Histoire des Sciences et Progrès en Santé

Histoire de l'angiographie à l'embolisation thérapeutique

Vincent VIDAL

Hôpitaux Universitaires de Marseille | ap hm

amU Faculté des sciences médicales et paramédicales Aix Marseille Université

LIIE Laboratoire d'Imagerie Interventionnelle Expérimentale

Embolisation ἐμβάλλειν

(en = dans) Emballein (ballein = lancer)



Embolos

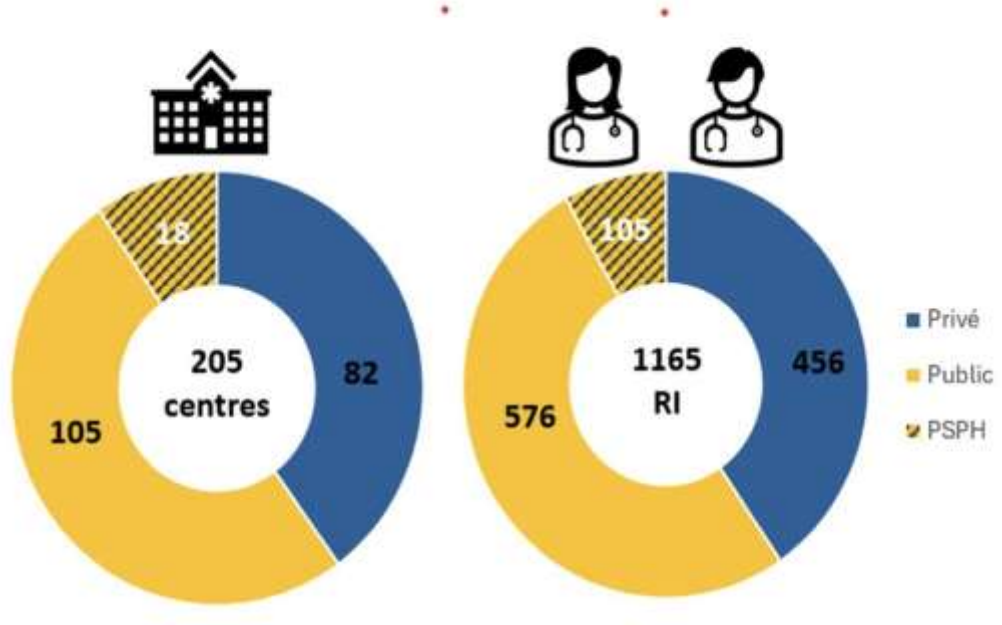
Inversion conceptuelle

- transformer un phénomène pathologique en outil thérapeutique

l'embolie (maladie) → l'embolie (traitement)

Embolisation en France

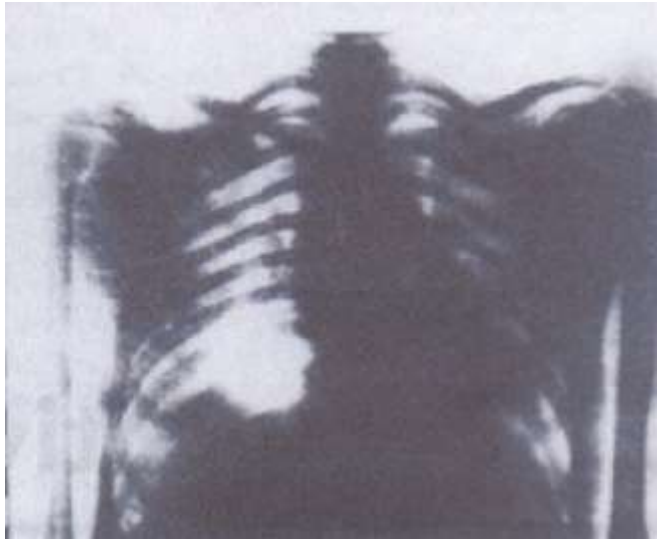
- Hémostase : 10.000
- Parenchymateuse : 10.000
- Oncologique : 5000



Une médecine aveugle ! 8 novembre 1895







Rendre visible l’invisible !



