New mutation causing systemic Pseudohypoaldosteronism

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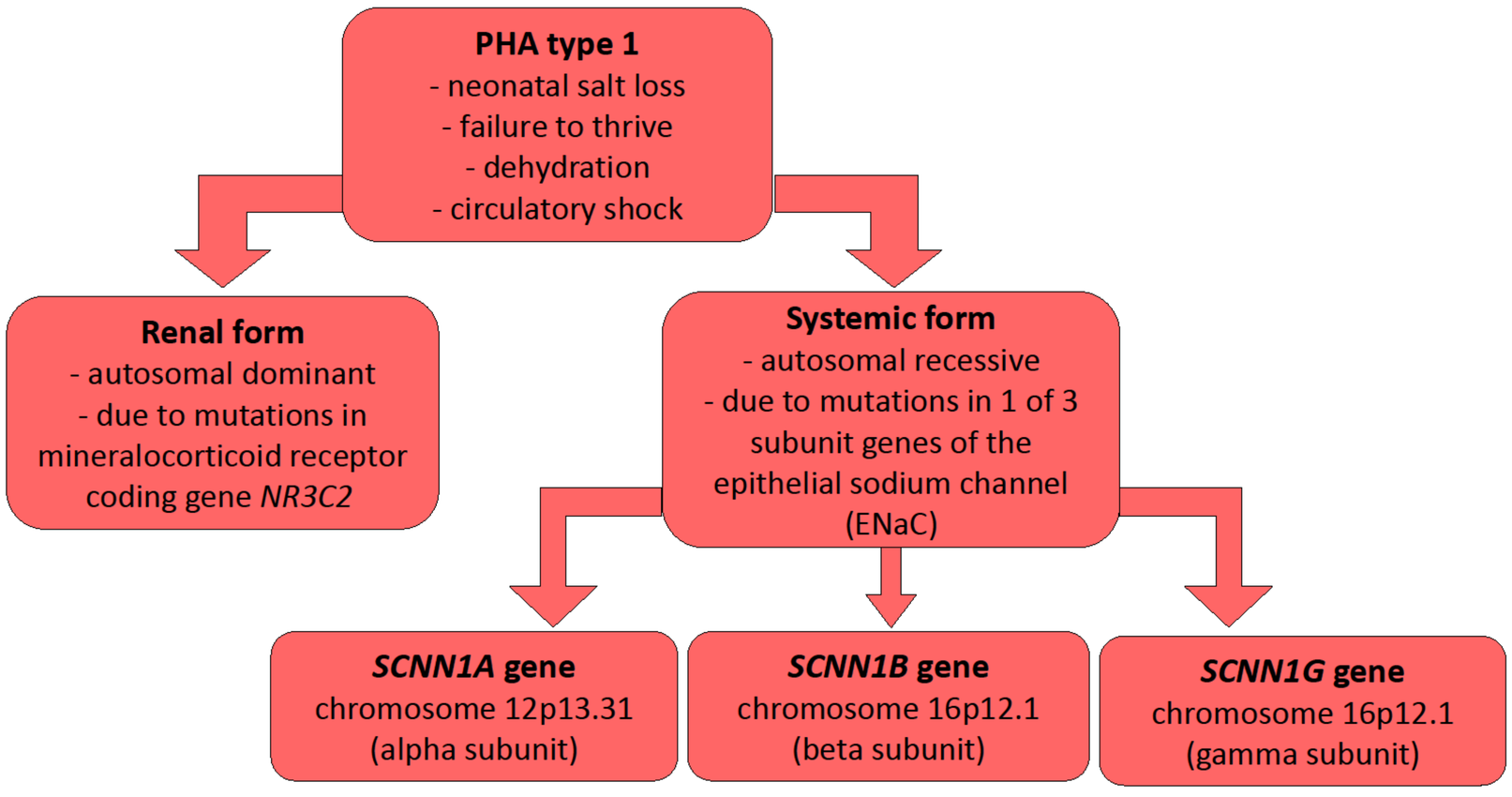
Pseudohypoaldosteronism (PHA) is a rare heterogeneous syndrome of mineralocorticoid resistance.



