

TEACHING FILE (GRAND ROUNDS)

A 3½ YEARS OLD GIRL WITH RECURRENT PNEUMOTHORAX

Ira Shah

Case :- A 3½ years old girl presented with fever and cough since 15 days, breathlessness since 10 days and altered sensorium since 1 day. She was treated for the same with intravenous antibiotics but had no improvement. There was no history of TB contact and she was immunized till date. On examination, she was lethargic, had respiratory distress (respiratory rate = 50/min) and tachycardia (heart rate = 140/min) with subcostal and intercostals retractions. There was pallor and enlarged tonsils with absent BCG scar. On respiratory system examination, she had crepitations on right infra-axillary region. CNS examination was normal. She had hepatomegaly. Other examination findings were normal. Investigations showed miliary mottling on Chest X-Ray, hypoxia on arterial blood gas analysis and negative Mantoux test. She was treated with IV antibiotics and antituberculous therapy (ATT). Bronchoalveolar lavage grew Klebsiella. On 4th day of treatment, she developed right sided pneumothorax for which intercostals drainage (ICD) was put. Subsequently she developed multiple spontaneous pneumothorax bilaterally for which multiple ICDs were done over a period of next 75 days. She also required negative suction with ICD in view of incomplete lung expansion. After 82 days of presentation, ICD was removed and child was stabilized. She was continued on ATT.

What is the cause of recurrent pneumothorax in this child ?

Expert's opinion : This child has miliary mottling on Chest Xray which is suggestive of Tuberculosis in this child. Though BAL grew Klebsiella, it is quite unlikely that Klebsiella should have a miliary picture on the Xray. Now miliary TB on healing leads to fibrosis of the lungs. This makes the lung less compliant and more prone to rupture and leading to pneumothorax. Corticosteroids have a tendency to suppress the normal fibrotic reaction around the tuberculous lesion and thus prevent the lung from getting fibrosed. Thus, it is recommended that all children with miliary Tb should received steroids along with the ATT with ATT taking care of the TB and steroids preventing the fibrosis.

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ACCIDENTAL LEG INJURY IN AN ACTIVE TODDLER

Jane Cox

Case: "Barrett was running across the sofa when he took a dive off pretending to be Superman. I managed to catch him by the ankle as he went past. Now he is crying so hard and I am afraid that his leg may be broken," confides Mrs. Knott. You listen to her concerns and learn that he is a very active toddler.

Barrett is a twenty two month old male child who was brought by his mother to the pediatric emergency department (ED) in a mid-sized south Floridian hospital and seen by a nurse practitioner. Twenty minutes earlier, the child was playing with his sister in the living room of their home and sustained injury to his right leg as his mother attempted to prevent a fall. He is inconsolable and crying loudly from the pain. His mother denies prior injury to the affected extremity, serious illness or hospitalization. Past History - A circumcision was performed after birth and before hospital discharge. He is current on all Advisory Committee on Immunization Practices recommended vaccinations including his first seasonal influenza vaccination. Barrett lives with his mother, father and sister; all are alive and well. The child's development milestones are age appropriate. On physical examination, the child is well- appearing but in severe pain. He is tearful and uncooperative. His vital signs are stable, with a blood pressure of 101-30 mm Hg, pulse rate of 122 bpm, respiratory rate of 24

breaths per minute, and an oxygen saturation of 100% on room air. His temperature is 97.5 ° F (36.4 ° C). Heart tones are normal S1 and S2 without murmurs. The respiratory and abdominal exams are normal. Obturator and psoas signs are unremarkable. The lower extremities are well perfused , have intact peripheral pulses and color. There is no obvious deformity to his left lower extremity. The right lower extremity has localized exquisite tenderness in the mid femur. There is no shortening or distortion of the legs. The left thigh is swollen and seems to tremble or jerk. There is no limitation in the range of motion at the hips or knee joints bilaterally. The neurological exam is normal and no lymphadenopathy is noted.

What are the differential diagnoses? What is treatment plan?

Bone fracture injury, hip dislocation, and sprains or strains of the knee ligaments are all possible diagnoses to be considered. The femur is the largest and strongest bone and it requires substantial force to fracture. Child abuse is evaluated in any case of high energy trauma. Remain calm and speak in a quiet voice while asking Mrs. Knott to describe what happened to cause the injury. When Barrett was caught by the leg, the femoral shaft twisted, resulting in a spiral

fracture. There were no other significant radiographic findings. Compartment syndrome with neurovascular compromise due to local swelling of the thigh muscle is a serious possible complication. Careful assessment to exclude other injuries in the presence of femoral fracture is necessary.

Femur fractures in young children have been treated with spica casting. Intramedullary rods and nails can be used to immediately reduce and internally fixate the displaced fracture. The rods are inserted into the hollow center of the bone and are removed after treatment. In other situations, it is preferable to use specialty plates designed specifically for children to protect the growth plates. Recently, surgeons have designed and implemented use of the Pediloc™ system. Approved in January, 2009, this system accommodates the contours of children's bones which are different from adult bones. Recovery is less restrictive and Barrett can return to play faster. After surgical intervention, most children will use a wheelchair for a week or less before being allowed to resume full weight bearing to tolerance and normal play activities.