Rendre visible l'invisible !

L'angiographie

1896 : Main cadavérique

1927 : Encéphale

1929 : Cœur /Aorte

1929 : Fémorale



Le contraste

1890 : Sels de Bismuth

1901 : Liposolubles

1929 : Hydrosolubles

1930-50 : Thorotrast

Rendre visible l'invisible !

L'angiographie

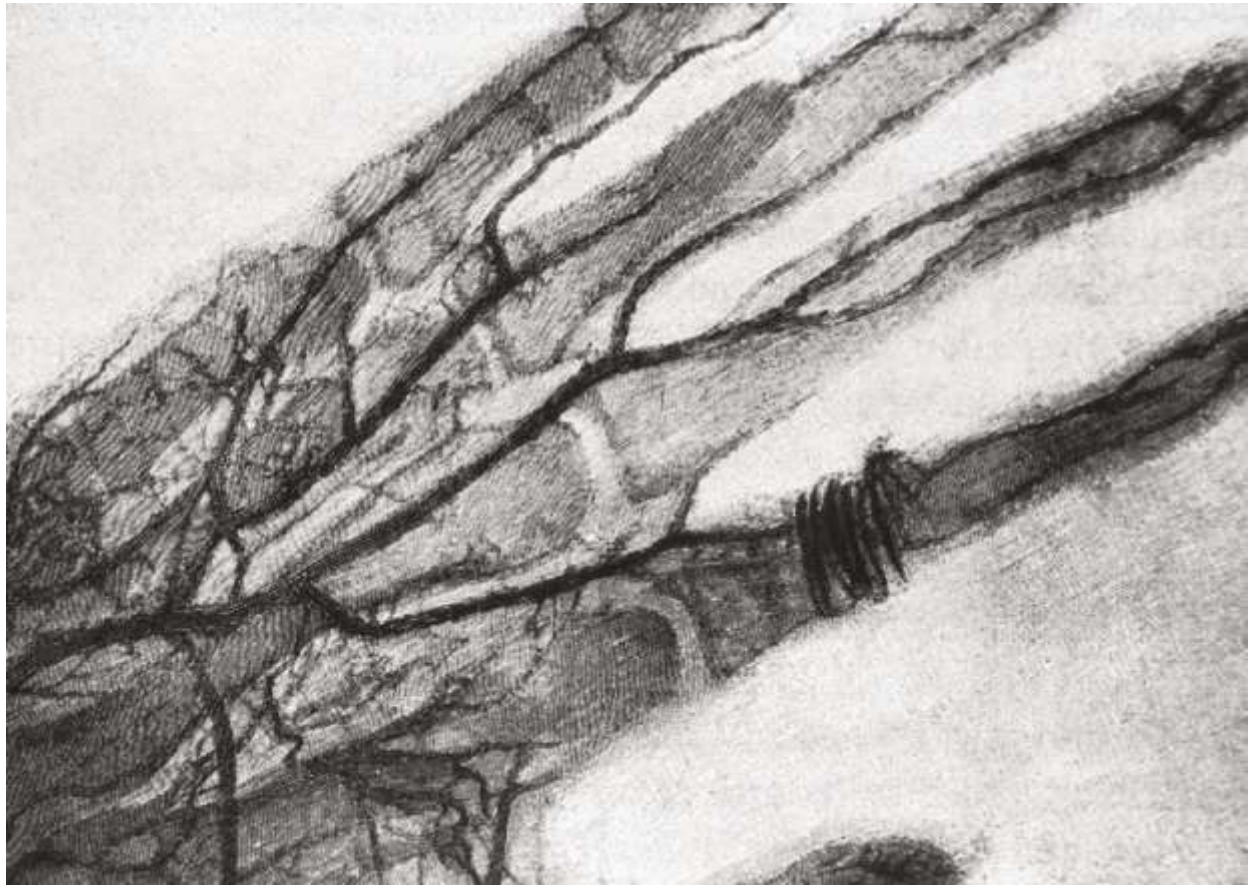
1896 : Main cadavérique

1927 : Encéphale

1929 : Cœur / Aorte

1941 : Fémorale

Le contraste



Rendre visible l'invisible !

