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### **The Many Flavors of Rogue Balls**

When it comes to tumors, you might think of them as those uninvited guests that show up at the worst times and refuse to leave. Some tumors are benign (good balls), while others are malignant (bad balls). These aren't the only categories; in the world of oncology, there are a lot of balls to juggle.

#### **Tumor Types: Weird Balls Strange Balls**

Tumors come in two primary forms: solid and liquid. Solid tumors are masses of rogue cells that lump together into one big, unwanted ball of trouble. These can be found in just about anywhere in the body. Liquid tumors, on the other hand, prefer a more free-flowing lifestyle, like leukemia, which runs wild in the bloodstream.

Beyond their classification as solid or liquid, tumors also come in a variety of shapes, which can influence their behavior and how they are treated. Spherical tumors are compact and well-rounded like a perfect ball, often making them easier to remove surgically. Oblate tumors are flatter and may create complications if they press against vital organs. Prolate tumors, on the other hand, are elongated along one axis, sometimes making complete removal difficult. Ellipsoidal tumors share characteristics with both spherical and prolate shapes, and their orientation can affect the approach to treatment. The most problematic tumors are irregular in shape, with jagged and unpredictable edges (like Minjun's hair) that often signal aggressive growth and a higher likelihood of metastasis.

The more jagged and aggressive a tumor's shape, the more likely it is to spread (kind of like Ethan's cold when he comes to school sick). Some tumors, such as polypoid ones, protrude from the surface, while ulcerated tumors form open sores. Infiltrative tumors sneak through surrounding tissues in a diffuse manner, making them especially challenging to detect and treat.

### **Cancer Treatments: Breaking Balls**

Science has devised several ways to deal with these misbehaving cellular balls. One of the most common methods is surgery, where a surgeon physically removes the tumor. If the tumor is neatly packaged and hasn't spread, surgery can be highly effective.

Radiation therapy provides another approach, blasting the tumor with high-energy rays, essentially microwaving the cancerous balls into oblivion. It's basically a high-tech laser version of a flyswatter.

Chemotherapy takes a more widespread approach, flooding the body with toxic drugs designed to hunt down and destroy cancerous cells. Unfortunately, chemotherapy doesn't differentiate between good and bad balls, which is why patients often experience side effects like hair loss and nausea. A more refined approach comes in the form of targeted therapy, which focuses on specific molecular traits of cancerous cells, attacking only the ones that need to be destroyed while leaving healthy cells unharmed.

Immunotherapy, on the other hand, enlists the body's own immune system to recognize and attack cancerous cells. Normally, tumors disguise themselves as friendly tissue, but immunotherapy removes their invisibility cloak, allowing the immune system to fight back. Hormone therapy is another effective strategy for hormone-dependent cancers, such as breast and prostate cancer, by cutting off the cancer's fuel supply and effectively starving the tumors (similar to how Ms. Babić stops us from drinking coffee).

Last but not least, and our focus for today, hyperthermia therapy involves heating cancer cells to high temperatures to weaken or destroy them, usually around 40°C to 43°C. These rebellious balls don't handle heat well, so this method essentially cooks them into submission. Often used alongside radiation or chemotherapy, hyperthermia makes cancer cells more vulnerable while leaving normal tissues mostly unharmed.

### **Effectiveness: How Well Do These Treatments Pop the Balls?**

Effectiveness varies based on the type of cancer, early detection, and whether or not the tumor has already sent out minions to other areas. Surgery works well for localized solid tumors, while chemo, radiation, or targeted therapy may be needed for widespread cases. Immunotherapy has shown promise, especially for previously untreatable cancers.

At the end of the day, the best strategy is early detection. The sooner you catch those rebellious balls misbehaving, the better your chances of kicking them to the curb. So, do your screenings, listen to your body, and if something feels off, don't hesitate to get it checked out. After all, nobody wants to deal with a bunch of unwanted cancerous balls.

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