Case 20

A 9 year-old girl from Kanchanaburi

Chief complaint: Developmental delay and photosensitivity

Present illness: The patient was born full term with no complication and no abnormality. She weighed 2,600 g at birth. At the age of 18 months, she failed to grow with delay development in fine motor, gross motor, language, intellectual, and social development, and developed few episode of seizure. At 2 year-old when she started to walk, her parents noticed abnormal gait and frequently fall. Also, noticed that her skin was red easily with sun exposure.

Past history

As above

Family history

She has one healthy brother who has normal development. No other relatives have similar symptoms.

Physical examination

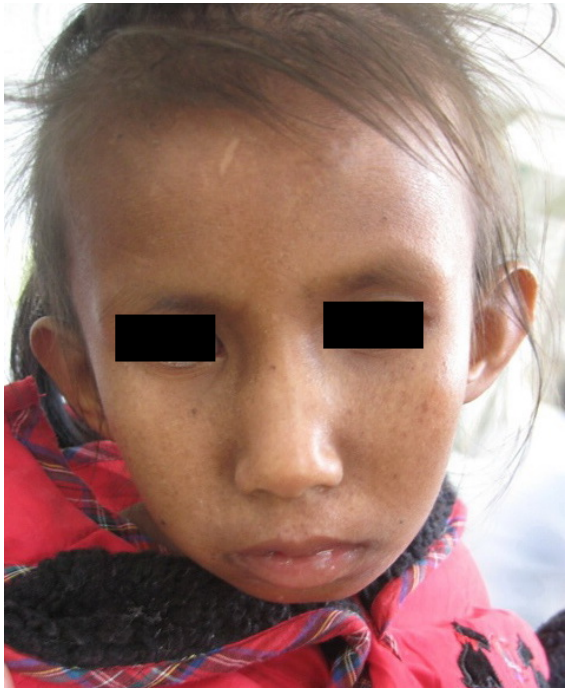
A Thai cachectic girl, Height 98 cm., Weight 10.1 kgs., Head circumference 45.5 cm.(all < 3 percentile)
HEENT: microcephaly, sparse hair, triangular face, thin nose, prominent ears, high arch palate
Teeth : multiple dental caries
Heart & Lung : WNL
Back: kyphoscoliosis
Neurological exam: alert, not follow command, Motor- at least gr IV, spastic tone- all, Reflex 3+ all, BBK –present both sides, Gait – tip-toeing gait

Skin examination

Multiple small hyperpigmented macules on both cheeks and nose

Investigation:

EEG : continuous slow, generalized. The findings are consistent with moderate to severe diffuse encephalopathy with no epileptiform discharge
Eye exam: salt and pepper retinal pigment, no cataract
Audiologic screening: suspected hearing loss
Skull X-rays: thickening of calvarium



Diagnosis: Cockayne syndrome type I
Treatment: Sun avoidance, Rehabilitation and Physical therapy
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Discussion:

Cockayne syndrome (CS) is a autosomal recessive genetic disorder, first described by Cockayne in 1936. The disease is characterized by growth failure, and multisystemic degeneration.[1-3] Two genes responsible for CS are ERCC8(CSA) gene in 25% and ERCC6(CSB) gene in 75% of CS. The disease has variable rate of progression spans a spectrum of manifestation that can be divided in 3 types:[2, 4]

- CS type I, classic form : normal prenatal growth with growth and development abnormalities appears in first two year; typically death in first to second decade of life
- CS type II : more severe form with manifestation at birth or early neonatal period; death usually occurs by age of seven
- CS type III : milder and later onset ; can have normal growth and development or develop late onset

The diagnosis of CS is base on clinical basis by using a clinical diagnostic criteria proposed by Nance & Berry in 1992 for classic CS(CS I) which compose of two major criteria of postnatal growth failure and progressive neurologic dysfunction which usually manifested as early developmental delay, couple with seven minor criteria of 1) cutaneous photosensitivity(~75%), 2) demyelinating peripheral neuropathy, 3) pigmentary retinopathy(~55%) and/or cataracts, 4) sensorineural hearing loss(~60%), 5) dental caries(~86%), 6) physical appearance of "cachectic dwarfism" with thinning of the skin and hair, sunken eyes, and a stooped standing posture, and 7) characteristic radiographic findings of thickening of the calvarium, sclerotic epiphyses, vertebral and pelvic abnormalities. The diagnosis can be made when both major criteria and three minor criteria are present. [5]

In our patient, symptoms developed at age of 18 months. She has both major criteria of postnatal growth failure and early global delay development with at least 5 minor criteria of cutaneous photosensitivity, pigmentary retinopathy, dental caries, cachectic dwarfism, and radiologic finding of thickening of calvarium. Unfortunately, at present, we cannot perform genetic testing for CS to confirm diagnosis. Therefore diagnosis can be made from clinical basis as Cockayne syndrome type I.

Treatment included physical therapy and assisted device for gait instability, medication to reduce spasticity, management of hearing loss and eye problems, and aggressive dental care. In addition, rigorous protection against UV including sun block, clothing, and sunglasses is imperative which can reduce skin damage and cataract.[1, 2]

References

1. 1. Spitz JL. Genodermatoses: a clinical guide to genetic skin disorders: Lippincott Williams & Wilkins; 2005: 242-245
2. 2. Neilan EG. GeneReviews: Cockayne Syndrome.;1993.
3. 3. Arenas-Sordo Mde L, Hernandez-Zamora E, Montoya-Perez LA , Aldape-Barrios BC. Cockayne's syndrome: a case report. Literature review. Med Oral Patol Oral Cir Bucal 2006;11:E236-8.
4. 4. Kraemer KH, Patronas NJ, Schiffmann R, Brooks BP, Tamura D , DiGiovanna JJ. Xeroderma pigmentosum, trichothiodystrophy and Cockayne syndrome: a complex genotype-phenotype relationship. Neuroscience 2007;145:1388-96.
5. 5. Nance MA , Berry SA. Cockayne syndrome: review of 140 cases. Am J Med Genet 1992;42:68-84.