Ma bifurcation est très calcifiée, comment la traiter ?

Christophe Caussin

IMM Paris

DÉCLARATION DE LIENS D'INTÉRÊT AVEC LA PRÉSENTATION

Nom de l'orateur : Christophe CAUSSIN, Paris

☑ Je déclare les liens d'intérêt potentiel suivants :

Consultant : Abbott, Boston Scientific

La bifurcation calcifiée

- Est-ce un problème?
- Comment la reconnaitre?
- Quels sont les outils?
- Comment les utiliser?

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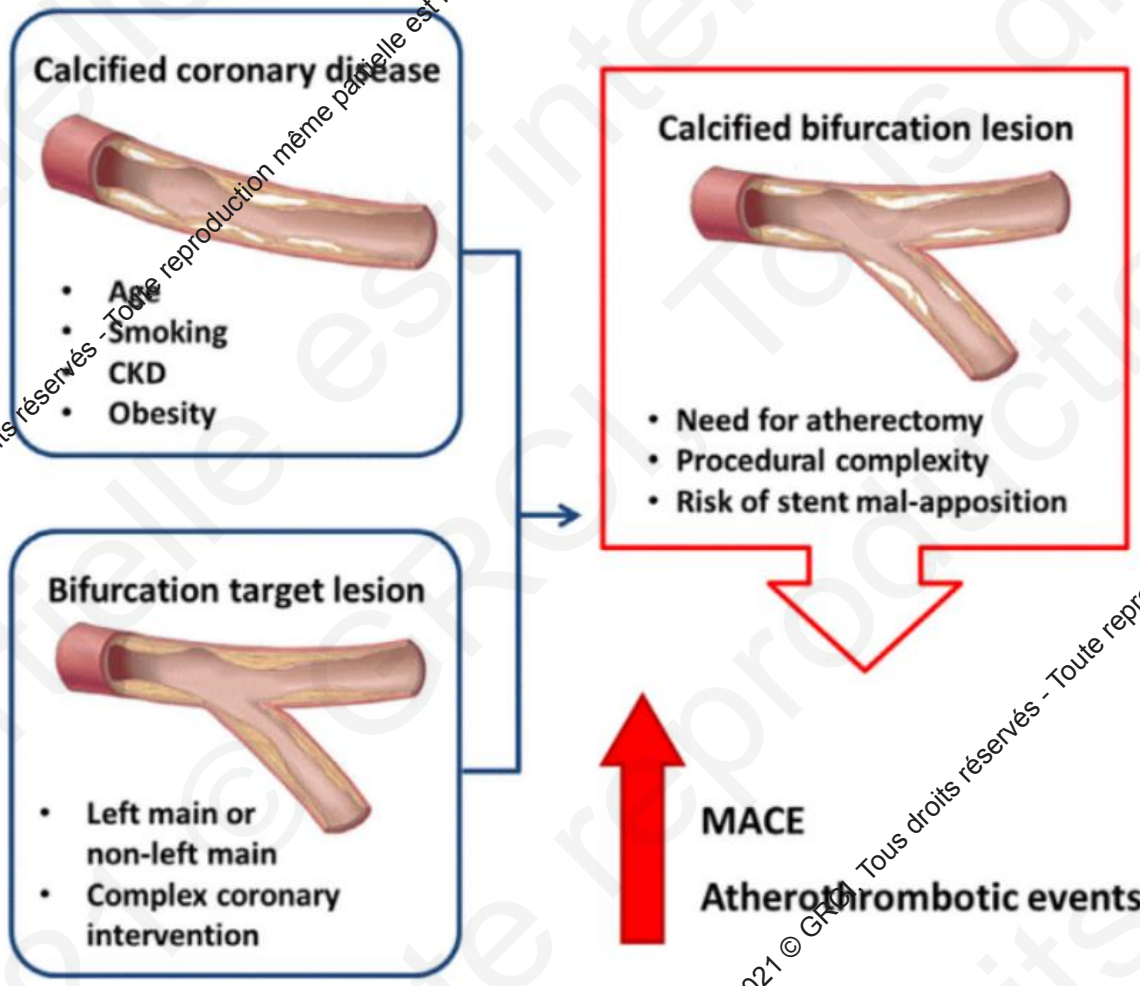
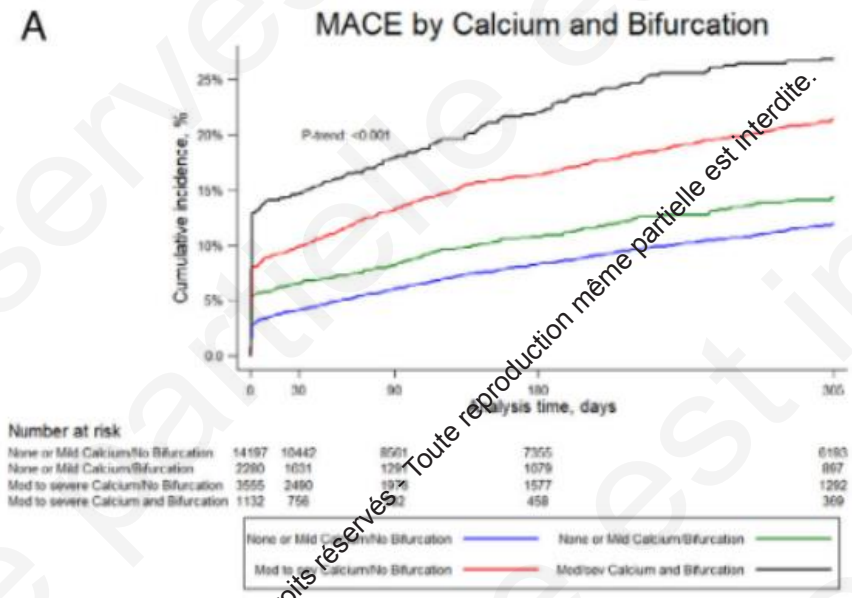
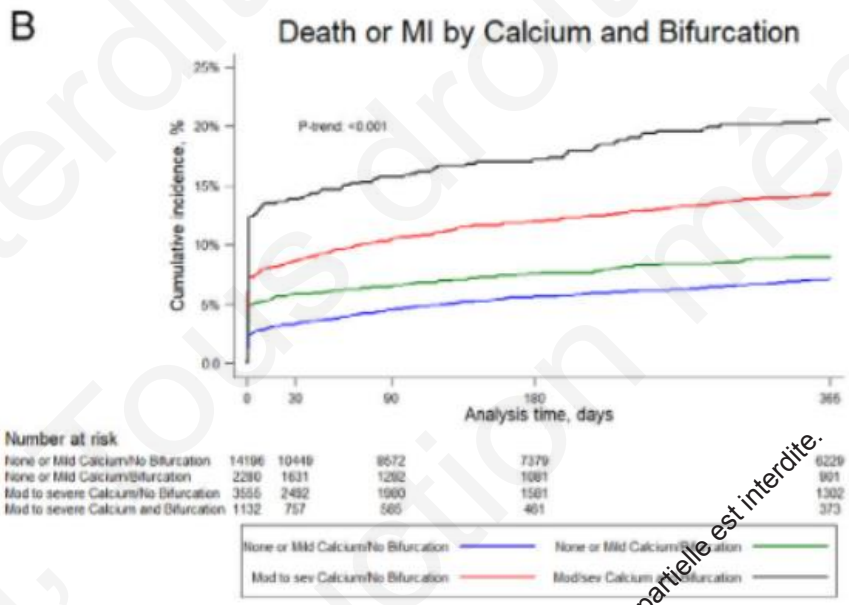
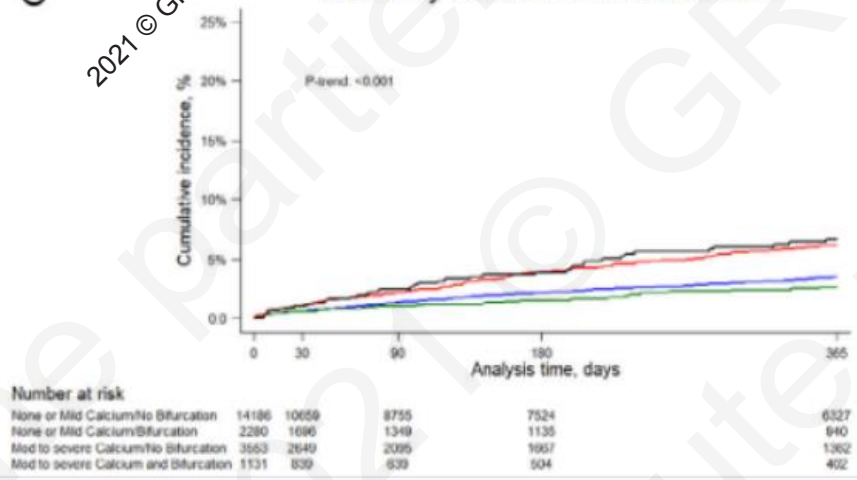
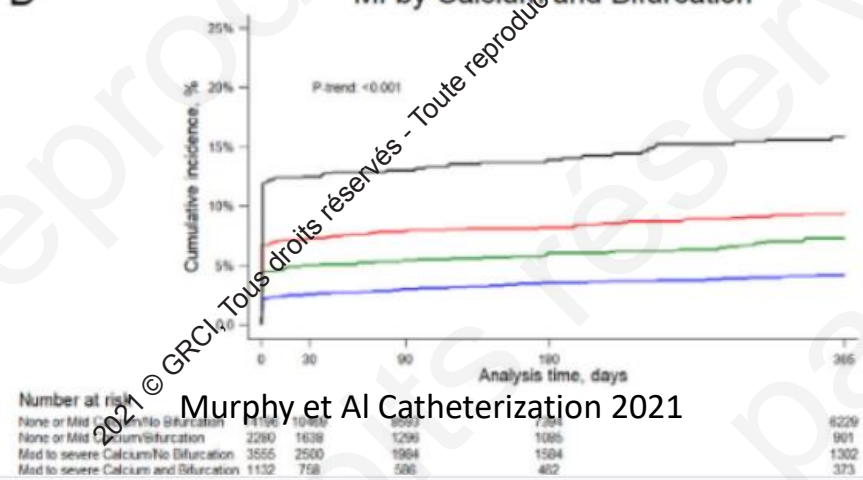
Est-ce un problème?



