

# Postmortem Brain Specimens from the Pathology Perspective

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# Conflicts of Interest

No conflicts of interest reported.

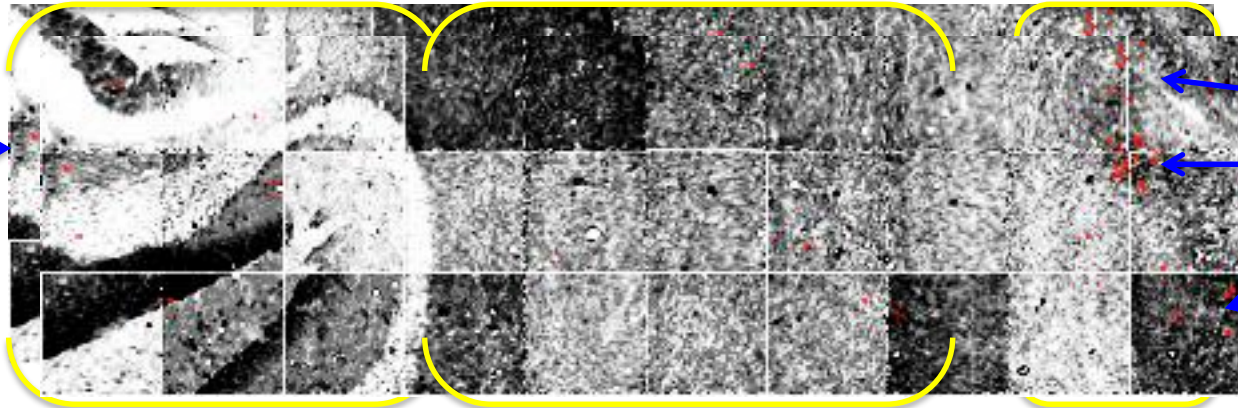
# SEM/EDS analysis of dentate nucleus (paraffin embedded tissue from NSF patient)

