

Germ Cell Tumors for the Pediatric Patient

What are germ cell tumors?

Germ cells are reproductive cells that develop in the testicles in males and the ovaries in females. Sometimes these cells migrate to other areas of the body, such as the chest, abdomen, or brain, and may cause a rare type of cancer called a germ cell tumor. Germ cell tumors form in developing cells and usually contain normal tissues that are located in abnormal areas.

Germ cell tumors can be classified as benign teratomas or malignant (cancerous) germ cell tumors. Teratomas can be either mature (tissue that is less likely to become cancer) or immature (tissue that can spread and become cancer). Germ cell tumors of early childhood have biological characteristics that are different than those that occur in adolescents and young adults. The major types of germ cell tumors are:

- Testicular germ cell tumors of early childhood – form within the testes of boys younger than 4 years of age. Treatment includes a radical inguinal orchiectomy (removal of the testicle).
- Testicular germ cell tumors of adolescence and young adulthood – form within the testes of older boys. Are classified as either seminoma or nonseminoma. Seminomas are more sensitive to radiation therapy.
- Extragonadal germ cell tumors of early childhood – germ cell tumors that are not located in the reproductive organs (testicles or ovaries) or in the brain. These tumors are usually located in the sacrum and the coccyx (tailbone). They occur more frequently in girls than in boys, and can be present at birth.
- Extragonadal germ cell tumors of adolescence and young adulthood – is usually located within the chest.
- Ovarian germ cell tumors, a rare type of cancer that affects teenage girls and young women – cancer cells are found in egg making cells in an ovary. Treatment includes a unilateral salpingo-oophorectomy (removal of ovary and fallopian tube).

What are the symptoms of germ cell tumors?

The first symptoms will correspond to the site of the tumor. A solid mass or lump may be noticed. If the mass interferes with a function of the body it may cause other symptoms.

How are germ cell tumors diagnosed and treated?

If a germ cell tumor is suspected, the doctor may order laboratory tests, x-rays, and other tests to find out if the cancer cells have spread to other parts of the body. This is called staging. It is important to know the stage of the disease to plan treatment. Many malignant germ cell tumors produce substances (alpha-fetoprotein or human chorionic gonadotropin) that allow the tumor to be monitored with blood tests.

Treatment for germ cell tumors depends upon the location, stage, and type of tumor. Complete or near complete surgical removal of the tumor is often possible. If the tumor cannot be completely removed, chemotherapy or radiation will also be given.