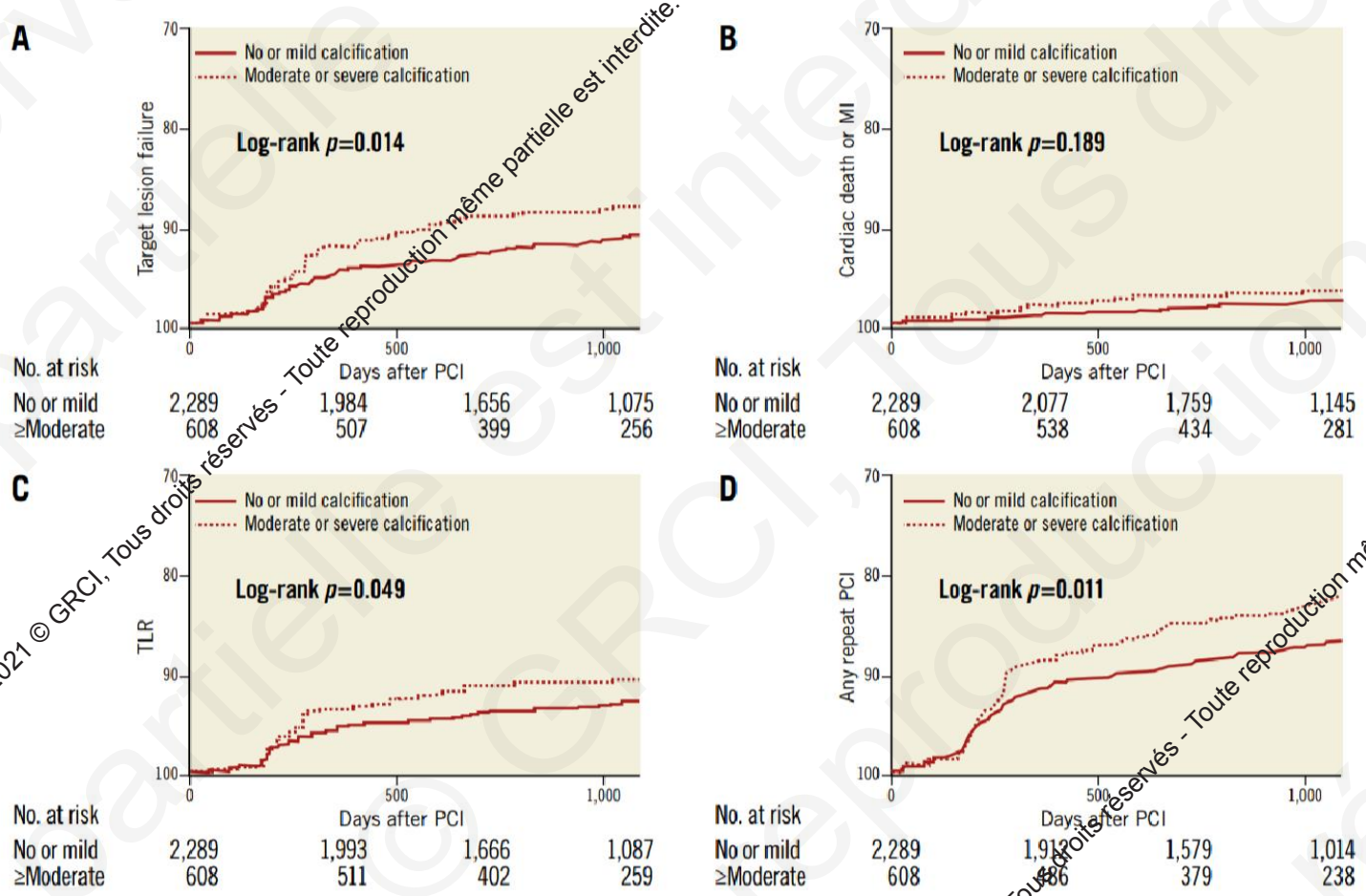








Murphy et Al Catheterization 2021



Min Chul KIM et Al COBIS 2 Registry Eurointervention 2017

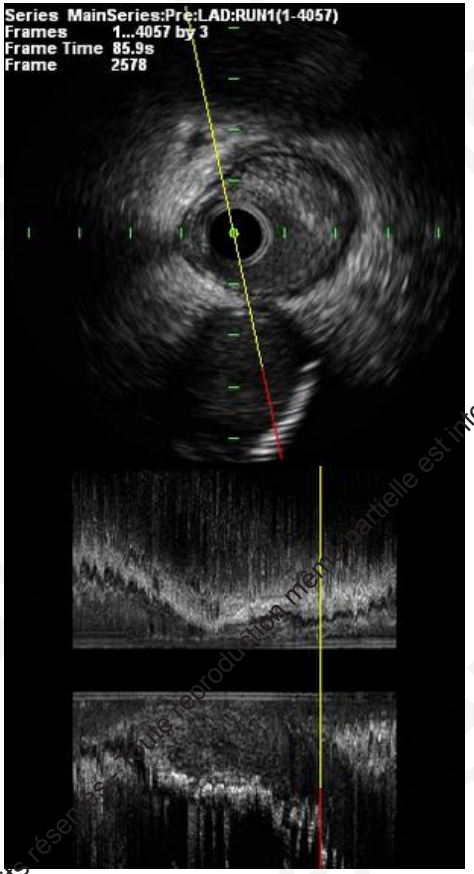
		No or mild calcification N=2,289	Moderate or severe calcification N=608	*p*-value
Age, yrs		61.0±10.3	66.4±9.1	<0.001
Male		1,642 (71.7)	441 (72.5)	0.697
Current smoker		597 (26.1)	136 (22.4)	0.061
Diabetes mellitus		638 (27.9)	202 (33.2)	0.010
Hypertension		1,305 (57.0)	370 (60.9)	0.088
Dyslipidaemia		708 (30.9)	198 (32.6)	0.439
Previous myocardial infarction		130 (5.7)	43 (7.1)	0.198
Previous PCI		315 (13.8)	99 (16.3)	0.114
Familial history of premature CAD				
Previous CVA		142 (6.2)	47 (7.7)	0.175
Peripheral vascular disease		30 (1.3)	9 (1.5)	0.747
Chronic kidney disease		53 (2.3)	28 (4.6)	0.002
Clinical diagnosis	SAP or others*	841 (36.7)	258 (42.4)	0.007
	Unstable angina pectoris	882 (38.5)	194 (31.9)	
	NSTEMI	292 (12.8)	91 (15.0)	
	STEMI	274 (12.0)	65 (10.7)	
Laboratory findings	Haemoglobin, g/dL	13.6±1.8	13.2±1.9	<0.001
	Serum creatinine, mg/dl	1.00 (0.81-1.10)	1.00 (0.81-1.20)	0.031
LVEF, %		58.4±11.2	57.3±12.2	0.053

Values are n (%), mean±SD, or median (25th to 75th percentile). *Others

		No or mild calcification N=2,289	Moderate or severe calcification N=608	*p*-value
Location of bifurcation lesions	Distal LM bifurcation	605 (26.4)	248 (40.8)	<0.001
	LAD/diagonal	1,231 (53.8)	320 (52.6)	
	LCX/OM	321 (14.0)	28 (4.6)	
	RCA bifurcation	132 (5.8)	12 (2.0)	
Multivessel disease		1,070 (46.7)	372 (61.2)	<0.001
True bifurcation		1,149 (50.2)	353 (58.1)	0.001
Transradial intervention		568 (24.8)	124 (20.4)	0.023
Use of Rotablator		3 (0.1)	2 (0.3)	0.296
Use of non-compliant balloon		532 (23.2)	133 (21.9)	0.476
Use of cutting balloon		9 (0.4)	2 (0.3)	0.819
IVUS-guided PCI		866 (37.8)	257 (42.3)	0.046
Side branch predilatation		765 (33.4)	210 (34.5)	0.604
Side branch occlusion during PCI		160 (7.0)	52 (8.6)	0.188
Stenting techniques	One-stent technique	1,695 (74.1)	431 (71.5)	0.320
	T-stenting	213 (9.3)	64 (10.6)	
	Crush	65 (2.8)	14 (2.3)	
	Mini crush	228 (10.0)	62 (10.3)	
	Culotte	17 (0.7)	4 (0.7)	
	Kissing or V-stenting	68 (3.0)	28 (4.6)	
No. of stents		1.35±0.60	1.38±0.64	0.273

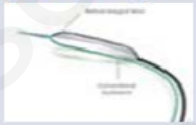
Min Chul KIM et Al COBIS 2 Registry Eurointervention 2017

Comment apprécier les calcifications?



