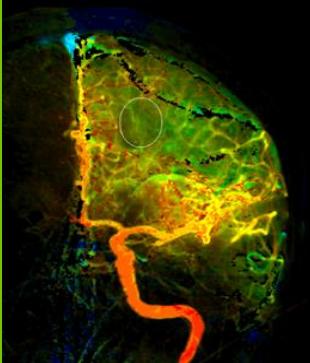
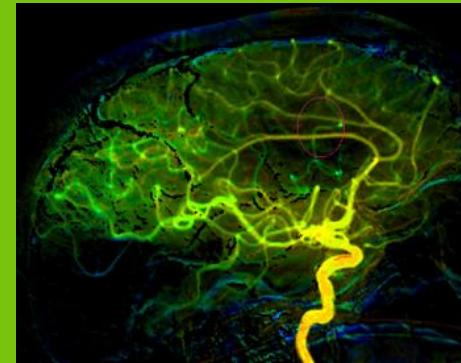




# Via Verde AVC



06 de Outubro de 2018



Cátia Fernandes (catiafernandes.ha@hotmail.com)  
Técnica Coordenadora: Téc. Dina Silva

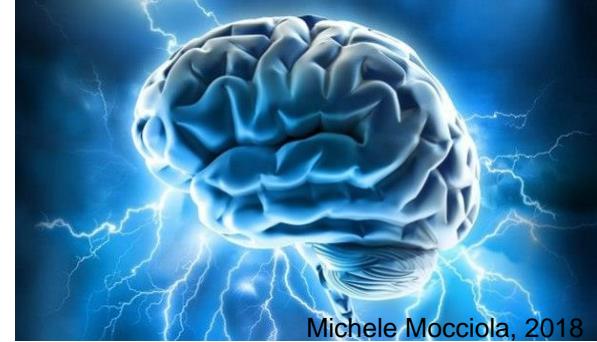
## Via Verde AVC

### OBJECTIVOS

- Identificar o âmbito da Via Verde AVC;
- Conhecer o protocolo técnico utilizado na instituição;
- Reconhecer as limitações / alternativas.

### SUMÁRIO

- Intervenções realizadas;
- Técnica radiológica;
- Limitações.

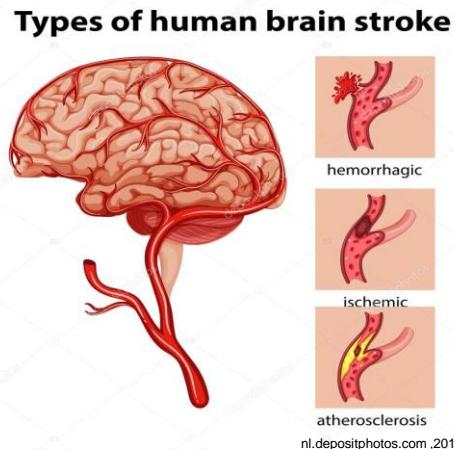


## Via Verde AVC

### INTRODUÇÃO

- A Via Verde AVC na Angiografia do CHLN - HSM abrange:
  - Angiografia diagnóstica;
  - Trombectomia – AVC isquémico;
  - Embolização de aneurisma – AVC hemorrágico.
- MC iodado – Visipaque™ 320 (GE®);
- Procedimentos terapêuticos:

Ano	2016	2017	2018
Utentes	102	146	89 (1º semestre)



# AVC Isquémico

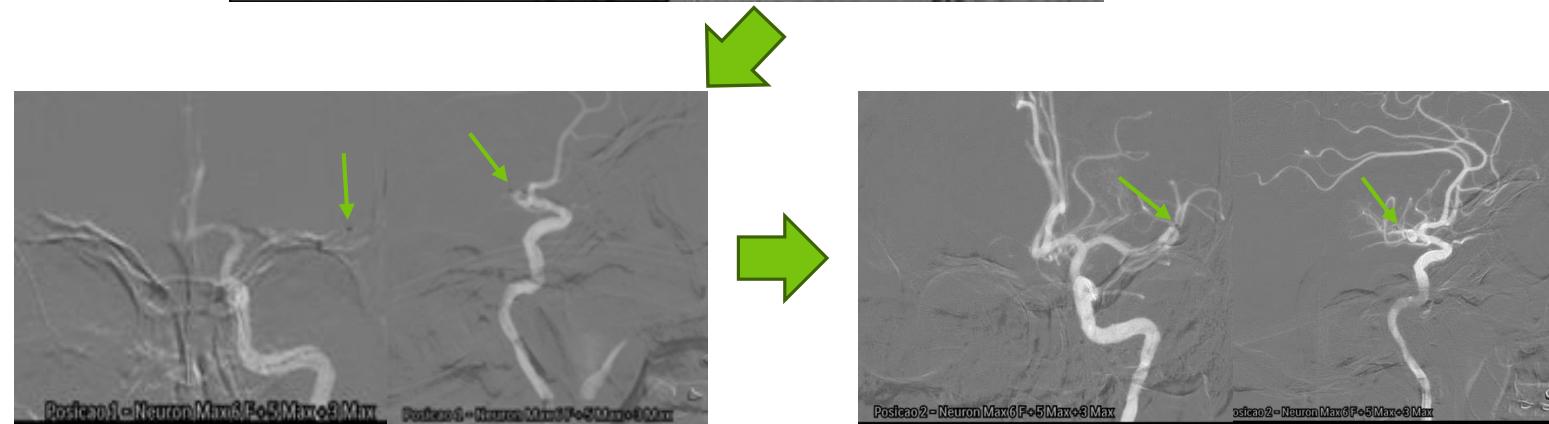
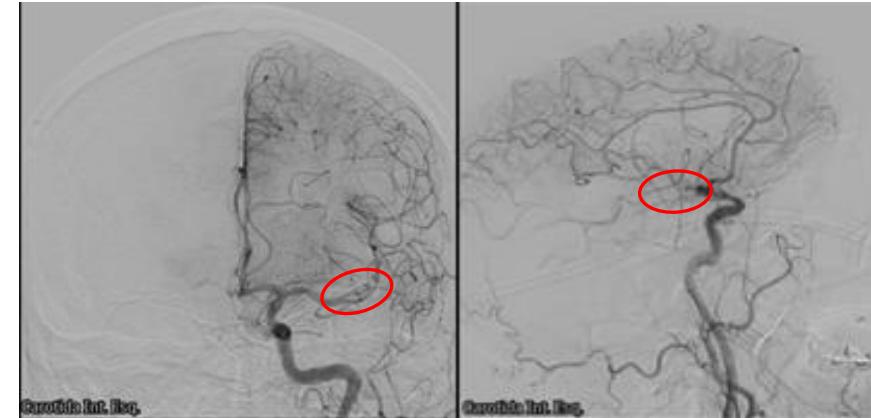
Trombectomia Aspirativa



