

Occlusions en Tandem non Athéromateuses

Dissection
Web
Embolique



- Dr G. Gascou
- CHU Montpellier

Plan



1) Définition du tandem



2) Ce qui n'est pas un tandem



3) Les Tandems



4) Stratégies thérapeutiques



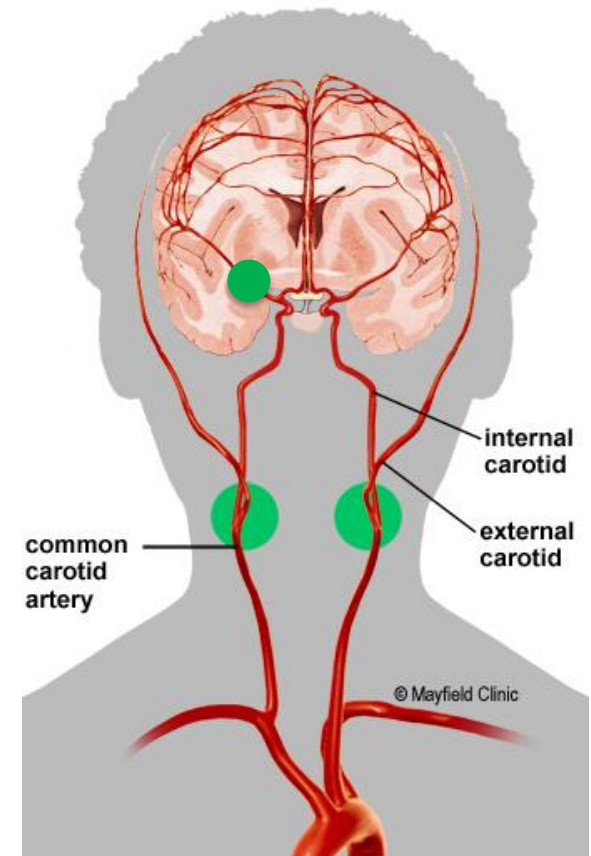
- Données de la littérature



- Discussion de cas

Définition

- Tandem:
 - Définition historique
 - Cabriolet découvert attelé de deux chevaux en flèche
 - Plus généralement
 - L'un devant l'autre
 - Neuroradio:
 - Présence simultanée
 - Occlusion ou sténose sévère Cervicale
 - Occlusion intracrânienne
 - 12-20% des cas de thrombectomies ¹⁻²
 - Pronostic sombre en l'absence de traitement
 - Pronostic moins bon que occlusion IC simple
 - Taux de recanalisation IV seule: 5,9% ³



¹ Goyal et al NEJM 2015

² Jovin et al NEJM 2015

³ Lockau et al Neuroradiology 2015

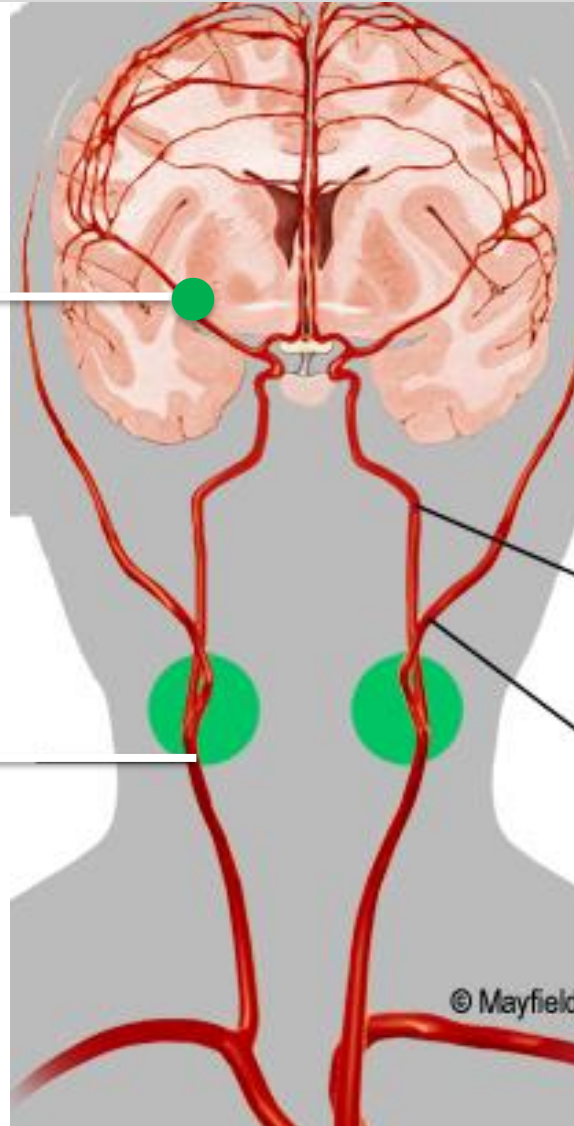
Tandem: Problématique

Occlusion intracrânienne

Nature: Caillot

Occlusion Cervicale

Nature: ?



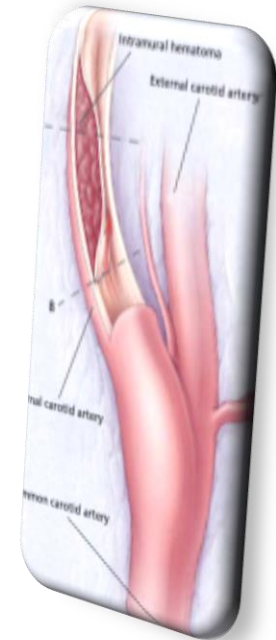
1) Identification du sous type

2) Adaptation de la stratégie

TANDEM Sous-types "A-D-E-W"



ATHEROME



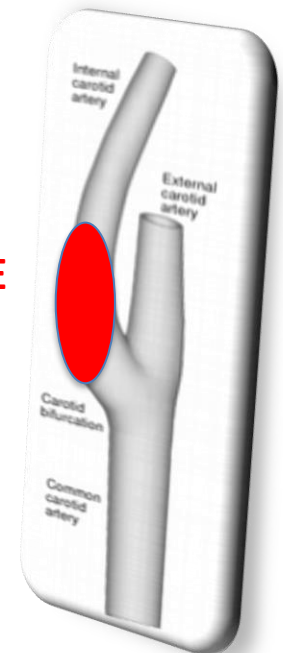
DISSECTION



LESION ACI

EMBOLIQUE

**Carotid
WEB**



**Traitement
identique?**

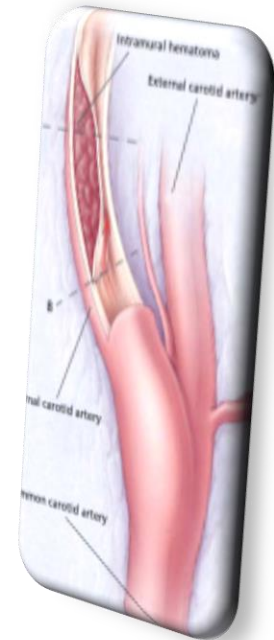


ATHEROME

Ttt d'un TANDEM

=

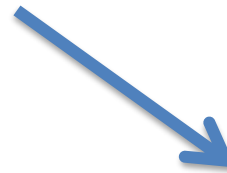
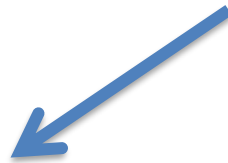
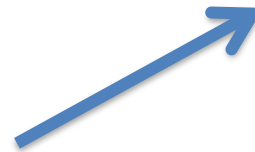
Identifier les sous types



DISSECTION



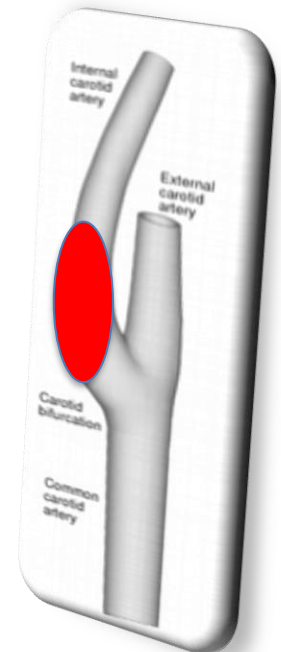
LESION ACI



Carotid WEB



EMBOLIQUE



Traitement identique? = NON

Médical, interventionnel, urgent ou différé

Etape 1:

Identification des sous types

Vision angiographique

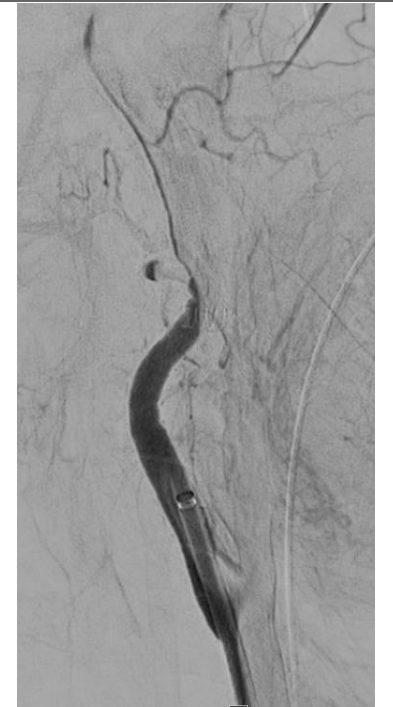
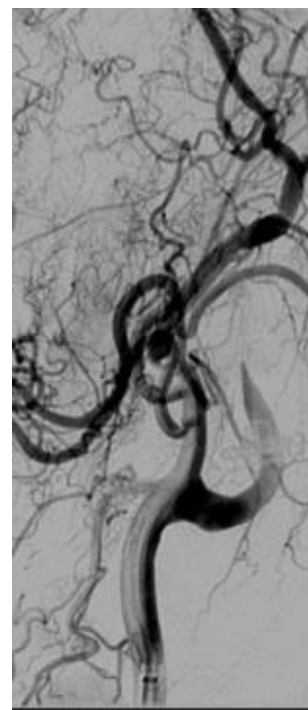
Embolique?

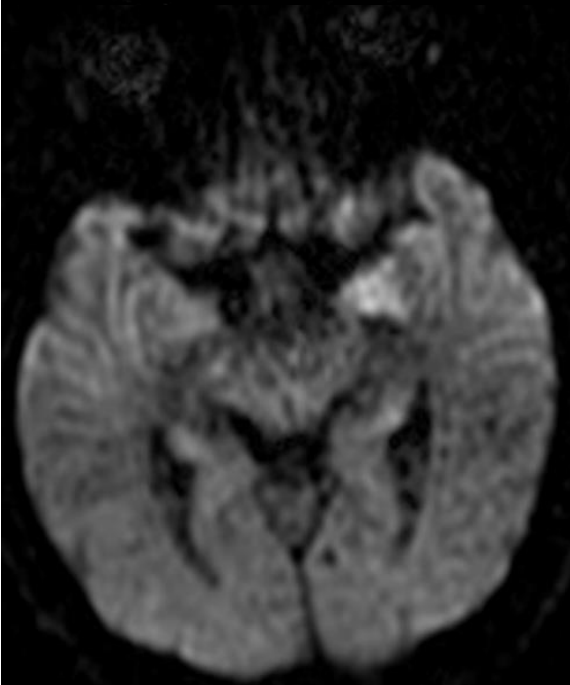
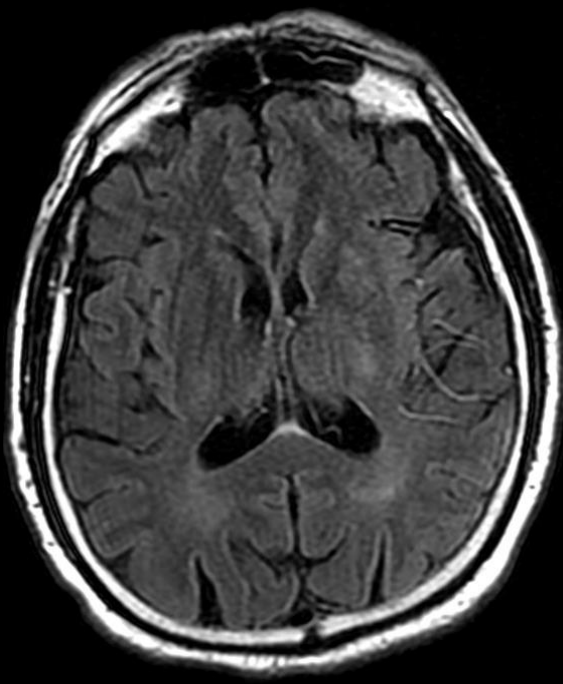
Web?

Dissection?

Athérome?

Ce qui n'est pas un tandem....





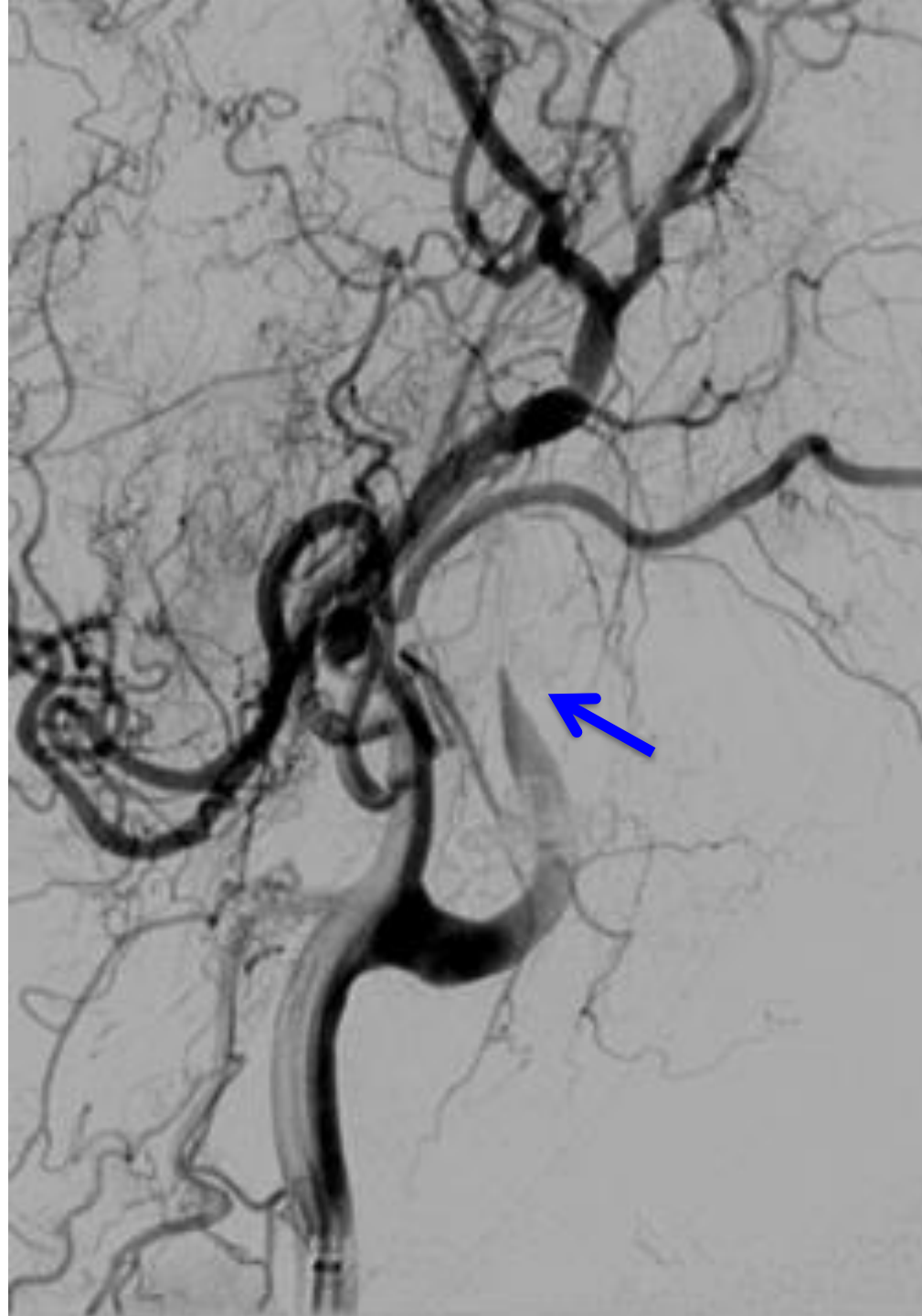
Cas n°1
Homme 70 ans, NIH 24

**OCCLUSION en
TANDEM ?**



Angiographie

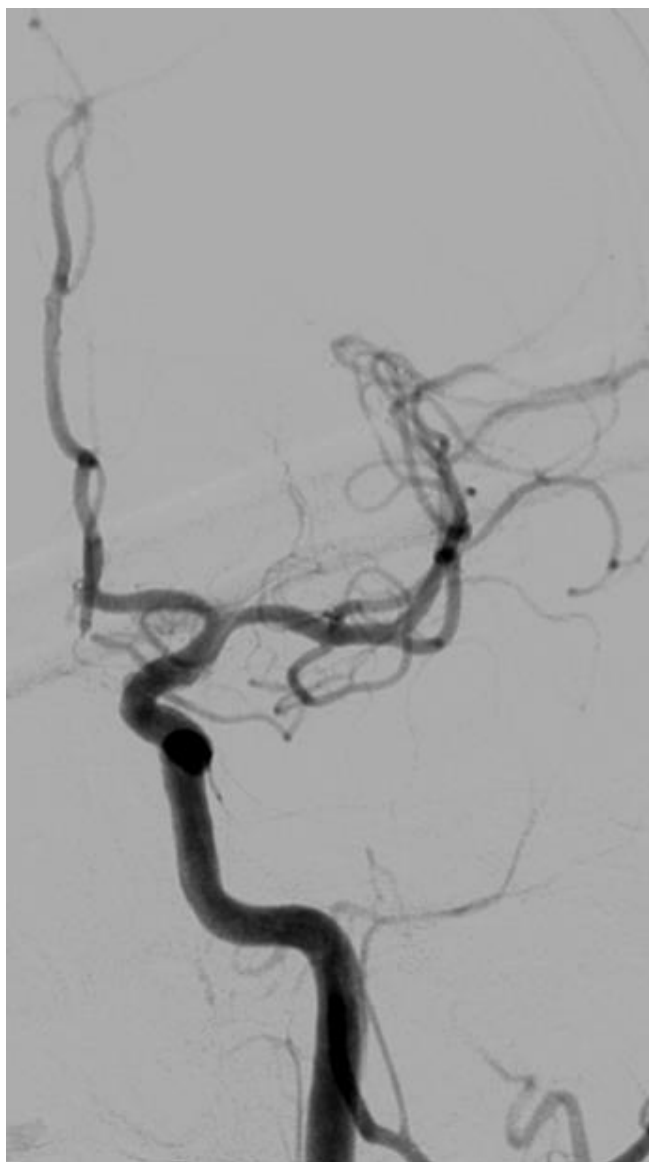
DISSECTION ?



