

Primary Epiphyseal Osteomyelitis of The Distal Femur Caused by *Streptococcus Pneumoniae* with Secondary Septic Arthritis: A Diagnostic and Therapeutic Challenge

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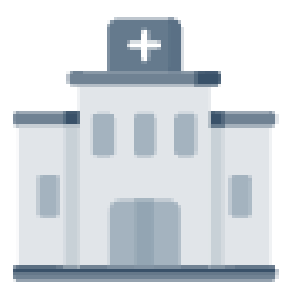


INTRODUCTION

Primary epiphyseal osteomyelitis (PEO) is a rare form of **acute osteomyelitis** in children. The distal femur is the most frequently involved site. Due to the **intra-articular location of the epiphysis**, delayed diagnosis may result in **secondary septic arthritis** and **long-term joint sequelae**.

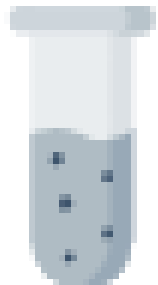
CASE PRESENTATION

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 - 8-year-old, male
 - Previous history of recurrent upper respiratory tract infections with multiple cycles of antibiotherapy

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Knee pain, limp and fever for 2 days
Physical examination:

 - Swollen knee (without effusion)
 - Flexion >90° painful
 - Absent inflammatory signs