♂; 77 anos

- M1/M2 Esq.;
- Sedoanalgesia;
- 2 Trombectomias aspirativas;
- 43 min de Procedimento.

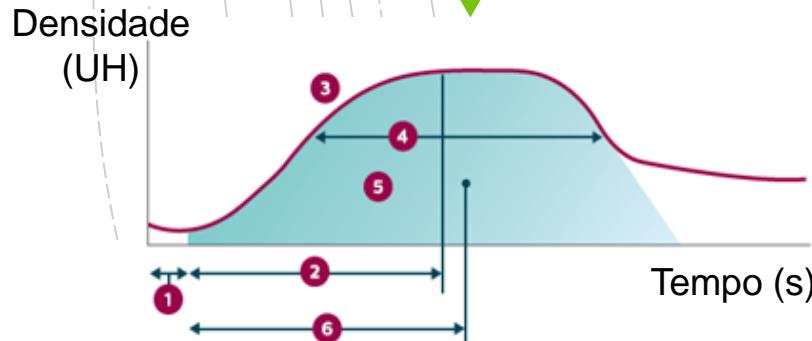
t (min)	DAP (Gy.cm <sup>2</sup> )	Exposições	Air Kerma (mGy)
13,2	181,843	817	1079



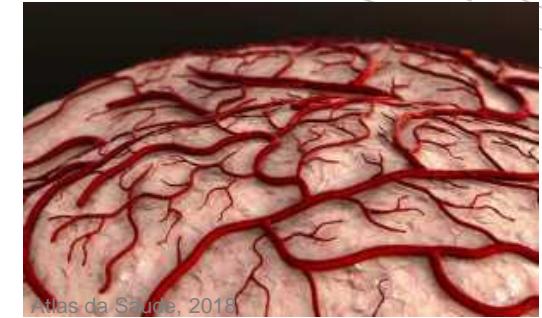
# Perfusão

## Curva

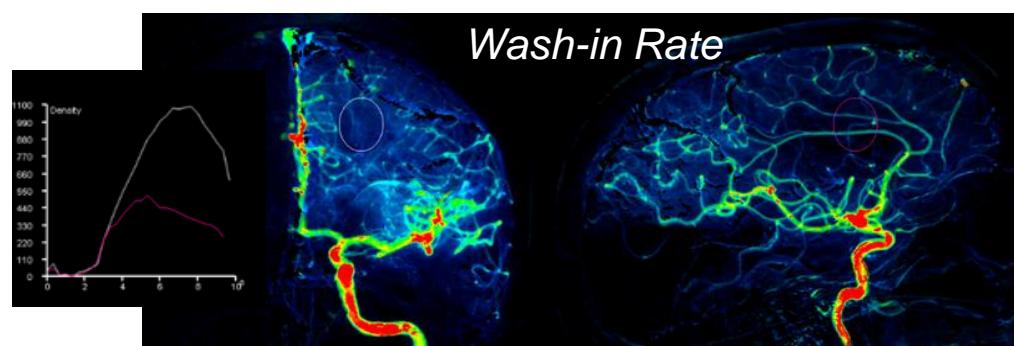
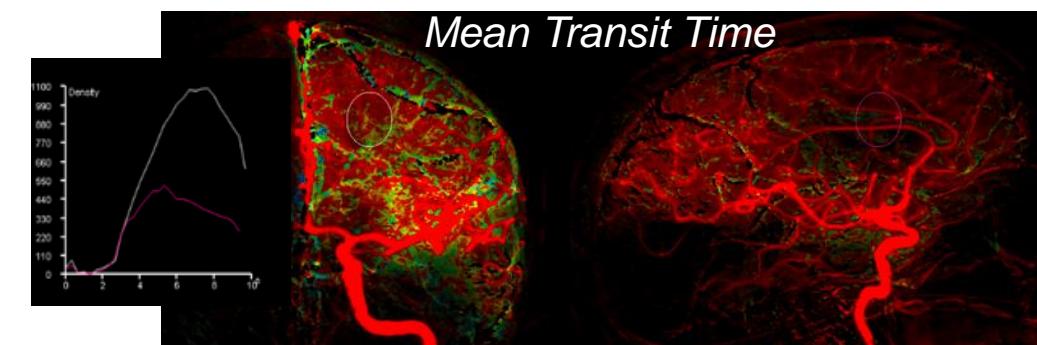
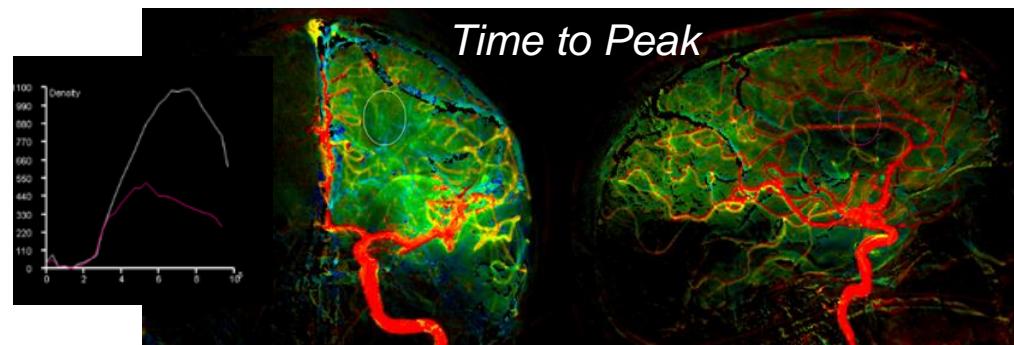
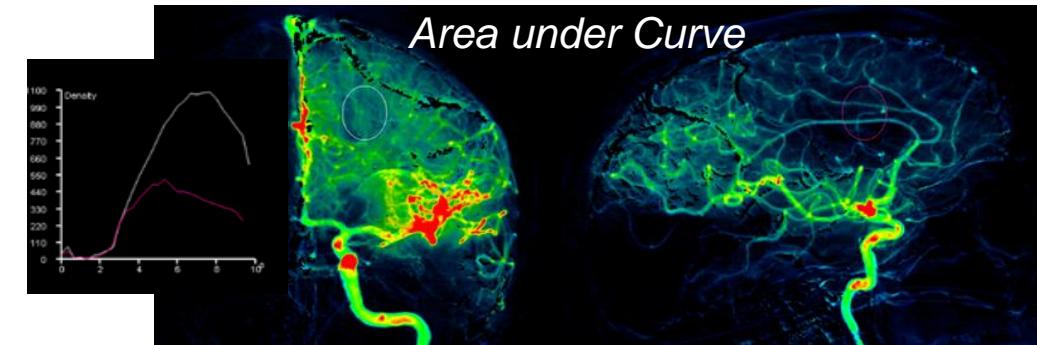
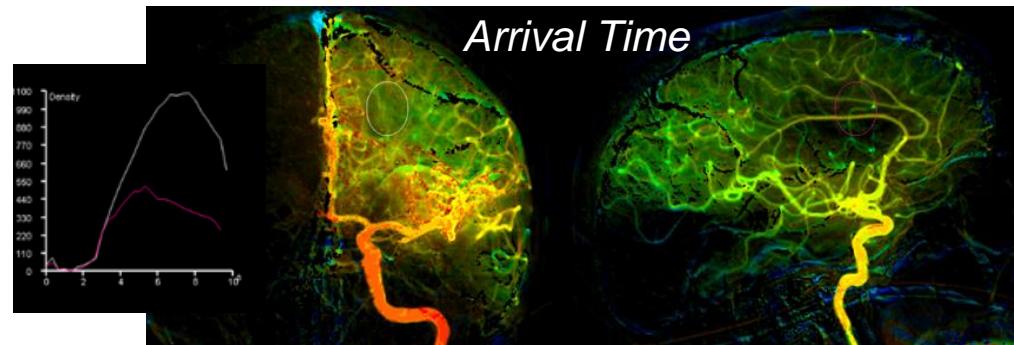
### Tempo – Densidade



- 1 **Arrival Time:** Inflow do vaso cateterizado – Vasos selecionados.
- 2 **Time to Peak:** Detecção do MC – Intensidade máxima.
