Chronic Small Vessel Disease (SVD) imaging features and SVD score

Part A - Introduction

SVD Key Features

Four typical chronic features are visible on MRI:

- White matter hyperintensities (WMH)
- Lacunes
- Perivascular spaces
- Microbleeds

Two of these typical chronic features are also visible on CT:

- WMH
- Lacunes

The presence and severity of each feature can be quantified using visual scores

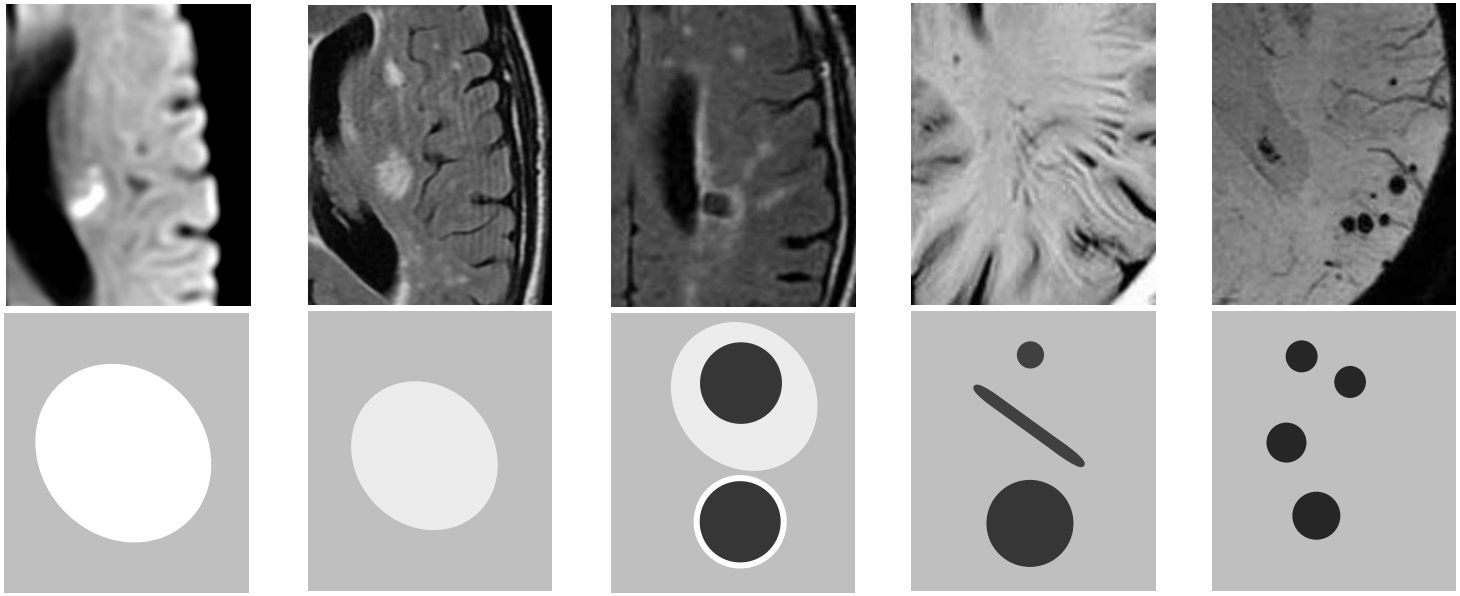
These scores can then be combined to create a ‘total SVD burden’ score.

SVD Spectrum

laci-2 LACunar Intervention TRIAL 2

STRIVE guidelines

Lancet Neurology 2013;12:822-838



	Recent small subcortical infarct	White matter hyperintensity	Lacune	Perivascular space	Cerebral microbleeds
Usual diameter[1]	≤ 20 mm	variable	3 -15 mm	≤ 2mm	≤ 10 mm
Comment	best identified on DWI	located in white matter	usually have hyperintense rim	usually linear without hyperintense rim	detected on GRE seq., round or ovoid, blooming
DWI	↑	↔	↔/(↓)	↔	↔
FLAIR	↑	↑	↓	↓	↓
T2	↑	↑	↑	↑	↓
T1	↓	↔/(↓)	↓	↓	↔
T2* / GRE	↔	↑	↔ (↓ if hemorrhage)	↔	↓↓

SVD Burden Score

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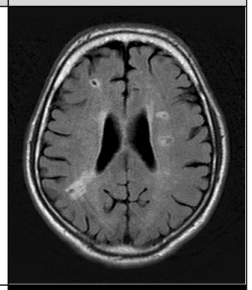
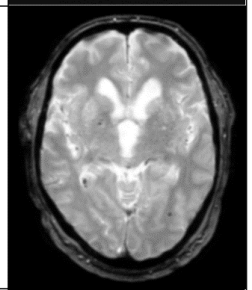
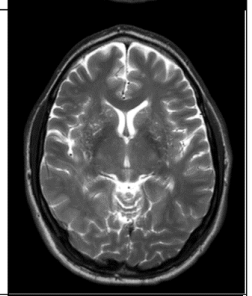
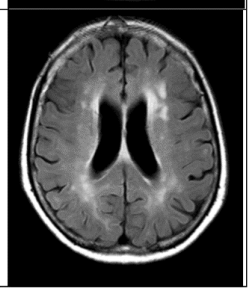
Applies to MRI;

Lacunes and WMH also scored on CT

MRI total score = 4

CT total score = 2

MRI feature	Visual assessment	Definition	Score	MRI example
Lacunes	International consensus definition[11]	≥1 lacune	1 point	
Microbleeds	International consensus definition[11]	≥1 microbleed	1 point	
Perivascular spaces	Semiquantitative scale[8]	moderate to severe perivascular spaces in basal ganglia	1 point	
White matter hyperintensities (WMH)	Fazekas scale[13]	periventricular WMH Fazekas 3 (extending into the deep white matter) and/or deep WMH Fazekas 2-3 (confluent or early confluent)	1 point	

Staals Neurology 2014; +Neurology Patient page;
Staals NBA 2015;