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On The Use of Adequate Imaging in Apparently Innocent Spinal Presentations in Adolescent Girls.

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ABSTRACT

The purpose of this paper is to stress the need for the clinician to be alert to look for potentially dangerous spinal conditions with apparently innocent presentations in adolescent girls and ask for adequate use of imaging like MRI.

Keywords: Syringomyelia ,innocent spinal presentations, imaging ,girls, MRI.

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INTRODUCTION

In an adolescent girls there have been repeated innocuous presentations that will not stimulate the examiner to probe further and image adequately. Time and again there is every chance that such findings go unnoticed only to come back with a vengeance i.e. with severe neurological deficit. In this paper we highlight the status of adolescent girls presenting with spinal pain with very mild scoliosis. The rare type of neurological presentation which the examiner must be aware. Mild scoliosis may present with syringomyelia and can be dismissed as functional. Pain may be radiating to upper limb when the clinician is expecting limb weakness in the lower limb.

In our practice of more than ten years , we came across few cases which presented with a very mild spinal deformity. these cases underwent standard protocol of radiographs and had MRI .We present our experience with such case so as to highlight the need for adequate imaging. In one of our cases, a 14 year old girl came for diffuse back pain in the upper back, did not have gross anomaly of the back and she had only very mild depression of her right shoulder. On very close examination, she had mild scoliosis which is not obvious.(Figures 1a,1b and 2). She was complaining of pain in the upper limbs only.

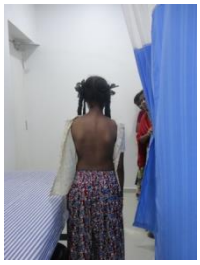

Figure 1 a

Figure 1 b

Figure 1 a and 1 b: The patient standing with spine exposed , the mild scoliosis is seen in upper dorsum with convexity to left side.

Figure 2: On stooping forwards ,mild scoliosis with slight loss of kyphosis is seen

Routine radiographs of this patient showed very mild scoliosis .When asked for MRI of the spine; the parents brought her with an MRI a week later. The MRI cuts are shown in figure 3 a, b, c and d.

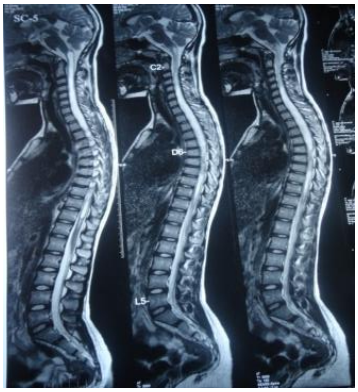

Figure 3 a

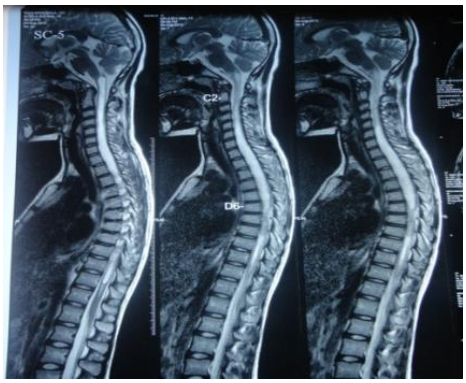

Figure 3b

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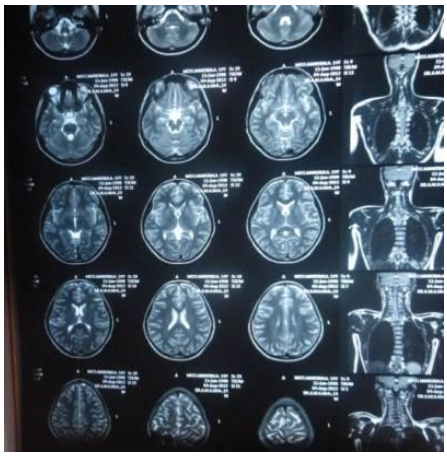

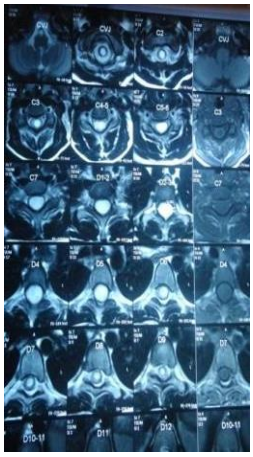

Figure 3c **Figure3d**

Figures 3 a b, c and d: The MRI slices showing the central canal being deformed into a syrinx

Figure 3: A close up view at the cranio-vertebral junction showing the central canal enlarged and formed a syrinx.