- 3 **Wash-in Rate:** Declive que traduz a taxa de fluxo.
- 4 **Width:** Inflexão do wash-in e wash-out (alternativa: Mean Transit Time – Evidencia assimetrias).
- 5 **Area under Curve:** Arrival Time – Início do wash-out, que indica o volume total.
- 6 **Mean Transit Time** – Arrival Time – Ponto médio da curva tempo-densidade, indicando o MC que passa no tecido.



## Perfusão



Resultados satisfatórios com estudo de perfusão.  
Área inacessível para trombectomia endovascular.

# AVC Isquémico

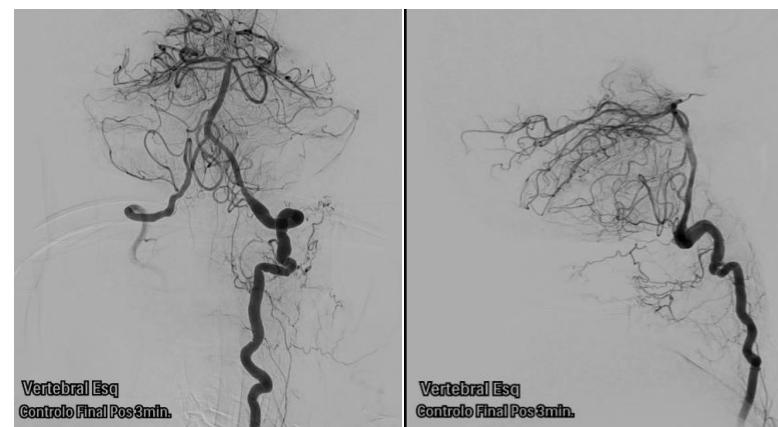
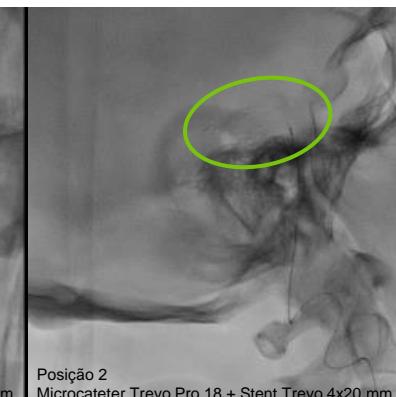
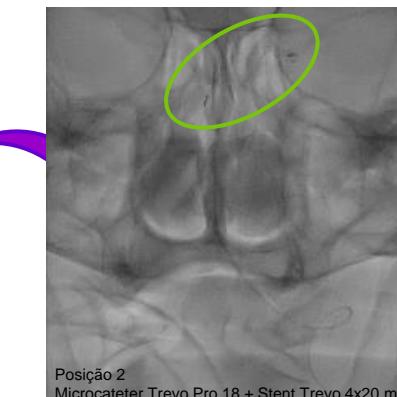
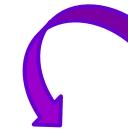
## Trombectomia Mecânica