Scopie
Imagerie
« Palpation » au Ballon

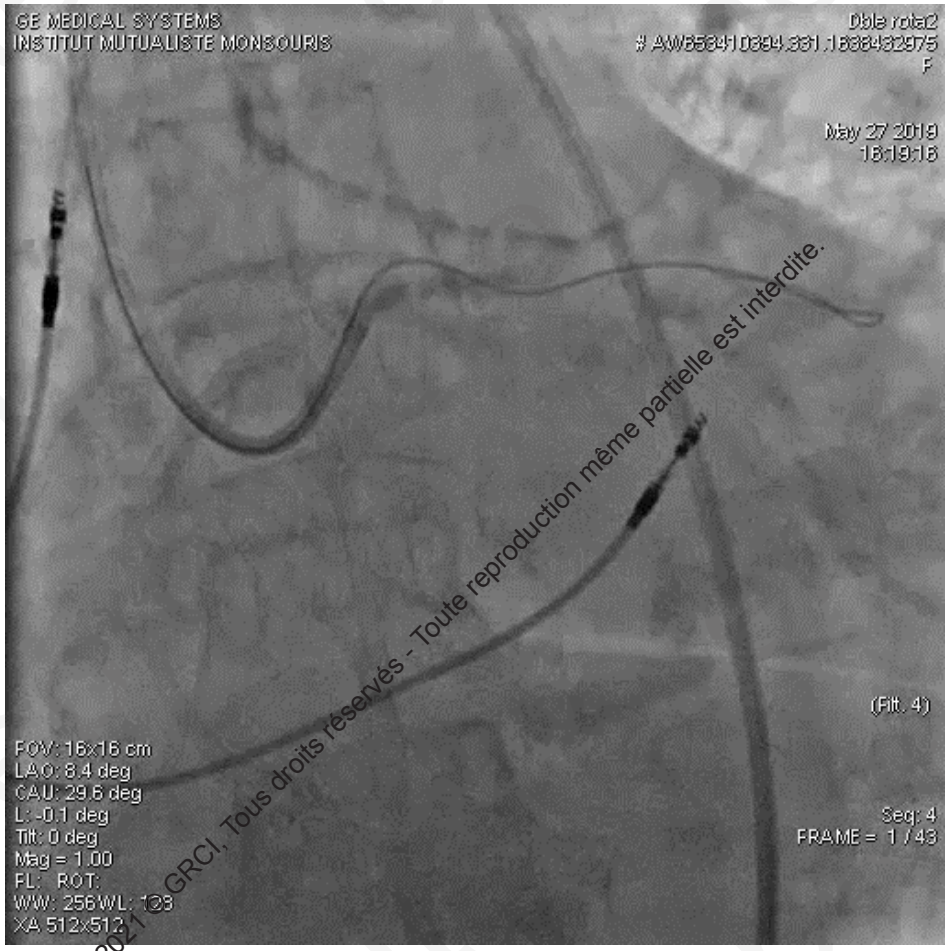
Quels sont les outils?

Device	Material	Technical features	Ref.
Focused force dilatation balloon (Scoreflex™) 	Semi-compliant or non-compliant balloon A nitinol integral wire (~0.001") and the "conventional" guidewire act as two opposite scoring elements	Balloon size 2.0–4 mm Working range 6–16 atm Crossing profile 0.032" F 5F Guiding catheter compatible Guide wire 0.014"	[17]
Scoring balloon (Angiosculpt®) 	Semi-compliant balloon Nitinol-enhanced balloon deflation Electropolished, rectangular, spiral scoring element (~0.005")	Balloon size 2.0–3.5 mm Working range 2–20 atm Crossing profile 0.047" F 6F Guiding catheter Guide wire 0.014"	[17, 20]
Cutting balloon (Wolverine™) 	Nylon non-compliant balloon Microsurgical blade, called: "Atherotome" (functional height: ~0.005")	Balloon size 2.0–4.0 mm Working range 8–16 atm Reduced crossing profile then Flexotome® 5F Guiding catheter compatible	[16]
Rotational atherectomy (Rotablator®) 	Diamond-coated elliptical burr rotating up to 190,000 rpm	Multiple burrs size (1.25–> 2.5 mm) RotaWire™ (330 cm, 0.014", extra support or floppy) Catheter 6–10 F (according to the size burr)	[23]
Orbital atherectomy system (Diamondback 360®) 	Eccentrically mounted diamond-coated crown (1.25 mm) rotating up to 200,000 rpm	6F Guiding catheter ViperWire Advance® (0.014")	[27, 28, 29]
Intravascular lithotripsy (Shockwave®) 	Semi-compliant balloon containing a series of unfocused, electrohydraulic lithotripsy emitters	Balloon size 2.5–4 mm Inflated to 4 atm and administered 4 cycles of 10 s Crossing profile 0.048" 6F Guiding catheter Guide wire 0.014"	[36]

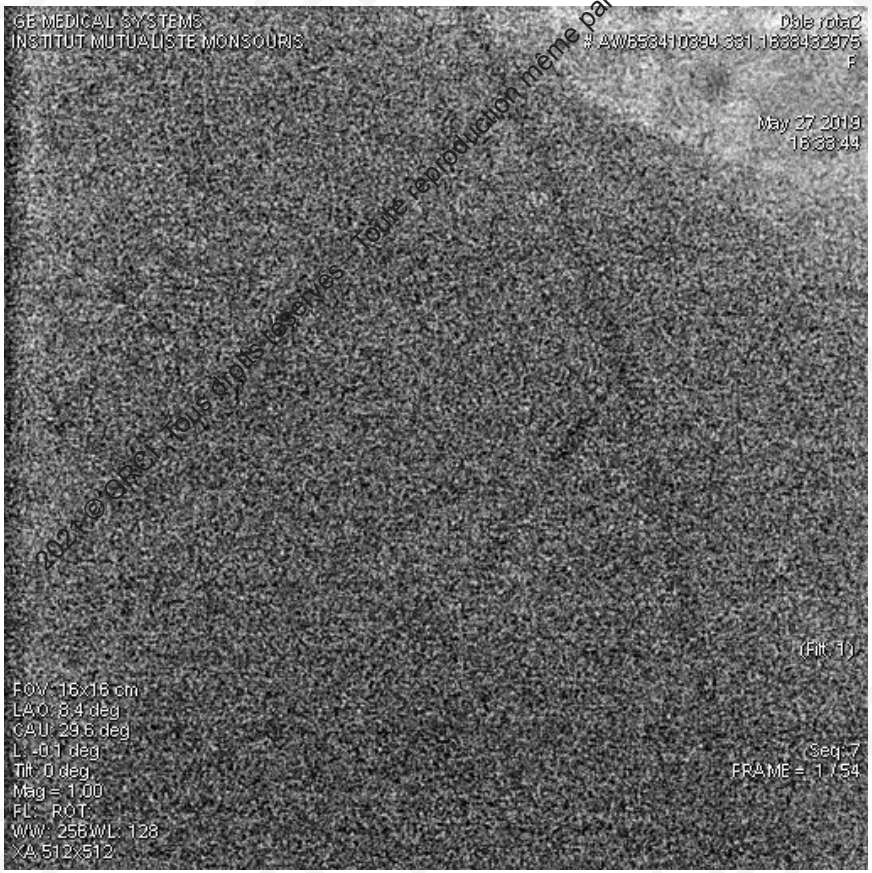
- La base
- Bof
- ! Retrait guide SB
- ! Inflation prolongée
- ! Franchissement

