

Supplementary Online Content

Boulouis G, Morotti A, Brouwers HB, et al. Association between hypodensities detected by computed tomography and hematoma expansion in patients with intracerebral hemorrhage. *JAMA Neurol*. Published online June 20, 2016. doi:10.1001/jamaneurol.2016.1218.

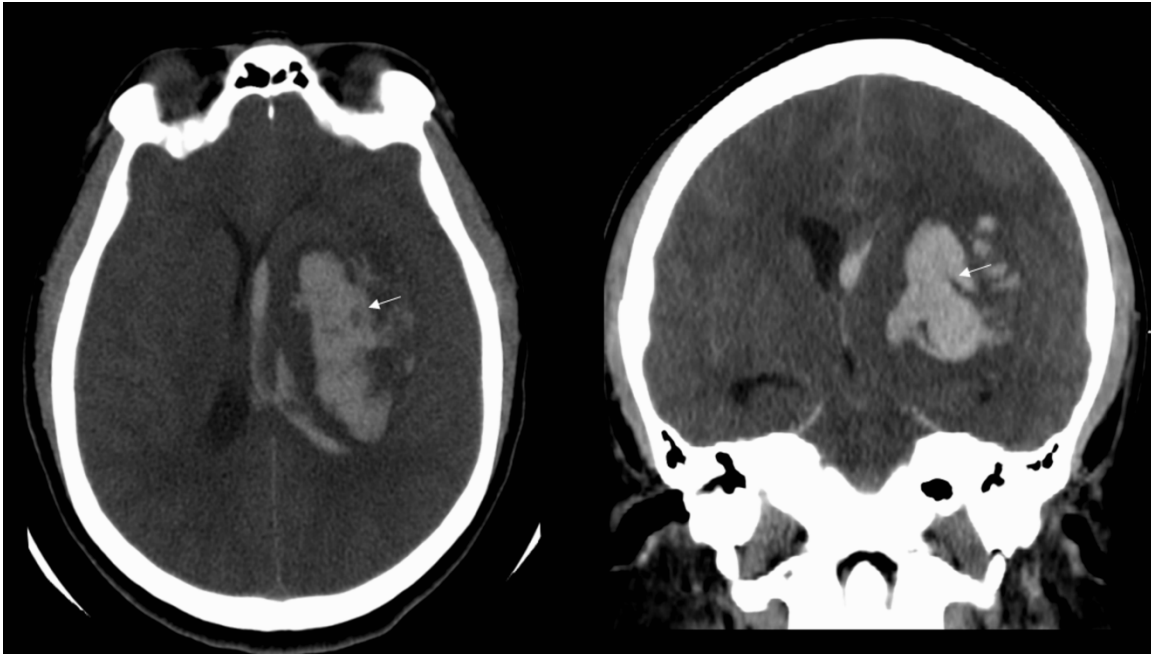
eFigure 1. Partial volume and hypodensities assessment

eTable. Noncontrast CT predictors of expansion

eFigure 2. Spatial correlation spots and hypodensities

This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure 1: Partial volume and hypodensities assessment



55 years old patient with history of hypertension presents with acute right sided weakness and altered mental status. Left panel, axial section of a NCCT showing a hypodense structure (arrow) within an acute ICH centered in the left lentiform nucleus. Coronal reformat (right panel) demonstrates that the hypodense structure corresponds to a partial volume effect due to external surface irregularity.

eTable: Noncontrast CT predictors of expansion

Variable	Prevalence ^a	Se	Sp	PPV	NPV	Cohen-Kappa [95% IC]
Hypodensities	321 (31%)	0.62	0.77	0.4	0.89	0.87 [0.77-0.97]
<i>Type 1</i>	151 (15%)	0.3	0.89	0.41	0.83	0.81 [0.6-1]
<i>Type 2</i>	182 (18%)	0.42	0.88	0.48	0.86	0.77 [0.62-0.92]
<i>Type 3</i>	106 (10%)	0.19	0.92	0.37	0.82	0.68 [0.42-0.94]
<i>Type 4</i>	33 (3%)	0.09	0.98	0.59	0.81	0.74 [0.4-1]
Swirl sign ^b	207 (20%)	0.62	0.16	0.16	0.62	0.8 [0.63-0.97]
Blend Sign ^c	141 (14%)	0.15	0.87	0.23	0.8	0.67 [0.44-0.89]
Irregular ^d	502 (49%)	0.66	0.56	0.28	0.87	0.71 [0.57-0.85]
Heterogeneous ^d	282 (27%)	0.5	0.78	0.37	0.86	0.77 [0.66-0.89]

