



Neuropathology of Mixed Dementia

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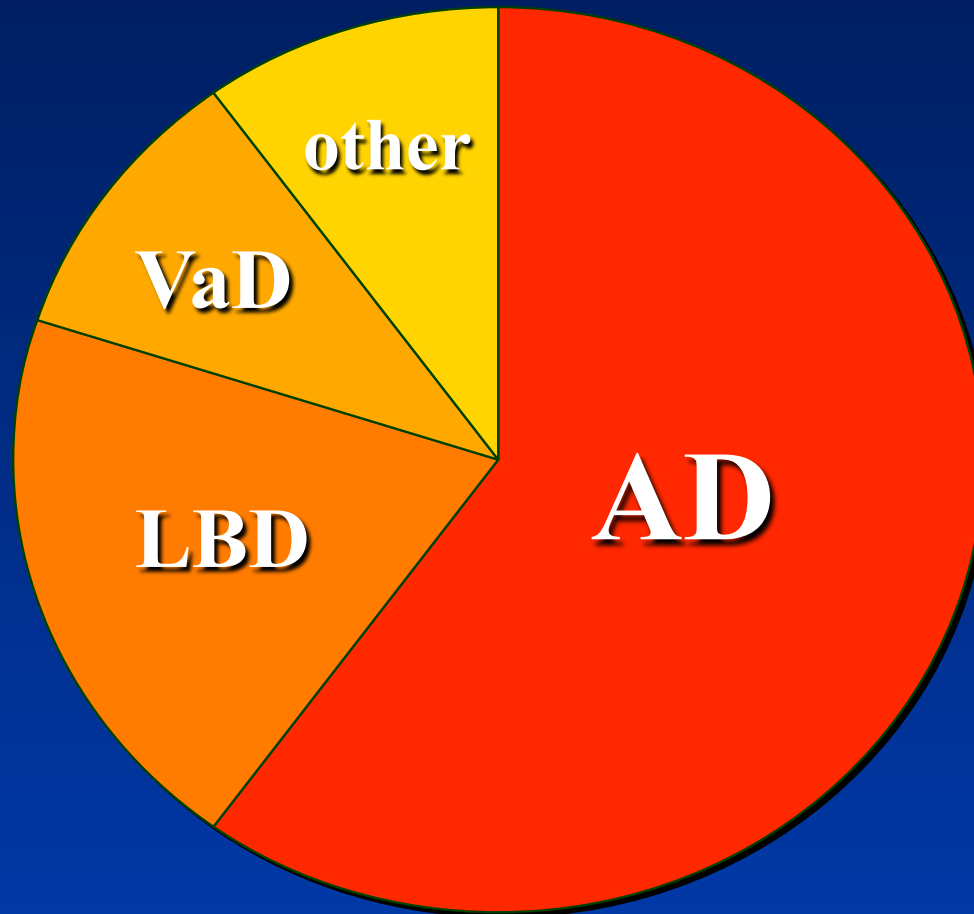
Key points

1. autopsy is the only way to determine the cause of dementia.
2. common for dementia to have multiple pathologies (“mixed” dementia).
3. autopsy plays a crucial role in diagnosis, teaching and research.

Causes of dementia

- ◆ primary neurodegenerative disease
 - Alzheimer's disease
 - Lewy body disease
 - frontotemporal dementia
- ◆ cerebrovascular disease
- ◆ infection
- ◆ toxic/metabolic disorder
- ◆ tumor
- ◆ head trauma