Pseudo occlusion ACI cervicale sur occlusion du T



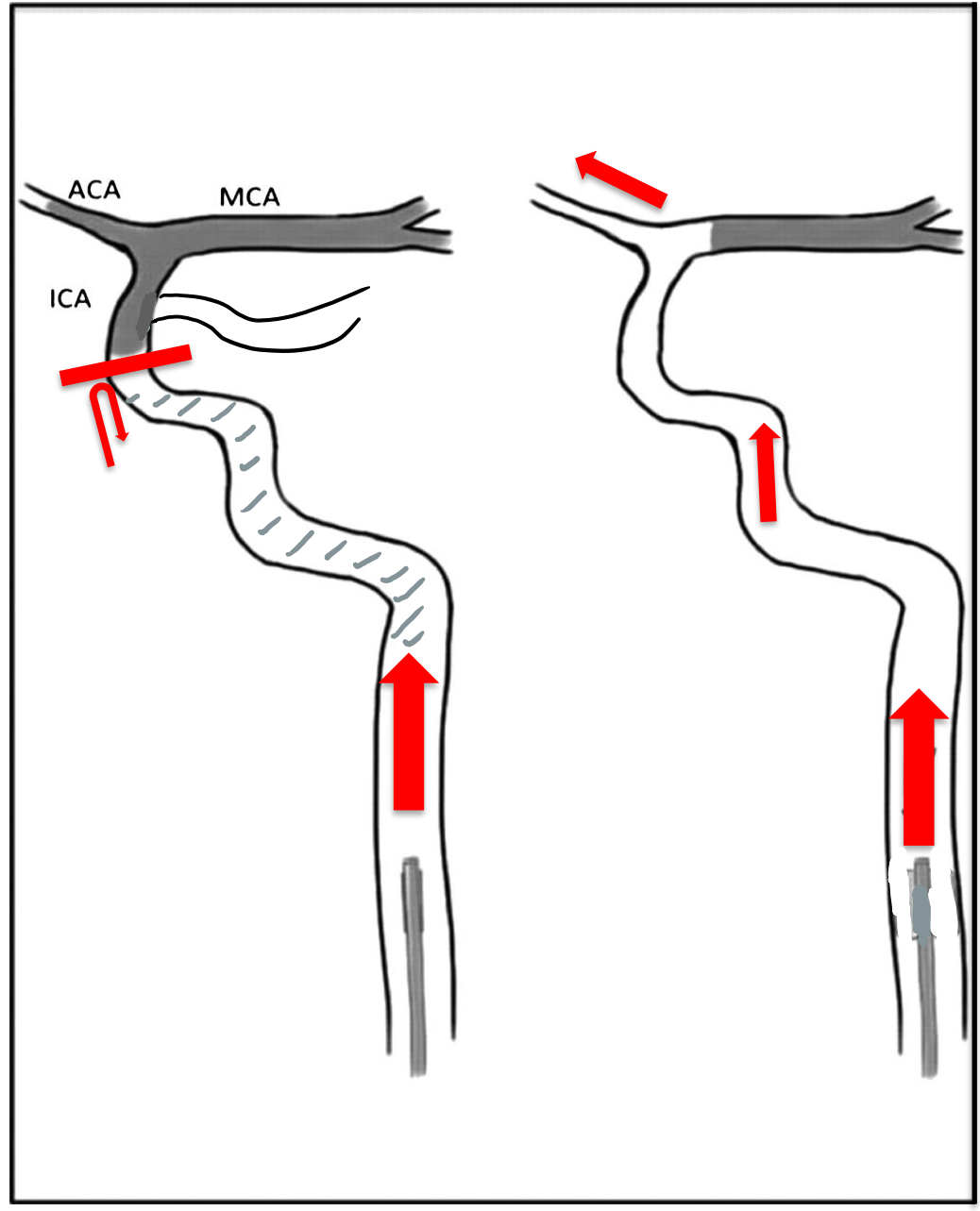
Injection microcathéter



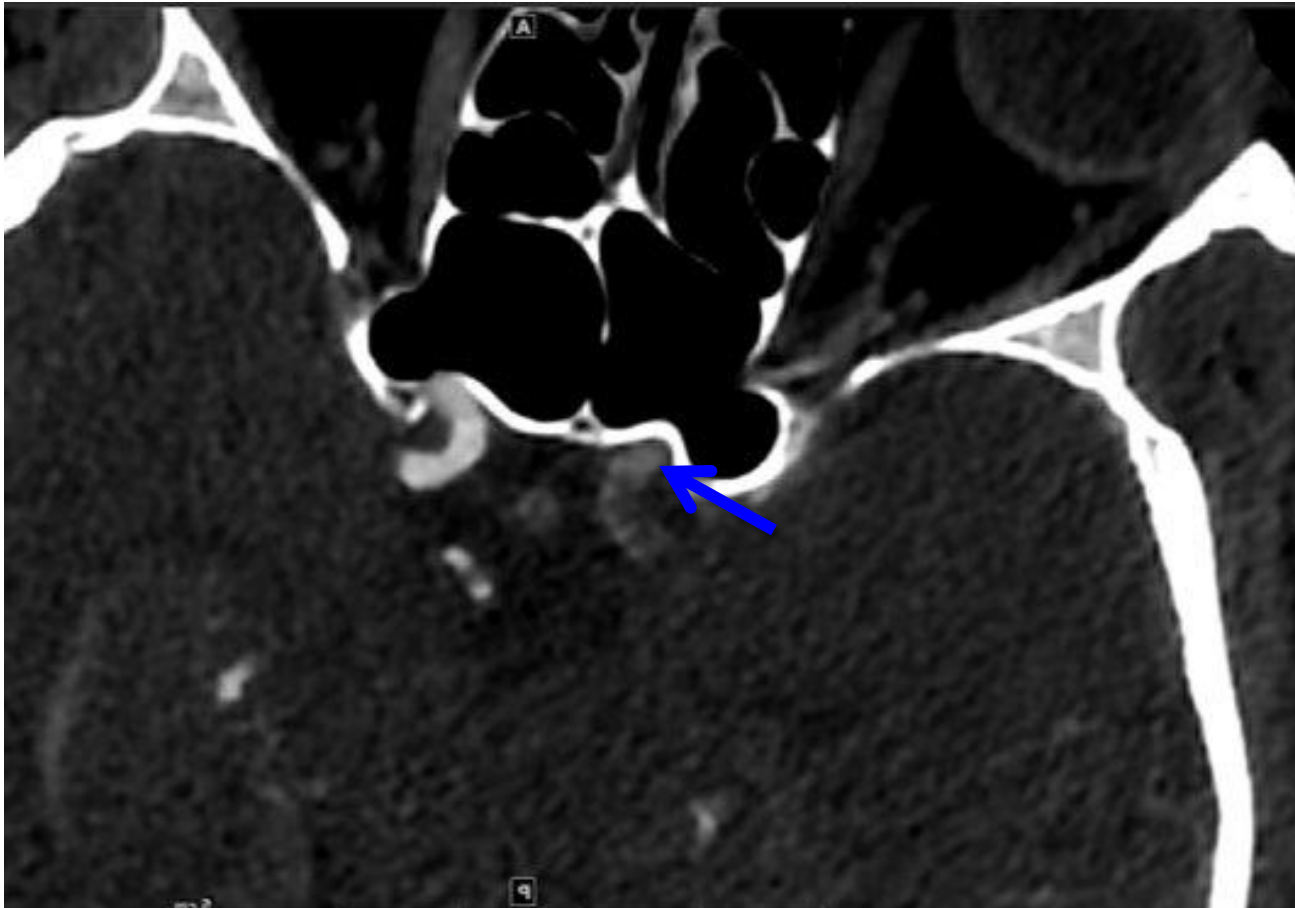
Contrôle après Stent retriever



Contrôle cervical



Acquisition tardive (3 mn)



3
P
56
tude gén

TIS0.1 MI 1.3

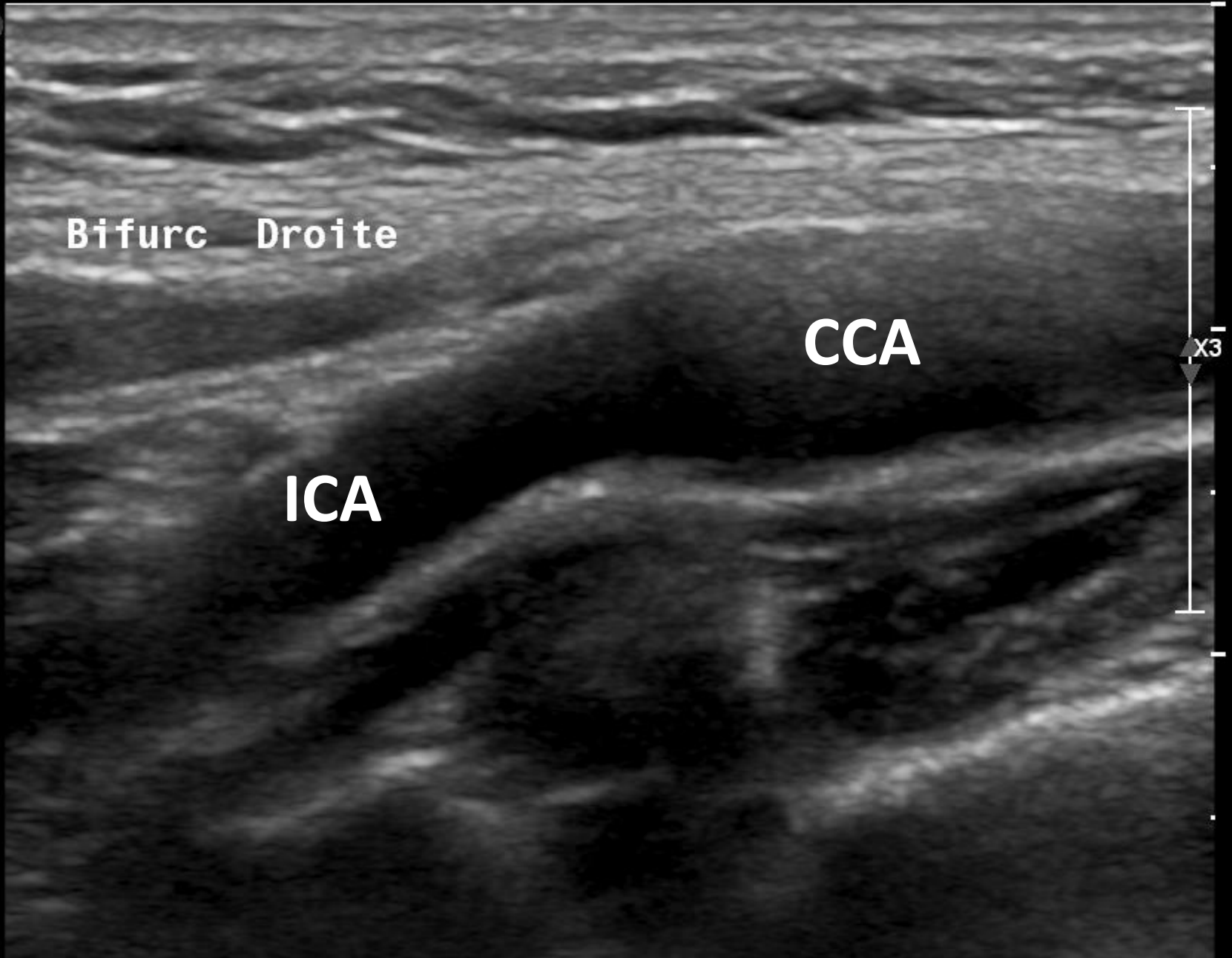
M3

Bifurc Droite

CCA

ICA

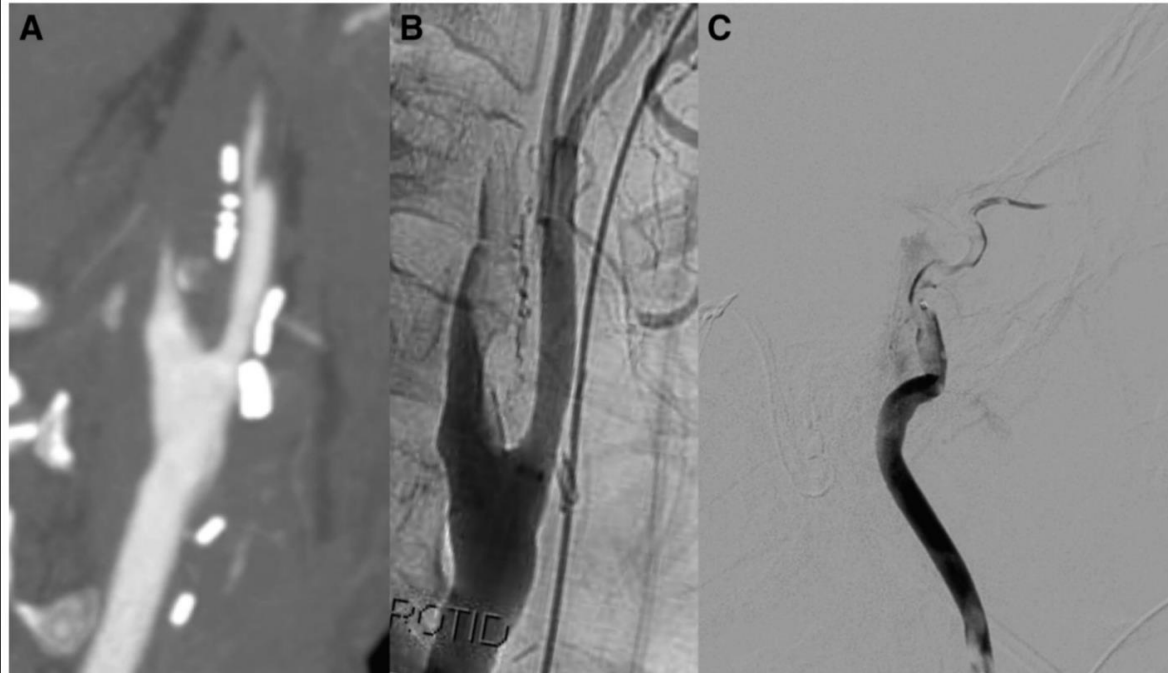
x3



Pseudo occlusion de ACI cervicale

- Occlusion de ACI intracrânienne qui apparaît comme une occlusion extracrânienne
- Occlusion du T carotidien
- ACI cervicale perméable

- Explications
 - Absence de progression de PCI
 - Colonne stagnante de sang non opacifié