As seen in figures 3 a,bc and d and 4 , there was gross dilatation of the central canal with evidence of syringomyelia. The syrinx extended even up to the level of the cervical spine- explaining the upper limb symptoms .The aim is to be aware about this condition and investigate thoroughly using MRI adequately. The pattern of neuro lesion in the dorsal scoliosis is the curve and progressive weakness of the lower limb. Such problems are not seen when there is a gross scoliosis as seen in the figure below in another case of an adolescent girl. But this girl went on to have no syringomyelia.

5a **5b** **5c** **5d** **5e**

Figures 5 a-e: Another obvious case of scoliosis which will not be routinely missed by the examiner. This case did not have a syrinx.

DISCUSSION

There had been repeated presentation of such adolescent girls between 9 and 12 with upper back problem. In the traditional method, such complaints are dismissed as functional and the child is malingering. This because also the illiteracy of the parents [1]. This is also because of the parents not seeing their ward spine because of traditional dress. Sometimes when rarely a mother gives bath to her daughter. As seen in figure 5 a-d, this with obvious deformity did not cause any neurological signs. In such cases patients bring the child for consultation, with anxiety, about mainly cosmesis of the child. Only there are occasions where as mentioned above the mother gets to see the spine of her daughter. In such an event the deformity will be noticed only if there is gross anomaly.

Even in gross deformity which is missed there is sometimes the involvement of the neural element. The child is still comfortably walking, with bladder and bowel control..However with even mild unrecognizable deformity a patient can develop terrible neurological complications. These may sometimes be irreversible. For example with upper back ache there can be a complacency from the physician side since child did not have any neurological problem clinically and such conditions are thought to be benign. Here the imaging is postponed.

For example in the illustrated case figures 2 a,b,c and d, there was gross syringomyelia and no involvement of the cranio-vertebral anomalies. Surgical intervention was not contemplated. Her cobs angle was very minimal 15 degrees and hence she was put on a brace and oral acetazolamide was given to her along with methylcobalamine . The pain in her upper limb got reduced and she went on to go to school.

Further various symptoms like head ache, loss of sensation of temperatures especially over the upper or lower limbs, pain in neck and arm and sometimes loss of bladder or bowel function. Also full examination of the patient including hyper elasticity should be done to increase the chance of identifying instability of cervical spine [2]. Induced experimental syrinx by causing arachnoiditis by the injection of kaolin in the cistern magna of dogs was done. These were assessed with radiograph, CT, MRI Calcein and tetracycline labeling. Communicating syrinx was seen in 5 cases. There were also changes in the paraspinal muscles of animals with enlarged syrinx [3]. In a larger study of 126 cases, it was found that syringomyelia was the common pathology in scoliotic patients. MRI is very important diagnostic test [4]. When a retrospective study was done in cases where spinal surgery was done the cases where syrinxes were missed were as high as 30 percent. This was not related to smaller length of syrinx but is directly related to the type of imaging used, the MRI is sure to pick up such lesions [5]. It is not enough if only these lesions are diagnosed at any time of life of the patient. These must be diagnosed earlier in a proper time even before any neurological deficit develops s these are potentially dangerous conditions [6]. Kanga et al reports a case similar to our case but where subtle changes were observed in reexamination [6]. In case of cranio-vertebral junction anomalies, Chiari malformation where sometimes the herniated tonsils of the cerebellum can block the flow of the CSF. As already elaborated MRI is known to be diagnostic of the syrinx while cine MRI can be used in directly visualizing the flow of the CSF from the ventricles with every systole of heart beat and in reverse direction with every diastole [2].

CONCLUSION

The purpose of this paper is to stress the need for the clinician to be alert to look for potentially dangerous spinal conditions with apparently innocent presentations in adolescent girls and ask for adequate use of imaging like MRI. Apart from ruling out nutritional deficiencies like vitamin D levels and psychological stress in these children, we need to concentrate on the spinal imaging also. One cannot fish with a big hole in the fishing net, sometimes a big fish like syringomyelia is lost with poor imaging.

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