**Solitary Plasmacytoma of sternum in a young male- an unusual age group**

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**Introduction:** Solitary Plasmacytoma (SP) of bone is a plasma cell neoplasm presenting as a single lesion of the bone with no systemic manifestations as multiple myeloma. SP is relatively rare representing <5% of plasma cell neoplasms, occurring at a rate of 3.5/100,000 per year. They most commonly affect the axial skeleton and include spine, pelvis, and ribs. The median age of occurrence is 55­65 years with Male to Female ratio 2:1, and highest incidence in African Americans.

**Case Description:** A 32 year old Caucasian male presented with anterior chest wall pain and swelling in the center of the chest since one month. He had obstructive sleep apnea, and on CPAP at night. On physical examination, there was an ill defined swelling in the anterior chest wall measuring 6x8 cm covering suprasternal notch and manubrium. Laboratory results showed normal CBC, elevated serum total protein on CMP. CT scan of chest showed expansile lesion of the sternal manubrium with areas of cortical breakthrough and soft tissue mass in superior mediastinum. Biopsy of the mass was suggestive of SP of the sternum. Serum protein electrophoresis showed monoclonal gammopathy of IgG type, high kappa to lambda ratio and a monoclonal protein. Bone marrow aspiration of the iliac bone showed 2 % of plasma cells, and bone marrow flow cytometry was normal. FISH target gene analysis for myeloma was negative. MRI of cervical, thoracic, lumbar spine along with pelvis was unremarkable. He was started on standard treatment of external beam radiation to a dose of approximately 50 Gy.

**Discussion:** SP rarely occurs in the sternum and only few case reports were published in literature, where none of the patients were male, younger than 40

years. Diagnostic criteria for SP include solitary bone lesion with no other skeletal lesions confirmed by bone survey, plasma cell infiltration of the bone confirmed by biopsy, lack of features of multiple myeloma including anemia, hypercalcemia, renal involvement and no myeloma cells on bone marrow biopsy. On imaging Plasmacytoma appears as osteolytic, breaking through the cortex and invading the adjacent soft tissue structures. The treatment of choice for SP is local radiotherapy at a standard dose of 40­50 Gy, with as high as 94% response rate. The common progression of SP is development of new bone lesions, increased M protein level and plasmacytosis of bone marrow. Median time of progression to Multiple Myeloma is 2 to 3 years. Reed et. al., looked at the outcome and prognostic factors after definitive radiation therapy in SP and observed that patients with bone SP, positive serum myeloma protein at diagnosis, age<60 years and men, had higher 5 year probability of progression to multiple myeloma, placing this patient at high risk.