

**THINK HARD & DEEP  
YOU WILL FIND AN ANSWER**

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## WHY THIS PRESENTATION ?

### BONE PAIN IN CHILDREN – KNOWN FACTS

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Bone pain – common complaint in children

Underlying etiology can vary from a simple cause like growing pain to a serious cause like osteomyelitis, malignancy

Differentiating a benign cause from a serious cause – is difficult & challenging

# CASE HISTORY

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- 20months male child
- Pain left leg and limping gait for 1 week
- Fever on and off – not documented – 1month
- No h/o trauma
  
- Mother on hydroxychloroquine for rheumatoid arthritis

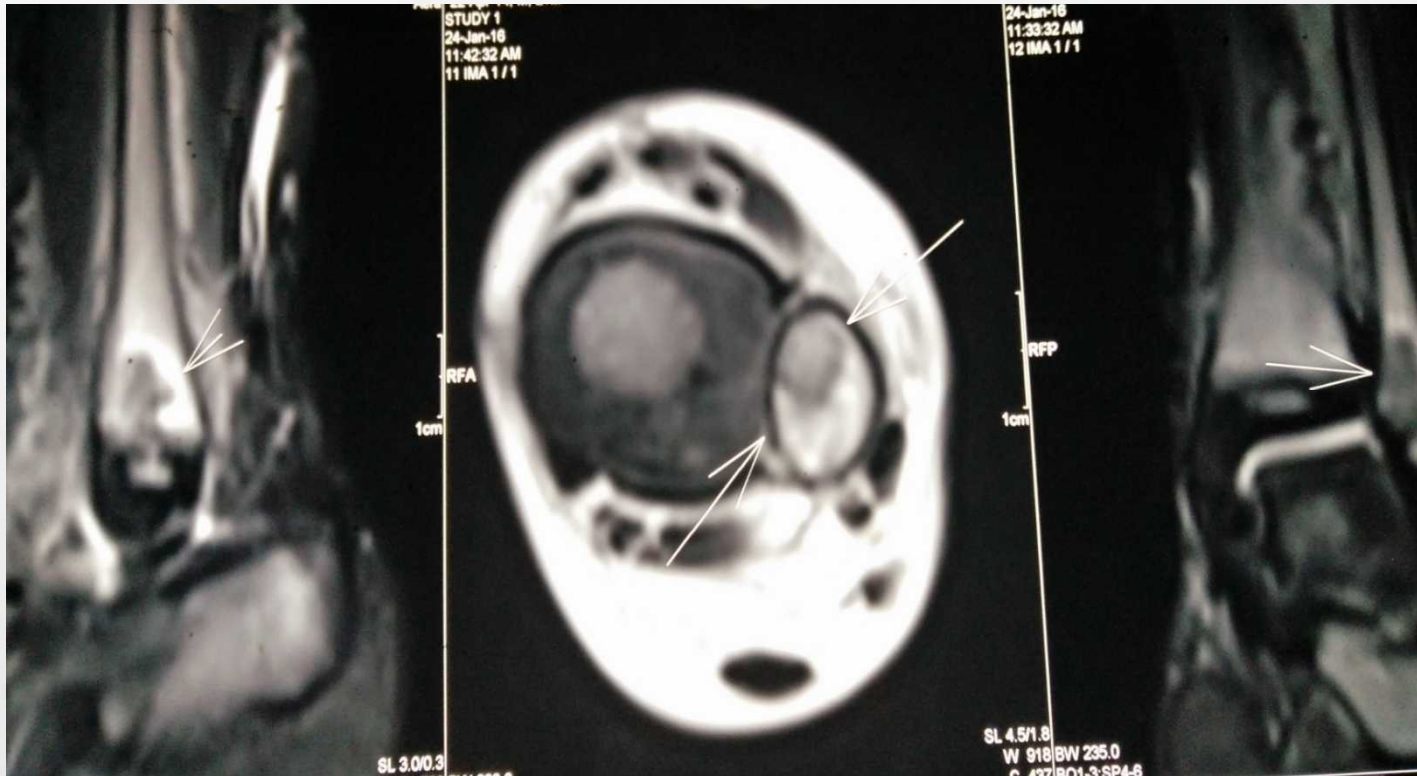
## ON EXAMINATION

- Well nourished
- Not sick looking
- Mild diffuse swelling of left lower leg with tenderness
- General examn – N
- Systems examn – N