Causes of Dementia



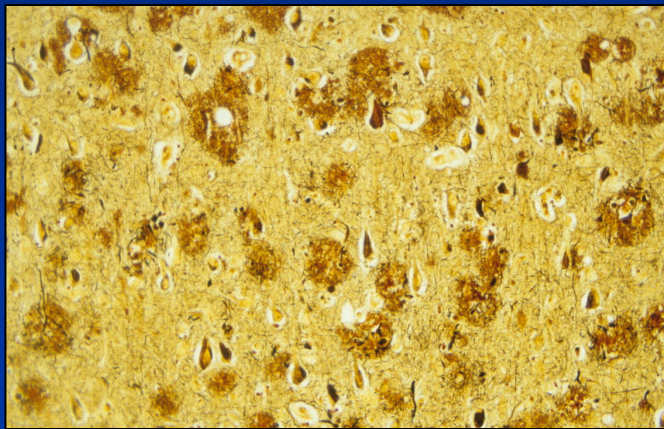
Alzheimer's Disease



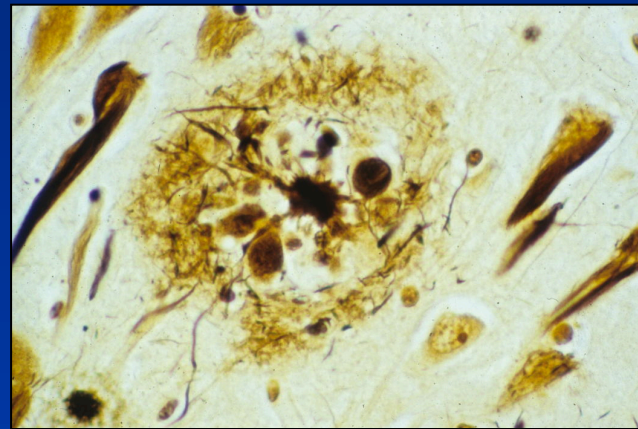
◆ brain atrophy



◆ hippocampal atrophy

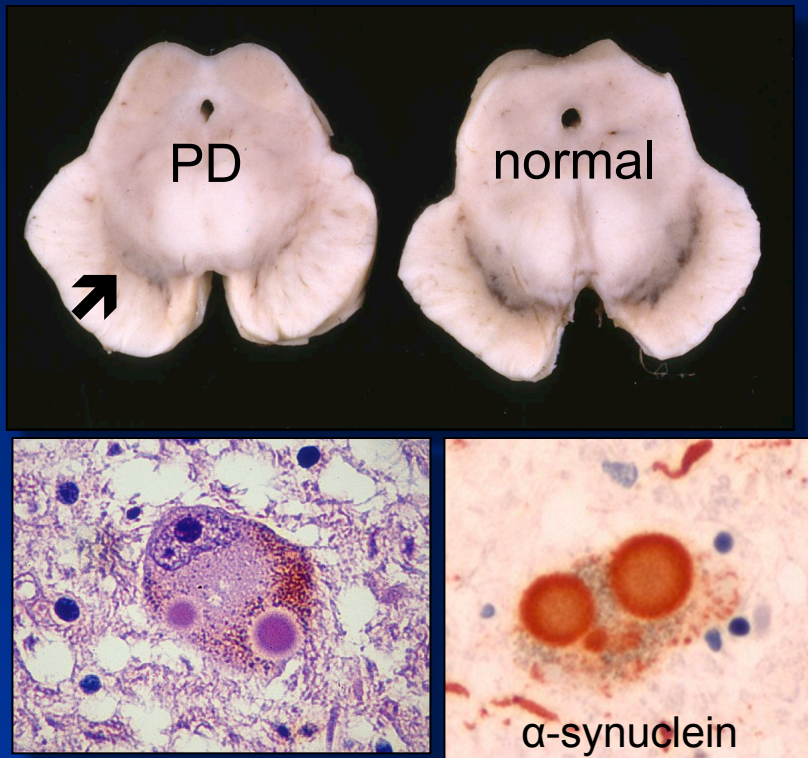


◆ senile plaques & neurofibrillary tangles



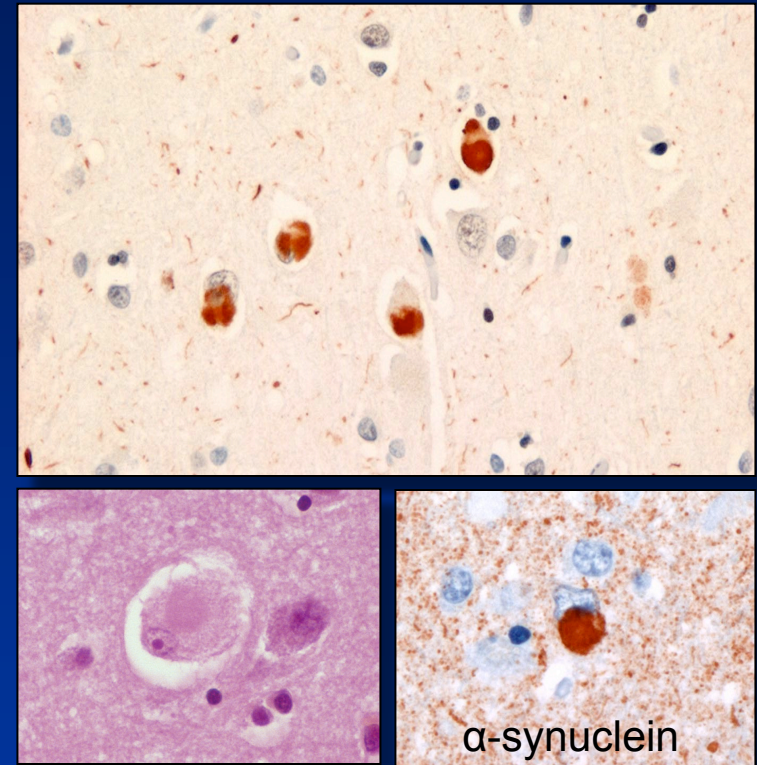
Lewy Body disease

Parkinson's disease



- ◆ ↓ neurons in substantia nigra
- ◆ Lewy bodies

Dementia with Lewy bodies

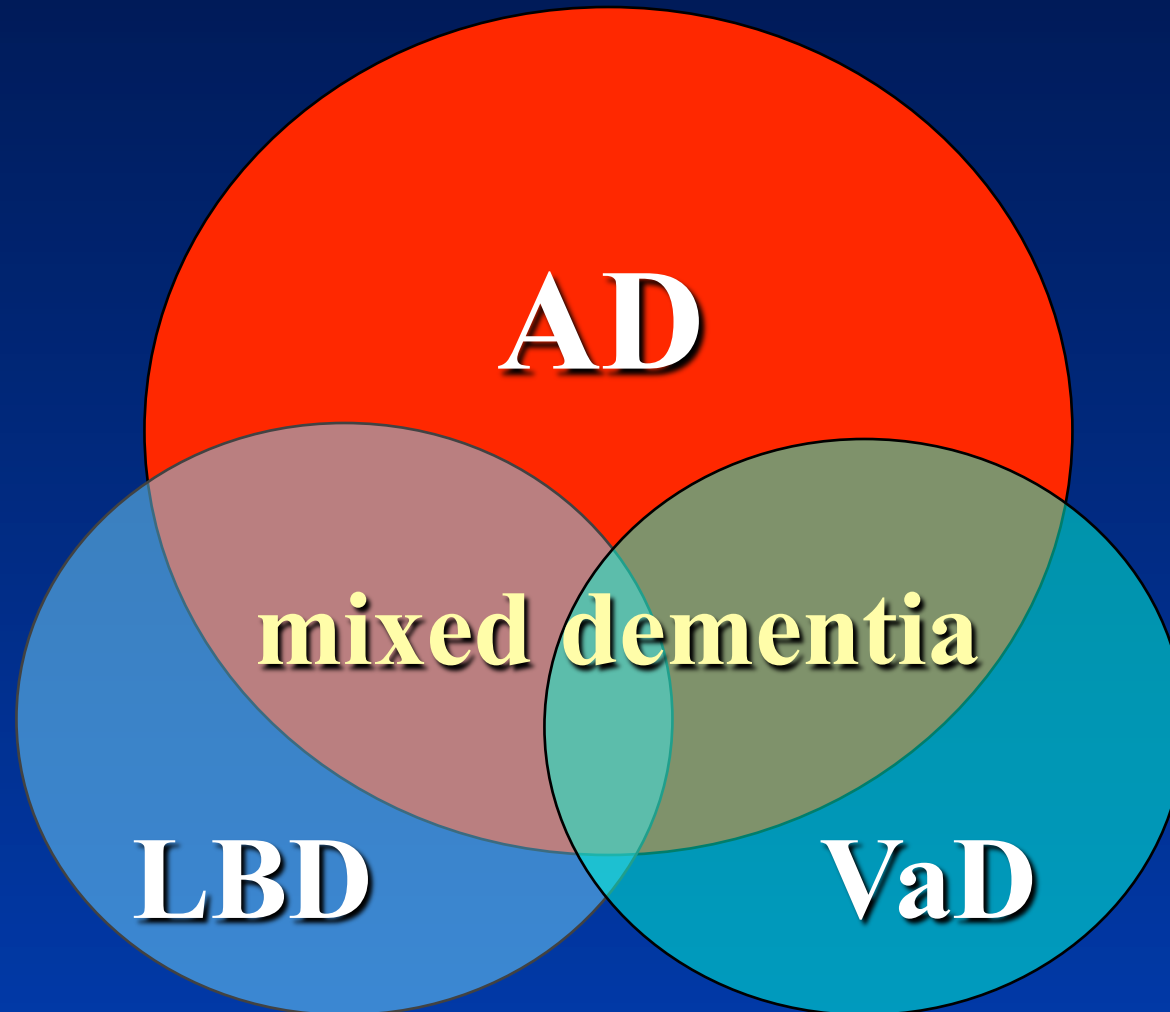


- ◆ Lewy bodies in cerebral cortex

Multiple infarct dementia



Causes of Dementia



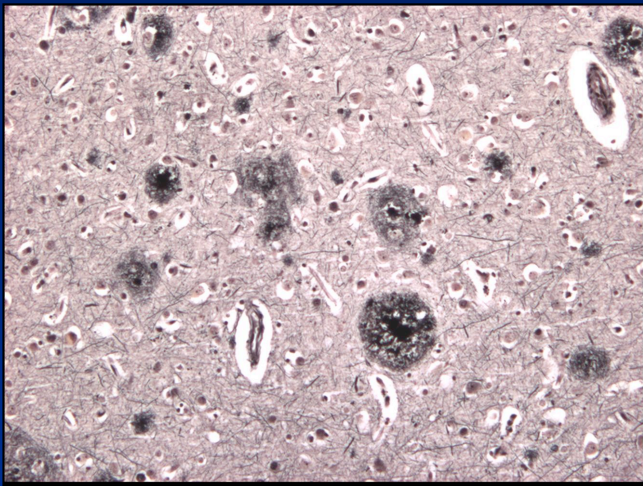