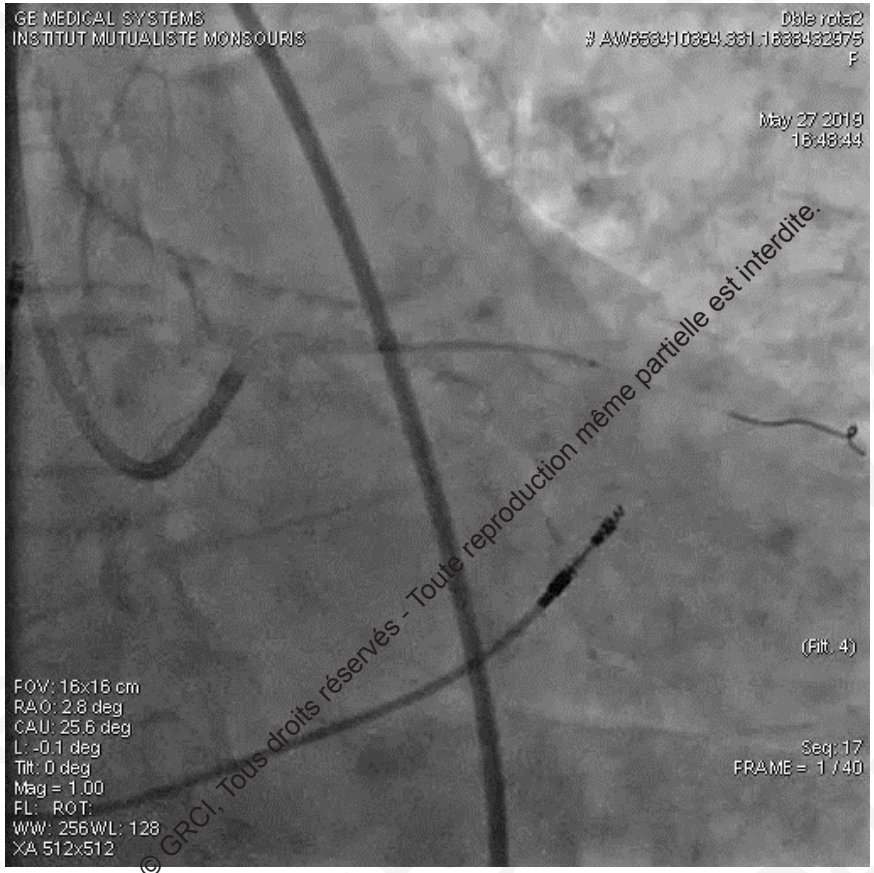
Perfetti et Al
Cardiol Jour 2019

Mme F 89 ans



Mme F

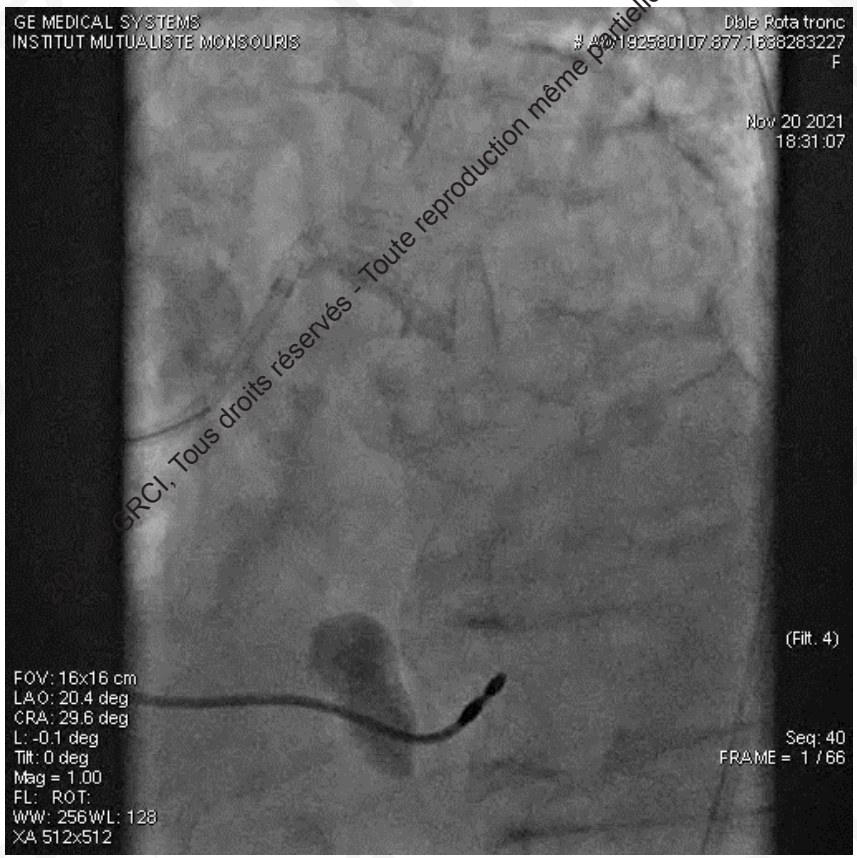




Mme F