♀; 69 anos

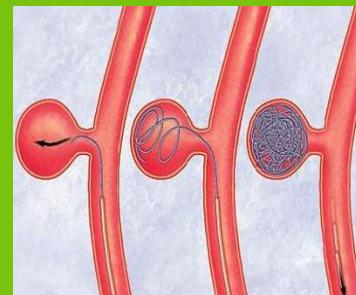
- Oclusão do topo da art. basilar;
- Anestesia geral;
- 2 Trombectomias mecânicas;
- 43 min de Procedimento.

t (min)	DAP (Gy.cm <sup>2</sup> )	Exposições	Air Kerma (mGy)
14,8	39,303	526	326



# AVC Hemorrágico

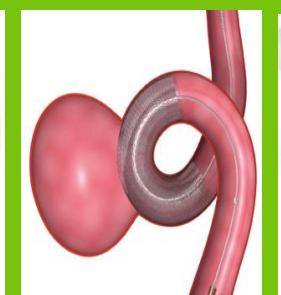
## Embolização de Aneurisma



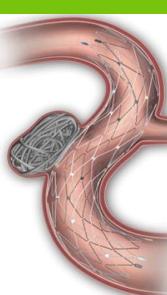
*Coiling*



*Balloon  
Remodeling*



*Flow  
Diverter*

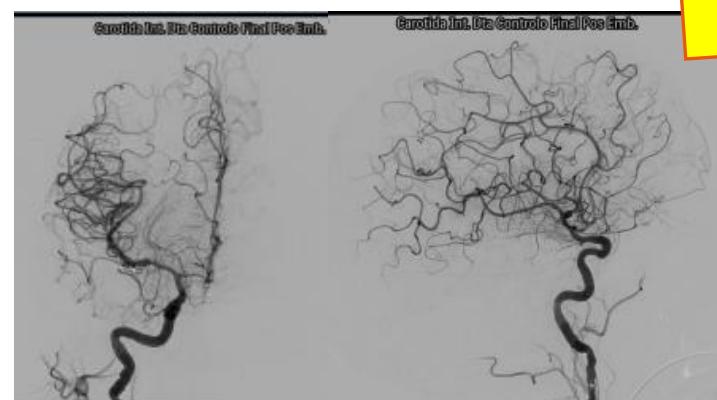
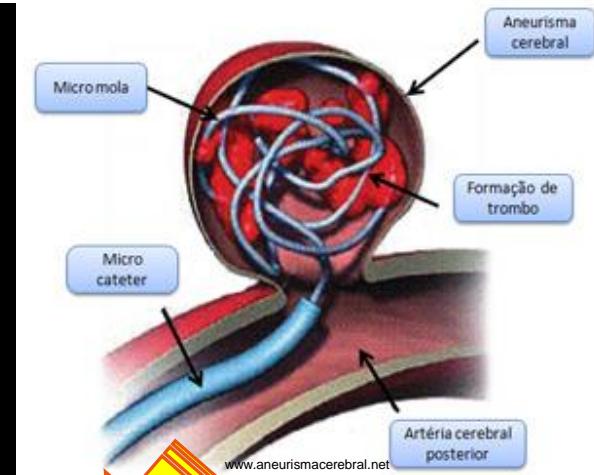


*Stent  
Coiling*

♀; 53 anos

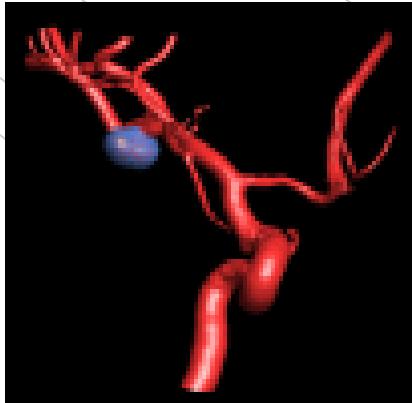
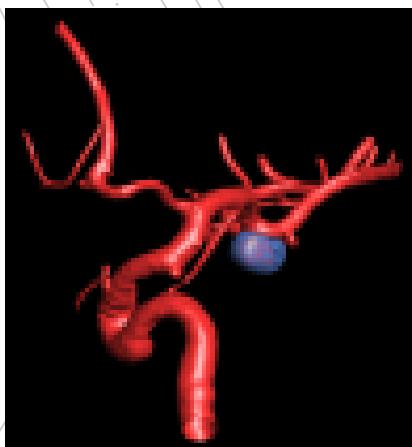
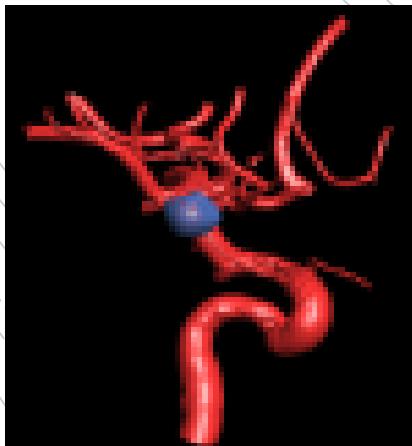
- Aneurisma em ruptura da bif. da ACM Dta;
- Anestesia geral;
- 2 Coils (6x15 mm, 4x8 mm) + Protecção com balão 4x15 mm;
- 190 min de Procedimento.