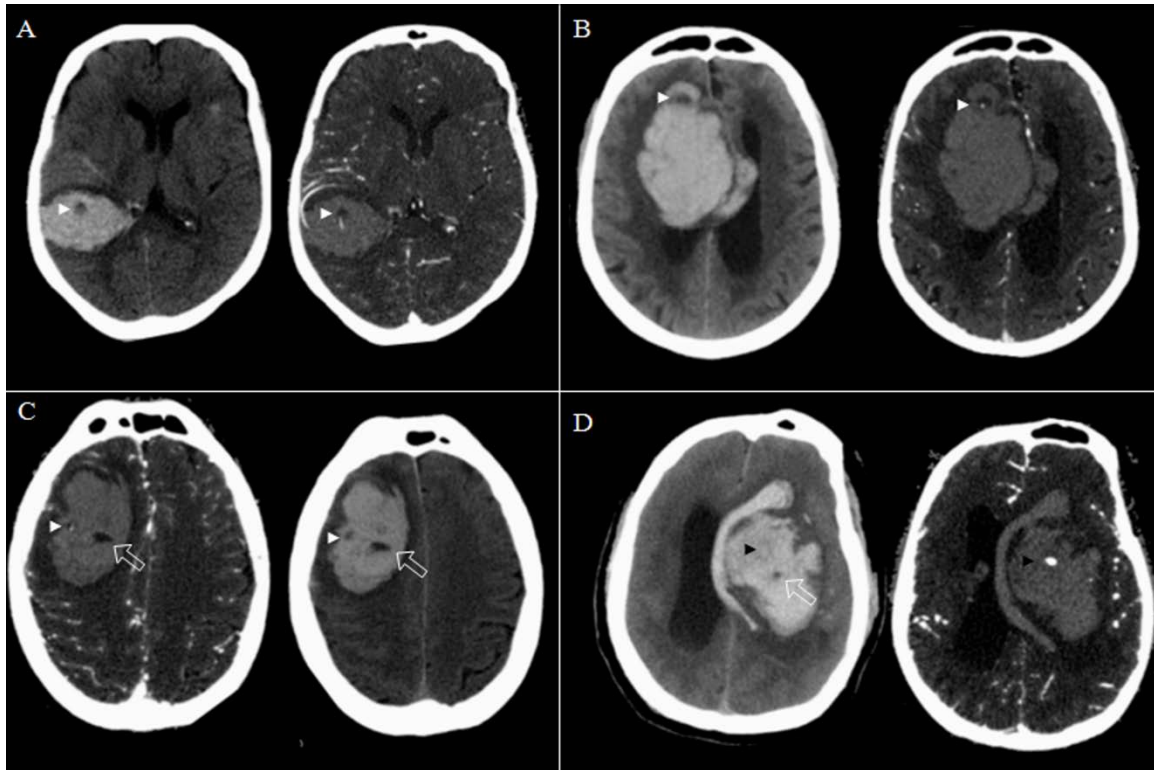
^a Values expressed as absolute number (percentage of total).

^b According to Selariu et al. definition ²².

^c According to Li and colleagues' definition ²⁸.

^d According to Barras and colleagues, ²¹ score for heterogeneity/irregularity ≥ 3 .

eFigure 2: Spatial Correlation Spots and Hypodensities



(A-D) Axial slices of head NCCT (left) and CTA (Right) at the acute phase of intracerebral hemorrhage in 4 different subjects. (A-B) Spatially matching hypodensities and spot sign (arrowheads). (C) Spatially matching spot and hypodensity on the right outer border of the hematoma (arrowhead), Hypodensity without matching spot sign (oblique arrow). (D) Spot sign without corresponding hypodensity (arrowheads) and hypodensity without corresponding spot sign (oblique arrow).