AD and cerebrovascular disease

- ◆ both common conditions.
- ◆ several common risk factors.
- ◆ additive effect in causing dementia:
 - patients with autopsy proven AD and CVD have more severe dementia than those with pure AD.
 - patients with similar degree of dementia have fewer SP/NFT if CVD also present.

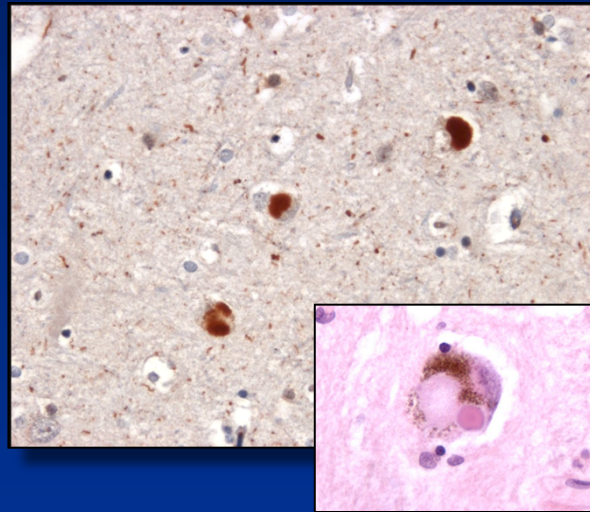
“Mixed” dementia

- ◆ coexistence of multiple pathologies.
- ◆ each pathology may be associated with dementia independently.
- ◆ each pathology judged to be of sufficient severity to contribute to dementia.
- ◆ pathologies have additive effect.