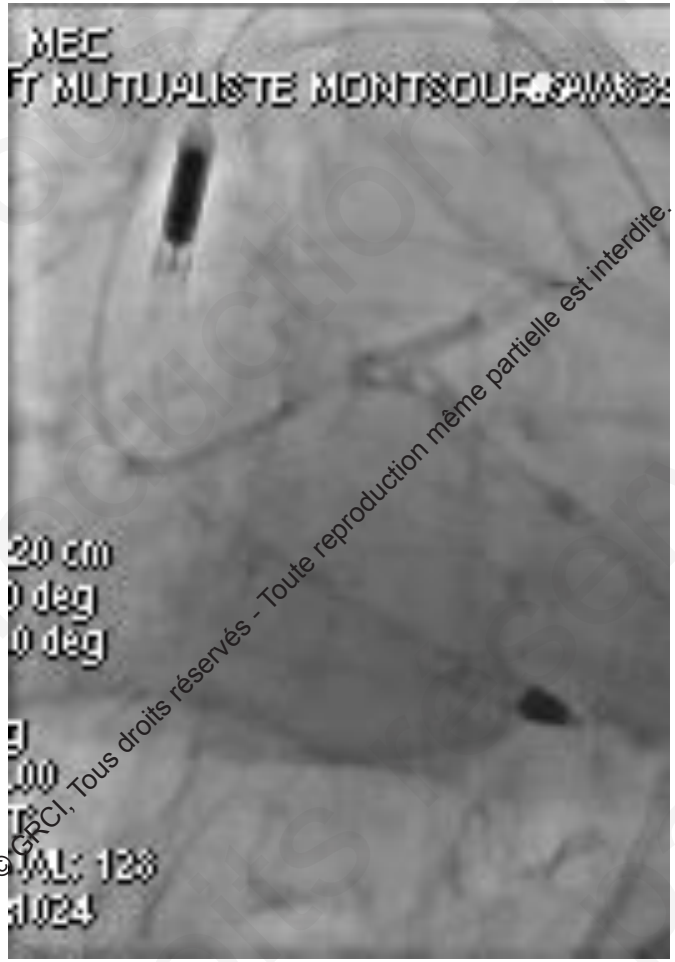
Mme F

Mme F



M. L

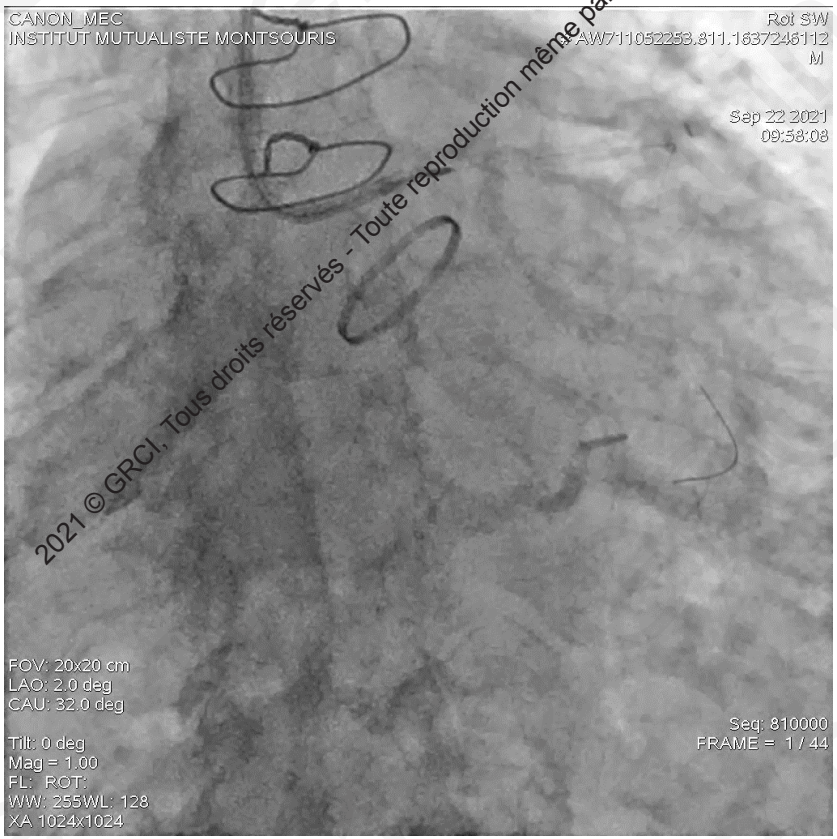
M.L



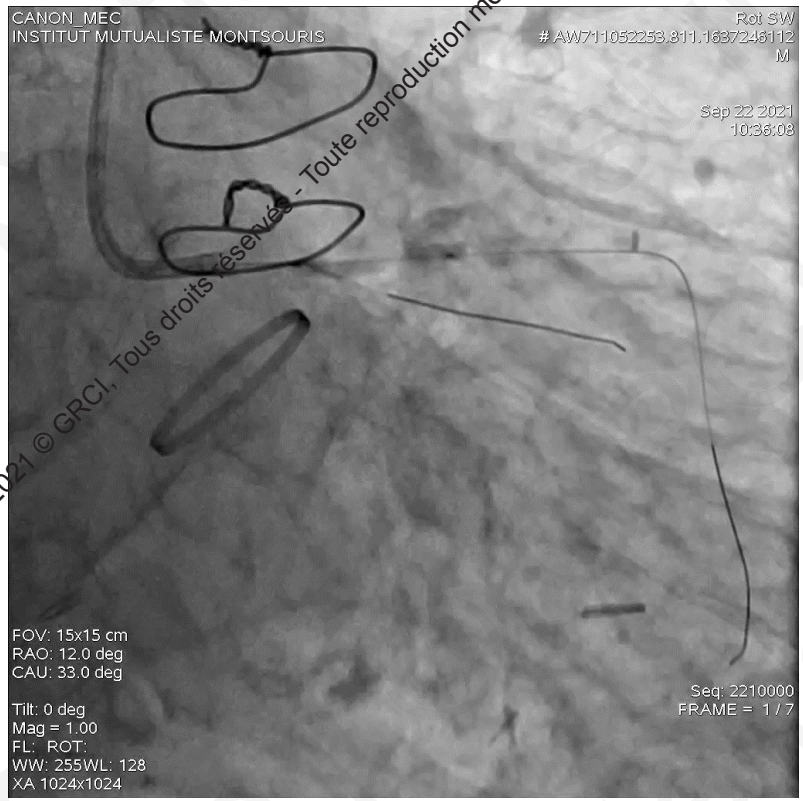
Résultat