Leucocytes 13000/uL, Neut 64%
CRP 23 mg/L, PCT 0,22 mg/L

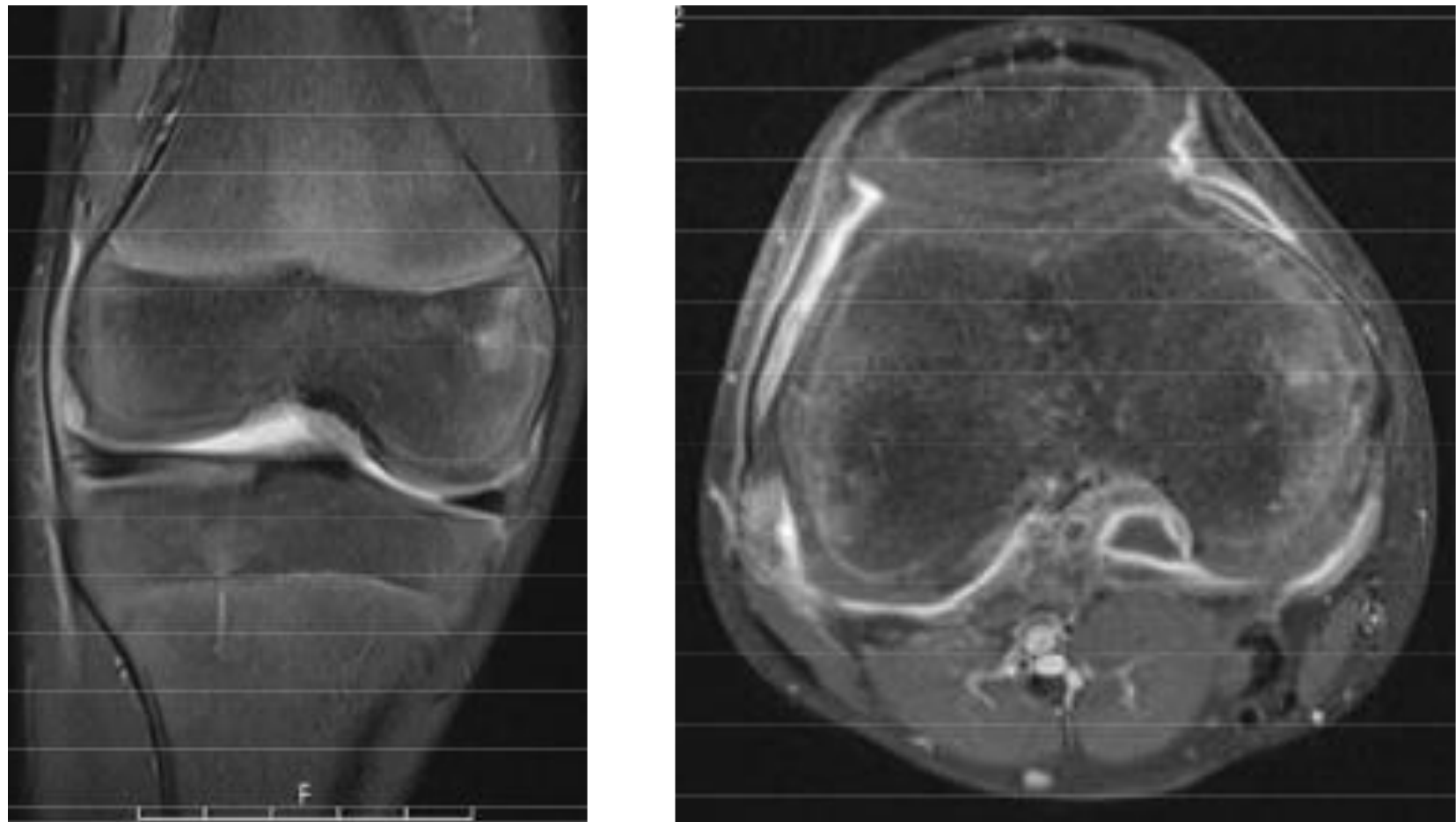


Fig.1. MRI showing isolated medial distal femoral epiphyseal osteomyelitis



MRI of the knee (Fig.1): “(...) bone marrow **edema** in the **femoral medial condyle**, near the **epiphysial plate** (...)”

Diagnosis Hypothesis: Primary epiphyseal osteomyelitis (PEO)

→ **Flucloxacilin 200mg/kg/day, 6/6h**

- D15

Clinical deterioration + elevation of the inflammatory markers

 - **Revaluation MRI (Fig.2)** : “(...) **persistence of the bone edema** (...) **affection of the knee articulation**, suggesting **septic arthritis** (...)”