t (min)	DAP (Gy.cm <sup>2</sup> )	Exposições	Air Kerma (mGy)
53,3	146,618	2378	1943



## 3 D RA

- Rotacional – Visualização tridimensional;
- Activar no imediato incidências;
- Pormenor ostial – Reconstrução transparente;
- Identificação de aneurisma / colo / vaso;
- Medição multiplanar em superfície 3 D;
- MPR / MIP's / Xpert CT.



## Xpert CT

- Alternativa ao controlo por TC;
- Rotacional;
- Sem limite de FOV;
- Redução de artefactos por materiais metálicos.



Pré - Sem Redução de artefacto



Portal Cirurgia Vascular , 2018

Pós - Sem Redução de artefacto



Pós - Com Redução de artefacto

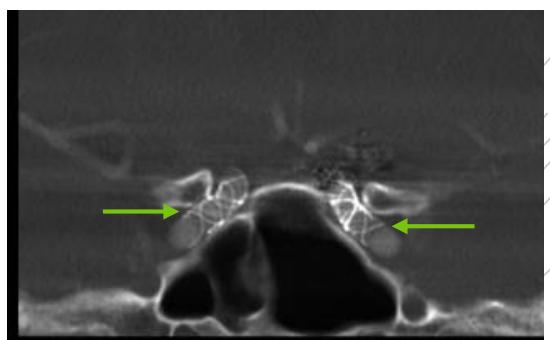
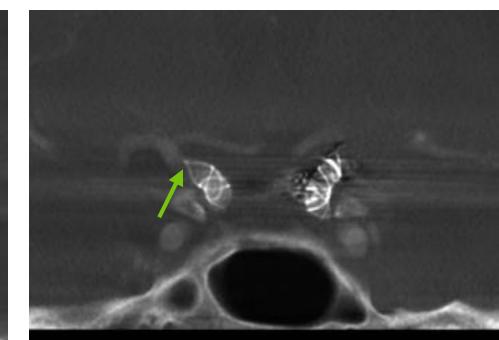
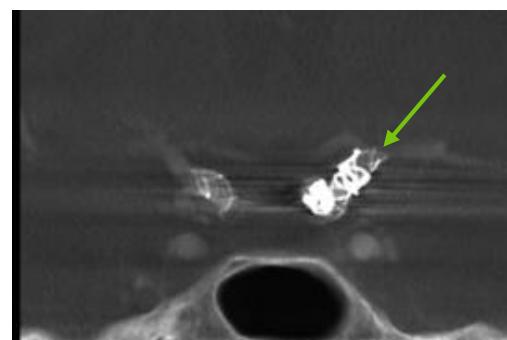
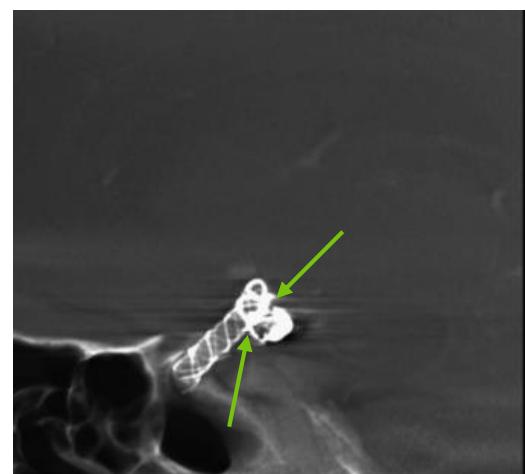
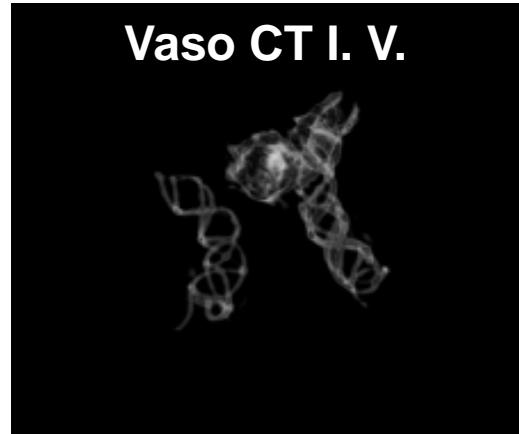


## Vaso CT

- Rotacional IA / IV (“Angio TC”);
- IA: 10 % MC iodado;
- Relação densidade / filtro;
- FOV 22 ou 27 cm;
- Vaso / material metálico.

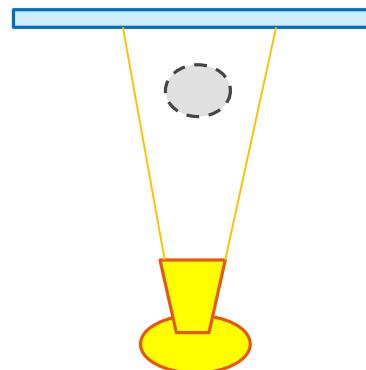


Vaso CT I. V.