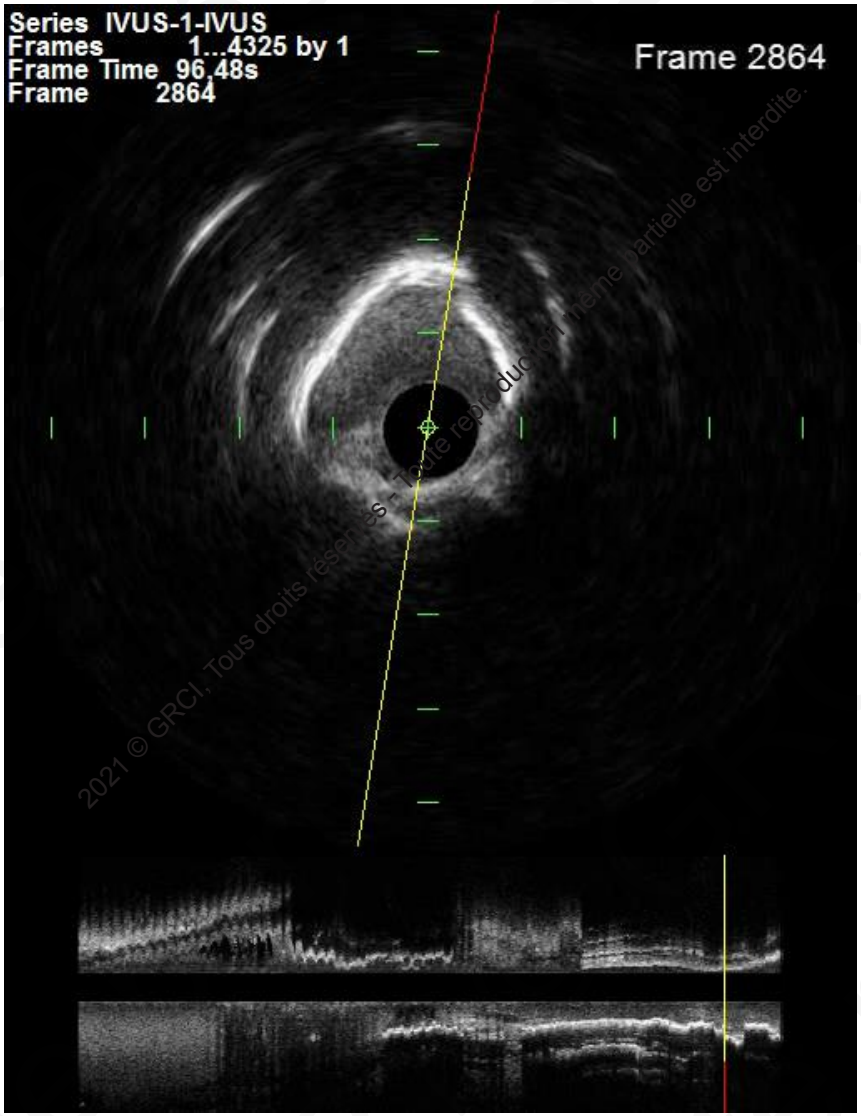
M. Mou

M. Mou

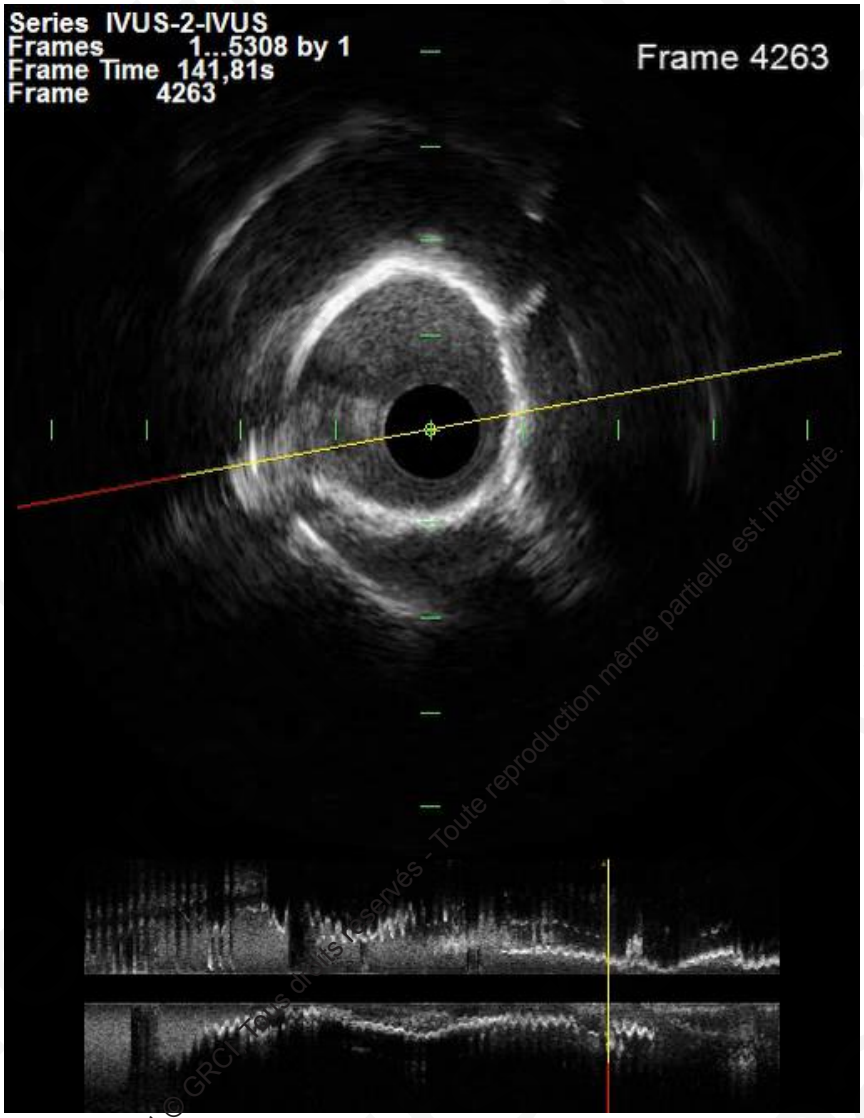


M. Mou





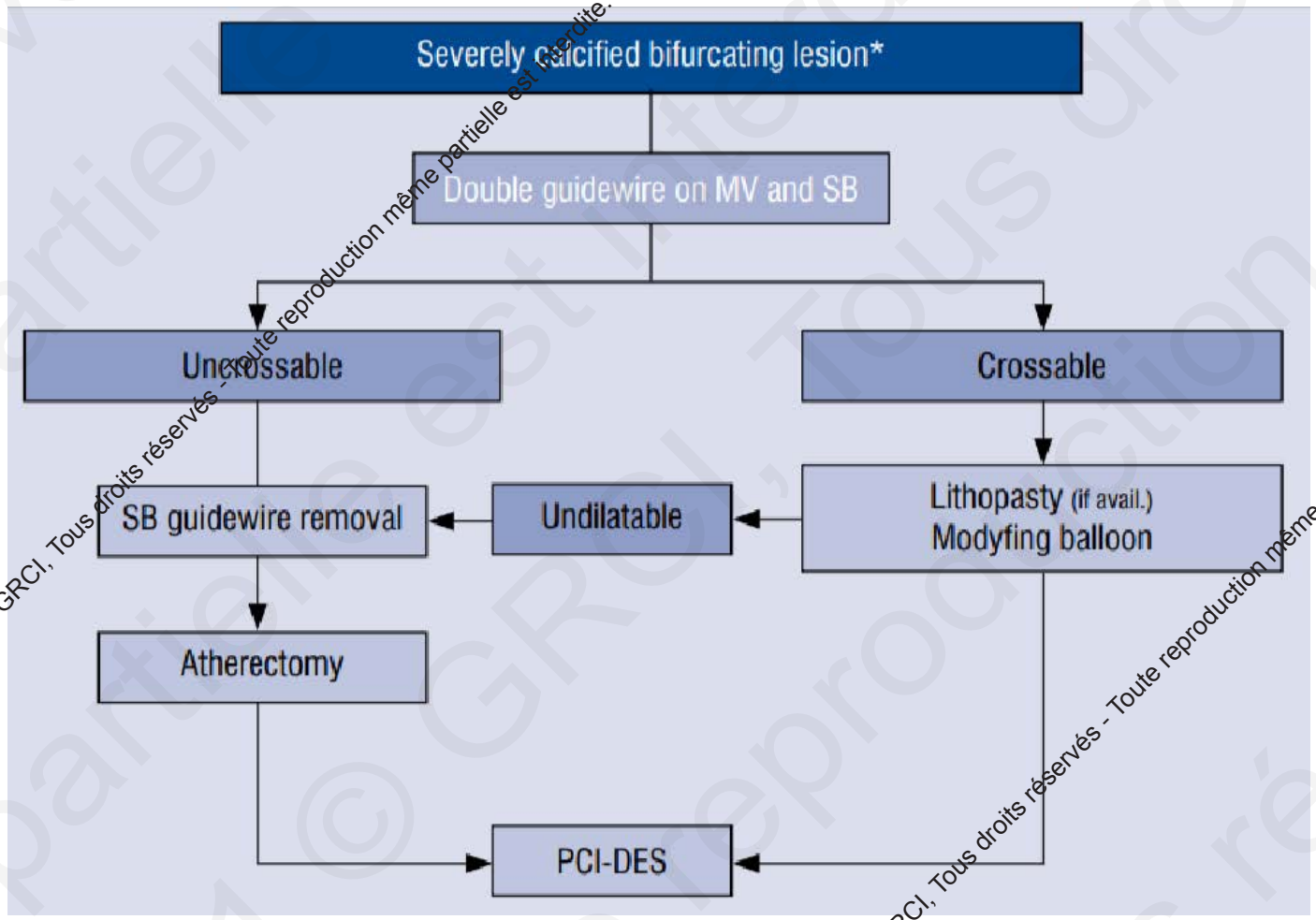
Post Rota