Cerebellar cortex

Cerebellar white matter

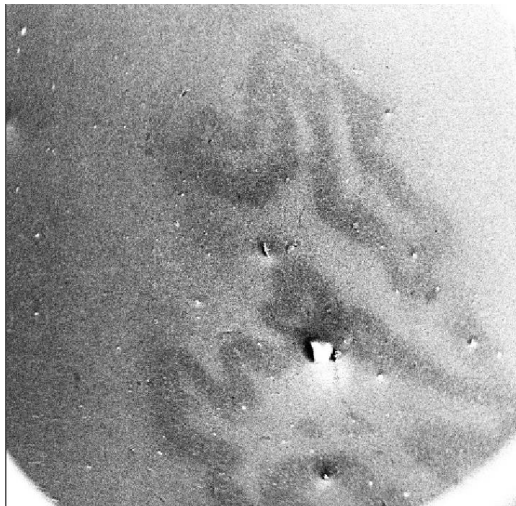
Dentate nucleus

Infrequent Gd deposits in cerebellar cortex

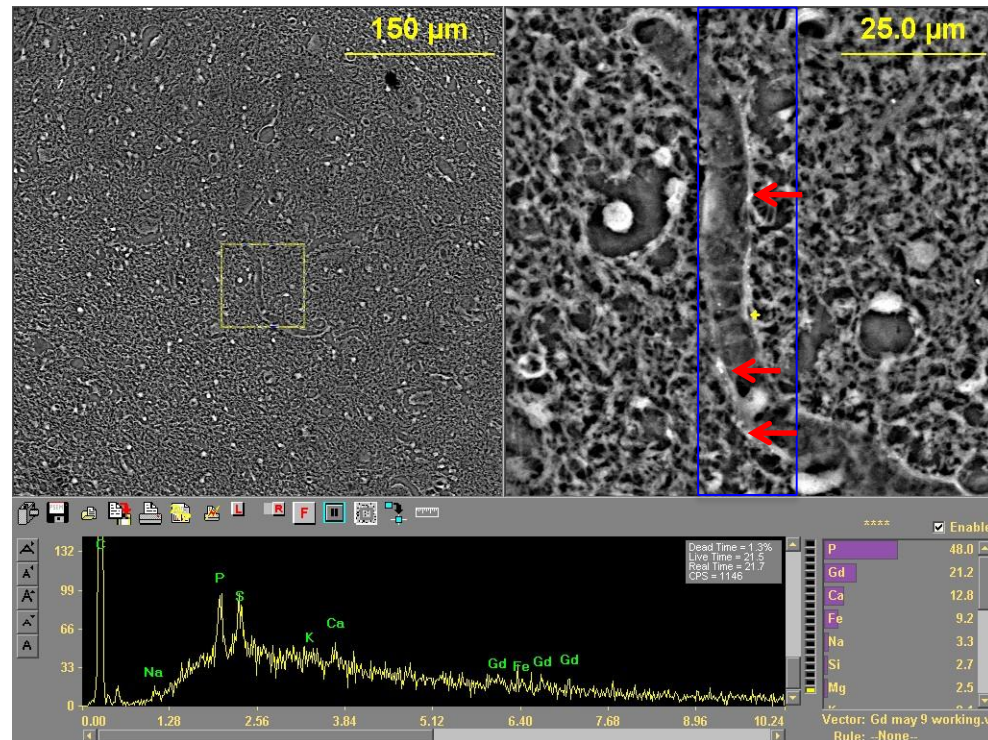


Numerous Gd deposits in dentate nucleus

Red dots show pattern and density of Gd deposits across a representative section of cerebellum.



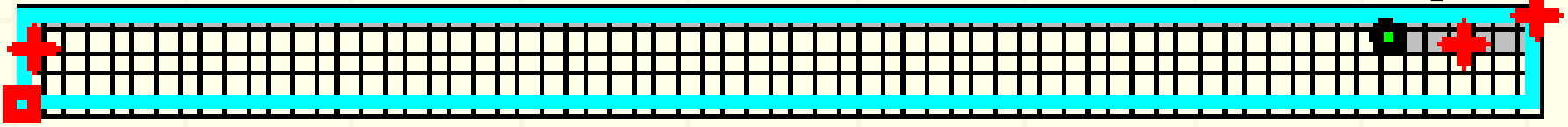
Details of a typical analysis, with low magnification (left) and high magnification images (right). Deposits for analysis (red arrows) are identified in the walls of a small vessel (blue box). The X-ray spectrum below shows prominent Gd signal. The Gd occurs in insoluble complexes together with phosphorous, sulfur, calcium, and iron.



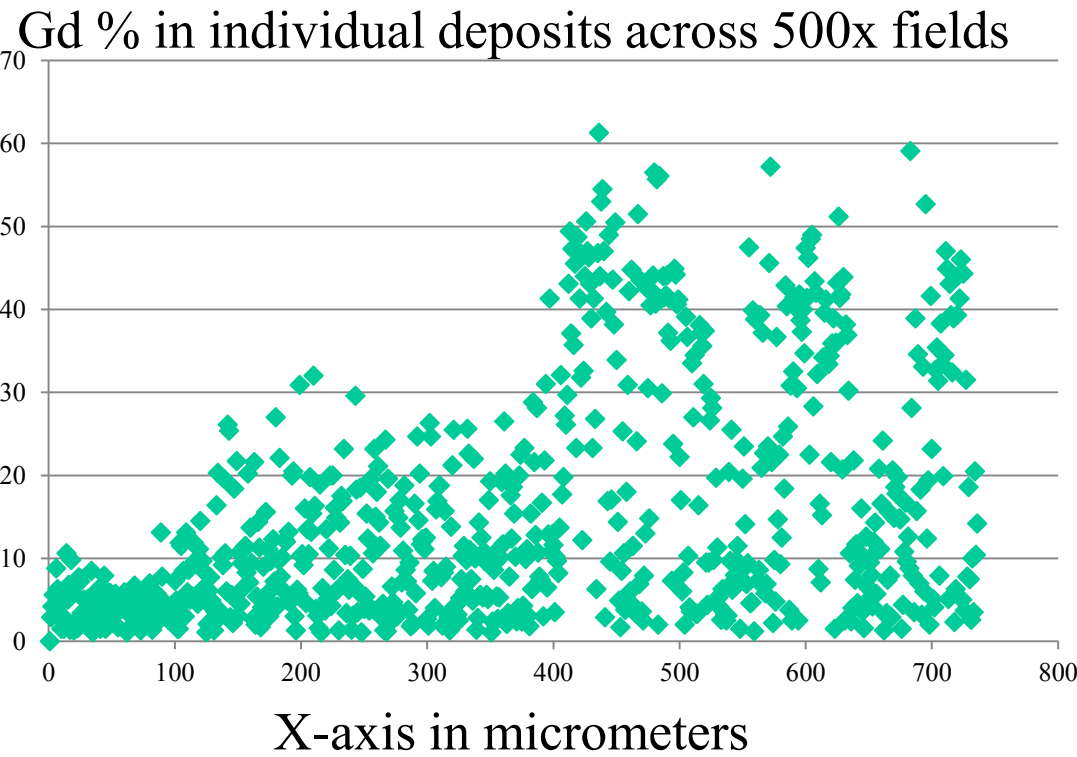
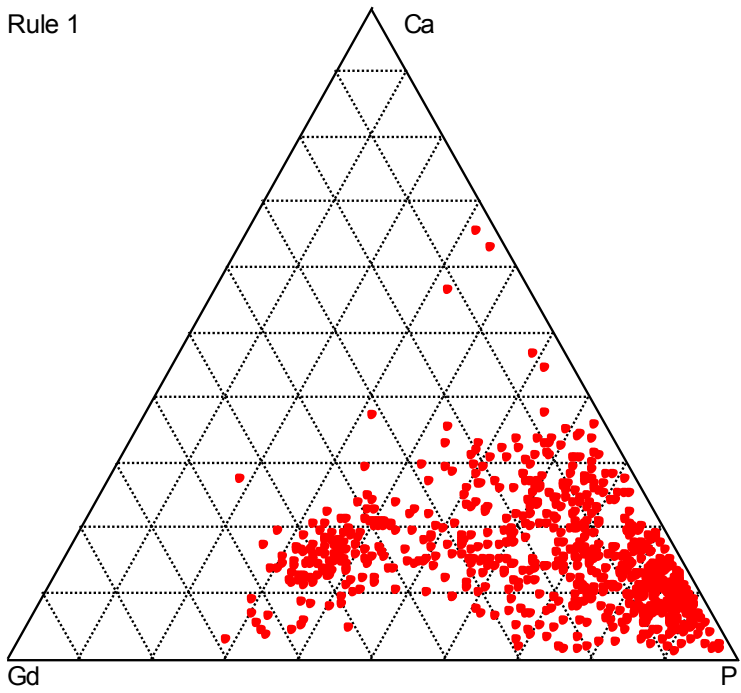
Low magnification SEM picture of dentate nucleus.

