Management of Giant Cell Tumor of the Spine

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Background
- Giant cell tumor (GCT): Rare
- Accounts for about 1.4%, 9.4% of primary spine tumors
- Classified as benign, but has the characteristic of aggressiveness
- Potential to metastasize
- Common site of metastasis = Lung
- Mts usually seen in patients with advanced or recurrent disease

Objectives
- Discuss the prevalence of giant cell tumor of the spine
- Review the common treatments for giant cell tumor of the spine and sacrum
- Discuss the role of Advance Practice Provider in the management of these patients

GCT of the Spine
- Most common site of giant cell tumor = sacrum
- Sacrum accounts for approximately 2-8% GCTs
- Above the sacrum next lumbar and thoracic spine
- Rarely the cervical spine
- Affect more females than males: 2:1 ratio
- Age: 20-40 years

Case
- 52-year-old male
- 1–2-year history of left lateral thigh pain, worse at night
- MRI revealed a sacral mass
- CT guided biopsy confirmed giant cell tumor

Radiographic Appearance
MRI:
- Heterogeneous
- Expansive osteocytes lesion
- Low-intermediate signal intensity on T2 weighted images
- Cause vertebral body collapse
- Soap bubble appearance

Treatment for GCT
- Surgery #1 goal
- Systemic therapy = Denosumab
- If en bloc resection is not achieved the recurrence rate ranges from 22.4% to 41.7%
- Radiation
- Serial embolization
- Combination-multidisciplinary approach

Denosumab
- Monoclonal Ab against RANKL (receptor activator of nuclear factor-kappa beta ligand)
- RANKL expressed on neoplastic stromal cells and multinucleated giant cells of GCT mediate bone resorption
- Denosumab inhibits RANKL decreasing bone turnover and reproduction of multinucleated giant cells
- Most successfully used therapy and extensively studied
- Increases bone formation
- Tumor reduction

Post Resection

Implications for APPs
- Care coordination amongst the multidisciplinary team including surgeon, Sarcoma, Pain, IR and Radiation
- Instrumental in educating the patient on disease, hospitalization, pre-operative process, admission, disability, post-operative process and long-term complications due to neurological deficits
- Management of surgical and neurological complications
- Manage long term neurological symptoms and coordinate multidisciplinary long-term follow-ups

References