46% des cas d'occlusion carotidienne

Pseudo occlusion de ACI cervicale

- Imagerie

- Bulbe carotidien perméable
- Progression lente du PCI
- Acquisition tardive

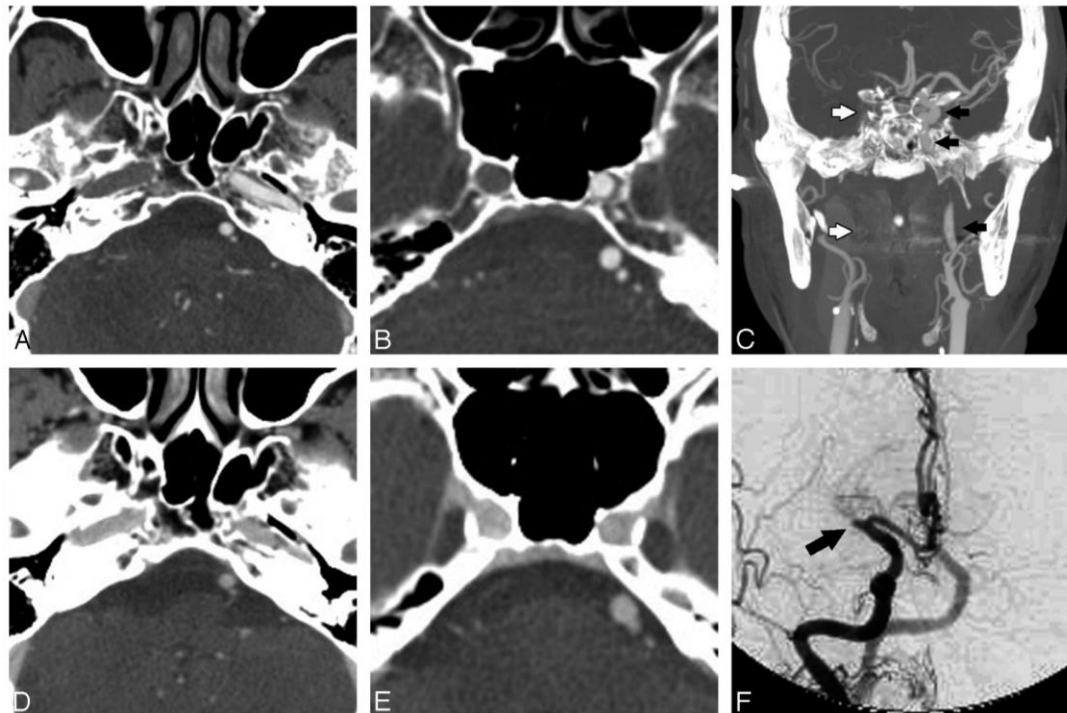


Figure 2



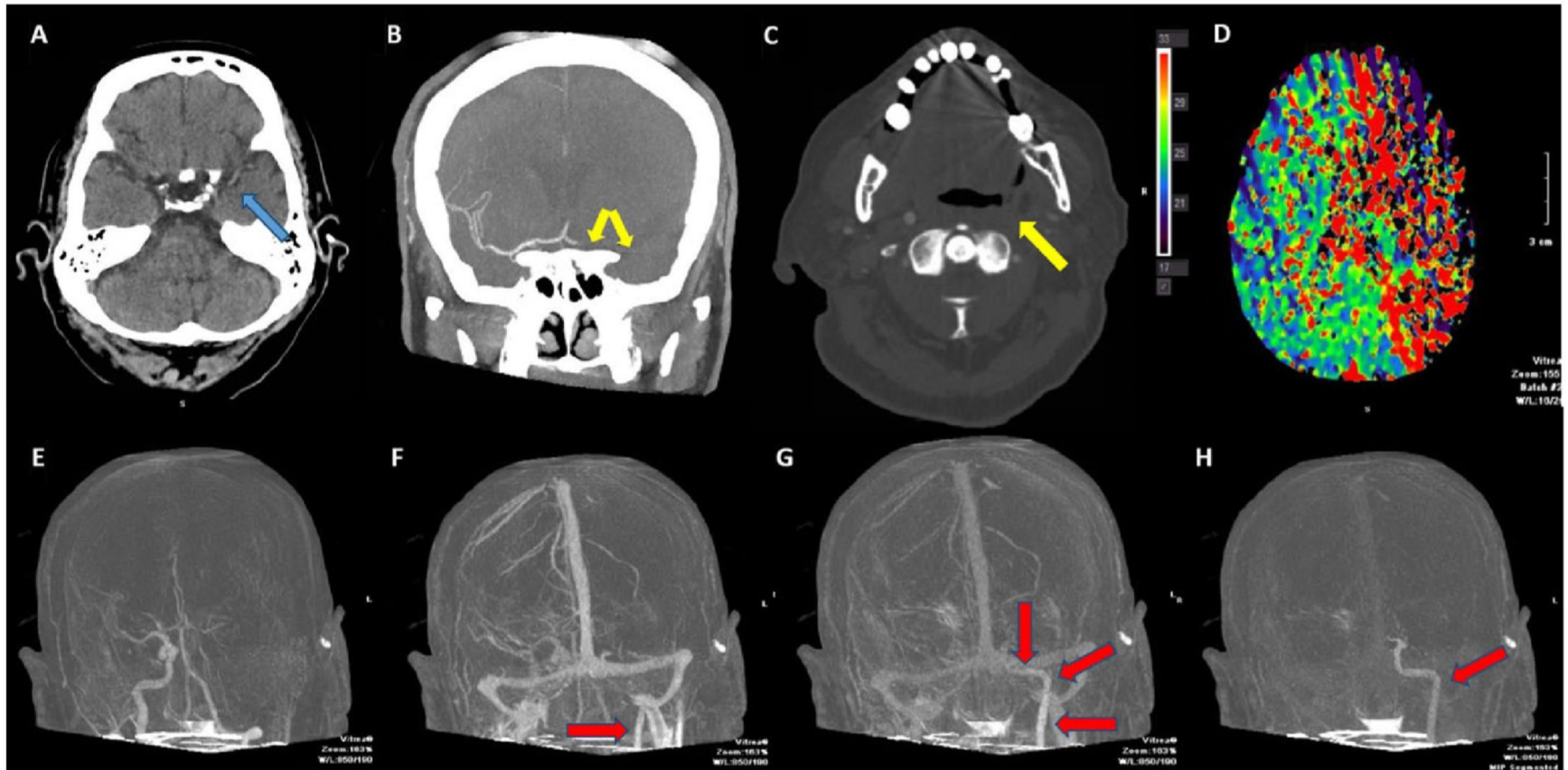
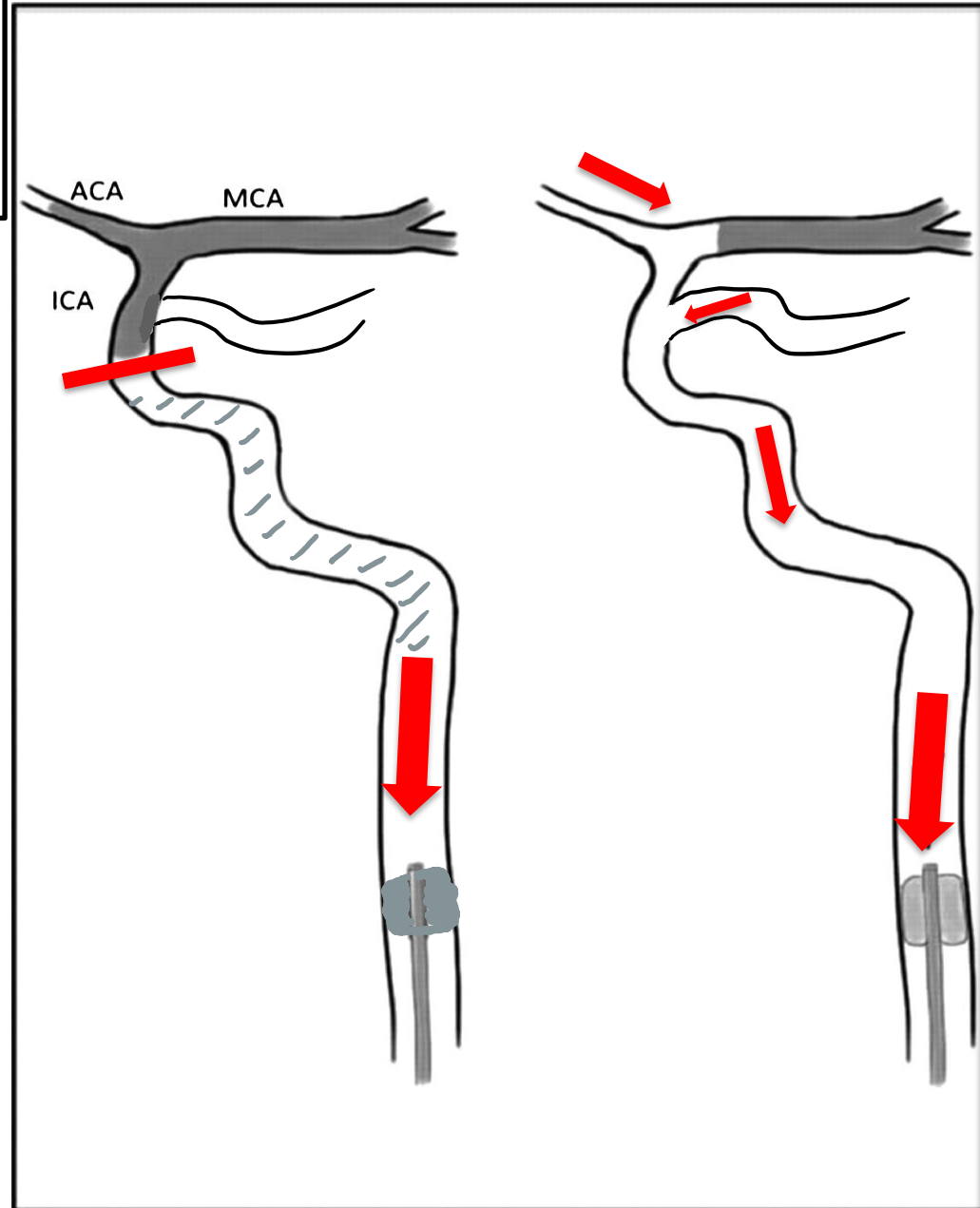


Fig 2. Case 2: 86-year-old with acute left hemiparesis. Noncontrast CT demonstrated a hyperdense left middle cerebral artery sphenoidal segment (M1) (A; blue arrow), single-phase CT angiogram showed an M1 filling defect and cervical internal carotid artery (ICA) apparent occlusion (B, C; yellow arrows). Large perfusion deficit seen on CT Perfusion time-to-peak map (D). Left ICA absent flow seen on 4-dimensional CT angiogram initial arterial phase (E). Delayed antegrade left ICA flow from the cervical ICA visualized after 43.5 seconds (F-H; red arrows).

Stratégie thérapeutique?

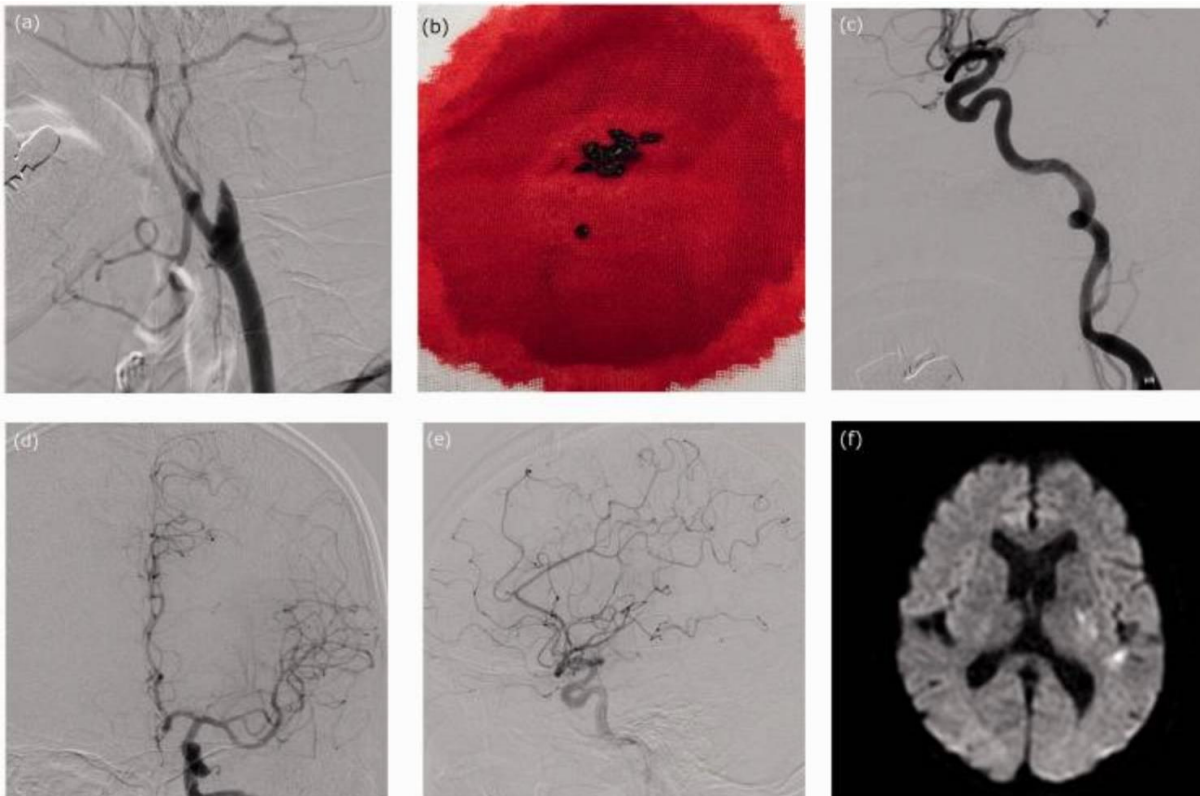
ABC technique

Aspiration with **B**alloon
guide **C**atheter



Simple aspiration with balloon catheter technique (simple ABC technique) against proximal internal carotid artery occlusion in cases of cardiogenic cerebral embolism

Akitake Okamura, Kazuhiko Kuroki, [...], and



Reported puncture-to-reperfusion time of endovascular thrombectomy.

Reference	N	Median (min)	Range	Procedure
Turk et al. ⁷ (2014)	88	36.6 (mean)	±26.4	ADAPT
Jovin et al. ⁵ (2015)	103	86	–	Stent retriever
Goyal et al. ^{2,15} (2015)	144	30	18–45.5	Stent retriever
Kim et al. ¹³ (2016)	33	94.5	61.8–136	Stent retriever or ADAPT
	53	56	35–99	Stent retriever or proximal aspiration
Yamaguchi et al. ¹⁶ (2017)	1	26	26	Transbrachial stent retriever
Haussen et al. ¹⁴ (2017)	3	14	7–37	Manual aspiration (Simple ABC)
Our cases (2017)	2	14.5	14–15	Simple ABC

Occlusion du T: Aspiration directe

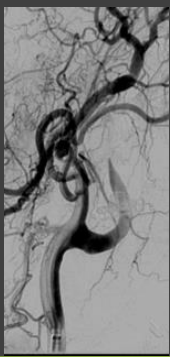


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603







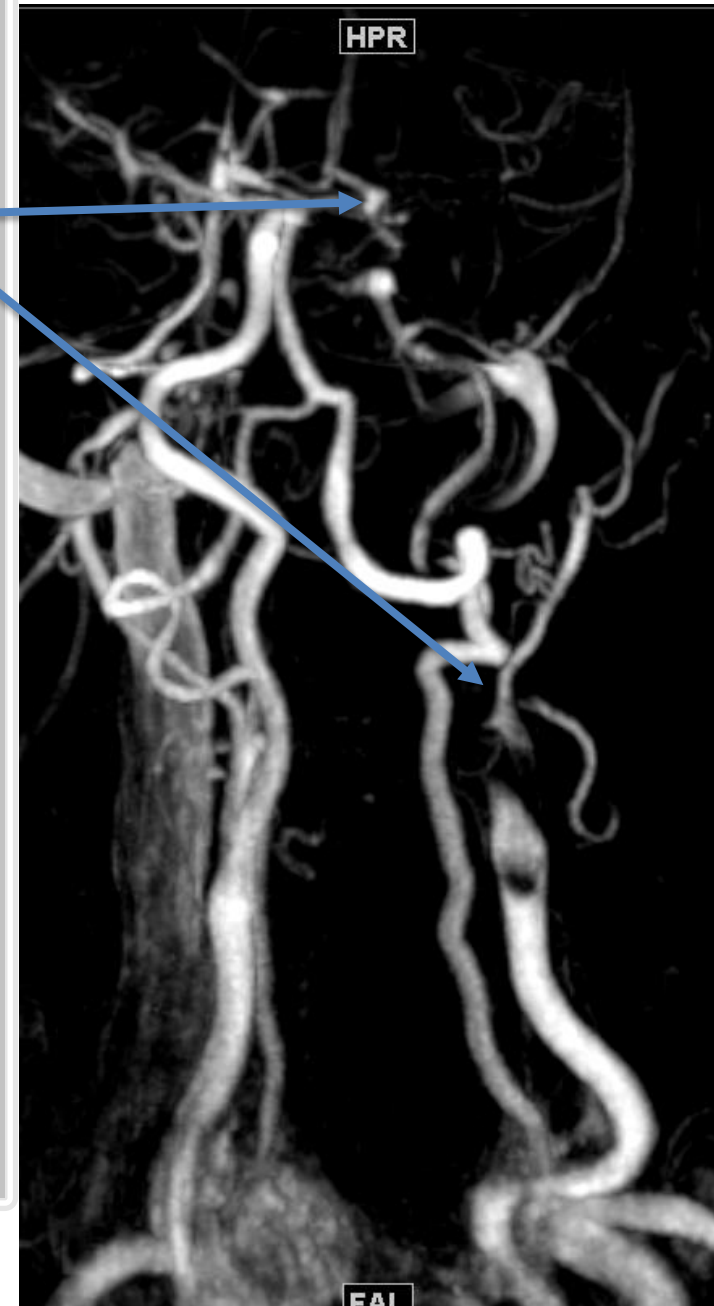
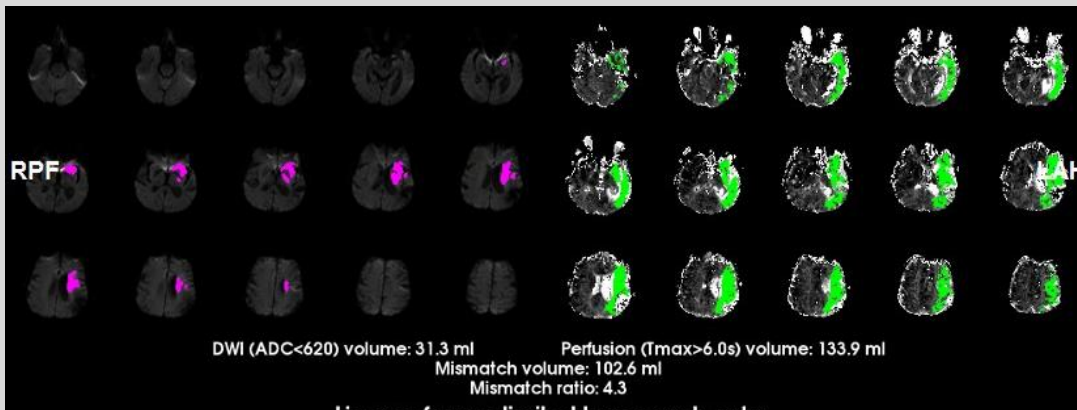
Eliminer ce qui
n'est pas un
TANDEM:

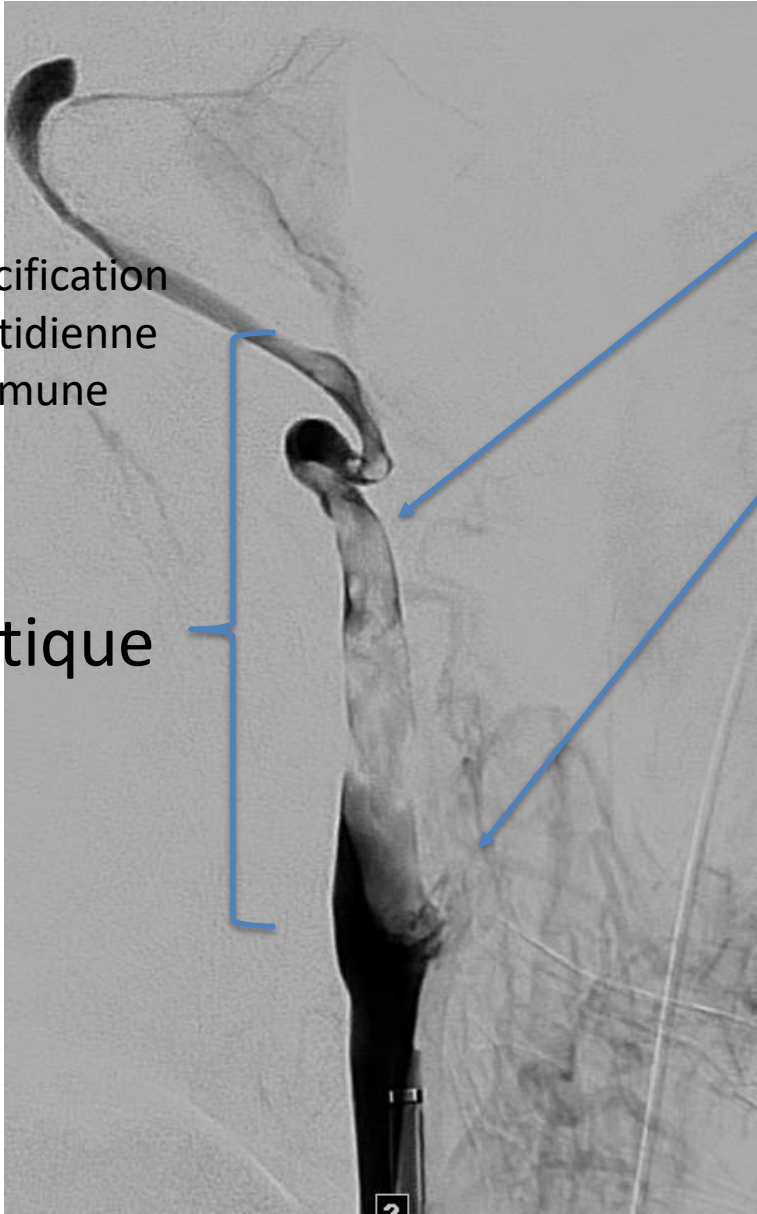
Occlusion du T
carotidien

- Diagnostic
 - Angioscanner/IRM:
 - Bulbe carotidien perméable
 - Progression lente du produit de contraste
 - Niveau liquide/liquide (PCI/ sang non injecté)
 - Thrombus du T
 - Echographie
 - Bulbe carotidien sain
 - Angiographie
 - Acquisition tardive: progression du PCI
 - Progression sans obstacle du microguide dans ACI cervicale
 - Exploration au micro cathéter
 - Stratégie thérapeutique:
 - Aspiration première par le BGC
 - Si échec: thrombectomie au stent retriever

Occlusion en tandem ACI/ ACM G

- Cas n°2
- Homme 74 ans
- NIH 24





Opacification
carotidienne
commune

Charge
thrombotique
+++

Occlusion
ACI
et
ACE

Tandem
Embolique

Carotide saine

Inflation ballon
Aspiration par le 9F







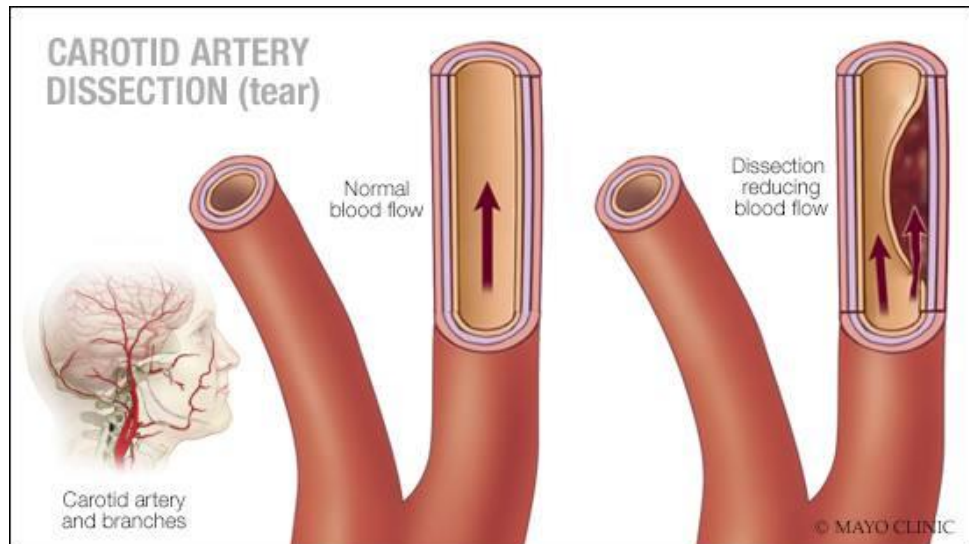
Occlusion en tandem Embolique

- Pas de lésion pariétale (carotide saine)
- Diagnostic
 - Clinique
 - Cardiopathie embolique
 - Angioscanner
 - Occlusion ACI +- ACC et ACE++
 - Pas de calcification bulbaire
 - Echographie en salle
 - Volumineuse charge embolique ACC
ACI ACE
 - Angiographie
 - Occlusion ACI ACE
 - Boucle ACI ++
 - Stratégie thérapeutique
 - Nettoyage de l'ACI : aspiration première BGC puis aspiration Cathéter intermédiaire + BGC