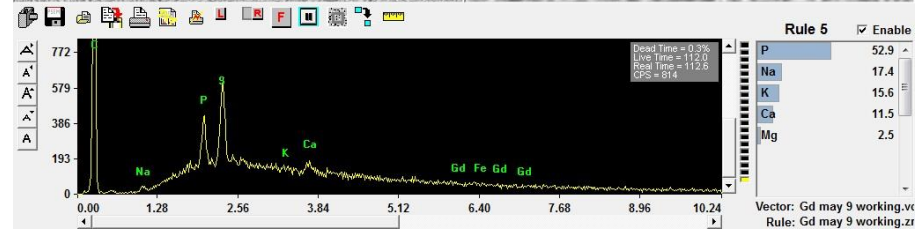
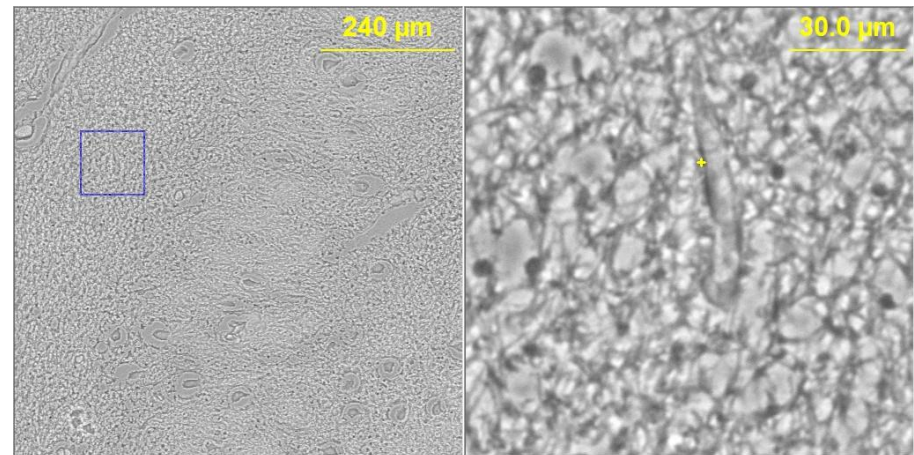
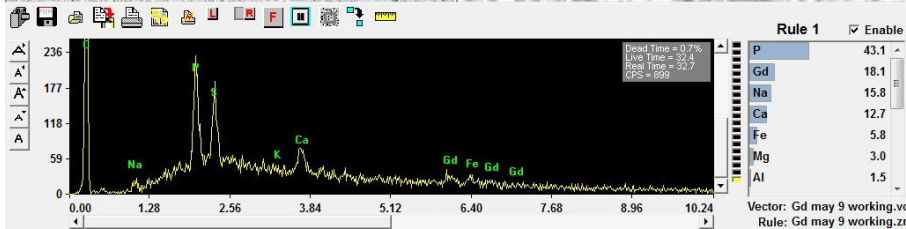
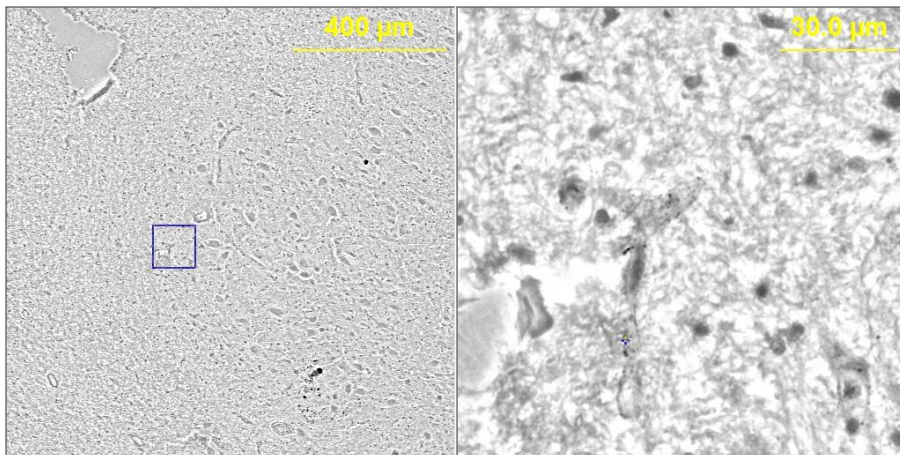
These results were confirmed in a subsequent analysis. Graphical representation of the data is consistent with other NSF cases that we have analyzed. The ternary diagram (left) shows 2 populations, with the scatterplot (right) showing deposits containing much lower Gd % in the cerebellar cortex (left portion of grid) compared to dentate nucleus (right portion of grid).