Bone healing is characteristically rapid in toddlers. The nurse practitioner should continue to monitor at a follow-up clinic visits in 2 weeks, 6 weeks, 3 months and 6 months. A radiograph should demonstrate

complete healing the femoral fracture at 3 months. Physical therapy is generally not needed in toddlers and young children due to their naturally physical activity.

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TEACHING FILE (GRAND ROUNDS)

WHEN TO START ANTIRETROVIRAL THERAPY?

Ira Shah

Case: An 8 years old HIV infected boy was referred for further management. At the age of 6 years, he was diagnosed to have Immune Thrombocytopenic Purpura (ITP) with platelet count of 8000/cumm and purpura. He was treated with platelet transfusions, whole blood and steroids after which his platelet counts were normal. There was no other illness in past. Both parents were HIV negative. On examination, there were no abnormalities. Investigations showed positive Western blot for HIV-1. His serial CD4 counts are depicted in

Table 1. His HBsAg and Anti HCV ELISA are negative. He continues to be asymptomatic.

When should he be started on antiretroviral therapy?

Expert's opinion: This child has a decreasing CD4 count trend. Thus it appears that his immunity is waning. However, his Cd4: Cd8 ratio is fine, suggesting that the HIV virus is not actively replicating. Thus, one wonders as the cause of his decreasing CD4. Since the

Table 1:- Hemogram and serial CD4 count

	8 yrs	9 yrs	9½ yrs	10 yrs	10 yrs 3 mnths	11 yrs	11 yrs 9 mnths
Hemoglobin (gm/dl)	-	-	-	-	13.4	12.7	-
WBC (cells/cumm)	-	-	-	-	5400	2900	-
Polymorphs (%)	-	-	-	-	48	38	-
Lymphocytes (%)	-	-	-	-	30	48	-
Platelets	-	-	-	-	1,82,000	1,53,000	-
CD ₄ count							
(%) cells/cumm	553 (35.3)	740	689	466	265 (32)	280 (28.6)	247 (43)
CD ₈ cells/cumm (%)	458 (29.3)	374	362	274	161 (19.4)	229 (23.4)	137 (23)
CD ₄ :CD ₈	1.2:1	-	-	-	1.65	1.22	1.8

child's WBC count is also low, the absolute CD4 count may appear low. Thus in this child there is relative CD4 cytopenia and not an actual drop in CD counts. Infact his CD% appears to be normal. Thus this CD4 trend does not depict an immunosuppression. Infact his CD4 count at the age of 12 years again was 577 (36.4%) and CD4:CD8 ration was 1.61. Thus in this child one would not start ART.

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PEDIATRIC ONCALL
CHILD HEALTH CARE

PEDIATRIC INFECTIOUS DISEASES CONFERENCE –
Clinicomicrobial fusion

on
24th October 2010, Sunday from 8:30 am onwards

<p>Topics include:</p> <ul style="list-style-type: none"> Community Acquired MRSA (methicillin resistant staphylococcal aureus) Difficult to treat Gram negative infections Blood candidemia and invasive Aspergillosis Newer antifungals Drug resistance in HIV infected children MDR and XDR TB in children Newer antibiotics: Colistin, Linezolid etc Routine antibiotic prescribing Chemoprophylaxis Congenital CMV Rapid Diagnostic Tests Primary immunodeficiency Newer vaccines: Do we really need them? Neonatal sepsis: Advances in Diagnostics and Therapeutics <p>and more...</p>	<p>Interactive Cases:</p> <ul style="list-style-type: none"> Pyogenic abscesses due to PVL Staphylococcus ESBL Enterobacter Mucormycosis Nevirapine exposed infants due to PPTCT Diagnostic problems in HIV exposed infants Antenatal PCR for congenital infections <p>and more...</p>
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Scientific program consists of talks by eminent faculty, interesting case discussions, interactions with infectious diseases specialists, panel discussions and practical solutions to common pediatric infectious disease problems.

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Dr Ira Shah
Organizing Secretary

Dr C T Deshmukh
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Venue: Nehru Science Centre, National Council of Science Museums, Dr. E.Moses Road, Worli, Mumbai 400 018.

Registration:	Till 31 st July 2010	1 st Aug 2010–23 rd Oct 10	Spot Registration
Delegate	Rs 750	Rs 850	Rs 1000
PG Student	Rs 500	Rs 600	Rs 750

Mode of payment– Cheque/D/D should favour “ Pediatric Infectious Diseases Conference ” payable at Mumbai. (Add Rs 75/- additional for outstation cheques)

Conference Secretariat : Pediatric Oncall, 1/B Saguna, 271/B St. Francis Road, Vile Parle (W), Mumbai 400056. Tel: 022- 32217624. Email: pidc2010@yahoo.com
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