Dissection ACI cervicale

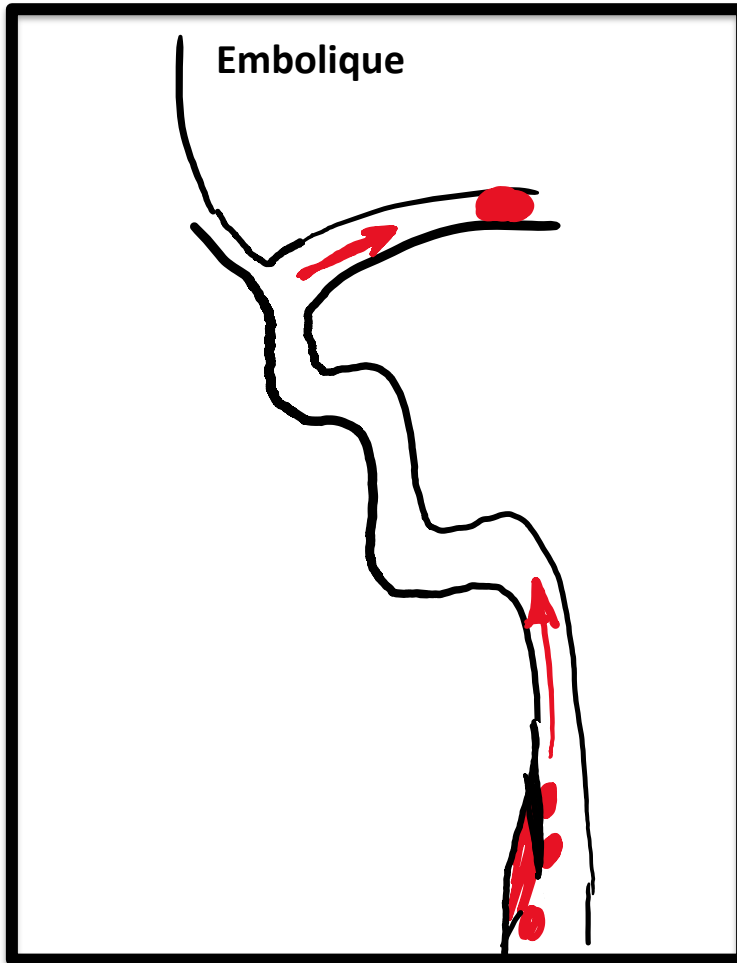
- **Epidémiologie**
- 1-2% des AVC (1)
- 10-25% des AVC du jeune (<55ans) (2)
- Efficacité fibrinolyse moindre
- Pronostic sombre

- Topographie
 - Pétrrocervical (52%)
 - ACI moyenne (43%)
 - ACC (5%)

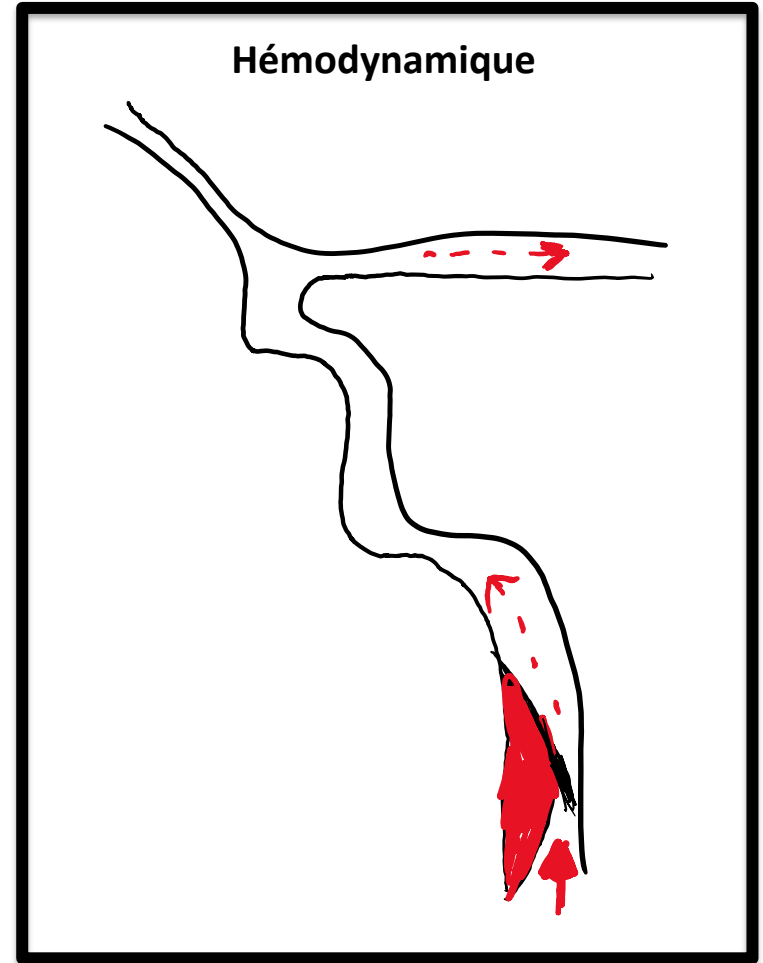


Ischémie cérébrale sur dissection

Mécanisme



ou



But du traitement: restauration du flux

Problématiques des dissections



Bénéfice de l'EV?



Quelle stratégie ?



Stent ?
Angioplastie?
Abstention?

Bénéfice de l'EV?



mRs 0-2 :
71,2% (EV) vs 53,4% (IV)

EV > IV

Endovascular Management vs Intravenous Thrombolysis for Acute Stroke Secondary to Carotid Artery Dissection: Local Experience and Systematic Review

TABLE 3. Comparison Between Intra-arterial vs Intravenous Therapy for Stroke From Carotid Artery Dissection^a

	IA, n = 21	IV, n = 133	Mean Difference/RR, Random, 95% CI	P Value
Age, y	52.0 ± 10.9	49.8 ± 3.8	2.20 (-2.51 to 6.91)	.36
Sex (male)	16 (76%)	86 (64%)	1.18 (0.90 to 1.54)	.23
NIHSS	17.4 ± 5.8	14.8 ± 2.6	2.60 (0.08 to 5.12)	.04
IV tPa, n (%)	11 (51)	133 (100)	0.52 (0.35 to 0.78)	<.01
Time to therapy, min	287.1 ± 126.5	162.4 ± 46.3	124.70 (70.03 to 170.37)	<.01
ICA high-grade or occlusion, n (%)	21 (100)	64 (80) ^b	1.23 (1.08 to 1.39)	<.01
SICH or PH1-2, n (%)	0 (0)	9 (6)	0.32 (0.02 to 5.31)	.43
mRS ≤2 at 90 d, n (%)	15 (71)	69 (52)	1.38 (1.00 to 1.89)	.05

Endovascular therapy versus intravenous thrombolysis in cervical artery dissection-related ischemic stroke: a meta-analysis

Jueying Lin¹ · Yawei Liang² · Juexin Lin²

Table 2 Meta-analysis of the pooled proportion of outcomes between the EVT group and IVT group in CAD-related AIS

Outcomes	Treatment type	Number studies	Heterogeneity	Effectuated models of meta-analysis	Result of meta-analysis [pooled proportion (95% CI)]
Favorable functional outcome	General EVT	14	$I^2 = 44\%$; $P = 0.29$	Fixed	61.8% (56.8%; 66.6%)
	EVT alone	9	$I^2 = 28\%$; $P = 0.67$	Fixed	71.2% (58.4%; 81.3%)
	IVT alone	9	$I^2 = 0\%$; $P = 0.90$	Fixed	53.4% (44.9%; 61.7%)
Excellent functional outcome	General EVT	9	$I^2 = 48\%$; $P = 0.10$	Fixed	42.7% (34.1%; 51.8%)
	EVT alone	8	$I^2 = 47\%$; $P = 0.22$	Fixed	50.9% (37.9%; 63.8%)
	IVT alone	5	$I^2 = 0\%$; $P = 0.51$	Fixed	30.8% (19.8%; 44.5%)
SICH	General EVT	11	$I^2 = 32\%$; $P = 1.00$	Fixed	4.7% (2.3%; 9.0%)
	EVT alone	7	$I^2 = 0\%$; $P = 1.00$	Fixed	1.9% (0.3%; 12.4%)
	IVT alone	7	$I^2 = 0\%$; $P = 1.00$	Fixed	0.8% (0.1%; 5.8%)
Mortality	General EVT	13	$I^2 = 0\%$; $P = 0.99$	Fixed	10.2% (6.6%; 15.5%)
	EVT alone	8	$I^2 = 2\%$; $P = 1.00$	Fixed	7.3% (2.8%; 17.8%)
	IVT alone	8	$I^2 = 46\%$; $P = 1.00$	Fixed	3.2% (1.2%; 8.2%)
Recurrent stroke	General EVT	5	$I^2 = 0\%$; $P = 0.57$	Fixed	0.4% (0.0%; 3.1%)
	EVT alone	3	$I^2 = 0\%$; $P = 1.00$	Fixed	0.0% (0.0%; 5.0%)
	IVT alone	3	$I^2 = 0\%$; $P = 1.00$	Fixed	0.0% (0.0%; 3.6%)



Quelle Stratégie?

Brain first?
Stent carotidien systématique?

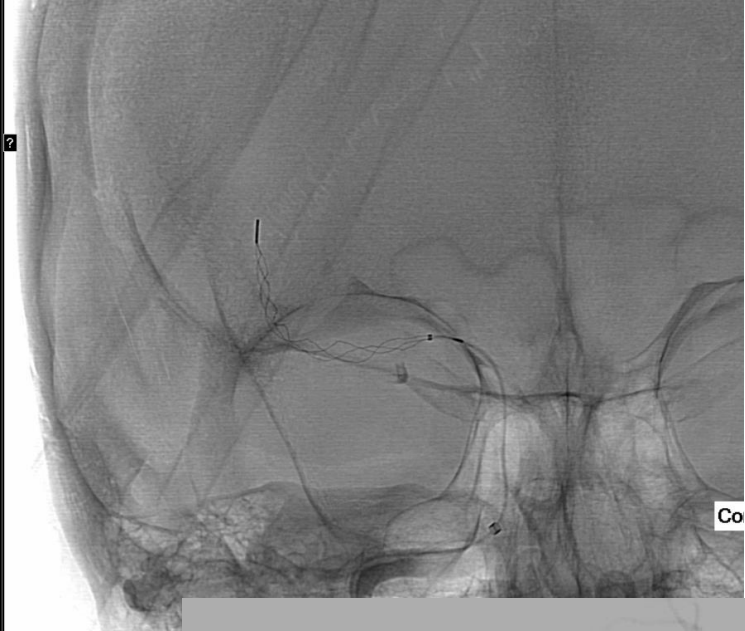
- Cas clinique n°3
- Patiente de 60 ans
- Déficit Neurologique NIHSS (18)
- Douleur cervicale droite
- IRM initiale: Score ASPECT 7
- Combiné IV + EV



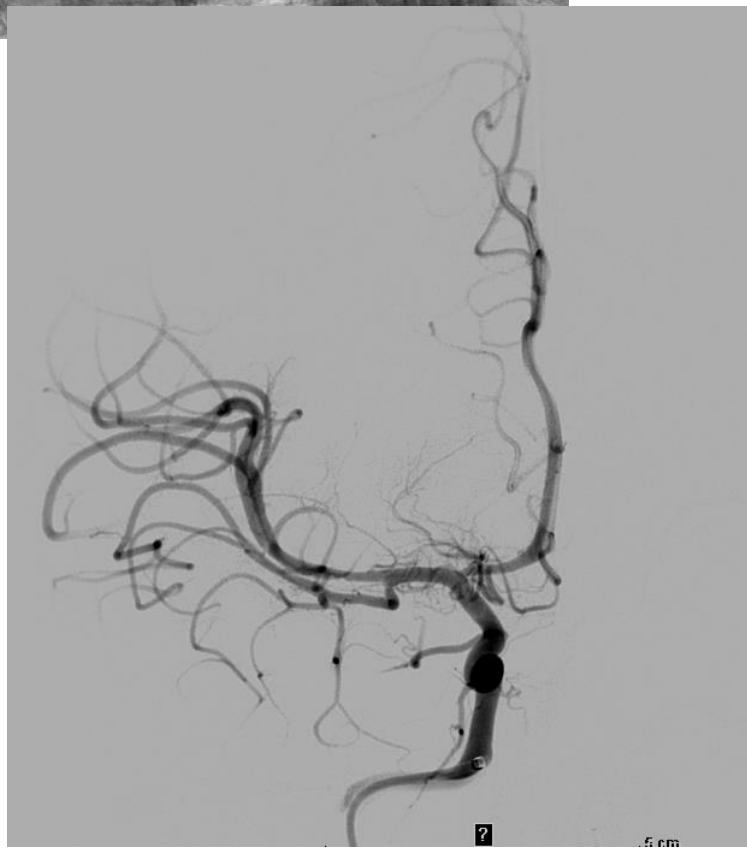
Injection ACC 9F Ballon



Franchissement dissection au microcathéter



Co

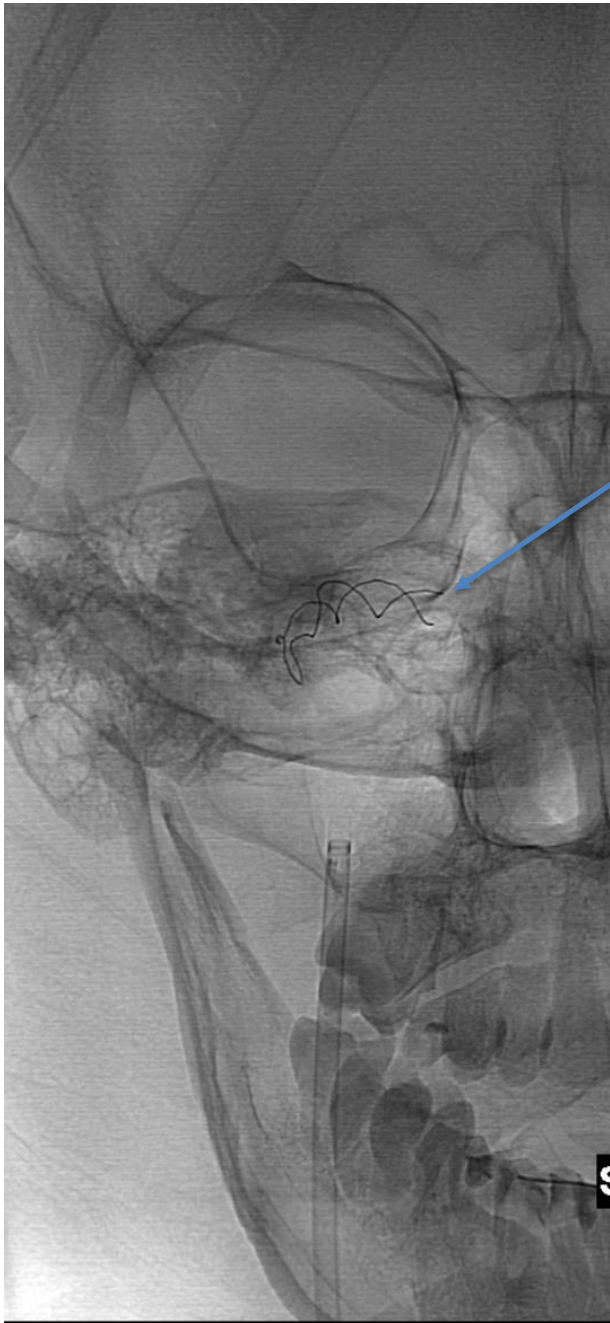


f cm



1 A, 30 559,6 mm² Av

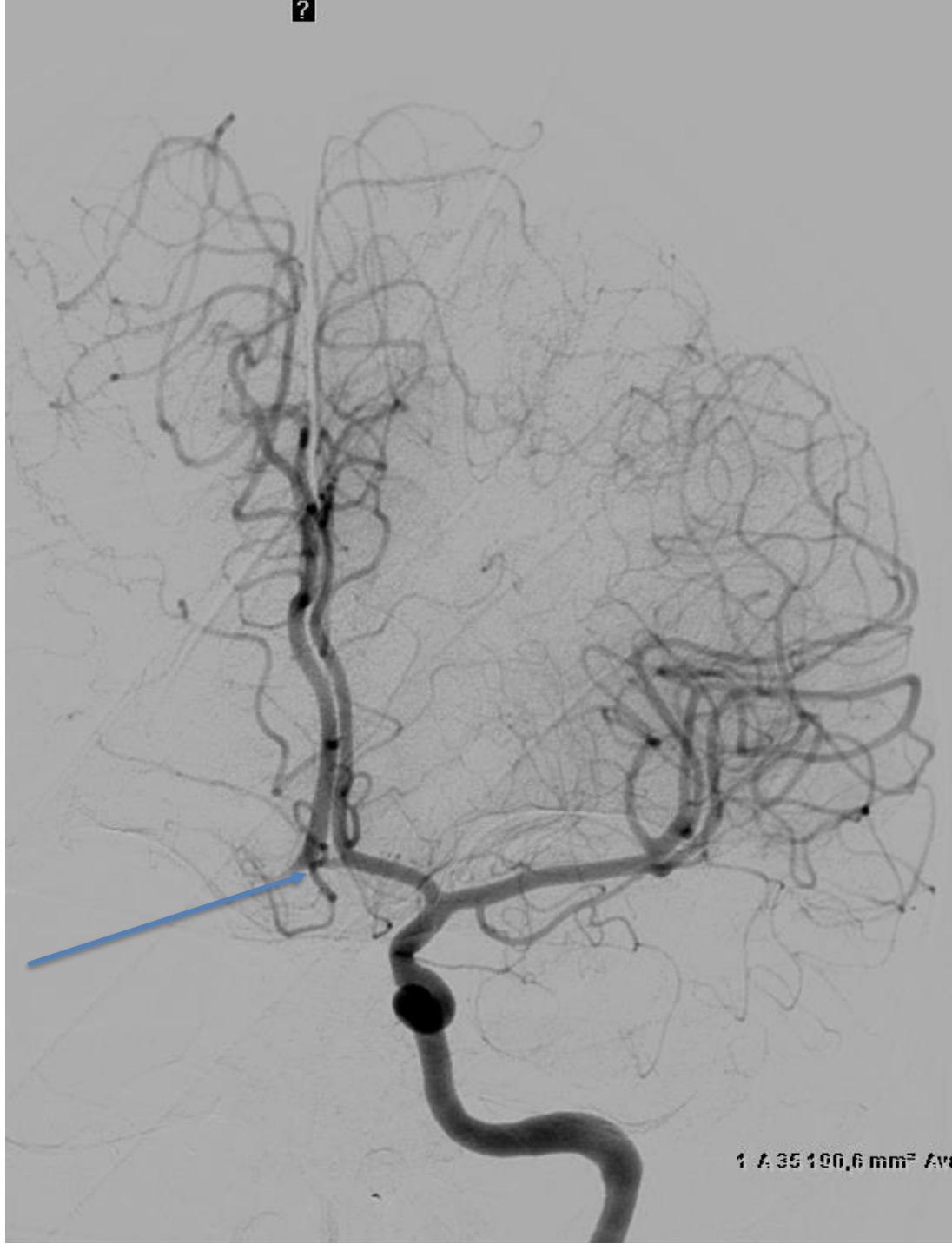
- Stratégie sur la dissection carotidienne ?