Analytical grid setup – only a little over one transect completed in 10 hrs]

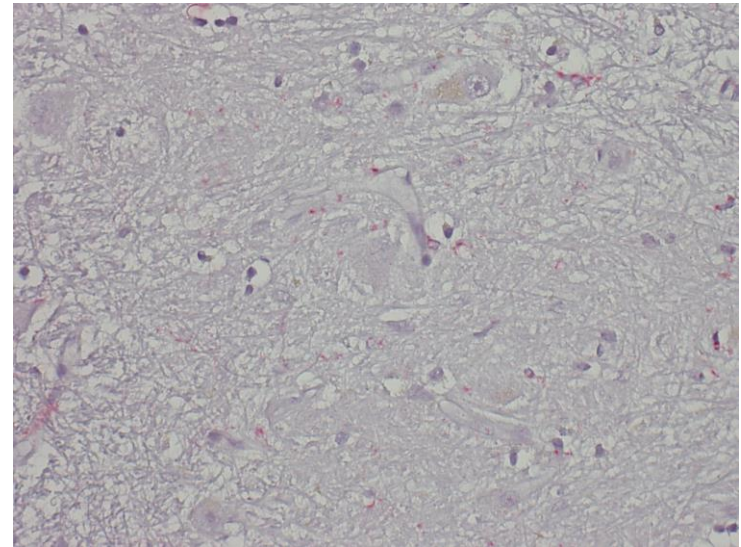
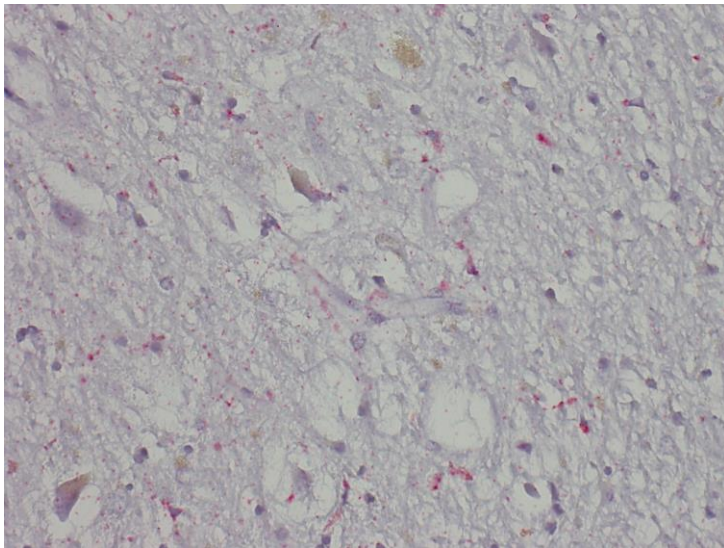


Map of Gd features in analyzed fields





Dentate nucleus, mineralized deposits on wall of small vessels, from NSF case (left) and from control brain with no Gd contrast agent exposure (right).



Dentate nucleus, CD68 stain (macrophage/microglia), non-NSF cases from sample with abundant Gd deposits (left) and with no detectable Gd (right).