

# Peripheral dysautonomia caused by PRNP gene mutations: a case report

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## BACKGROUND

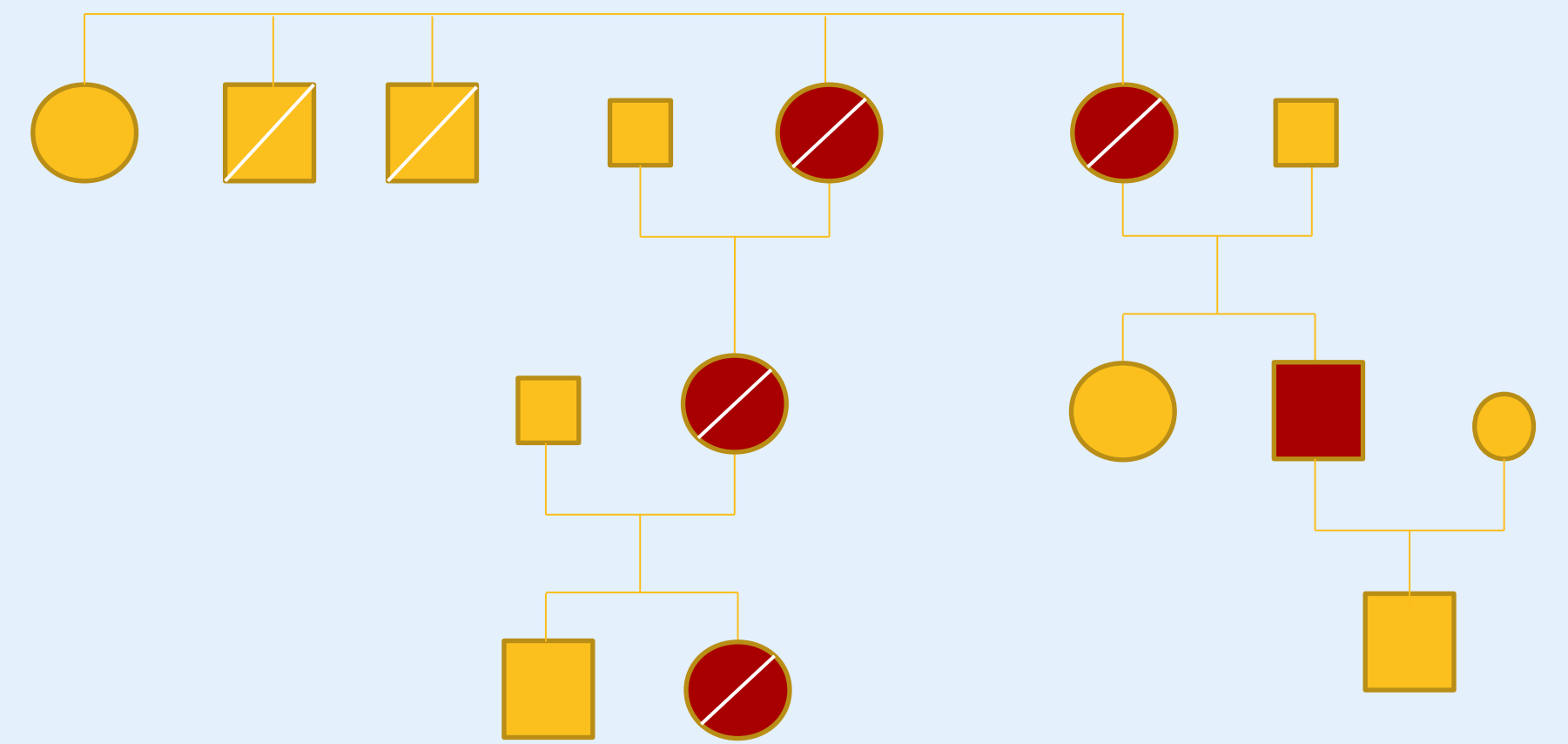
Prion diseases are classically recognized as neurodegenerative disorders characterized by spongiform encephalopathies; classic human prion diseases include sporadic, iatrogenic, inherited and variant forms of Creutzfeldt Jacob disease (CJD), kuru, fatal familial insomnia and Gerstmann-Strussler-Scheinker disease; however, PRNP mutations have been recently associated with a new clinical condition consisting in dysautonomia and chronic diarrhea

## CASE REPORT

We present the case of a 50 years old man who has been suffering of chronic diarrhea since 15 years; he referred to our hospital because of difficulties in bladder emptying and erectile dysfunction. In few weeks, he also developed severe postural hypotension.

→ Patient underwent brain and full-length spinal cord MRI and neurophysiological examination, which revealed mild axonal neuropathy at lower limbs. Electro- and echocardiography were normal. Cerebrospinal fluid examination showed high protein levels and high S100 protein levels, while 14-3-3 concentration resulted in normal range.

→ Family history revealed that his mother, a maternal aunt and two cousins suffered of chronic diarrhea as well.



Genetic testing revealed a **PRNP Y162X mutation**; the patient underwent also a sural nerve biopsy, which showed loss of small myelinated and unmyelinated fibers; amyloid deposits were not found; immunohistochemistry revealed prion deposits. Patient was addressed to nutrition and urology specialists for the follow-up and support therapy.

## DISCUSSION

So far, three families have been described, whose members presented with clinical features transmitted as a dominant trait and including chronic diarrhea, autonomic failure and neurogenic bladder, with onset at the 3rd-4th decade. Our patient showed similar clinical features and a newly described PRNP mutation, resulting in protein truncation. Another unique feature are the neuropathology findings: while in sporadic CJD prion deposits have been found only in some extra neural tissues, namely spleen and muscle, this new phenotype is characterized by widespread prion deposits in peripheral organs and, as confirmed by the present case sural biopsy, in peripheral nerves.

## CONCLUSIONS

PRNP gene mutations have to be taken into consideration when approaching a patient with severe, peripheral dysautonomia, among differential diagnosis such as hereditary sensory autonomic neuropathy (HSAN-I) and systemic amyloidosis.

### Bibliography

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