

# Pathogenesis of myonecrosis following cerebral vasospasm

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# 1987 Fiscal Year Final Research Report Summary

## Pathogenesis of myonecrosis following cerebral vasospasm

Research Project

### Project/Area Number

60570665

### Research Category

Grant-in-Aid for General Scientific Research (C)

### Allocation Type

Single-year Grants

### Research Field

Cerebral neurosurgery

### Research Institution

University of Kanazawa

### Principal Investigator

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### Project Period (FY)

1985 - 1987

### Keywords

Subarachnoid hemorrhage / Meningitis / Putaminal hemorrhage / Cerebral vasospasm / Myonecrosis / Dog / Epinephrine / 電子顕微鏡

### Research Abstract

Myonecrosis following cerebral vasospasm associated with subarachnoid hemorrhage, meningitis and trans-sylvian surgery was ultrastructurally studied. The basic feature of myonecrosis was dissolution of myofilaments with resultant fine granular or filamentous material. The disintegrating cytoplasm often contained numerous glycogen granules, dense bodies, autophagic vacuoles and myelin-like membranous bodies. A well-developed sarcoplasmic reticulum was preserved despite myofilament dissolution, while mitochondria showed marked swelling. The nuclei showed either dilution of chromatin or pyknotic change. The basal lamina was remarkably thickened and maintained an irregular outline of the necrotic smooth muscle cells. Enlarged intercellular space contained abundant cellular debris, vesicular structures and connective tissue fibers. Furthermore, myonecrosis following the injection of epinephrine into the canine chiasmatic cistern was studied. Microscopically, the circle of Willis showed coagulation necrosis and fibrosis of the media. The fine structure of myonecrosis was characterized by six dynamic changes of vacuolation, dissolution of myofilaments, focal cytoplasmic necrosis, fragmentation, coagulation

necrosis and intercellular fibrosis. Despite a simple experimental procedure, the present models disclosed myonecrosis with a marked similarity to humans and contained all of the previously reported ultrstructural features of experimental myonecrosis.

## Research Products (12 results)

All Other

All Publications (12 results)

- [Publications] Tetsumori Yamashima: Neurosurgery. 16. 546-553 (1985) ▼
- [Publications] Tetsumori Yamashima: Acta Neuropathologica(Berlin). 66. 223-232 (1985) ▼
- [Publications] 山嶋哲盛: Neurologia medico-chirurgica(Tokyo). 25. 818-825 (1985) ▼
- [Publications] 山嶋哲盛: 最新医学. 41. 2667-2675 (1986) ▼
- [Publications] Tetsumori Yamashima: Journal of Neurology. 233. 348-357 (1986) ▼
- [Publications] Tetsumori Yamashima: Neuro chirurgia. 30. 29-34 (1987) ▼
- [Publications] Tetsumori Yamashima: "Three phases of cerebral arteriopathy in meningitis : Vasospasm and vasodilatation followed by organic stenosis" Neurosurgery. 16. 546-553 (1985) ▼
- [Publications] Tetsumori Yamashima: "Meningothelial rosettes in the canine subarachnoid space" Acta Neuropathologica (Berlin). 66. 223-232 (1985) ▼
- [Publications] Tetsumori Yamashima: "Myonecrosis following cerebral arterial spasm in meningitis" Neurologia medico-chirurgica (Tokyo). 25. 818-825 (1985) ▼
- [Publications] Tetsumori Yamashima: "An electron microscopic study of myonecrosis following epinephrine-induced cerebral vasospasm" Saishin-igaku. 41. 2667-2675 (1986) ▼
- [Publications] Tetsumori Yamashima: "An Electron microscopic study of cerebral vasospasm with resultant myonecrosis in cases of subarachnoid hemorrhage, meningitis and trans-sylvian surgery." Journal of Neurology. 233. 348-357 (1986) ▼
- [Publications] Tetsumori Yamashima: "Fine structure of myonecrosis following epinephrine-induced cerebral vasospasm" Neurochirurgia. 30. 29-34 (1987) ▼

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