gestational trophoblastic disease that was first treated with surgery, single-drug chemo may be used, unless a new risk factor puts the patient at high risk (in which case combination chemo would be used). If a woman has already had chemo, a more intensive chemo regimen would be used. Several different combinations of drugs might be tried, if needed. If the cancer has reached the brain, radiation therapy to the head is often used. In some cases, the tumors are surgically removed, as well.

**Cure rates for GTD**

Nearly 100% of women with complete or partial moles and low-risk gestational trophoblastic disease (GTD) can be cured of their disease with appropriate treatment. Placental-site trophoblastic tumor has high cure rates, but the outlook isn’t as good if the disease spreads outside of the uterus. Even for high-risk GTD, cure rates are as high as 80% to 90%, but will probably require more intensive treatment (combination chemotherapy, sometimes together with radiation and/or surgery).

- References

See all references for Gestational Trophoblastic Disease

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