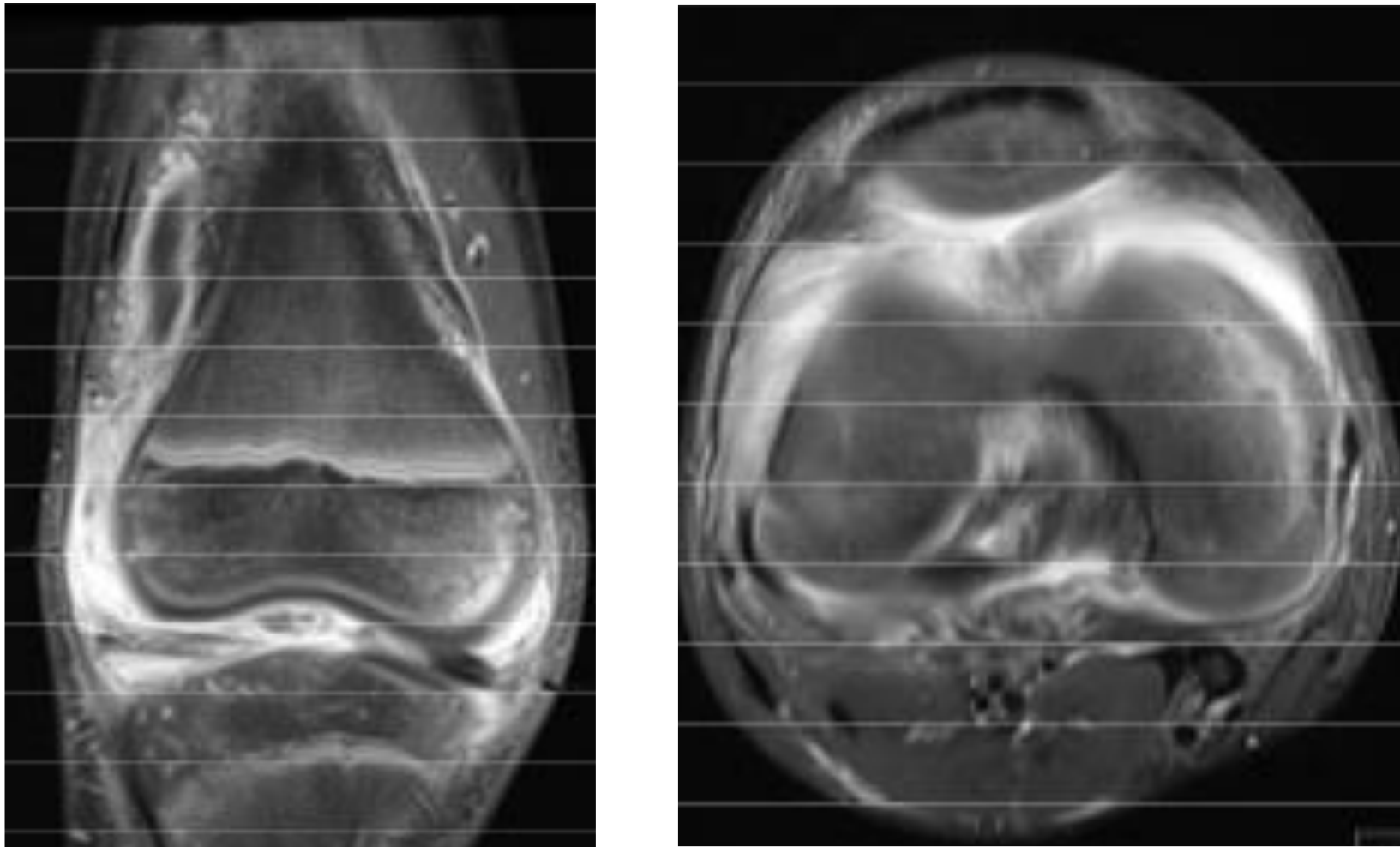


Fig.2. Progression to secondary septic arthritis

Arthroscopic debridement, washout and collection of samples
→ *Streptococcus pneumoniae* (intermediate resistance for penicillin)
→ Changed antibiotic to **Ampicilin 200mg/kg/day, 6/6h**