L'angiographie



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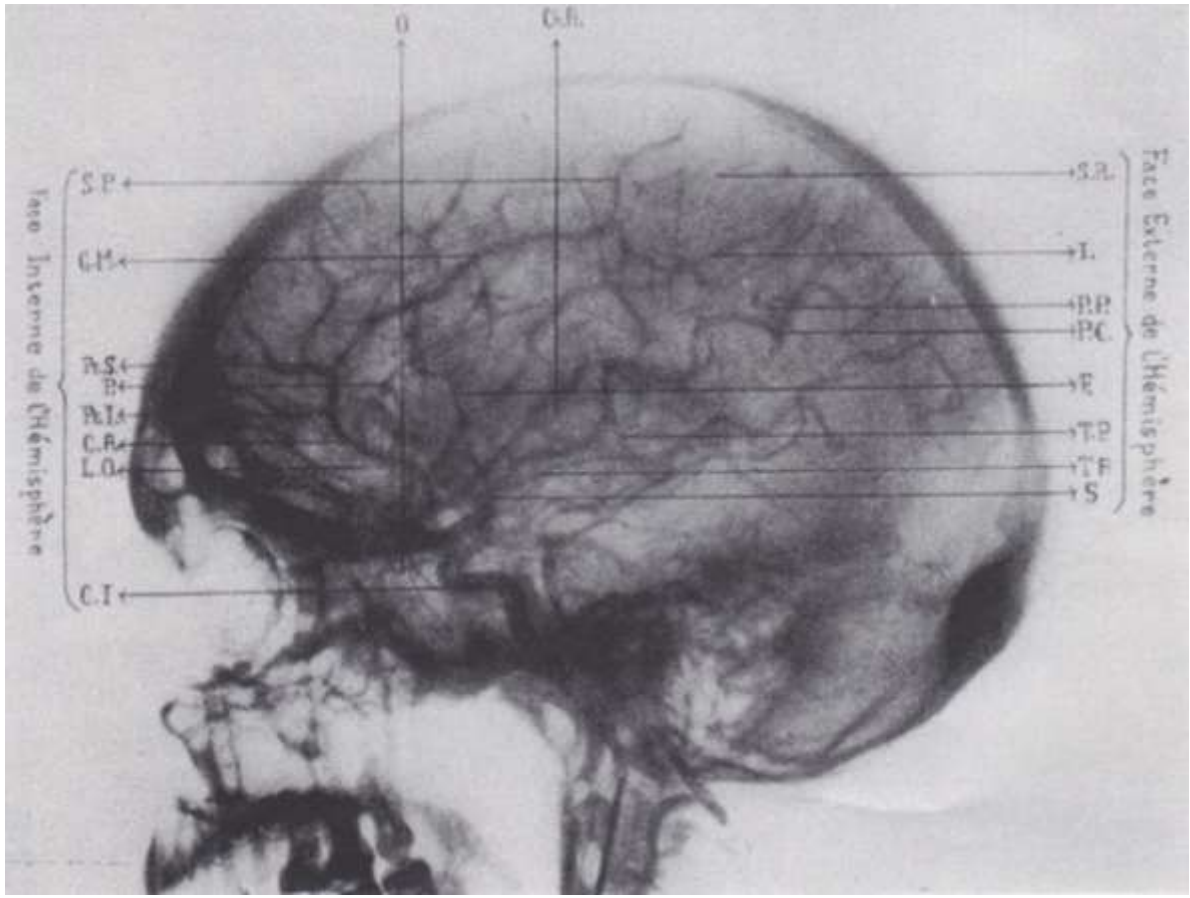
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1941 : Fémorale