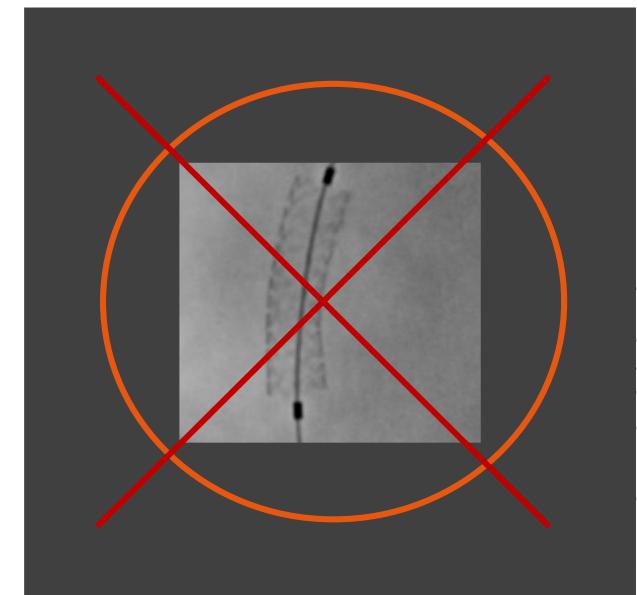
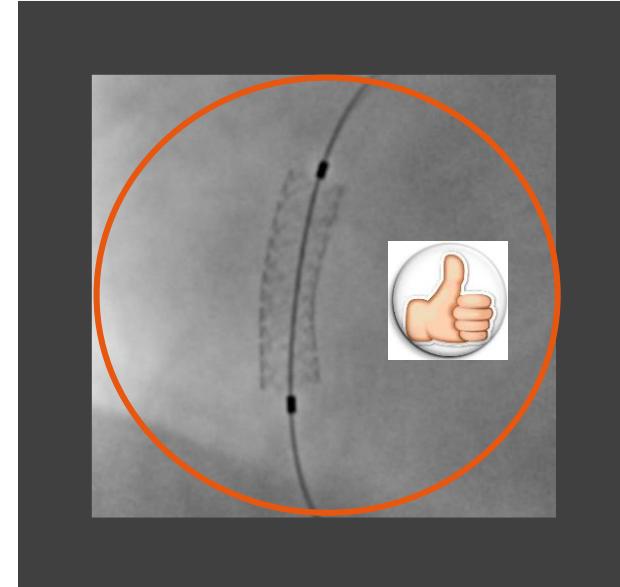


## Stent Boost Vascular

- Stent perpendicular;
- 50 % MC iodado;
- Não colimar em excesso.



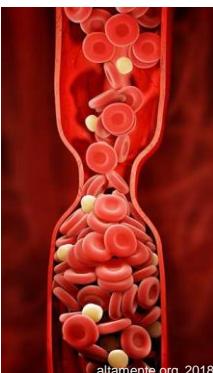
**Campo de Medição: 40 % do FOV.**



# Protocolo Técnico

## Técnicas Avançadas





## Protocolo Técnico – Técnicas Avançadas

Técnica	Característica	Grafia (f/s)	Tempo (s)	Delay (s)	Injecção		Pós-processamento
					Volume (ml)	Débito (ml/s)	
3D RA	“Low Dose”	30	4	1	16	4	3 D, <u>Xpert CT</u> , MPR, MIP's
Perfusão	S/ angulação	3	-	-1	8 / 7	4 / 3	Mapas
Xpert CT	Imagens interseccionais	60	5	1	16	4	Xpert CT, <u>3 D</u> , MPR, MIP's
		30	10		16	4	
Vaso CT	I. A.	30	20	3	50	2,5	Xpert CT, <u>3 D</u> , MPR, MIP's
	I. V.			15	80	4	
Stent Boost Vascular	Resolução espacial	15	-	0	8 / 7	4 / 3	Relação Stent / Vaso