- ◆ usually AD with LB and/or CVD.

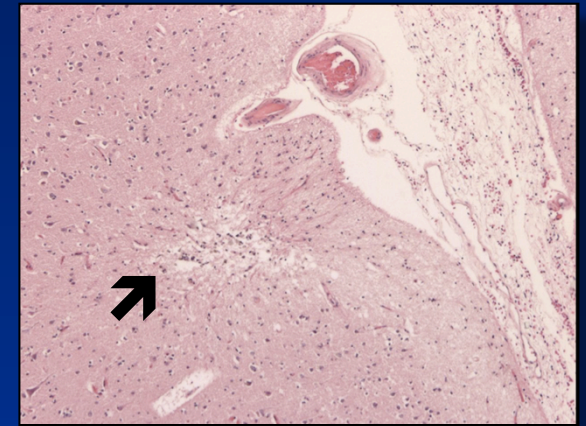
- ◆ 74 year old man with ↓ memory for 5 years.
- ◆ visual hallucinations.
- ◆ episode of right hand weakness (improved).



◆ SP & NFT



◆ Lewy bodies



◆ multiple small cerebral infarcts

- ◆ Pathological diagnosis = *mixed dementia*.

Pathological diagnosis of dementia

	criteria 1
AD	75%
VaD	3%
LBD	9%
other	13%

Pathological diagnosis of dementia

	criteria 1	criteria 2
AD	75%	39%
VaD	3%	1%
LBD	9%	3%
other	13%	13%
mixed AD/VaD		20%
mixed AD/LBD		19%
mixed AD/other		5%
		44%

Value of autopsy