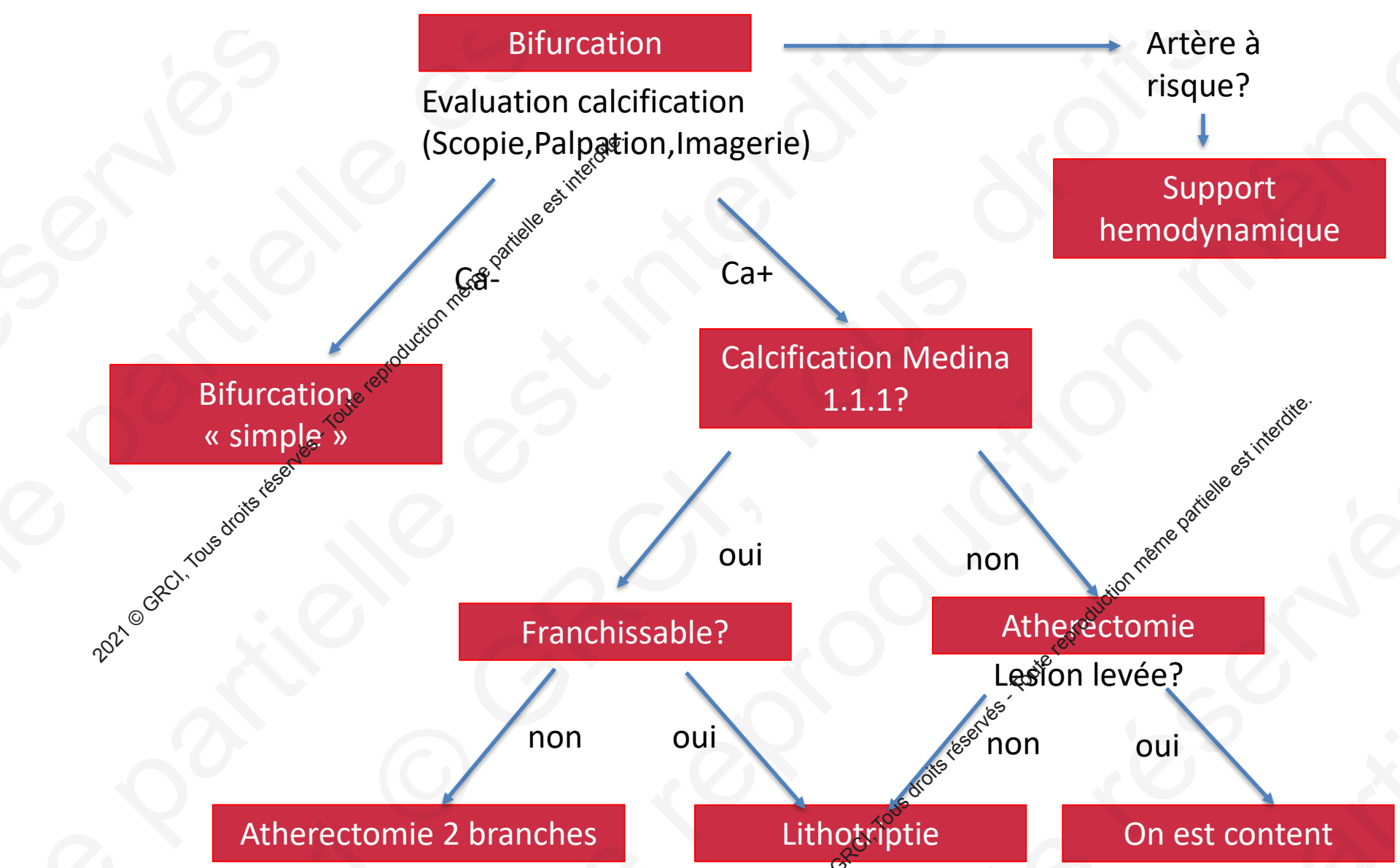
Post Rota+Shockwave

PRE SHOCKWAVE

POST SHOCKWAVE



Perfetti card j 2019



Proposition d'algorithme décisionnel: « Perfetti modifié GRCI »