Ortho Cases That Aren’t Revisited

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Nothing to Declare
Case #1 History

- 57y/o male presents to W/I with CC: “Really hard to move”
- 3 months prior pulled some wood and something popped on the left side.
- 2 months prior put wood in stove and something popped in the right shoulder.
- C/O Right worse than left low back pain making it difficult to walk stairs.
- C/O Left lower rib pain and left elbow pain.
- Denied F,C,NS. No tick bite or rash. No radicular symptoms.
Case #1 Exam

- General- patient moves stiffly and slowly.
- Back- tenderness left low back.
- Tender left lower ribs.
- Possible left elbow effusion, lacks full extension of the left elbow.
Case #1 Initial Diagnosis/Plan

• Diagnosis: Muscle discomfort/tightness.
• Plan: Naproxen, Lab: CRP and Lyme titer, Follow-up PCP.
Case #1- Annual Physical Exam 1 Week Later

• Complaint of ongoing muscle aches and pains that are most prominent in the low back. Hard to lift 5 gallon pail. Low back spasms. C/O Lump in region of left sternoclavicular joint.
• Otherwise feeling well.

• Low back exam showed limited motion with flexion, extension and lateral bending with complaint of low back spasms.
• Deformity noted in the region of the left SC joint.
Case #1 X-rays L-Spine
Case #1 X-rays L-Spine Continued

• Radiology report: Bones are osteopenic, unusual for a male of this age. Consider confirmation with bone density study. Mild disc narrowing. Moderate to severe facet arthropathy.
Case #1 Bone Density Results

- L1-L4 T-score -2.3
- Right Femoral T-score -1.2
- Impression: The patient's bone mineral density is in the osteoporotic range. His present fracture risk is high. Recommend treatment and follow-up examination in 2 years.
Case #1 Secondary Osteoporosis

• Secondary osteoporosis is caused by certain medical conditions or treatments that interfere with the attainment of peak bone mass or cause bone loss.
Case #1 Secondary Osteoporosis

**Medical Conditions**
- Renal Failure
- Cushing's Disease
- Liver Disease
- Rheumatoid Arthritis
- COPD
- Multiple Sclerosis
- Malabsorption/Celiac Disease
- Hyperparathyroidism
- Hyperthyroidism
- Diabetes Mellitus
- Multiple Myeloma
- Leukemia

**Other Causes**
- Smoking
- Corticosteroid Therapy
- Alcohol Abuse
- Lithium
- Barbiturates
- Antacids Containing Aluminum
Case #1 Left Shoulder Pain

- The patient was walking his dog 1 month after bone density test and the dog pulled on the leash causing immediate severe pain in the patient's left shoulder. The patient was evaluated through the Emergency Department. Left shoulder x-rays were obtained.
Case #1 CT Scan Left Shoulder

- Radiologist impression: Mildly displaced oblique pathologic fracture involving the left proximal humeral diaphysis with extension into the left humeral neck. Multiple lytic lesions identified throughout the left proximal humerus, scapula, clavicle, left ribs and visualized portions of the thoracic spine consistent with metastatic disease. Multiple myeloma would also be on the differential diagnosis.
Case #1 Labs

**CBC**
- WBC 4.2
- RBC 2.68 L (4.33-5.75)
- Hemoglobin 8.4 L (13.4-17.6)
- Hematocrit 26.0% L (38-50)
- Platelets 169
- Normal Differential

**Chemistries**
- BUN 17
- Creatinine 1.2 (0.55-1.3)
- Glucose 98
- Sodium 131 L
- Total Protein 13.3 H (6.2-8.5)
- Globulin 10.6 H (1.8-3.7)
- Albumin 2.7 L (3.5-5.2)
- LFT’s normal
Case #1  Multiple Myeloma

• Bone marrow biopsy by Oncology confirms Multiple Myeloma

• Definition: Multiple Myeloma- A clonal plasma cell malignant neoplasm that accounts for approximately 10% of hematologic malignant disorders. Mayo Clinic Proceedings January 2016.91(1); 101-119.
Case #1 Multiple Myeloma Diagnosis