The **systemic form** usually presents in the neonatal period with salt loss from kidney, colon, sweat and salivary glands and can show pulmonary symptoms, similar to cystic fibrosis.

It is a life-long disease without improvement over time, characterized by life-threatening salt-losing crises that require extensive sodium supplementation and potassium-lowering agents.

Due to the rarity of the disease, no genotype-phenotype correlations have been established.

We report the case of a **12-months-old girl** with systemic form of PHA1, presented in the neonatal period with:

- dehydration
- weight loss
- feeding difficulties
- hyperkalemia (9.43mEq/L)
- hyponatremia (127 mEq/L)
- metabolic acidosis
- elevated plasma aldosterone levels (>22000 pg/mL).

Clinical conditions improved after **elevated sodium chloride and sodium bicarbonate supplementation** (total amount of sodium: 1-1.5 g/kg/die), administration of **ion exchange resins** and nutrition with **milk formula low in protein and potassium**.

Percutaneous gastrostomy was placed for nocturnal supplementation with sodium.

Nevertheless, frequent **life-threatening salt-losing crises** occurred, requiring recovery in Paediatric Intensive Care Unit and administration of higher doses of electrolytes and fluids intravenously. To ensure the prompt management of these episodes a **port-a-cath** was placed into internal jugular vein.

She also presented an **abnormal sweat test** with lung spiral TC showing **areas of altered ventilation** secondary to thick secretion (fig. 1). This condition (cystic fibrosis-like) required prophylactic antibiotic therapy and respiratory physiotherapy.

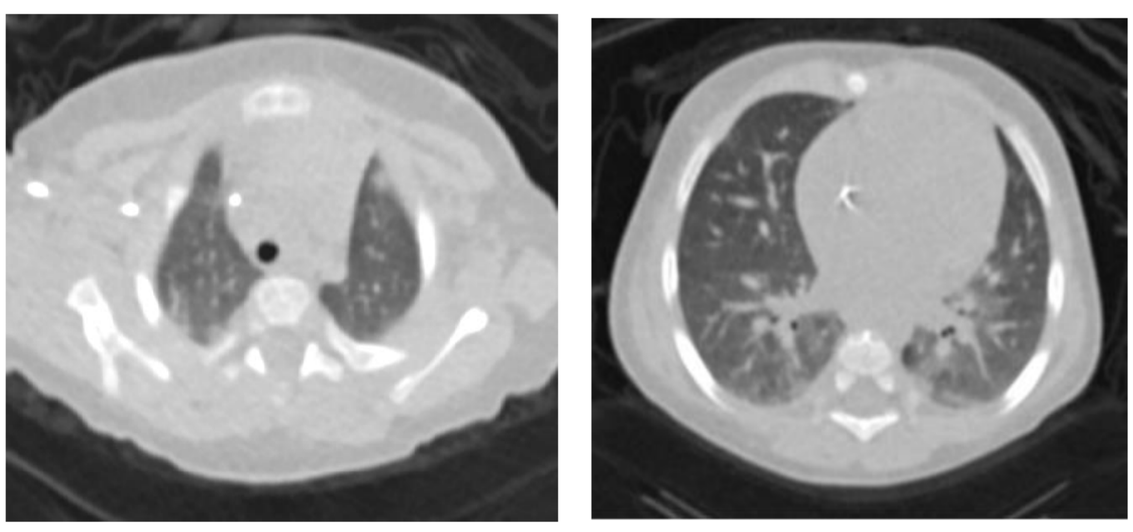


Fig. 1 – *Lung spiral TC, performed when the patient was 5 month-old*

So far, despite all these findings, the infant is **asymptomatic for lung disease**; she presents **normal auxologic parameters** and **neuro-psychomotor development**.

Genetic analysis showed a **compound heterozygosity in intron 8 of the *SCNN1G* gene**:

- c.1294+5G>A, inherited from the father
- c.1295-10T>A, transmitted by the mother.

Bioinformatics analysis shows that the **first variation abolishes the 5' splice site** and is probably pathogenic; **the second variation is predicted to abolish the 3' splice site** and to introduce a cryptic splice site of unknown significance.

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