

Alveolar Soft Tissue Sarcomas

C9

What is Alveolar Soft Tissue Sarcoma?

Type of malignant cancer

Can attack muscle, fat, & nerves

Starts in long bones, lungs, head, & neck

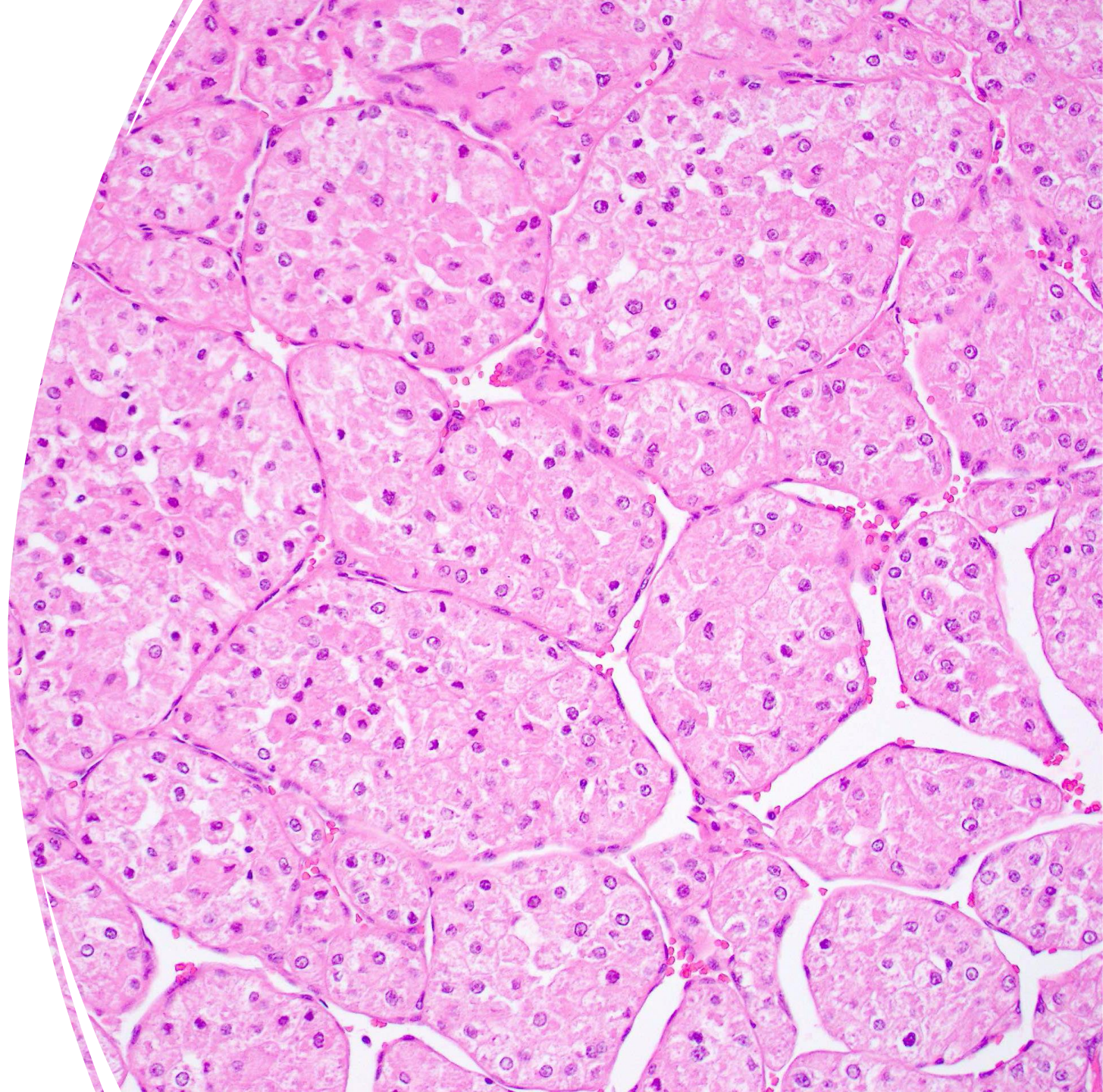
Typically affects young female adults (17-20)