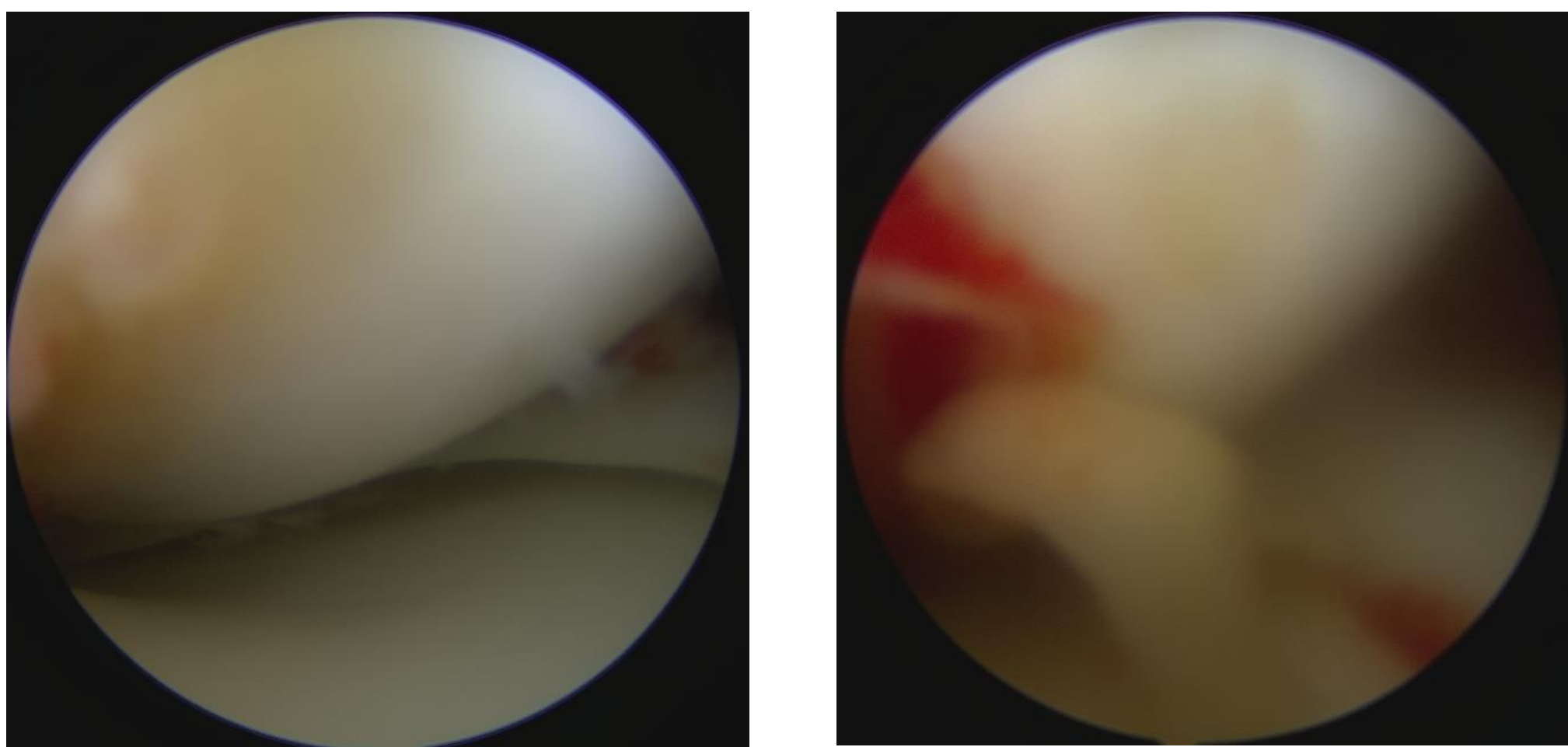


Fig.3 . Arthroscopy of the knee with some signs of inflammatory synovitis

D30 **New clinical deterioration**

2º Arthroscopic debridement, washout and collection of samples
→ Extended microbiology negative
→ Changed antibiotic to **Vancomycin 8/8h + Ceftazidime 150mg/kg/day, 8/8h**

