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Lesch Nyhan Syndrome

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Lesch and Nyhan(1) in 1964 described a neurological disorder affecting males in childhood, characterised clinically by choreoathetosis, spasticity, mental retardation, compulsive self mutilation and associated with hyperuricemia. This is a relatively rare inborn error of metabolism due to a deficiency of the enzyme hypoxanthine guanine phosphoribosyltransferase(2) and in world literature only about 100 cases in 87 families have been reported(3). Reported in this brief communication are 2 fresh cases, both siblings, from Kerala, South India.

Case Report

Case A, a 10 year old male was admitted in this hospital on 15-10-1983 with convulsions. This child was apparently normal till the age of 6 months, had achieved neck holding, and had begun to turn from supine to prone. Development however stopped at around 8 months of age, and he was not able to sit up. He started

having transient tonic spasms of the whole body at the age of 3 years, and soon thereafter had his first tonic-clonic convulsion. Since then he has been on phenobarbitone and diazepam. He began biting his lips and fingers from the age of 4 years. This child had repeat convulsions 2 months before admission and again, just prior to this hospital admission.

On examination the child was spastic, had jagged lips and had his elbow joint splinted, apparently to prevent elbow flexion and chewing of his fingers. His recumbent length was 112 cm crown-rump length 62 cm, head circumference 50 cm, and weighed 14 kg—all parameters being below the third centile for age.

He could understand commands and though his speech was dysarthric, he was able to communicate his demands for food and his need for use of the toilet.

This child's compulsive self-mutilation consisted of biting of the lips and fingers and this was particularly noticed in situations of stress and tension. He clearly knew the painful consequence of his self-mutilation, and seemed quite apprehensive about it. Further, he could anticipate onset of this compulsive episode—he would ask for the restraints to be placed at his elbow at such times and when applied it would reduce his agitation.

The serum uric acid was 25µg/dl, (Normal 2 to 5.5 µg/dl.) and urinary uric acid was 640µg/litre. The daily output of uric acid was approximately 28µg/kg 24h (normal being about 6), uric acid to creatinine excretion was 25 (normal below 0.75).

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He had an elder brother who was also spastic. His younger sister was normal.

Case B, his elder sib, was also examined. His parents felt that there was something wrong with this child because he used to keep his fists closed even at the age of 6 months. At the age of 1 year he started developing spasms. In his case, self-mutilation started only at the age of 10 years. On examination he had generalised choreiform movements. He seemed more intelligent, more aware of his surrounding, and better able to communicate. His serum uric acid was 13.3 $\mu\text{g}/\text{dl}$, and his urine uric acid was 77 $\mu\text{g}/\text{litre}$. His daily output of uric acid was approximately 15 $\mu\text{g}/\text{kg}/24\text{h}$. His uric acid to creatinine excretion was about 2.

Discussion

The combination of spasticity, choreo-athetosis, mental retardation, self-mutilation and hyperuricemia make the diagnosis of Lesch Nyhan Syndrome unmistakable. In the younger sib, Case A, the onset of the disease was after 6 months of age and this was similar to other reported cases(4,5) who were often entirely normal at birth.

The older child, who had choreo-athetoid movements, had lower levels of serum uric acid and uric acid to creatinine excretion ratios, seemed more intelligent, less dysarthric and had a later onset of selfmutilation. This leads one to speculate that there may be degrees in the severity of the enzyme deficiency responsible for the increased uric acid synthesis and also leading to differences in the severity of physical consequences of the disease.

Self-mutilation usually sets in by 2 or 3 years of age but it started only at the age of 10 years in case B reported here. Seegmiller(3) has reported one of his cases having started self-mutilation at the age of 14 years.

These children, like others reported earlier, seemed well aware of the painful consequences of their compulsive behavior and also knew when the compulsive behavior was about to start. They would ask for the splints to be placed on their hands to prevent them being taken to their mouth.

Times of emotional stress were seen to simulate self-mutilation and this has led Seegmiller(3) to speculate whether the compulsive biting of lips and fingers is an amplified version of the far more common biting of lips and finger nails produced in certain individuals by stressful situations.

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