- Presenting Symptoms and Impairments
  - Fatigue 30-40%
  - Bone Pain, most frequently low back pain 60%
  - C Calcium- Hypercalcemia 15%
  - R Renal- Serum Creatinine >2, 25%
  - A Anemia- Hemoglobin <12, 65%
  - B Bone- Fractures 65%, Osteoporosis 25%
Case #1 Multiple Myeloma Work-up

- Lab: CBC, COMP (calcium, BUN, creatinine and proteins), ESR, Can confirm with serum protein electrophoresis and immunoelectrophoresis
- Imaging:
  - X-rays- Skeletal survey can reveal multiple lytic lesions. Pathologic fractures spine or less commonly extremities.
  - MRI- helpful in spine lesions to rule out cord compression.
  - Bone Scan- not helpful in Multiple Myeloma because of no new bone formation.
Case #2 History

• 65-year-old male with upper and low back pain for the past 4 months which has been worse over the past 4-6 weeks. History of bicycle accident 4 years prior with no x-rays obtained. Recently seen by Chiropractor with concerns for compression fractures of L1 and L2 and mid thoracic spine. Denies fevers, chills or night sweats. 5 pound weight loss past several weeks. Recent prednisone burst no help for back pain.
Case #2 Exam

- Observation- Complains of pain when transitioning from sitting to standing position with low back pain radiating to lower thoracic spine.
- No localized spinal tenderness.
- Range of motion limited to 30° of thoracolumbar flexion and 20° of extension reproducing mid to upper lumbar spine pain.
- Lower extremity neuro exam was unremarkable.
- Sitting and supine straight leg raises reproduce some mid lumbar spine pain at 50° bilaterally.
Case #2 X-rays
Case #2 Labs

• CBC:
  – WBC 6.3
  – RBC 2.12 L (4.33-5.75)
  – Hemoglobin 6.8 LL (13.4-17.6)
  – Hematocrit 19.4% LL (38.2-50.2)
  – Platelets 96 L (140-390)

• Comprehensive Metabolic Profile/ESR:
  – Sodium 127 L (133-144)
  – BUN 74 H (8-24)
  – Creatinine 5.17 HH (0.55-1.30)
  – Calcium 12.1 H (8.6-10.4)
  – Serum Protein 16.6 H (6.2-8.5)
  – Globulin 14.1 H (1.8-3.7)
  – ESR H >140 (0-15)
Case #2 MRI’s
Case #2 Diagnosis-Multiple Myeloma

- Serum Immunoelectrophoresis
  - Gamma Serum 11.6 H (0.6-1.5)

- C- Hypercalcemia
- R- Renal Failure
- A- Anemia
- B- Bone lesions
  - Compression fractures T5, T7, T9, L1, L2, L5
Case #3

• 73-year-old male with complaint of left low back, left hip/buttock and left lower extremity pain that started 6 months prior after shoveling snow. The pain radiated into the posterior left buttock and lower extremity. He also noted occasional left groin pain. The patient states that he did limp because of his left hip pain. The pain did awaken him at night. He denied increased pain with coughing or sneezing. There was no bowel or bladder dysfunction. X-rays of the pelvis and left hip 2 months prior showed minimal degenerative change of the left hip. Lumbar spine x-rays 1 month prior showed multilevel degenerative disc changes. Previous Medrol Dosepak and Gabapentin had been somewhat helpful for his pain. Previous physical therapy did not seem to help his pain.

• Exam revealed moderate tenderness in the region of the left SI joint and left buttocck. There was mild left quadriceps atrophy. Lower extremity neuro exam was unremarkable.
Case #3 Pelvis X-ray 4/8/16
Case #3 L-spine X-ray 5/11/16
Case #3 Pelvis X-ray  6/15/16
Case #3  Risk Factors- Smoker for 50 years, quit smoking 1 year ago
Case #3 Metastatic Disease to Bone

• PBKTL - “Lead Kettle”
  – P: Prostate
  – B: Breast
  – K: Kidney
  – T: Thyroid
  – L: Lung
Case #3 Metastatic Disease to Bone