Very rare type of cancer- roughly 80 people diagnosed in the US per year

Microscopic description:

- Large, round-polygonal cells with defined borders of the cell
- Round, vesicular nucleus with a prominent nucleolus
- Meshwork like growth pattern

Warmke, L. (2022). *Capillary Network [microscopic media]*



Symptoms of ASTS:

- Painless swelling
- Painless lump
- Limping
- Limited range of motion to affected area
- Abdominal pain
- Weight loss
- Unexpected broken bones with minor injuries



Cleveland Clinic (2021). *Soft tissue sarcoma in lower leg muscle*. [image]

Causes of ASTS:



NO DIRECT CAUSE, HOWEVER,
RESEARCHERS SAY IT'S CONNECTED
TO GENES



RARE DISORDER DUE TO SPECIFIC
BREAKING AND JOINING BETWEEN
TWO CHROMOSOMES, CALLED
UNBALANCE TRANSLOCATION



Imaging:

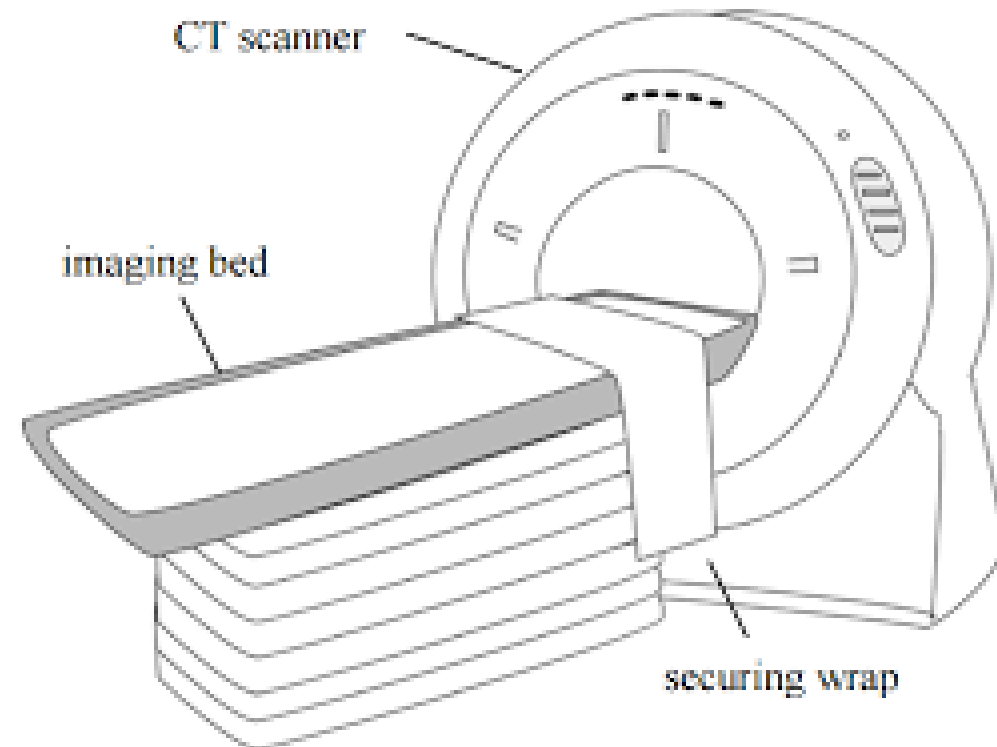
- Imaging shows a hypervascular soft tissue mass (15.0 x 4.0 x 4.0 cm) involving the proximal anterior compartment of the left leg with associated destructive changes of the proximal tibia and anterior fibula with fascial penetration into the subcutaneous fat. Contributed by Jeanne Meis, M.D.

Meis, J (2022). *Left Leg Mass* (MRI image)

What is Computed Tomography?