Stent Leo

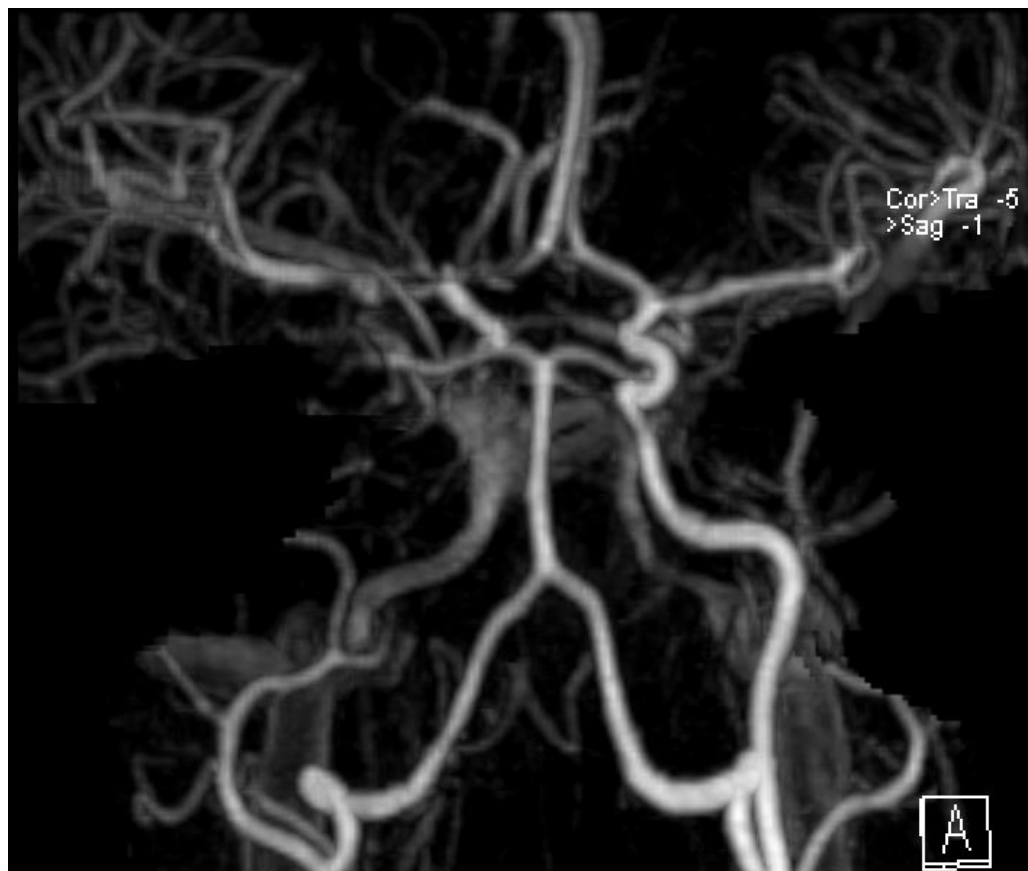
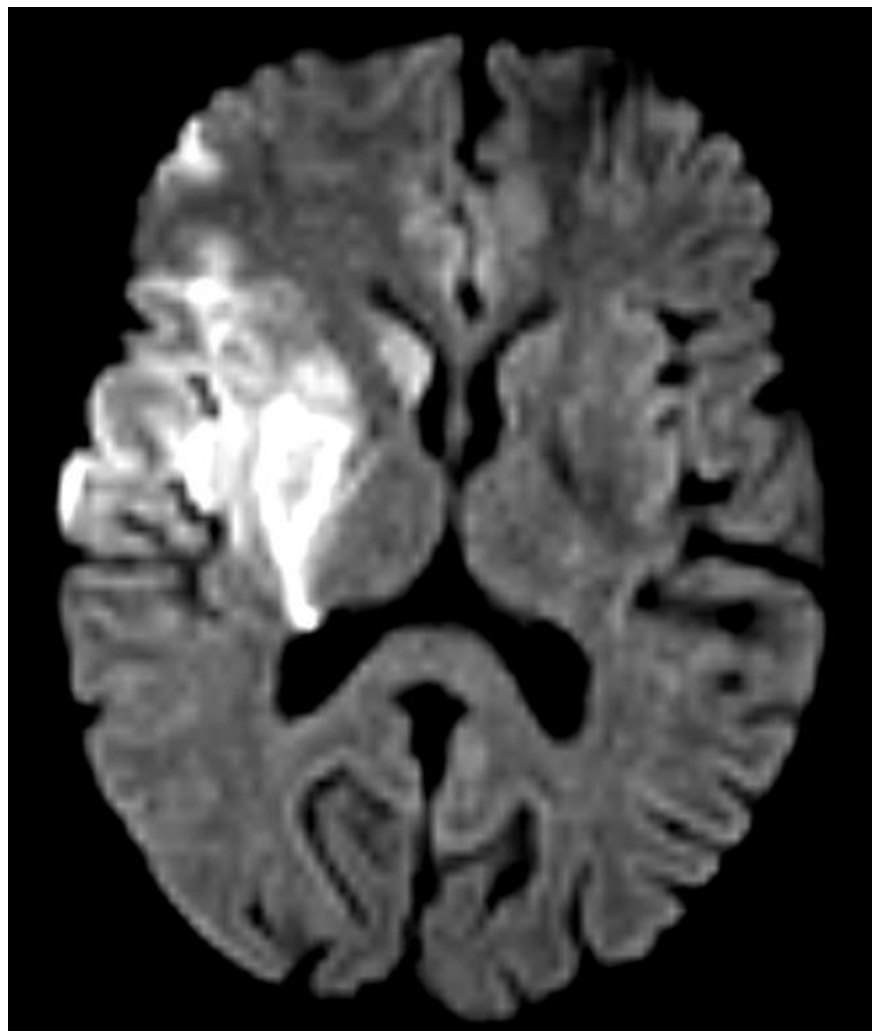


?



A com fonctionnelle

1 A.35 190,6 mm² Av



- NIHSS 14 à la sortie
- Devons nous stenter une dissection même si le polygone est fonctionnel ?

Faut il stenter la lésion cervicale?

- Si oui, pourquoi?
 - Prévention de la Récidive embolique
 - Insuffisance du polygone de Willis (carotide hémodynamique)

Récidive ischémique sur dissection

- Dissection: **2%** de récidive à trois mois
 - Athérome: **18,8%** de récidive à trois mois en cas de sténose athéromateuse (2.7% (24H), 5.3% (72H), 11.5% (14 jours))

Antiplatelet treatment compared with anticoagulation treatment for cervical artery dissection (CADISS): a randomised trial

*The CADISS trial investigators**

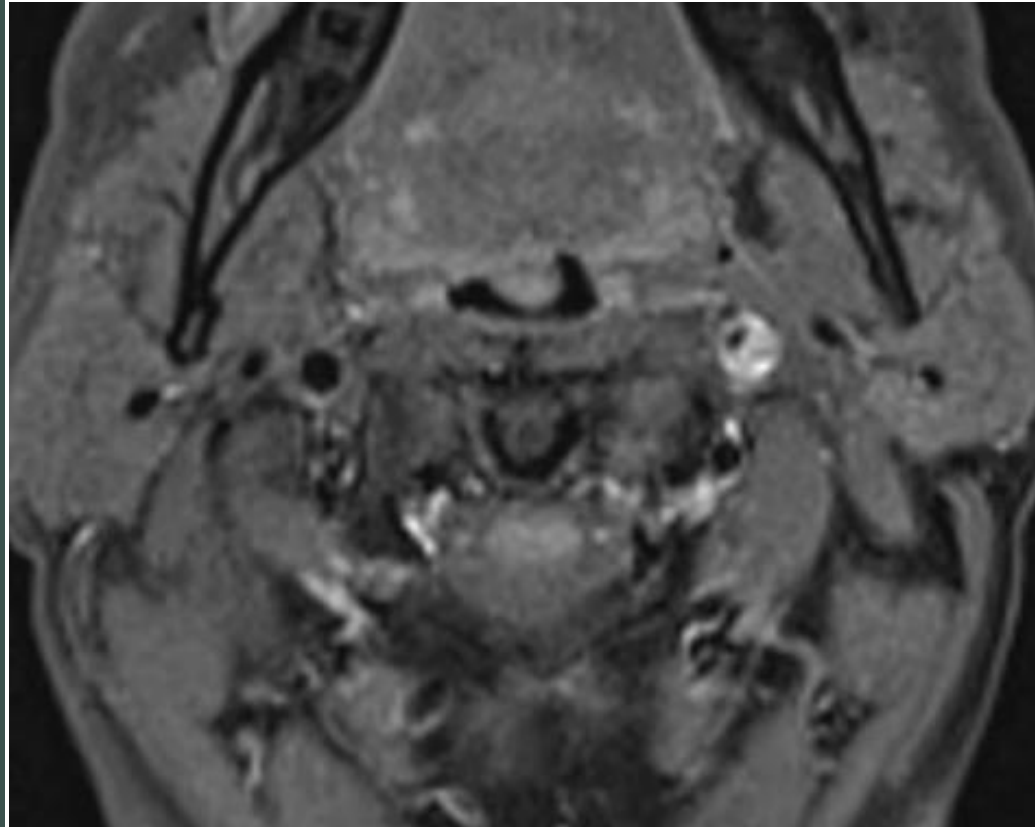


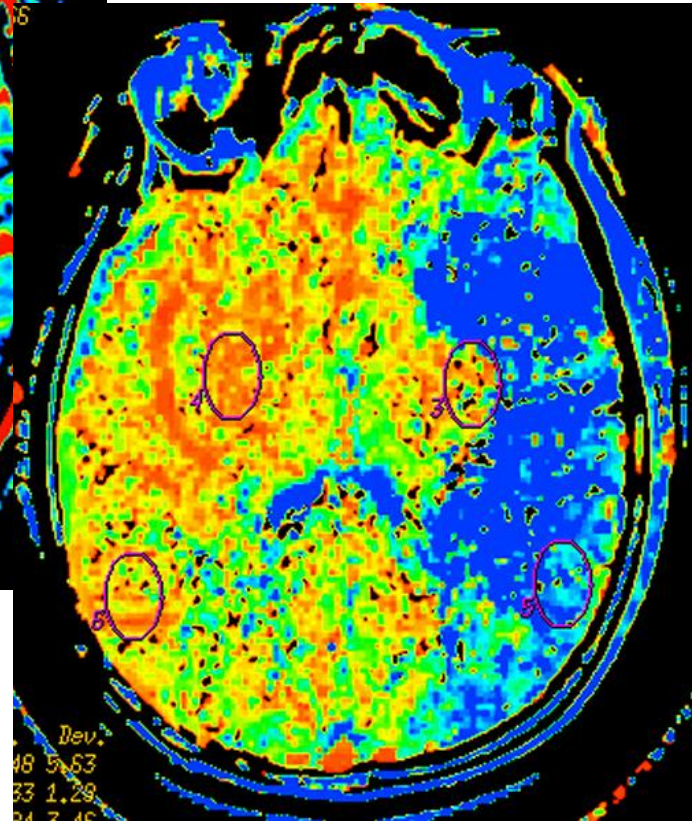
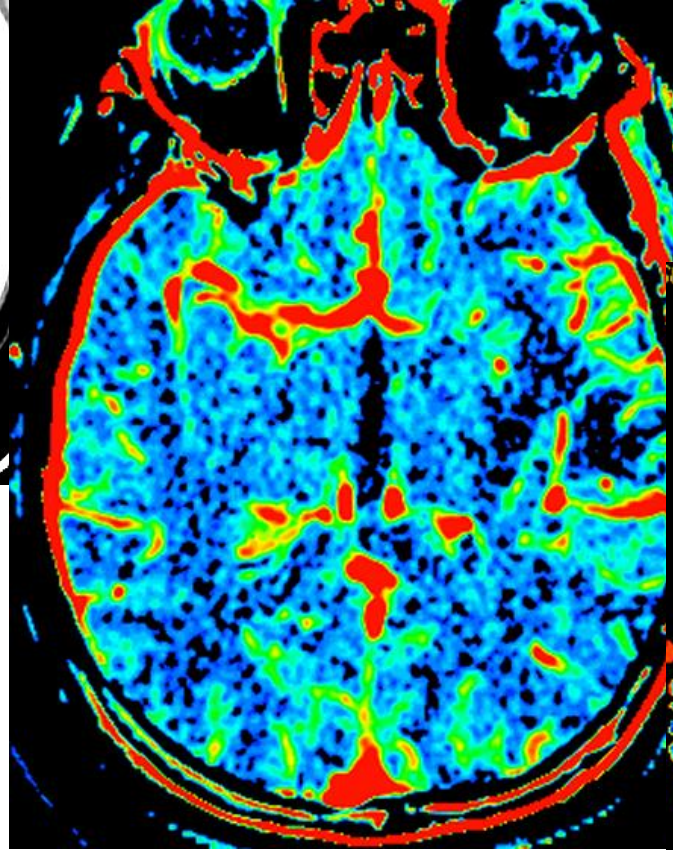
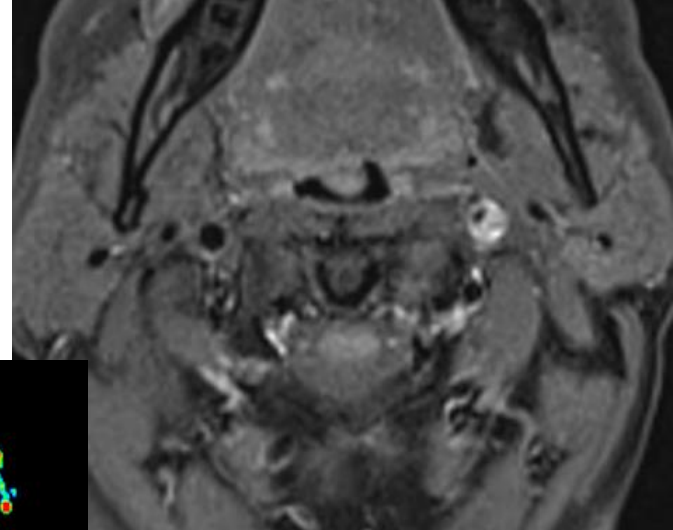
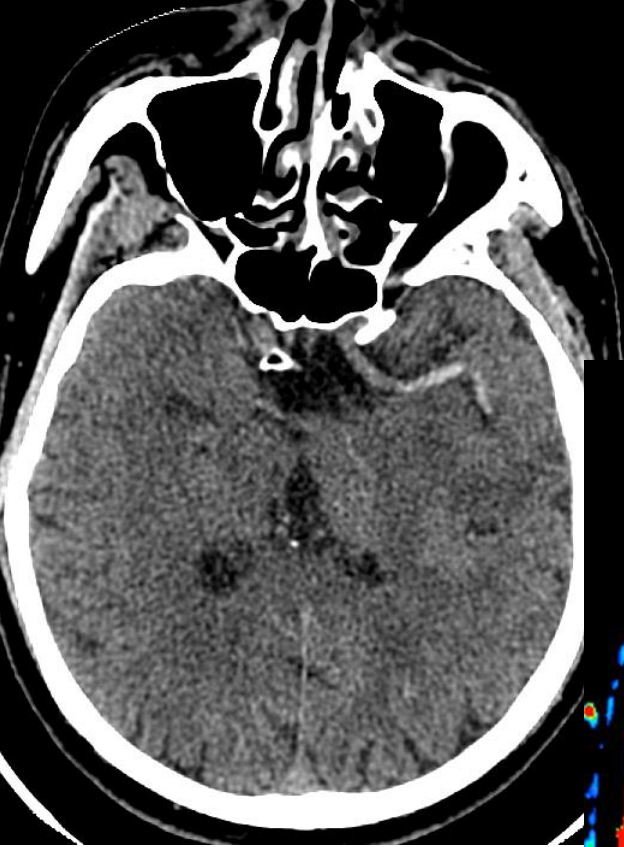
- **NASCET TRIAL** , NEMJ, 1991 “Up to 7% recurrence rate within the first 15 days”
- Recurrent stroke in symptomatic carotid stenosis awaiting revascularization: A pooled analysis 607 pts, Johansson. **NEUROLOGY 2016** “