## LABS


- CBC – 8200 cells/cumm  
8.7gm/dl  
2.9 lakhs/cumm
- CRP – 5 mg/dl
- ESR – 100 mm/hr

Altered marrow signal change - T2,STIR hyper  
intensity in lower end of fibula s/o  
**Osteomyelitis**



# MANAGEMENT

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- Consulted Orthosurgeon – started on parenteral antibiotic (ceftriaxone)
- Blood culture – no growth
- Fever subsided, pain better
- A week later repeat counts – N
- Repeat ESR  (112)

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- Orthosurgeon asked us to see the child

# RELOOK

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**Unwell for 2 months  
Low grade fever on and off  
Consulted local Dr. frequently**

**Normal counts  
Lymphocytosis (88%)  
High ESR**



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- Does this child have osteomyelitis?
  - Why lymphocytic predominance in a child with suspected infection?
  - Can the high ESR be due to inflammation?

**Our experience in the last 2 years  
3 children with similar presentation**

**No organomegaly  
No significant  
lymphadenopathy**

**Bone pain  
Imaging consistent  
with Osteomyelitis**

**Normal counts  
Lymphocytosis+/-  
High ESR, CRP**



	<b>PATIENT 1</b>	<b>PATIENT 2</b>	<b>PATIENT 3</b>
<b>Age at presentation</b>	<b>7 ½ YR / F</b>	<b>9 YR / F</b>	<b>2 ½ YR / M</b>
<b>Site</b>	<b>Left humerus osteomyelitis</b>	<b>Pelvis osteomyelitis</b>	<b>Left ischial osteomyelitis</b>
<b>Counts</b>	<b>TC – 5000 Hb – 11 Platelet – 4 lakhs</b>	<b>TC – 6000 Hb – 9.8 Platelet – 3 lakhs</b>	<b>TC – 7200 Hb – 10.7 Platelet – 2.98</b>
<b>CRP</b>	<b>CRP – 26</b>	<b>CRP – 106</b>	<b>CRP – 70</b>
<b>ESR</b>	<b>ESR – 86</b>	<b>ESR – 116</b>	<b>ESR – 112</b>
<b>Final diagnosis</b>	<b>CALLA positive ALL</b>	<b>CALLA positive ALL</b>	<b>CALLA positive ALL</b>

# FURTHER EVALUATION

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- Bone marrow aspiration

**90% blasts**  
**CALLA +ve ALL**

are initiated.

There are no specific laboratory tests for osteomyelitis. The white blood cell count and differential, erythrocyte sedimentation rate (ESR), or C-reactive protein (CRP) are generally elevated in children with bone infections but are nonspecific and not helpful in distinguishing between skeletal infection and other inflammatory processes. The leu-

Early symptoms of leukemia may be limited to prolonged or unexplained low-grade fever or bone and joint pain.

# VARIED PRESENTATION of childhood malignancies

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<b>Constitutional / systemic</b>	<b>Fever, weight loss, painless adenopathy</b>
<b>Musculoskeletal</b>	<b>Bone pain, joint pain</b>
<b>Gastrointestinal</b>	<b>Abdominal mass, diarrhea, vomiting</b>
<b>Hematologic</b>	<b>Pallor, bleeds</b>
<b>Respiratory</b>	<b>Cough, stridor</b>
<b>Neurologic/ophthalmologic</b>	<b>Headache, visual disturbance</b>

# LESSONS LEARNT

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- ✓ **Bone pain in children – THINK HARD & DEEP**
- ✓ **Presentation of ALL can be Non specific & varied**
- ✓ **Detailed history is important in establishing diagnosis**
- ✓ **Symptoms of bone marrow failure or organ infiltration may not be present at the time of presentation**
- ✓ **Lymphocytosis –subtle, but important clue**
- ✓ **High ESR & CRP – may not be helpful in distinguishing between infection vs inflammation**



THANK YOU  
*for listening!*