GIANT CELL TUMOR OF THE BONE FAQ

What is Giant Cell Tumor of the Bone (GCT-B)?
GCT-B is a rare, locally aggressive, intermediate tumor that commonly impacts the ends of long bones. More than 50% occur near the knee with distal femur and proximal tibia being the most predominant location[1]. Less common locations occur in the sacrum, vertebrae, and small bones like hands and feet. GCT-B accounts for 3-5% of all primary bone tumors and 15-20% of all benign bone tumors[2].

Is GCT-B cancerous?
GCT-B is a type of noncancerous, locally aggressive, intermediate tumor that leads to aggressive structural damage of the impacted bone[3]. These tumors can infiltrate and damage surrounding tissue leading to the designation of an intermediate tumor to describe its aggressive growth pattern.

What is the likelihood of GCT-B spreading?
Metastasis is the process of spreading from a primary location to a secondary location. Commonly, GCT-B does not spread and stays in the primary location. In 1-9% of GCT-B patients, it can spread. The predominant secondary location is the lungs. Those with sacrum tumors or those who have had recurrence have higher metastasis rates[4].

What is the likelihood of GCT-B recurrence?
This is unclear based on the current scientific literature. Depending on the location and prior treatment, recurrence is reported around 6-42%[5][6][7].

What are the common symptoms of GCT-B?
Often, GCT-B is diagnosed following a bone fracture[8]. Swelling, pain, and limited range of motion have also been reported.

Who does GCT-B affect?
GCT-B has an age of onset commonly in the 3rd-4th decade of life and has a slight female predominance[1][9]. It is estimated from registry studies that the prevalence is somewhere around 1-2 patients per million diagnosed per year[1][10].

How is GCT-B treated?
Generally, GCT-B is treated based on severity with curettage, curettage and osteoporosis medication, bone resection with joint replacements, or amputations[11][12]. Surgical technique and approach differ based on tumor location and severity of bone involvement.

Does removing the bone reduce recurrence?
It is not well described whether removal of the bone through full bone resection and adding a prosthetic compared to scrapping via curettage significantly reduces recurrence[13][14][15]. This is due to low quality data and small sample sizes within research studies.

What are the normal monitoring patterns?

Monitoring is done by x-ray biannually for the first 2 years and annually for 5 years. 3/4th of all recurrence occurs within 2 years, while the rest tend to happen within 5 years9. X-rays of the lungs should periodically be done to ensure no metastasis has occurred16. That is why these are the monitoring intervals.

Is GCT-B genetic? Is it hereditary?

GCT occurs sporadically. There are no environmental, genetic, occupational, dietary, or lifestyle risk factors associated with the disease. While a mutation, called H3F3A, is found in 90% of GCT-B, it is currently unknown if that impacts the disease development171819. However, GCT-B is not able to be passed down to other generations.

How does GCT-B destroy the bone?

GCT-B is made up of many types of cells. One type of cell within the tumor dissolves bone directly, therefore leading to severe bone density concerns and fragility breaks20.

Is radiation effective?

It is generally discouraged to use radiation with these tumors due to the risk of radiation induced malignancy21. This is seen more often in certain locations where the overall risk is around 5%22.

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