Case Report

Disease that masquerades Neurology

To be sure is one thing and to be sure that 'I am not sure' is another!! This opening line may appear confusing, in fact may not be making sense but I do experience such a state every once in a while when I am completely at loss at the end of the consultation and start doubting the yield of 26 years spent in medicine! I recheck the history, I re-examine the patient and yet I fail to put my finger on the problem, and this is not a rare occurrence. I am sure I cannot attribute it to my aging brain although I would like to!

Presentation

18 month old girl was brought to me with complaints of difficulty in getting to sit and stand. Parents had noticed that since one month the child took support to get to standing and turned to one side to get to sitting. She had started walking at one year of age and till a month back, could run, climb stairs. There was no history of fever or history suggestive of pain like night arousals or discomfort on handling.

She had an older sister, who was normal; she had an uneventful neonatal history and she lacked any family history of neurological diseases.

She was an active toddler and cooperative to examination. She walked unassisted but with a lordotic* gait (*lordosis-excessive inward curvature of spine). She took support to stand from sitting; when she was made to lay on her back, she turned to her side and used her hands to get to sitting. Her speech was normal for age. Her cognition was fine (she could show body parts). She was not excessively irritable; her antigravity movements of limbs were good, tone of muscles normal and knee jerks were easily elicitable. Movement at the hips were non painful and unrestricted. Her ocular movements and facial movements were fine and there was no neck stiffness. She did not have any abnormal general examination findings and had normal parameters for weight and height.

At the end of twenty minutes, I had inferred she had axial weakness and weight bearing difficulty due to pelvic girdle weakness so the next point for me to ponder was 'where' does the problem lie. It could be the axial musculature with particular involvement of pelvic girdle muscles but I was unsure about the localization*. Neurologists feel uncomfortable if they cannot localise at the end of a consultation since that means we do not know what tests to order or what explanations to provide for the symptoms.

Admitting to the parents that I did not know what was wrong with the baby would not solve my problem so the next best thing to do was to rule out the common differentials that cause sub acute onset change in gait which is not upper motor neuron* in origin.

Investigations

She had a normal complete blood count and CPK (creatine phosphokinase) level.

I decided to perform a nerve conduction study. The upper limb motor nerves showed reduced CMAP (compound muscle action potential) amplitudes. Although not very convinced about the possibility

of an isolated upper limb motor neuropathy, I had to put it on the report.

And by now my problem had compounded; I had an 18 month old with axial muscle and pelvic girdle weakness with some evidence of upper limb motor neuropathy! Well, it definitely Iooked like I was lost! But I decided to stick to my strategy and investigate further into common causes of gait abnormality in children. She did not have myositis or leucocytosis so I had no reason to look for systemic causes causing abnormal gait.

I ordered MRI (magnetic resonance imaging) of the spine, screening and dedicated dorsolumbar spine study, all the while dreading that if imaging of the spine did not yield a positive result, I would not know which way to go!

MRI revealed homogenously enhancing marrow edema in L5-S1 veretebral bodies, particularly involving L5 vertebrae, along with erosions of opposing end plates, soft tissue edema in paravertebral region and enhancement of sacral nerve roots.

Rescission : All objects behave as though their mass is concentrated at a point called their centre of gravity. A simple object like a ball has its centre of gravity in a very obvious place: right at its centre. But in a more complex object, like our body, the centre of gravity is anterior to second sacral vertebra. Increasing the Base of support (BOS) and lowering the centre of gravity (COG) improves balance. Humans have cervical and lumbar lordosis. The lumbar lordosis helps to shift the COG posteriorly to the hip joints.

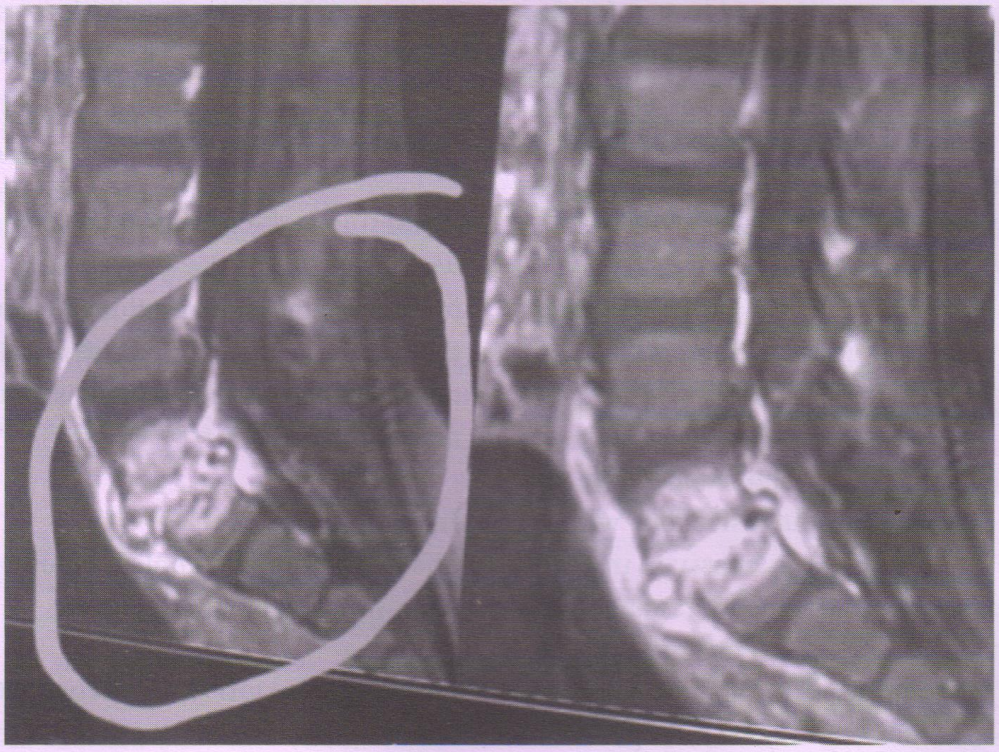

Figure 1 : sagittal T1W post gadolinium study shows homogenously enhancing L5-S1 vertebral bodies with involvement of intervertebral disc and erosion of opposing end plates

Pathogen	Characteristics
Staphylococcus aureus	Involved in approximately 80% of the cases that occur in the first months of life and in older children
Kingella kingae	Main pathogens in children between 6 months and 4 years
Coagulase-negative *Staphylococcus*, α-hemolytic *Streptococcus*, *Streptococcus pneumoniae*, and Gram-negative rods such as *Escherichia coli* and *Salmonella* spp.	Less frequently identified
Mycobacterium tuberculosis	Mainly diagnosed in some developing or emerging countries, but reported also in industrialized countries
Brucella spp.	Unpasteurized goat cheese consumption
Fungi (*i.e.*, *Aspergillus* spp., *Candida* spp. and *Cryptococcus neoformans*)	Mainly reported in immunocompromised patients

Table-1 :
Microorganisms causing discitis and spondylodiscitis in children

In our case, the child was trying to relocate the COG posteriorly to avoid weight bearing on the damaged vertebrae hence she had a lordosis while walking; at the same time she had to make multiple changes in posture to get to sitting since she was unable to use the COG to sit up.

L5-S1 discitis with vertebral body erosion She was referred for a CT (computed tomography) guided biopsy of the lesion and although curious about the pathology, I was relieved to transfer her care to the paediatrician and orthopaedic surgeon. The biopsy report was suggestive of non-granulomatous, non-malignant spondylodiscitis.

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