Two siblings with Prader-Willi syndrome caused by microdeletion derived from the paternal grandmother

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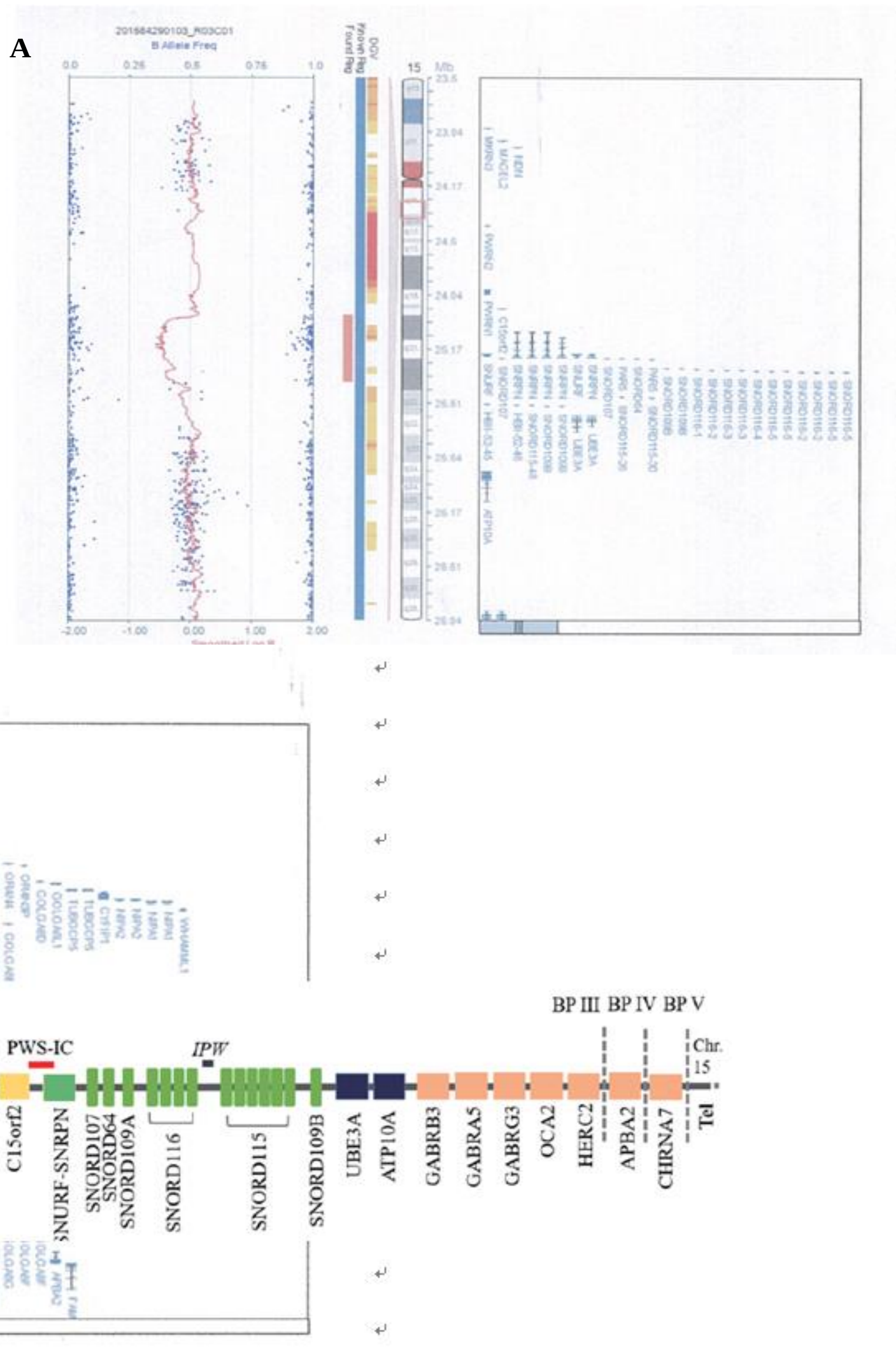
Abstract

Background：Prader-Willi syndrome (PWS) is a complex neurobehavioral disorder characterized by infantile significant hypotonia and feeding difficulties, followed by morbid obesity secondary to hyperphagia, short stature, functionally deficient gonads, intellectual disabilities and behavioral problems. It is caused by lack of expression of imprinting genes on the paternally inherited chromosome 15q11.2-q13 region. The genetic mechanism responsible for Prader-Willi syndrome can rarely be inherited.

Methods: Two neonatal siblings who both met the major and minor criteria for a clinical diagnosis of PWS. And methylation-specific multiplex ligation-dependent probe amplification (MS-MLPA) and single nucleotide polymorphism array (SNP array) were taken.



Fgure. Microdeletions generated using the Infinium OmniZhongHua-8 Kit 900k. Both the proband (A) and the father (B) displayed losses of a segment in 15q11.2 from position 24,963,375 to 25,380,656 base pairs (red box).The deleted segment was with respect to SNURF-SNRPN and SNORD107-SNORD109B (in green).

Results：MS-MLPA andSNP array analysis demonstrate a 417 kbp microdeletion within 15q11.2 region derived from the paternal grandmother through their father.

Conclusions:The present case is the first to report neonatal familial PWS cases in China. In addition to previous studies, the present study contributes to consensus regarding imprinting defects results from a failure to erase the maternal imprinting during spermatogenesis.

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