- Uses radiation and computer technology to create 3D images of the scanned body part
- Patient lies supine to obtain most images
 1. Patient is inserted into the gantry of the CT scanner
 2. X-ray beam begins to spin around the patient
 3. Axial slices of the body part are taken
 4. The technologist can reformat those images into sagittal and coronal views

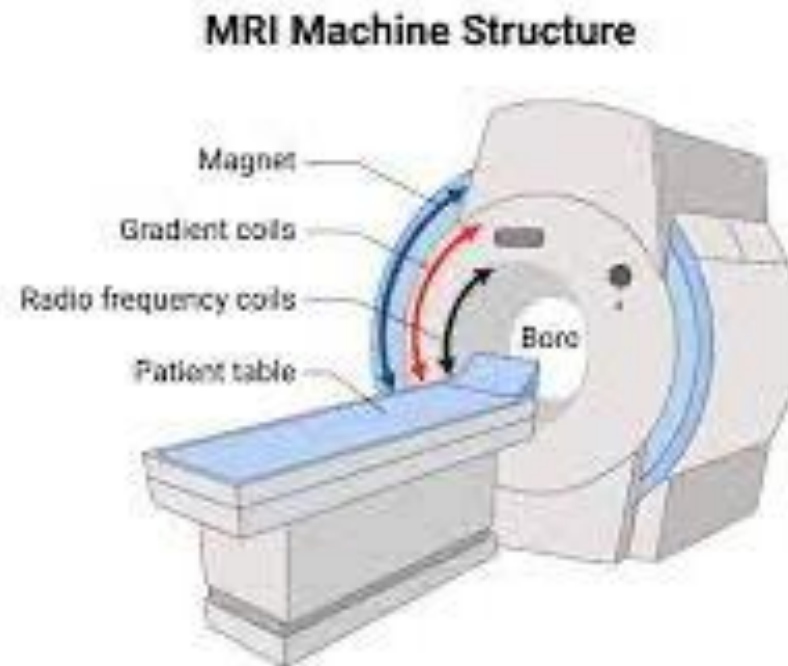
Childrens Minnesota (2015). *Computed Tomography* (CT) scan. [media image]



What is Magnetic Resonance Imaging? (MRI)

- Non-invasive form of imaging that uses a strong magnetic field to produce images
- Protons within the body align with the magnetic field of the MRI scanner
- A radiofrequency current is pushed through to stimulate the protons
- The protons then release energy as they realign with the scanner's magnetic field after the current is turned off
- MRI images are created as the energy released from the protons as they realign

Bio Render (2024). *MRI Machine Structure* [media image]



CT Pro's and Con's:



Pros:

- Fast scan time
- Help diagnose cancer, fractures in the bone, bleeding, hematomas, hemorrhages etc.
- Painless and normally accurate

Cons:

- Allergic reaction
- Patient lays still
- Exposure to radiation

Wikipedia (2006). *File:Radioactive.svg*. [media image]

MRI Pro's & Con's:

Pros:

- Differentiates between fat, muscle, & water
- No radiation dose to patient makes it very safe

Cons:

- Magnetic field may attract objects such as implants, medical devices, phones, keys- which could harm the machine or create artifacts on the image
- Allergic reaction to contrast agents
- Patient claustrophobia
- Patient must lay very still for longer periods of time

Universal Medical (2023). *Danger Restricted Access Strong Magnetic Field* [sticker media]



Prognosis:

Depends on:

- Patient age
- Tumor size
- Stage of tumor

The Noun Project (2024) *Prognosis Icons* [media icon]



Treatment Options:

- Surgery: normally the first step to help the MD form diagnosis of the tumor and stage the disease

Types:

- Limb salvage surgery: tumor and healthy tissue are removed
 - Rotationality: partial amputation
 - Arterial embolization: blocks blood flow in abnormal vessels to reduce bleeding during surgery
-
- Radiation therapy: uses high energy radiation to damage or destroy abnormal cells after surgery

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