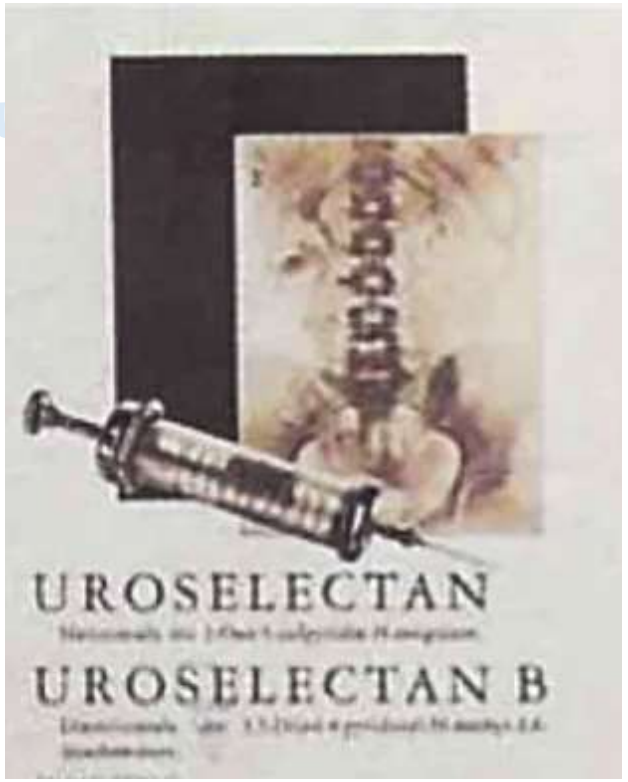
Le contraste



Rendre visible l'invisible !

L'angiographie





Le contraste

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L'angiographie

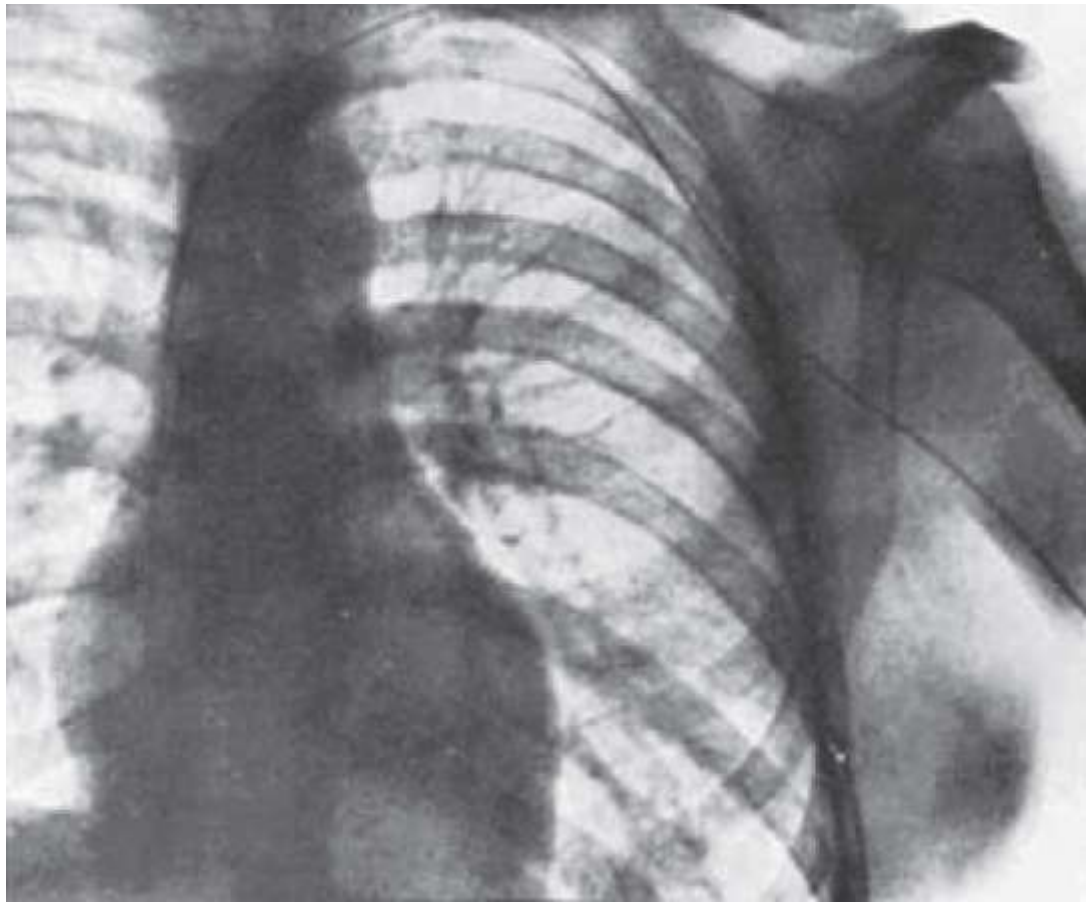
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Le contraste



