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# Cutaneous Lesions as a Clue to the Etiology of Extensive Intracranial Calcifications: Aicardi-Goutières Syndrome

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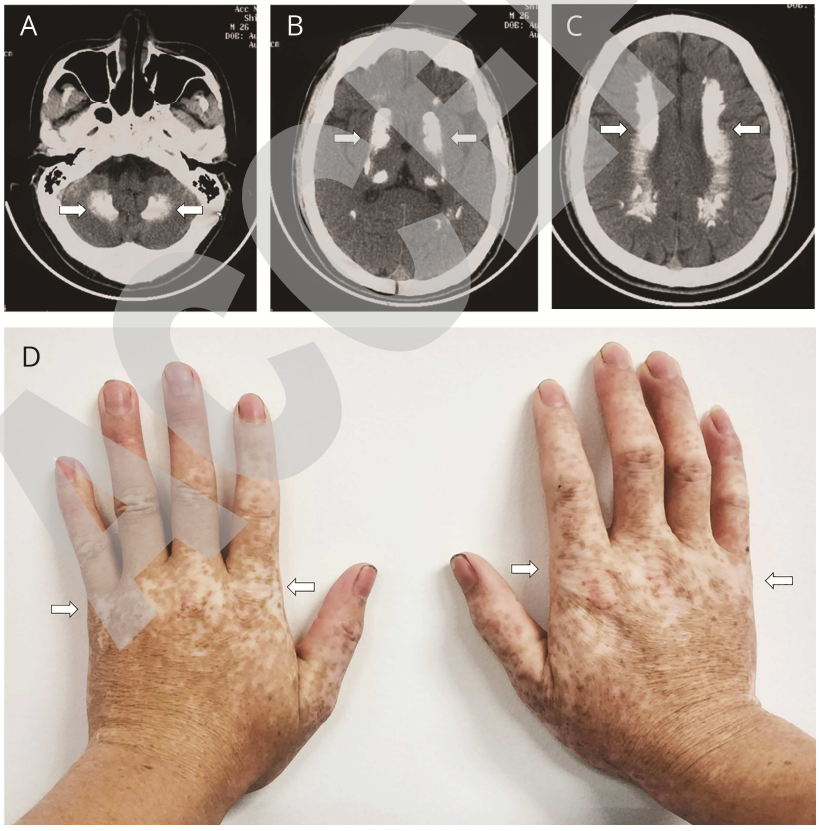
A 29-year-old man presented with 18 years' history of progressive spastic gait and bizarre behaviors (Video 1). Cerebral palsy was initially suspected. Brain CT (Figure, A-C) showed extensive intracranial calcifications. Serum PTH, calcium, and phosphate levels were normal. Hypopigmented macules were uncovered on the dorsal hands which developed since the age of six (Figure, D). Genetic testing revealed a pathogenic heterozygous p.Gly1007Arg variant in *ADAR1*, confirming Aicardi-Goutières syndrome 6 (AGS6).[1]

AGS is an autoinflammatory disease characterized by childhood-onset systemic inflammation with encephalopathy and cutaneous lesions due to enhanced type I interferon signaling.[2] Intracranial calcifications with cutaneous lesions should raise suspicion of AGS.

**Figure**: Brain CT and cutaneous findings in Aicardi-Goutières syndrome**.**

**Figure legend:**

(A, B and C) Brain CT reveals severe and extensive bilateral intracranial calcifications in the basal ganglia, thalamus, cerebellum, and subcortical white matter. (D) Dermatology examination uncovers small hypopigmented macules in the dorsal aspect of both hands.



**Video 1: The gait assessment of the 29-year-old AGS6 patient.**

**Video legend: The patient presented with spastic gait and forced laughter. Note the unremarkable cutaneous pigmented lesions on the dorsal aspects of hands.**

**Video 1-http://links.lww.com/WNL/B745**

## References

1. Rice GI, Kasher PR, Forte GM, et al. Mutations in ADAR1 cause Aicardi-Goutières syndrome associated with a type I interferon signature. Nat Genet. 2012;44(11):1243-1248.

2. Crow YJ, Hayward BE, Parmar R, et al. Mutations in the gene encoding the 3'-5' DNA exonuclease TREX1 cause Aicardi-Goutières syndrome at the AGS1 locus. Nat Genet. 2006;38(8):917-920.

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