**NOTA:** Nos exames rotacionais o “Body Guard” fica inativo ao momento da aquisição.

# Problemas?

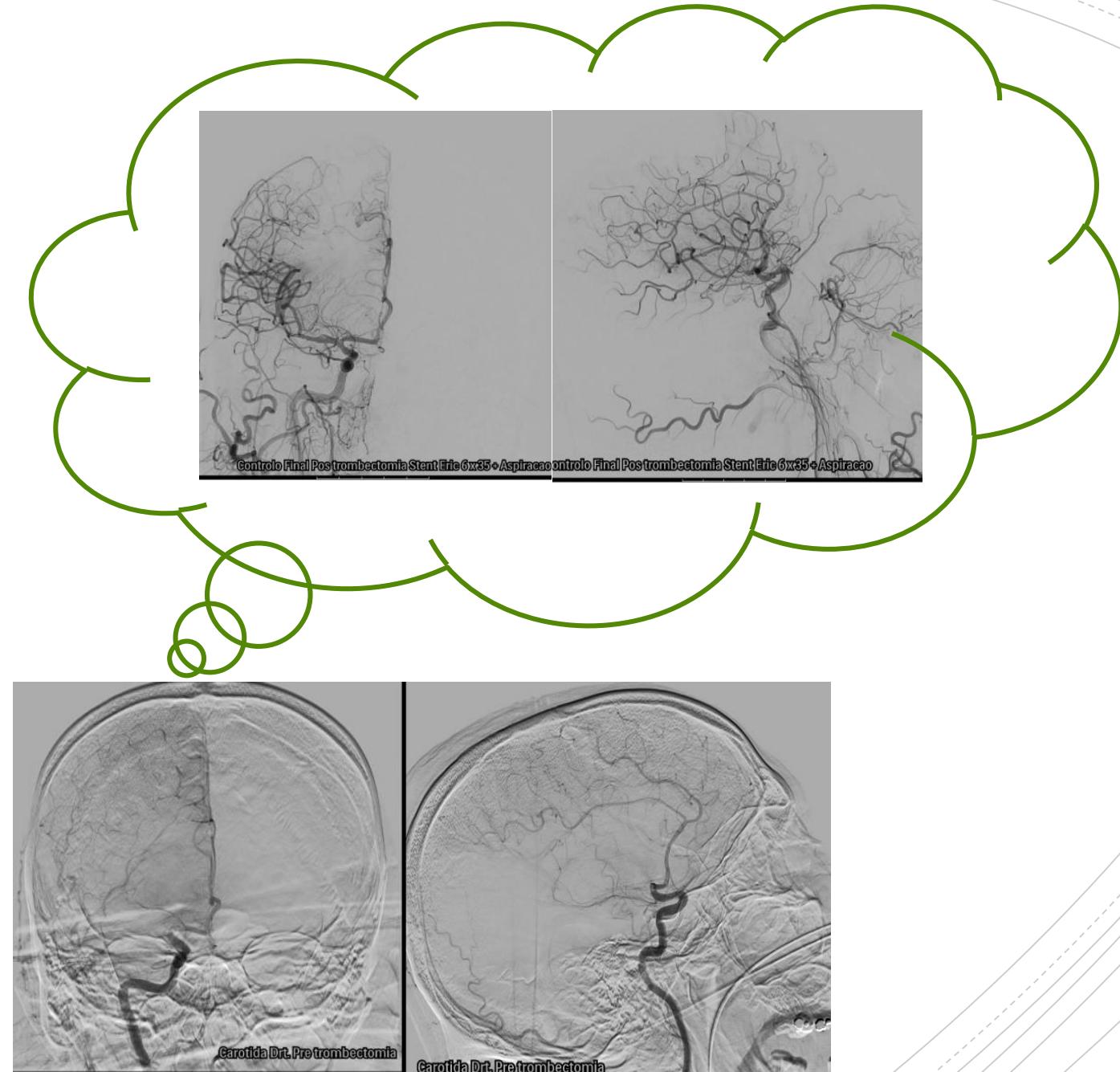
Adaptações...



crfmg.org.br, 2018

# Angiografia

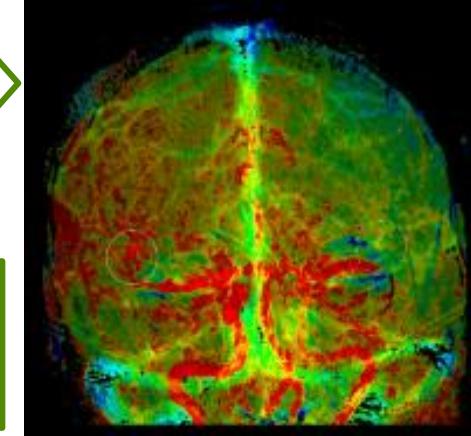
- Artefacto de movimento;
- Sedoanalgesia
- / anestesia geral.



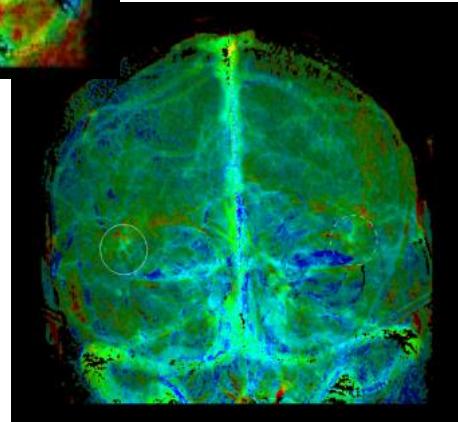
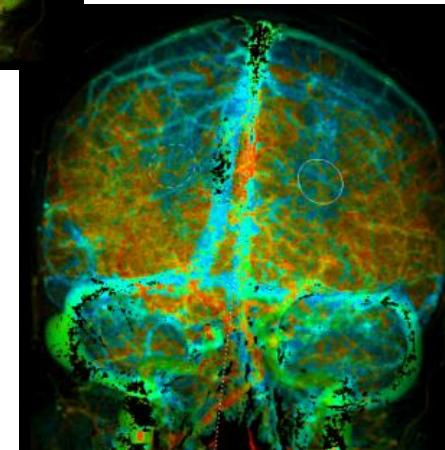
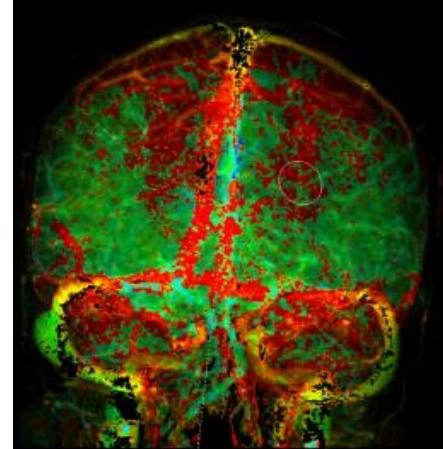
# Perfusão

- Tempo muito tardio;
- Posicionamento incorrecto / sedoanalgesia.