- Metastasis are most common bone tumors.
- Hematogenous spread.
- Most involve axial skeleton including skull, spine and pelvis.
- Rarely do metastases occur distal to elbows or knees.
- Metastases to spine frequently destroy posterior vertebral body including pedicle first- “pedicle sign”.
- 90% of skeletal metastases are multiple.
- Fractures of the lesser trochanter in adults should be considered pathologic until proven otherwise.
## Case #3  Metastatic Bone Lesions X-ray Findings

<table>
<thead>
<tr>
<th>Tumor</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>Blastic</td>
</tr>
<tr>
<td>Breast</td>
<td>Mixed Lytic and Blastic</td>
</tr>
<tr>
<td>Lung</td>
<td>Predominantly Lytic</td>
</tr>
<tr>
<td>Renal Cell</td>
<td>Predominantly Lytic</td>
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</tbody>
</table>
Blastic lesions

Multiple osteoblastic metastasis to the pelvis and lumbar spine from carcinoma of the prostate. Note discrete rounded sclerotic lesions in the right ilium and “ivory vertebrae” involving L4 and S1 - Learning Radiology
Case #4

- 88-year-old male with right upper back/medial scapular pain for the past year worse over the past month. Occasional radiation of pain to the right elbow and proximal lateral right forearm. Mild right-sided neck pain. Recent x-rays of the thoracic spine read by radiology as showing moderate degenerative changes with no obvious fracture. Right apical opacity. Recommend comparison with previous films if available.
Case #4 T-spine AP X-ray
Case #4 C-spine AP X-ray
Case #4 CT Chest
Case #4 Pancoast/ Superior Sulcus Tumor and Syndrome

- Pancoast syndrome is characterized by a malignant neoplasm of the superior sulcus of the lung with destructive lesions of the thoracic inlet and involvement of the brachial plexus and cervical sympathetic nerves (stellate ganglion).

- This is accompanied by:
  - Severe pain in the shoulder region radiating to the axilla and scapula to the ulnar aspect of the hand (C8-T1 roots).
  - Atrophy of the hand and arm muscles.
  - Horner's syndrome- ptosis, myosis, hemianhydrosis, enophthalmos.
  - Compression of blood vessels causing upper extremity edema.
Case #4 X-ray Pearl: AP C-Spine Includes Lung Apexes
Case #5 Pectus Excavatum

- 15-year-old female with pectus excavatum. 2 prior chest x-rays showed “prominent deformity of the cardiac silhouette” and right lower lobe infiltrate. The patient denied chest pain, palpitations, shortness of breath on exertion, but did state that she had an identical twin sister without pectus deformity and stated that “she kicks my butt when we run”. No self-image concerns.
Case #5 CT Chest
Pectus Excavatum Work-up

- CT Chest
- ?EKG
- ?Echocardiogram
- ?Pulmonary Functions
- ?Cardiopulmonary Exercise Testing
Pectus Excavatum Surgery - Nuss Bar
Pectus Excavatum Nuss Procedure
Case #6 History

- 76-year-old female presents for evaluation of her right hip pain that had been present for about 1 year but worsening over the last month. She described right-sided hip and superior buttock pain with some right low back pain with radiation into the right groin. She had been participating in a “strong woman” program.
Case #6 Exam

- Cardiac- irregularly irregular rhythm. Rate 96. No obvious murmur was heard.
- The patient denied any history of prior atrial fibrillation. She had been through a fairly extensive cardiac workup 1 year ago which was apparently negative. She did admit to some recent intermittent lightheadedness, palpitations and mild shortness of breath.
- The patient was referred urgently to the emergency department for further evaluation.
Case #6 EKG

- Date: 04-JAN-1940 (76 yr)
- Gender: Female
- Ethnicity: Caucasian
- Height: 62 in
- Weight: 150 lb
- Room: 1-534
- Loc: 22

- Vent. rate: 110 BPM
- PR interval: * ms
- QRS duration: 78 ms
- QTc: 214/441 ms
- P-R-T axes: * 0 21

- Description: Atrial fibrillation with rapid ventricular response
- Status: Abnormal ECG
- Confirmed by: OBST MD, GREGORY (216), editor St. Mary, Jacob (24093) on 6/11/2016 8:10:09 AM

Technician: SANDRA MORRISON
Test: rad.A FII

Referred by: NONE NONE
Confirmed By: GREGORY OBST MD
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