Mirror movements in a case of Turner syndrome: an unusual association

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DESCRIPTION
A 13-year-old girl presented with primary amenorrhea, short stature and absence of secondary sexual characteristics. On detailed evaluation she was confirmed to have Turner syndrome based on clinical features of mild dysmorphism, elevated follicle-stimulating hormone and karyotyping (45, XO). She was scholastically poor but speech and other neurological examination were normal. Echocardiography revealed bicuspid aortic valve with no other abnormality. The abnormal hand movements (shown in video 1) were incidentally noticed during one of her clinical visits. The video illustrates a rare clinical sign called ‘mirror movement’. When the patient was asked to count with her fingers of the left hand, the right hand fingers (though kept on the table) also mirror the same. This type of synkinesis (mirror movements) is usually associated with neurological conditions such as cerebral palsy, high cervical cord malformation (as in Klippel-Feil syndrome), asymmetric Parkinsonism and rarely in obsessive compulsive disorder or schizophrenia. It is also reported in certain endocrinopathies such as hypogonadotropic hypogonadism (especially Kallmann syndrome) but not yet reported with Turner syndrome.

Physiologically, mirror movements may be observed in children in the first few years of life prior to myelination of corpus callosum fibres and it is very rare after 10 years of age. The possible mechanisms/hypothesis behind these abnormal movements in other pathological conditions include abnormal decussation of pyramidal tract fibres and absent/dysgenetic corpus callosum leading to reduced contralateral cortical inhibition. MRI of the brain in our patient was normal and we believe the genetic condition may be an incidental association with no causal relationship. Electrophysiological study such as transcallosal inhibition or a functional MRI may have helped us to understand the pathophysiology of these abnormal movements better. However, we could not perform these studies due to resource constraints. Considering her age, she was started on gradually escalating doses of oestrogen followed by progesterone therapy. She was doing well till her last follow-up at 19 years of age.

Contributors
KSM and AY: manuscript preparation and editing. ARA: planning and critical review. SM: patient management and planning.

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REFERENCES

Video 1
Video showing Mirror movements in a patient with Turner syndrome