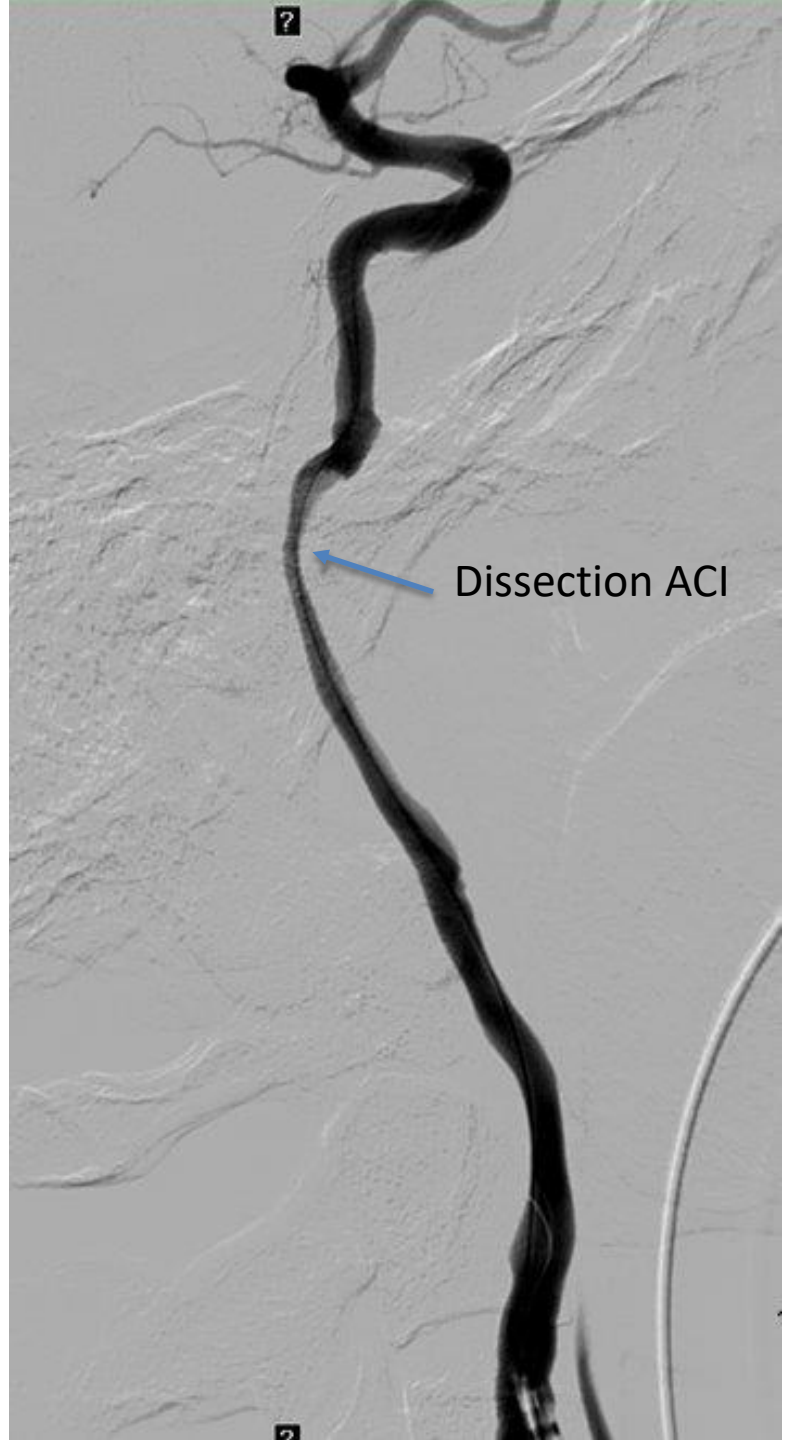
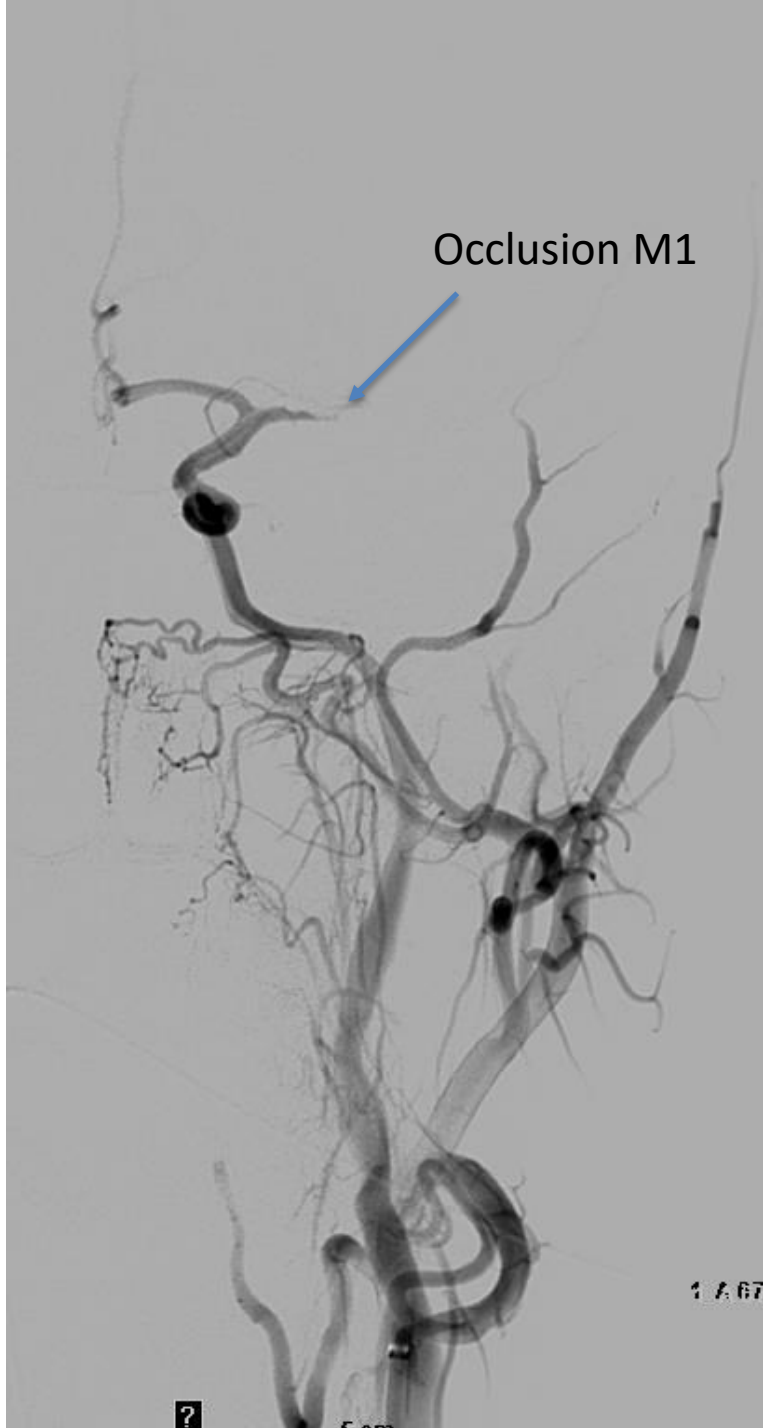
CAS n°4

- Homme 46 ans
- Cervicalgies le 03/08
- ARM: dissection ACI gauche
- 24H apres, retrouvé hémiplegique droite, aphasique, NIHSS=17

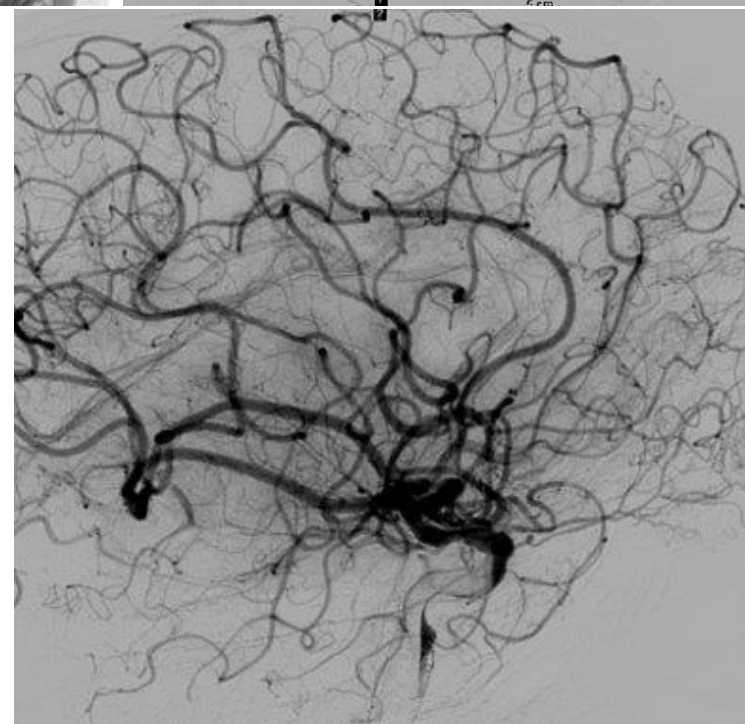
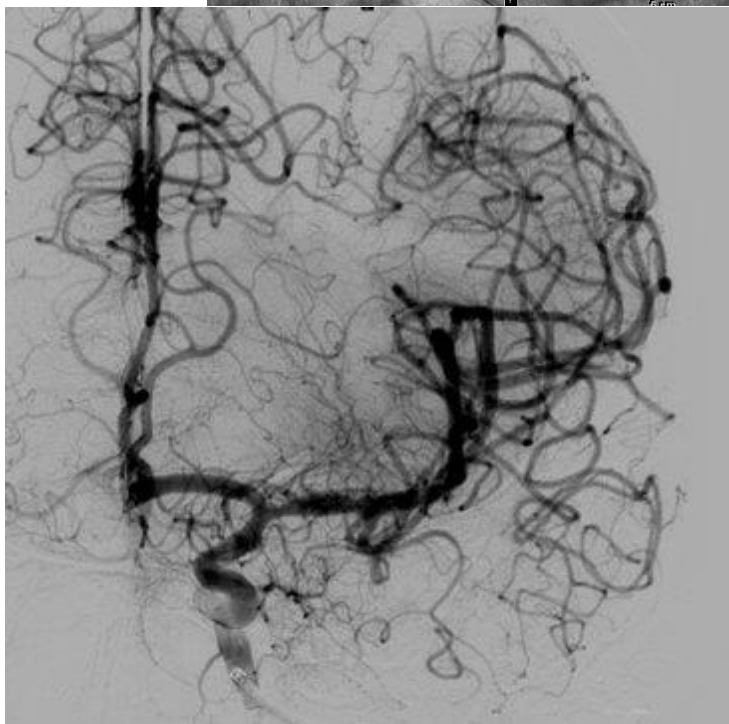
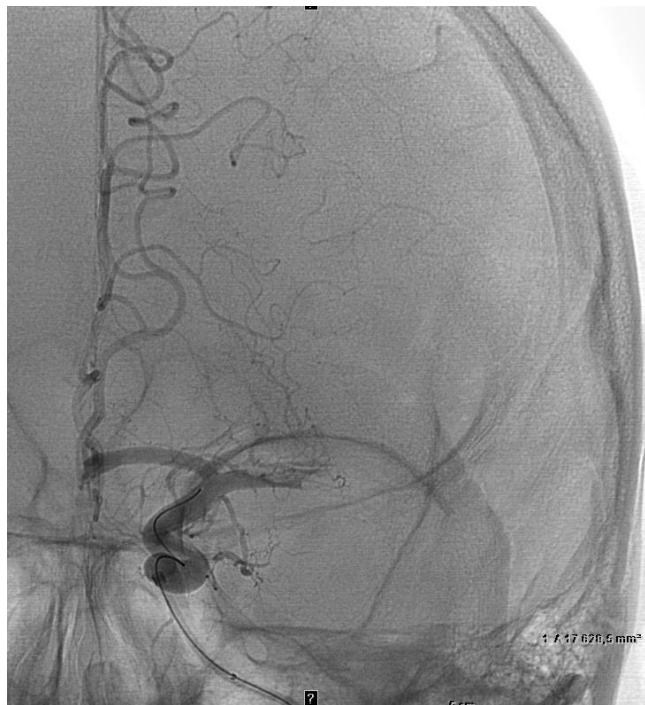




Occlusion en tandem
Dissection
Hors délai fibrinolyse
Thrombectomie



Sous AG
Thrombectomie
mécanique
Stent retriever 2 passages
TICI 3

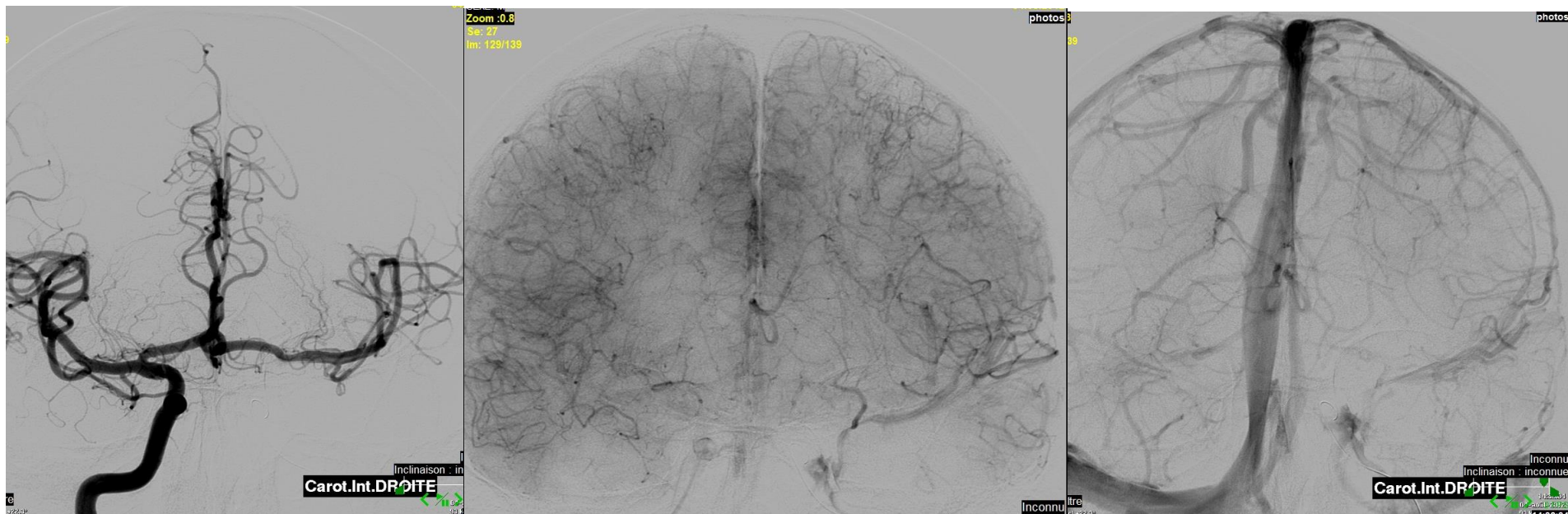




Stent?



Test du polygone de Willis Ponction fémorale controlatérale 5F



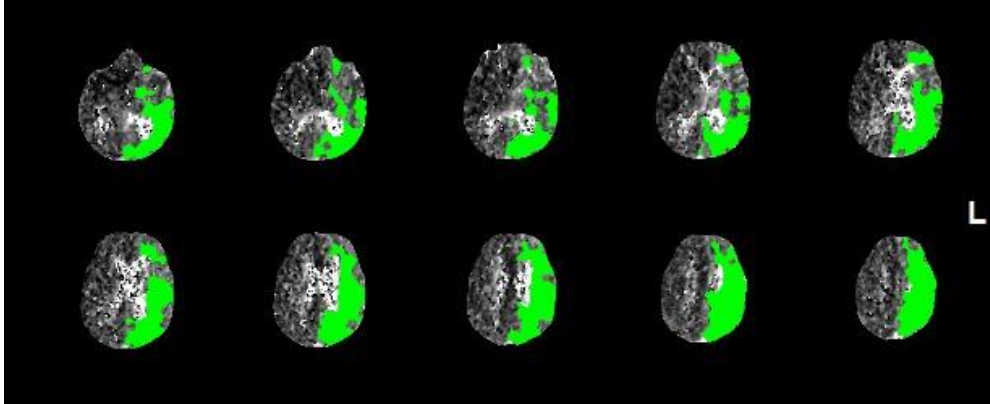
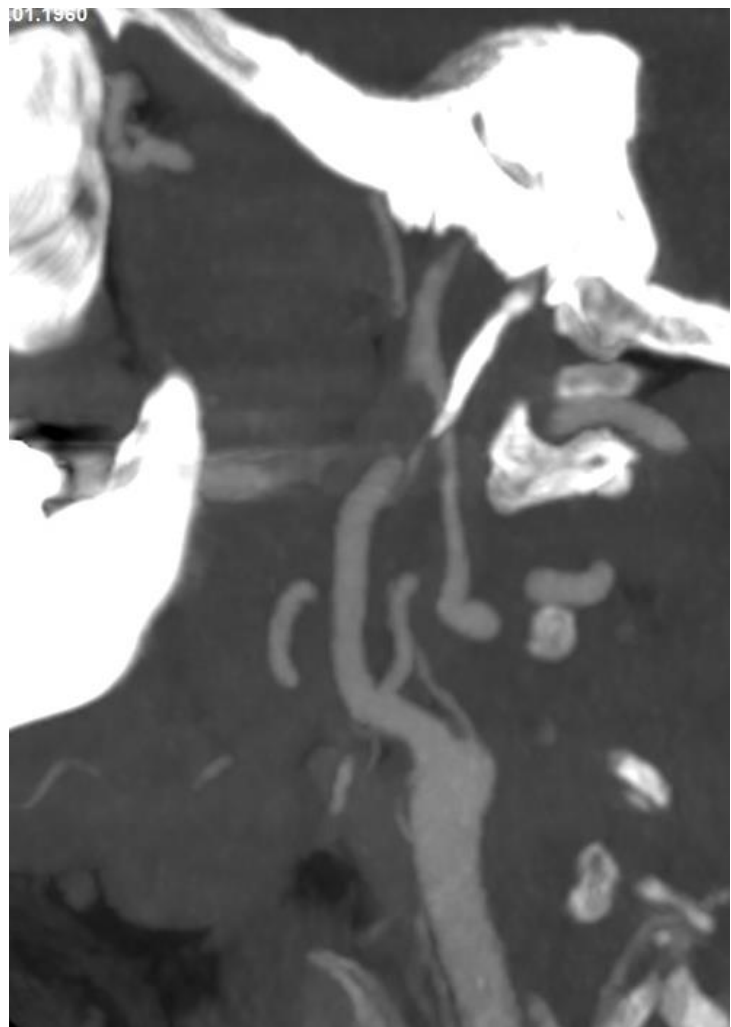
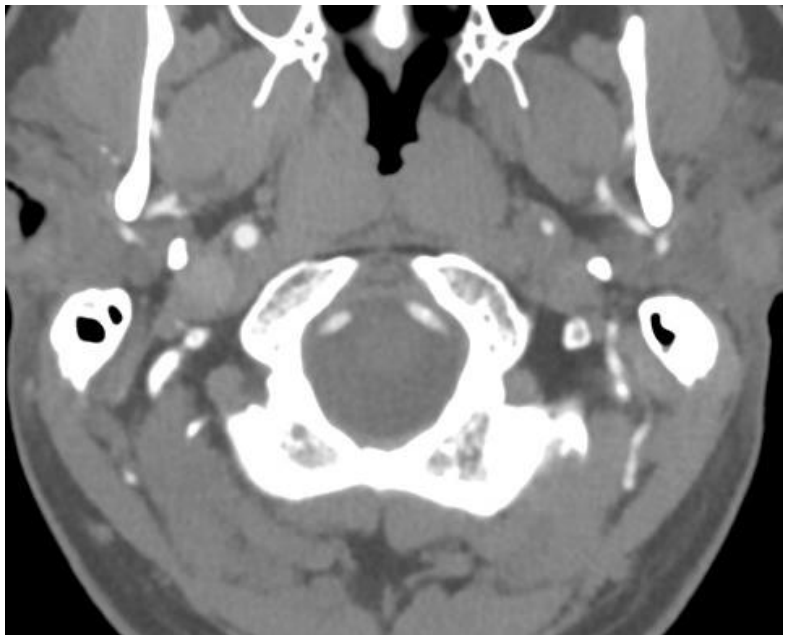
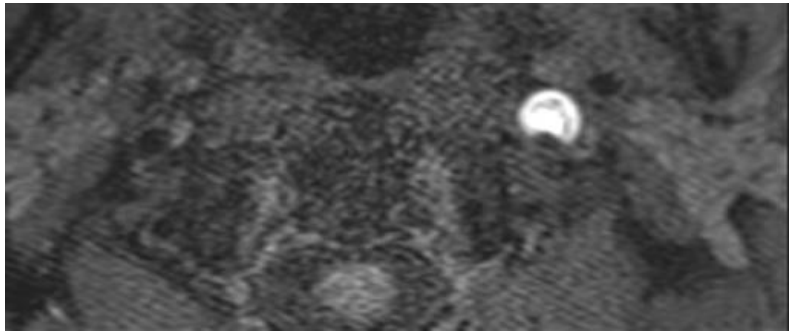
A com fonctionnelle