D50 **Good clinical evolution with normalization of the inflammatory markers**

→ Changed antibiotic to oral **Amoxicillin/Clavulanate 875/125mg, 8/8h**

D53 **Discharged home maintaining oral antibiotic for a total of 3 weeks**

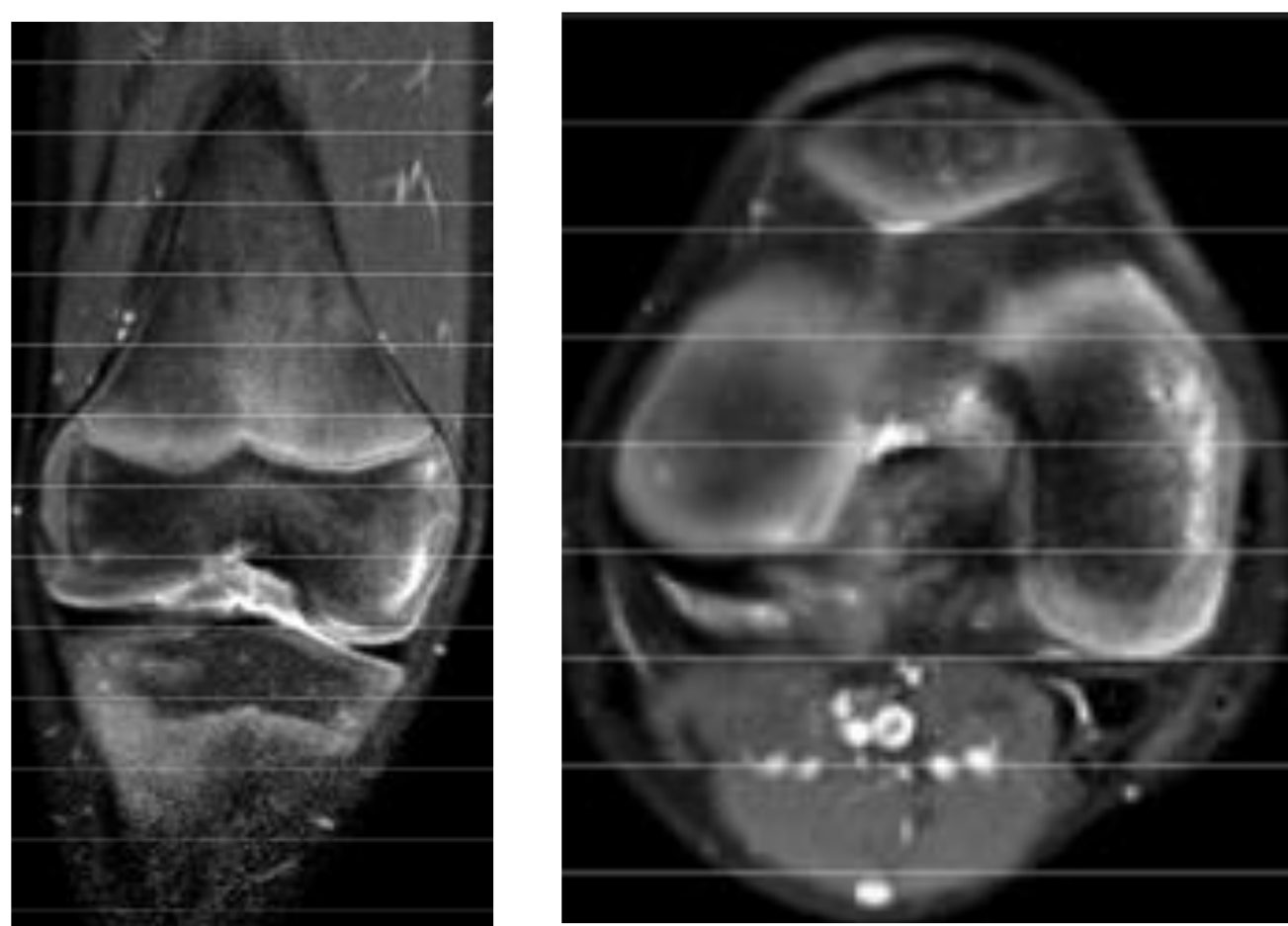


Fig.4 – MRI after the treatment

2/3 M **Good clinical and image evolution (despite persistence of medial condyle edema)**

Final Diagnosis: Primary epiphyseal osteomyelitis of the distal femur (*streptococcus pneumoniae*) with secondary septic arthritis

DISCUSSION

- Why is PEO challenging?**

 - **Rare presentation**
 - Frequently **overlooked**
 - **MRI** required for diagnosis
 - High risk of **joint involvement**
- What makes this case relevant?**

 - **Pneumococcal PEO** is **uncommon**
 - Progression to **septic arthritis**
 - Apparent **treatment failure despite targeted therapy** (low dose)

Clinical deterioration does not necessarily represent **treatment failure**.
In selected cases, **inadequate antibiotic exposure** should be **considered** before assuming **persistent infection or broadening antimicrobial coverage**.

CONCLUSION

- ✓ **PEO** should be suspected in **children with persistent knee symptoms**
- ✓ **Early surgical management** is **essential** when **joint extension** occurs
- ✓ **Optimization of antibiotic dosing** may be as important as antibiotic selection

REFERENCES AND CONTACTS

