



University of Michigan  
C.S. Mott Children's Hospital

# Solid Tumor Oncology Program

## Germ Cell Tumors

**Germ Cell tumors** – are tumors that can be malignant (cancerous) or benign (non-cancerous) and are comprised of germ cells. Germ cells develop in the embryo and make up the reproductive system, eventually producing sperm in males and eggs in females. If abnormal groupings of germ cells develop, they can become tumors, developing in the ovaries or testes as well as other areas outside the reproductive system, including the brain, chest, tailbone, abdomen, pelvis, and central nervous system. The most common of these tumors is called a teratoma.

### Symptoms may include:

- A mass or swelling that can be felt or seen
- Abnormally shaped or sized testicles or ovaries
- Constipation (if tumor is in the sacrum and compressing other structures)
- Incontinence (if tumor is in the sacrum and compressing other structures)
- Leg weakness (if tumor is in the sacrum and compressing other structures)
- Elevated levels of alpha-fetoprotein (AFP)
- Elevated levels of beta-human chorionic gonadotropin ( $\beta$ -HCG)

### Diagnosis

Diagnosis of germ cell tumors begins with a thorough health history and a comprehensive physical examination. Some testing will be required and will include blood work (CBC, AFP,  $\beta$ -HCG), an x-ray, an ultrasound, a CT scan, an MRI, and a bone scan. The tumor may then require a biopsy to determine its exact pathology.

If a germ cell tumor is the diagnosis, your doctor will stage the tumor, which determines if and how far the cancer has spread. Staging the tumor will help determine a treatment plan.

### Treatment

Every child's treatment plan is individualized, based on the patient's needs and the specific tumor, utilizing cutting-edge technology and the latest research. Treatment options include (alone or in combination):

- surgery (to remove all or part of the tumor, metastatic disease and removal of involved lymph nodes)
- chemotherapy
- radiation
- bone marrow transplantation
- supportive care medications (to control pain, nausea and infections)
- antibiotics (to prevent/treat infections)
- continuous follow-up care (to determine response to treatment, detect recurrent disease and manage the late effects of treatment)