Tempo muito tardio  
(seios venosos)

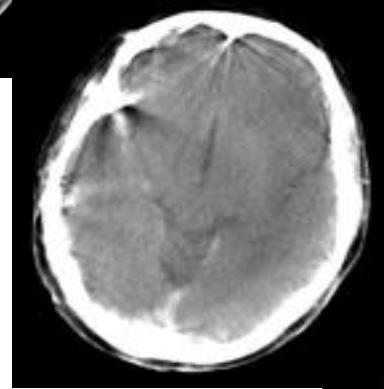
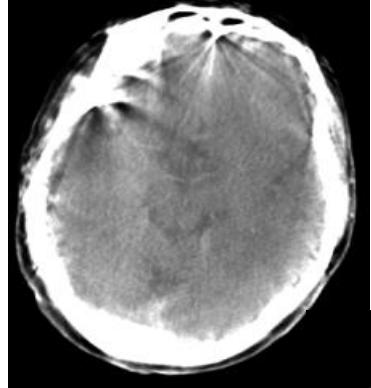


Posicionamiento incorrecto  
/ Sedoanalgesia

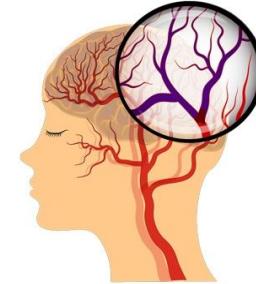


# Xpert CT

- Artefacto de movimiento  
(Sedoanalgesia / anestesia geral);
- Posicionamiento incorrecto.



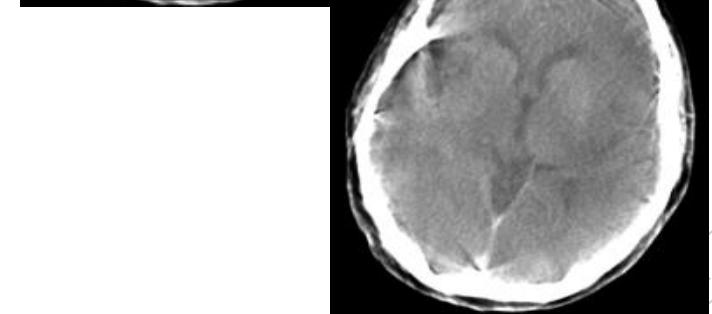
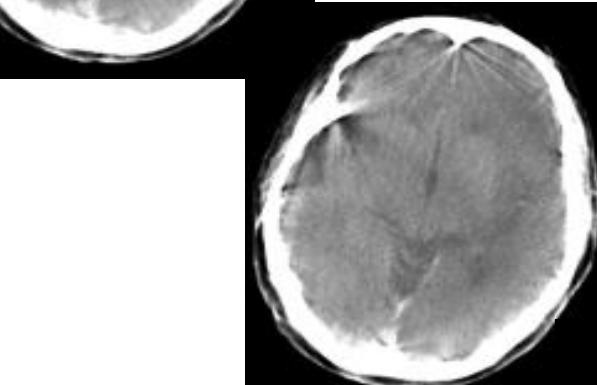
Isquêmico



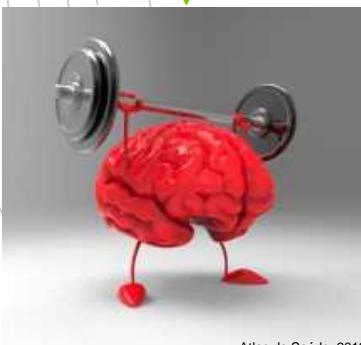
Hemorrágico



Daiichi Sankyo, 2018



## Via Verde AVC



Atlas da Saúde, 2018

### ■ SÍNTESE

- Intervenções realizadas – Trombectomia aspirativa / mecânica e embolização de aneurisma;
- Protocolo uniformizado: Parâmetros técnicos; técnica radiológica de aquisição; pós-processamento;
- Técnicas avançadas: Perfusion; Xpert CT; Vaso CT; Stent Boost Vascular.

### ■ CONCLUSÃO

Intervenções que desafiam a técnica radiológica, pelo que o Técnico de Radiologia desempenha um papel fundamental nos procedimentos de Via Verde AVC.

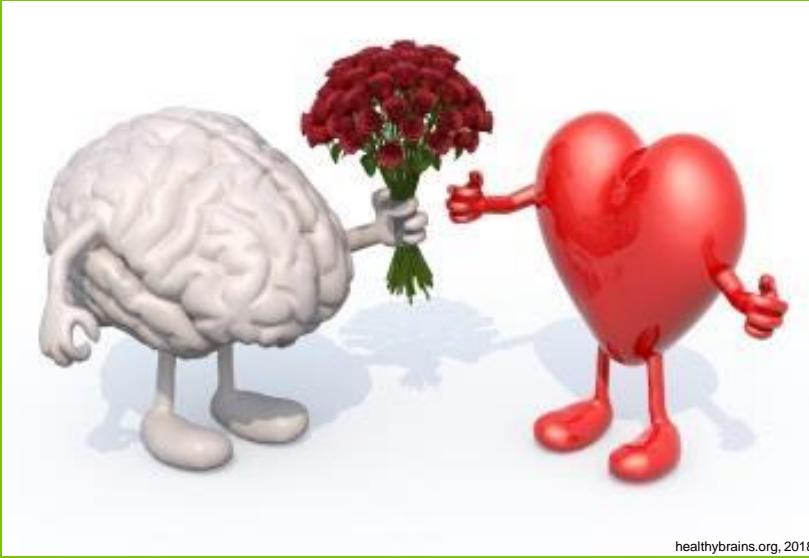


# 2<sup>a</sup> RADIOLOGIA DE FUSÃO

CENTRO HOSPITALAR  
LISBOA NORTE, EPE



## Via Verde AVC



**OBRIGADA**

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