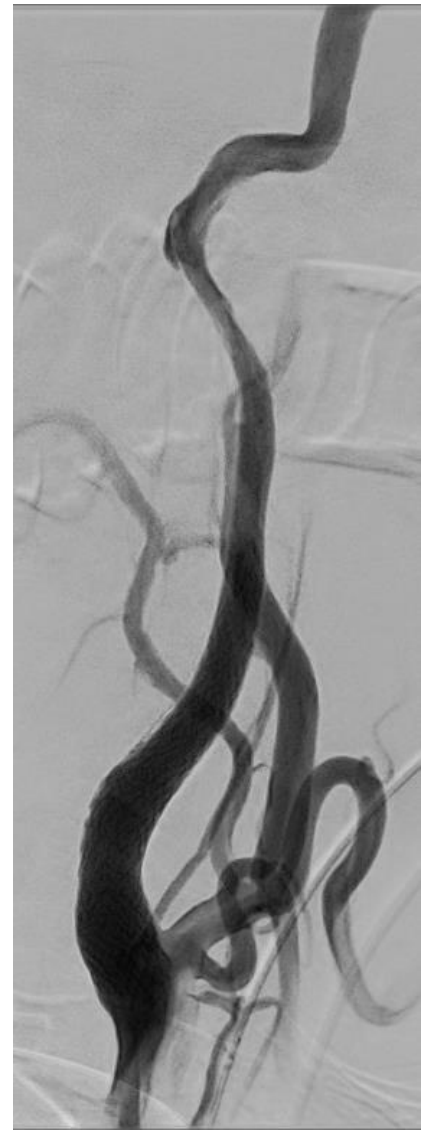
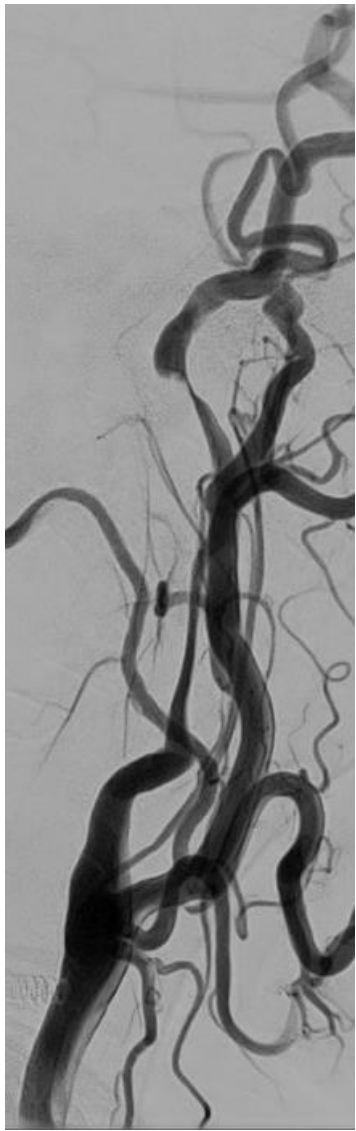
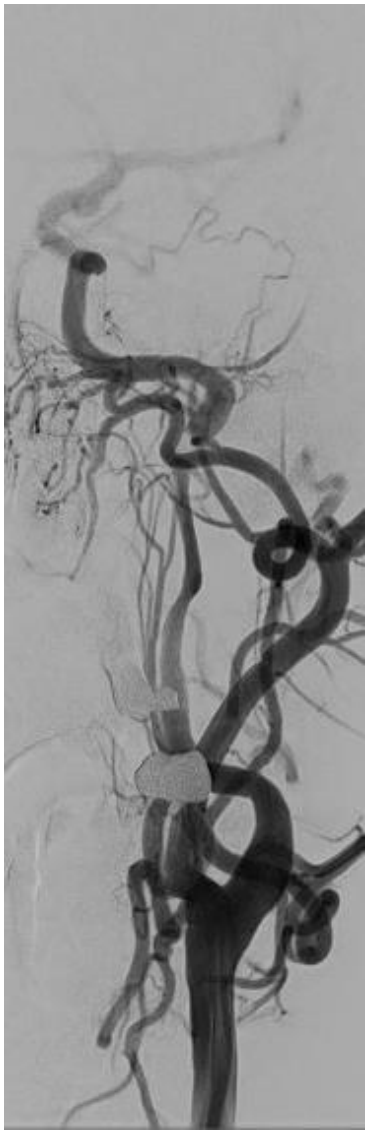
Parenchymographie
synchrone

Retour veineux synchrone

Retrait Cathéter intermédiaire en aspiration
STOP procédure

- NIHSS 4 à 48h00
- Kardegic 160 mg
- Pas d'héparine





Protocole Cangrelor

1. Bolus 7.5 mcg/kg + IVSE 1 mcg/kg/min sur voie dédiée si possible
2. Control PRU à 10 et 30 min du bolus
3. PRU TARGET 50-150
4. Variation IVSE de 0.25 mcg/kg/min si PRU > ou < PRU target
5. Contrôle scanner au réveil (soit à la fin de la procédure si le patient reste intubé et ventilé)
6. Si pas de complications hémorragiques: TICAGRELOR 90 ou 180 mg
7. Stop IC après 1h et 30 min de l'administration du TICAGRELOR

Endovascular Management of Tandem Occlusion Stroke Related to Internal Carotid Artery Dissection Using a Distal to Proximal Approach: Insight from the RECAST Study

G. Marnat, I. Mourand, O. Eker, P. Machi, C. Arquizan, C. Riquelme, X. Ayrygnac, A. Bonafé, and V. Costalat



Stent?

20 Tandem dissection consécutifs
Pas de stent à la phase aigue

==> Aucune récurrence

Pas de stent si pas de risque hémodynamique

Table 2: Baseline characteristics and comparability of the 2 stroke subgroups

	Tandem Occlusion Related to Internal Carotid Dissection Group (n = 20)	Isolated Intracranial Occlusion Group (n = 201)	P Value
Age (yr)	52.5	66.9	<.001 ^a
Sex			<.05 ^a
Female	30%	53%	
Male	70%	47%	
Hypertension	30%	59%	<.01 ^a
Smoking	29%	26%	.78
Initial NIHSS score	17.53	17.55	.983
Initial DWI-ASPECTS	6.05	6.64	.098
Delay between stroke onset and arterial puncture (hr)	4.38	4.53	.704
Intravenous thrombolysis association	75%	68%	.7

^a Significant differences.

Table 3: Angiographic results, complication rates, and clinical follow-up

	Tandem Occlusion Related to Internal Carotid Dissection Group (n = 20)	Isolated Intracranial Occlusion Group (n = 201)	P Value
Favorable recanalization, TIC1 2b and 3	70%	82%	.23
Procedure duration (median) (min)	74	47	.030
Median No. of intracranial device passes	2	2	.112
Internal carotid stenting	5/20 (25%)		
Significant hemorrhagic rate	5%	3%	.49
Clinical favorable outcome after 3 months (mRS ≤ 2)	70%	50%	.093

BRIEF REPORT

Safety and Outcome of Carotid Dissection Stenting During the Treatment of Tandem Occlusions

A Pooled Analysis of TITAN and ETIS

Gaultier Marnat¹, MD; Bertrand Lapergue, MD, PhD; Igor Sibon, MD, PhD; Florent Gariel, MD, MSc; Romain Bourcier, MD, PhD; Maeva Kyheng, BST; Julien Labreuche, BST; Cyril Dargazanli, MD, MSc; Arturo Consoli, MD, MSc; Raphael Blanc, MD, MSc; Michel Piotin, MD, PhD; Mikael Mazighi, MD, PhD; Sebastien Richard², MD, PhD; Benjamin Gory, MD, PhD; on behalf of TITAN and ETIS Investigators*

Etude rétrospective

Base de donnée prospective

136 occlusions en tandem sur dissection

47.8% Stent vs 52.2% non Stent

*Meilleur taux de TICl2B/3

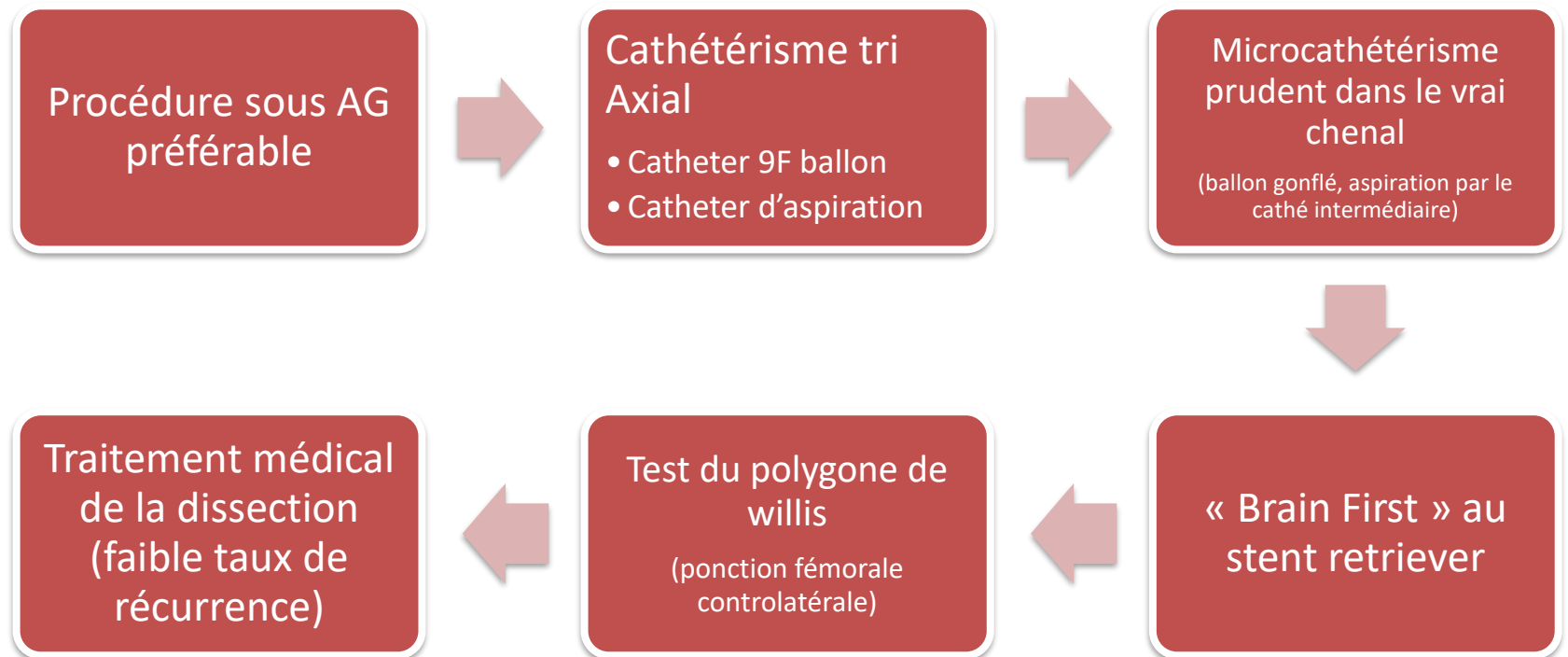
* Pas d'effet sur l'outcome

Table. Comparison in Outcomes Between Patients With and Without CAS

Characteristics	Extracranial CAS		Unadjusted*		Adjusted†	
	No (n=71)	Yes (n=65)	OR (95% CI)	P value	OR (95% CI)	P value
Angiographic outcomes						
mTICI 2b/3	48 (67.6)	58 (89.2)	3.97 (1.57 to 10.05)	0.004	2.24 (1.33 to 3.77)	0.002
mTICI 3	17 (23.9)	22 (33.9)	1.63 (0.77 to 3.45)	0.20	2.20 (1.70 to 3.22)	0.25
Procedural complications	10 (14.1)	6 (9.2)	0.62 (0.21 to 1.81)	0.38	0.74 (0.42 to 1.31)	0.30
Patency of extracranial carotid artery	37 (52.0)	52 (80.2)	3.79 (1.52 to 9.45)	0.005	1.82 (1.14 to 2.91)	0.013
Clinical outcomes						
90-day favorable outcome‡	44 (61.4)	35 (54.3)	0.75 (0.37 to 1.49)	0.41	0.84 (0.58 to 1.22)	0.36
90-day mortality	4 (5.8)	5 (8.0)	1.42 (0.36 to 5.56)	0.62	1.00 (0.48 to 2.09)	0.99
24 h change in NIHSS, mean (95% CI)§	-2.3 (-4.1 to -0.5)	-2.7 (-4.9 to -0.5)	-0.40 (-3.25 to 2.46)	0.78	-0.68 (-3.61 to 2.24)	0.65
Hemorrhagic complications						
sICH	4 (5.6)	7 (10.8)	2.02 (0.56 to 7.25)	0.28	1.59 (0.79 to 3.17)	0.19

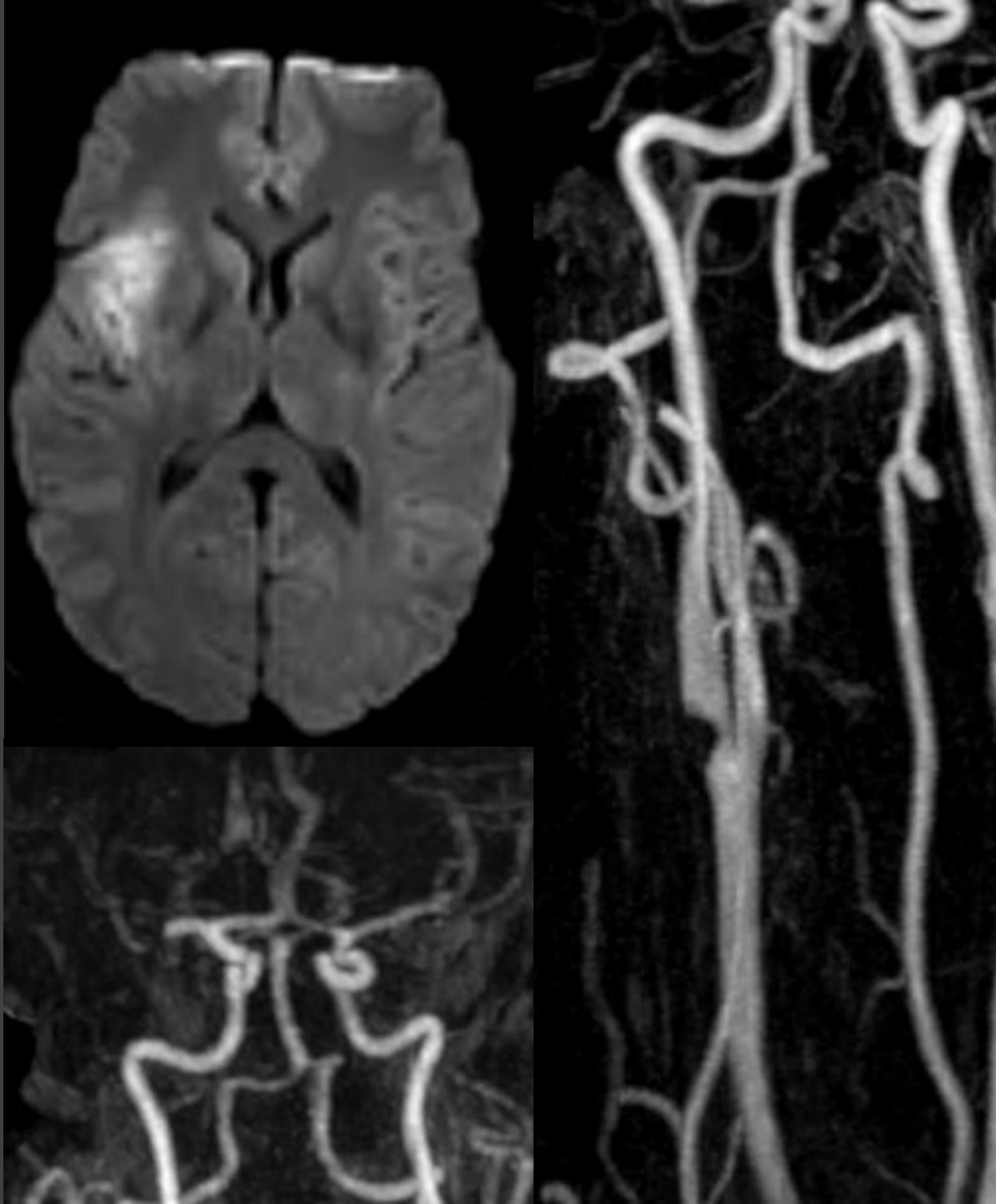
Tandem dissection

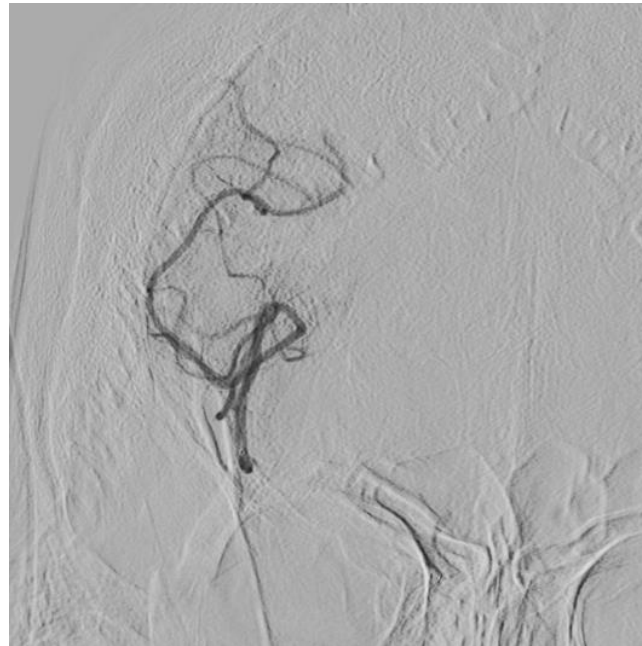
Messages



Cas n°5
Homme de 41 ans
aucun facteur de
risque CV

- Hémiplégie gauche et dysarthrie à 8H
- NIHSS= 10
- Nîmes (50 km du CHU Montpellier)
- Fibrinolyse et transfert



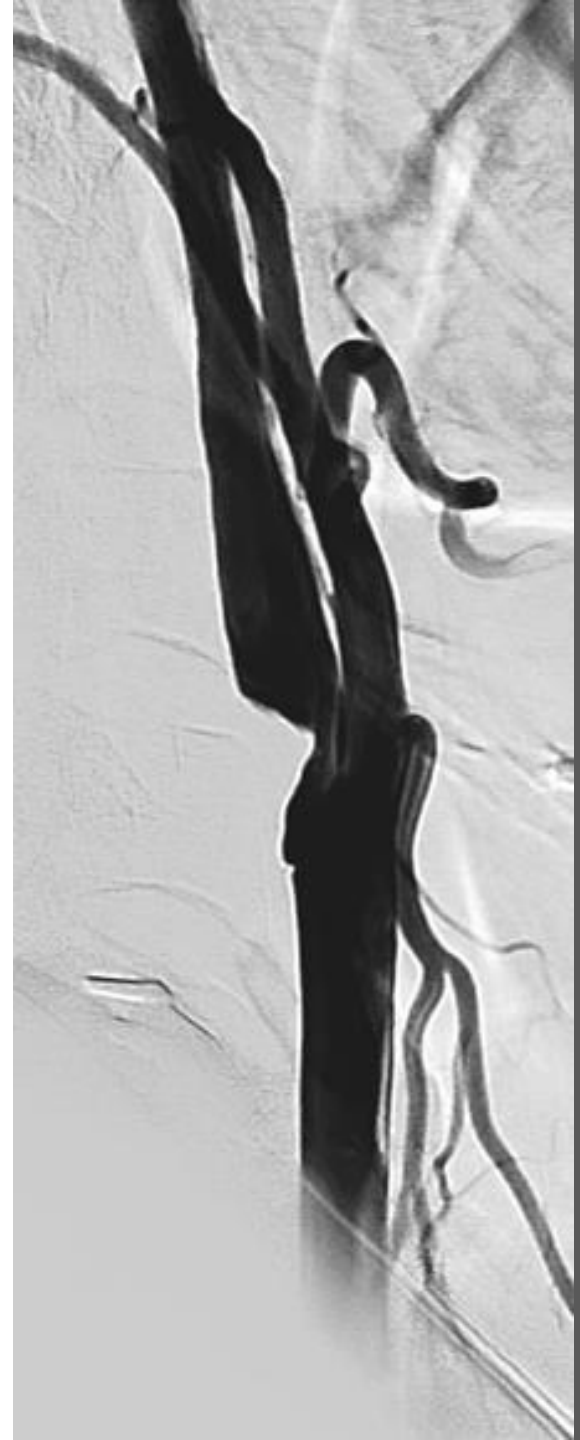


Quelle est la nature de cette protrusion bulbaire?

- Plaque d'athérome?
- Dissection carotidienne?
- Thrombus marginé?
- Carotid Web?

Quel traitement?

- Stent en aigu?
- Stent différé?
- Endarteriectomy?
- Traitement médical?

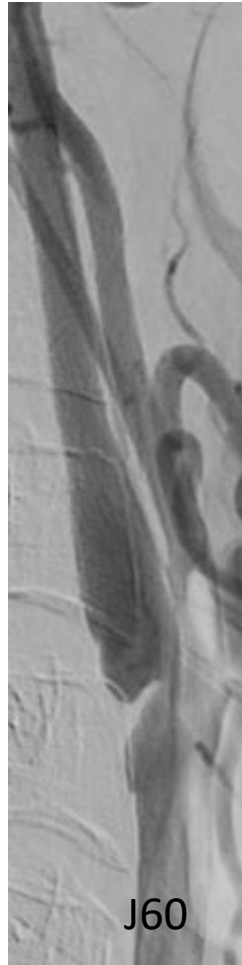
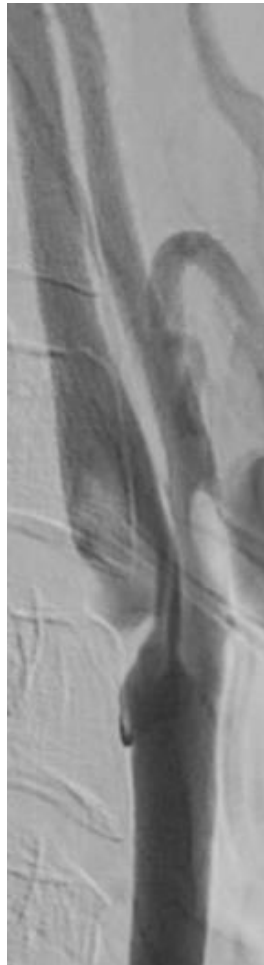


Traitement médical

Héparinothérapie IV puis HBPM

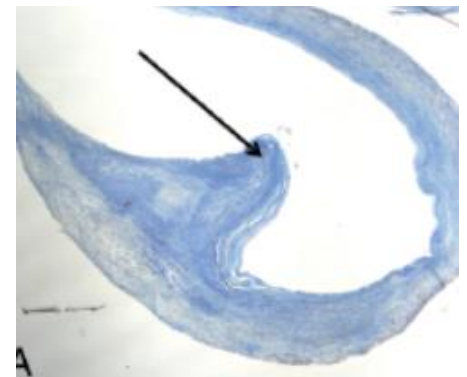
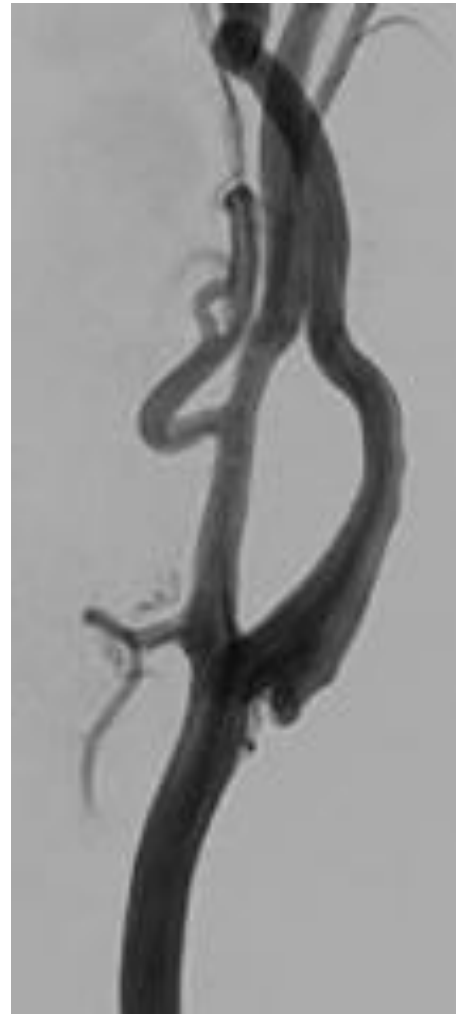


Angioplastie stenting à J60

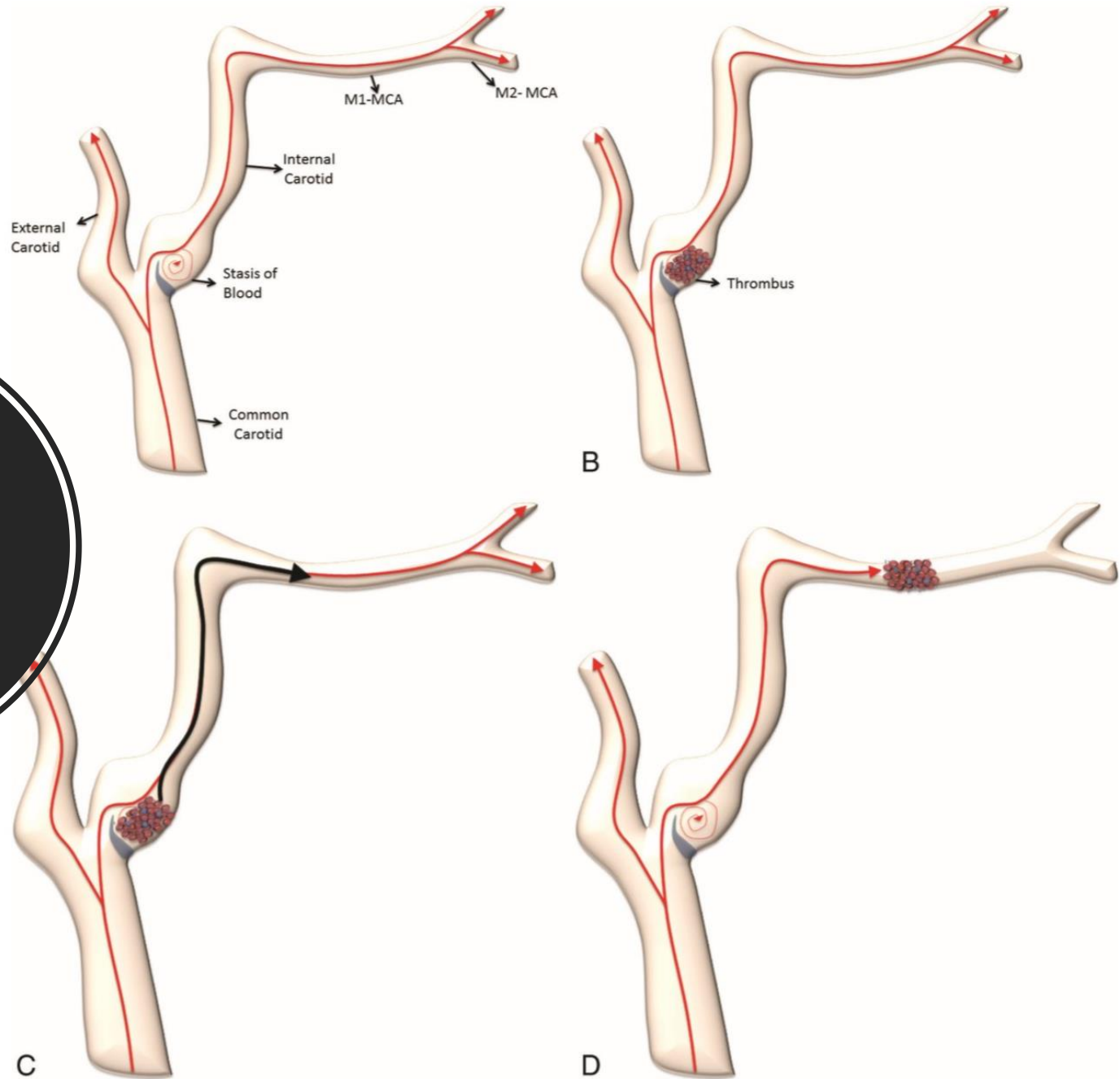


Carotid Web

- Peu décrit
 - 2010: <20 cas décrits
 - 80% afro caribéens
- Différents noms (1967-2014): Artery web, Diaphragme, dysplasie fibromusculaire atypique, septum....
- Première description Histologique (1968):
 - forme d'hyperplasie focale avec fibrose intimale et prolifération de cel musculaires lisses.
- Première description angiographique en 1973:
 - Defect endoluminal à la partie postérieure du bulbe carotidien
 - Projection supérieure
- Cause inconnue



Mécanisme embolique du Carotid Web



Une cause de récurrence d'AVC?

Carotid artery web and ischemic stroke

A case-control study

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Sheldon Derkatch, MD*
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George Tomlinson, PhD
Leanne K. Casaubon, MD, MSc
Frank L. Silver, MD
Daniel M. Mandell, MD, PhD

ABSTRACT

Objective: To determine whether there is an association between carotid artery web a stroke.

Methods: This was a single-center, age- and sex-matched, case-control study. Cas consecutive patients with anterior circulation ischemic stroke of undetermined etiology Org 10172 in Acute Stroke Treatment (TOAST) classification). Controls were co patients with cerebral aneurysms, arteriovenous malformations, or primary intracerebr rhages. Additional inclusion criteria were age <60 years and CT angiography of the neuroradiologists diagnosed webs according to previously published

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ORIGINAL RESEARCH
EXTRACRANIAL VASCULAR

Carotid Bulb Webs as a Cause of "Cryptogenic" Ischemic Stroke

P.I. Sajedi, J.N. Gonzalez, C.A. Cronin, T. Kouy, A. Stevens, J. Zhou, C. Thompson, R. Castellani, S.J. Kitzner, D. Gandhi, and P. Rajkumar

Association Between Carotid Bulb Diaphragm and Ischemic Stroke in Young Afro-Caribbean Patients A Population-Based Case-Control Study

Julien Joux, MD[®]; Marion Boulanger, MD[®]; Severine Jeannin, MD; Nicolas Chausson, MD, PhD;
Jean-Luc Hennequin, MD; Vincent Molinié, MD, PhD; Didier Smadja, MD;
Emmanuel Touzé, MD, PhD; Stephane Olindo, MD

Prevalence of Carotid Web in Patients with Acute Intracranial Stroke Due to Intracranial Large Vessel Occlusion¹

Radiology

Carotid Webs and Recurrent Ischemic Strokes in the Era of CT Angiography

P.M.C. Choi, D. Singh, A. Trivedi, E. Qazi, D. George, J. Wong, A.M. Demchuk, M. Goyal, M.D. Hill, and B.K. Menon

Carotid-Bulb Atypical Fibromuscular Dysplasia in Young Afro-Caribbean Patients With Stroke

Julien Joux, MD; Nicolas Chausson, MD; Séverine Jeannin, MD; Martine Saint-Vil, MD;
Mehdi Mejdoubi, MD; Jean-Luc Hennequin, MD; Lydia Deschamps, MD;
Didier Smadja, MD; Stéphane Olindo, MD

Brief Report

Carotid Web (Intimal Fibromuscular Dysplasia) Has High Stroke Recurrence Risk and Is Amenable to Stenting

Diogo C. Haussen, MD; Jonathan A. Grossberg, MD; Mehdi Bouslama, MD;
Gustavo Pradilla, MD; Samir Belagaje, MD; Nicolas Bianchi, MD; Jason W. Allen, MD, PhD;
Michael Frankel, MD; Raul G. Nogueira, MD

A Systematic Literature Review of Patients With Carotid Web and Acute Ischemic Stroke

Andrew J. Zhang, BA; Parth Dhruv, MD; Philip Choi, MBChB; Caitlin Bakker, MLIS, AHIP;
Jonathan Koffel, MSI; David Anderson, MD; Jae Kim, MD; Bharathi Jagadeesan, MD;
Bijoy K. Menon, MD; Christopher Streib, MD, MS

Stroke 2018

- 158 patients
- Age median: 46 ans
- 57% sans Fdr CV
- Récurrence:
 - 56% en cas de ttt médical
 - 0% en cas de revascularisation (chir ou stent)



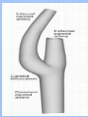


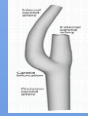
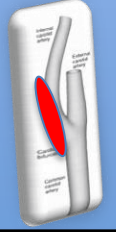
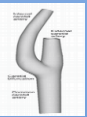

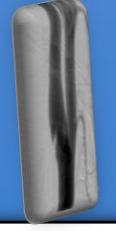


Table 2. Secondary Stroke Prevention and Stroke Recurrence

Treatment	Patients With Symptomatic Carotid Web, n (%)	Recurrent Stroke, n (%)	Months to Recurrent Stroke (Median, Range)	Months Stroke Free If No Stroke Recurrence (Median, Range)
Medical management*	47/97 (53)	25/45 (56)	12 (0–97)	24 (14–100)
Antiplatelet	43/47 (91)	22/41 (54)	12 (0–97)	22.5 (14–100)
Anticoagulation	4/47 (9)	3/4 (75)	0.2 (0.2–6)	48 (48–48)
Carotid revascularization (all)†	70/97 (72)	0/42 (0)	‡	14 (3–144)
Carotid artery stent	35/70 (50)	0/25 (0)	‡	10.7 (3–144)
Carotid endarterectomy	35/70 (50)	0/17 (0)	‡	14 (6–120)

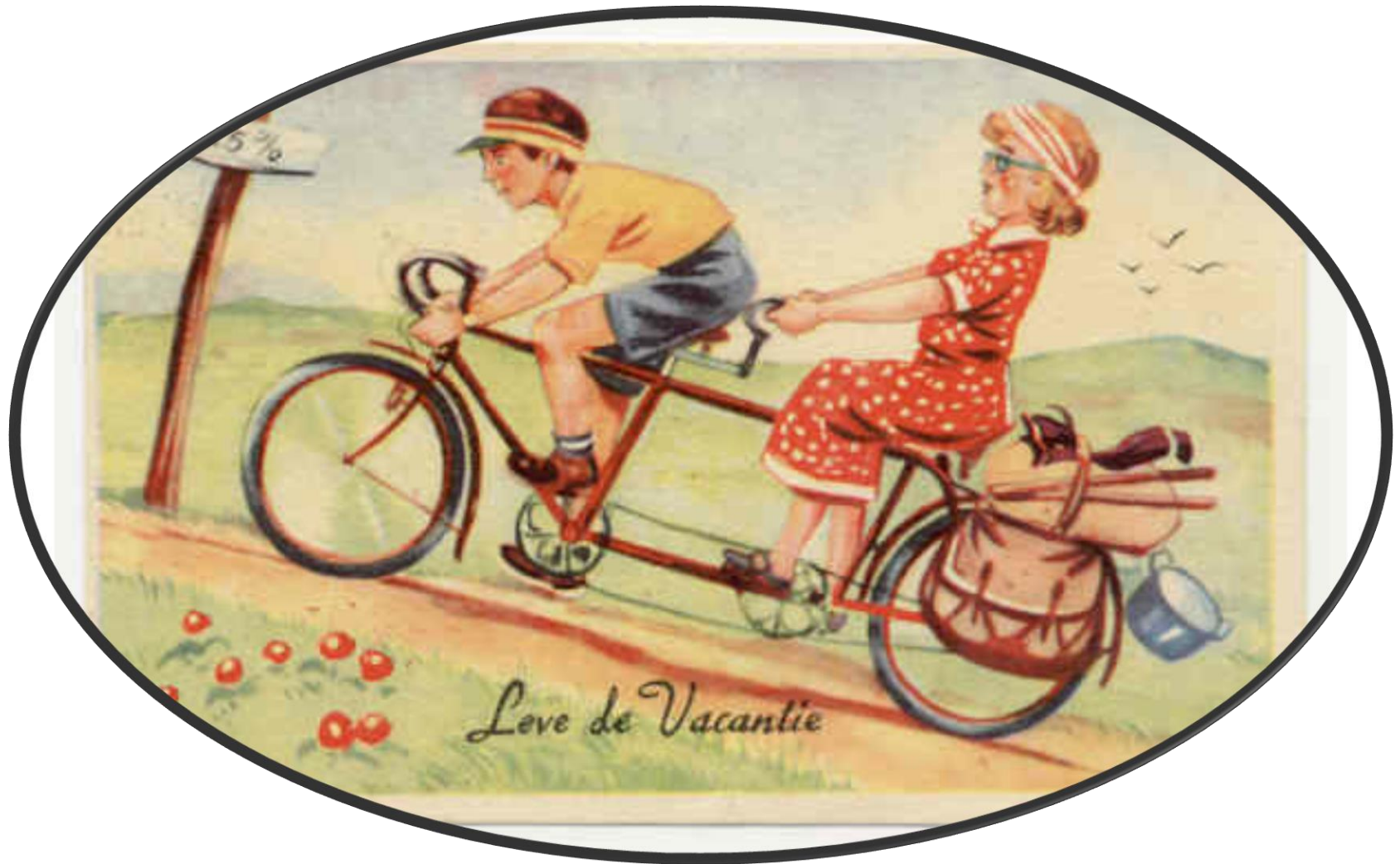
*Medical management alone without carotid revascularization.

†Fifty patients underwent carotid revascularization after their initial stroke; an additional 20 patients who were managed medically underwent carotid revascularization after recurrent stroke.

‡No recurrent stroke.

		Ordre de revascularisation	Récurrence AVC à J14	Stratégie sur la lésion carotidienne
	Athérome	1  → 2 	Elevé 10-15%	Stent en phase aigue ou différé (J7)
	Dissection	1  → 2 	Faible 2%	Stent en aigue uniquement si carotide hémodynamique
	Embolique	1  → 2 	Elevé	Aspiration ACI Pas de stent
	Carotid WEB	1  → 2 	???	Traitement médical premier Stent différé

Merci



Leve de Vacantie