Rendre visible l'invisible !

L'angiographie



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L'angiographie

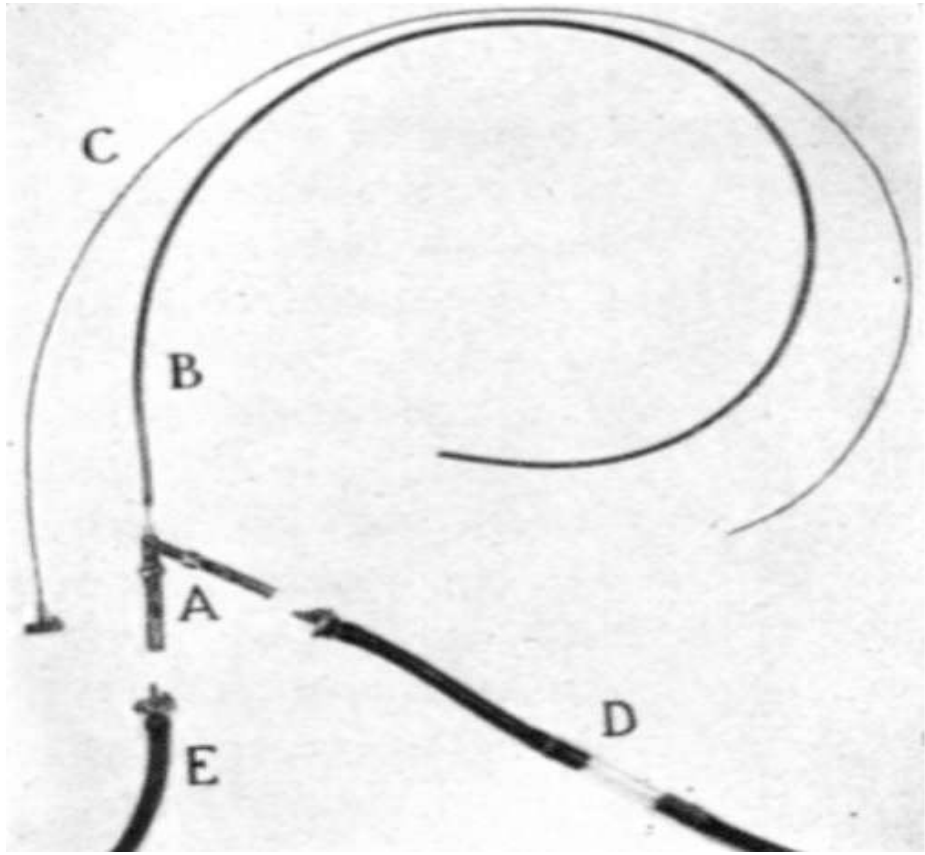
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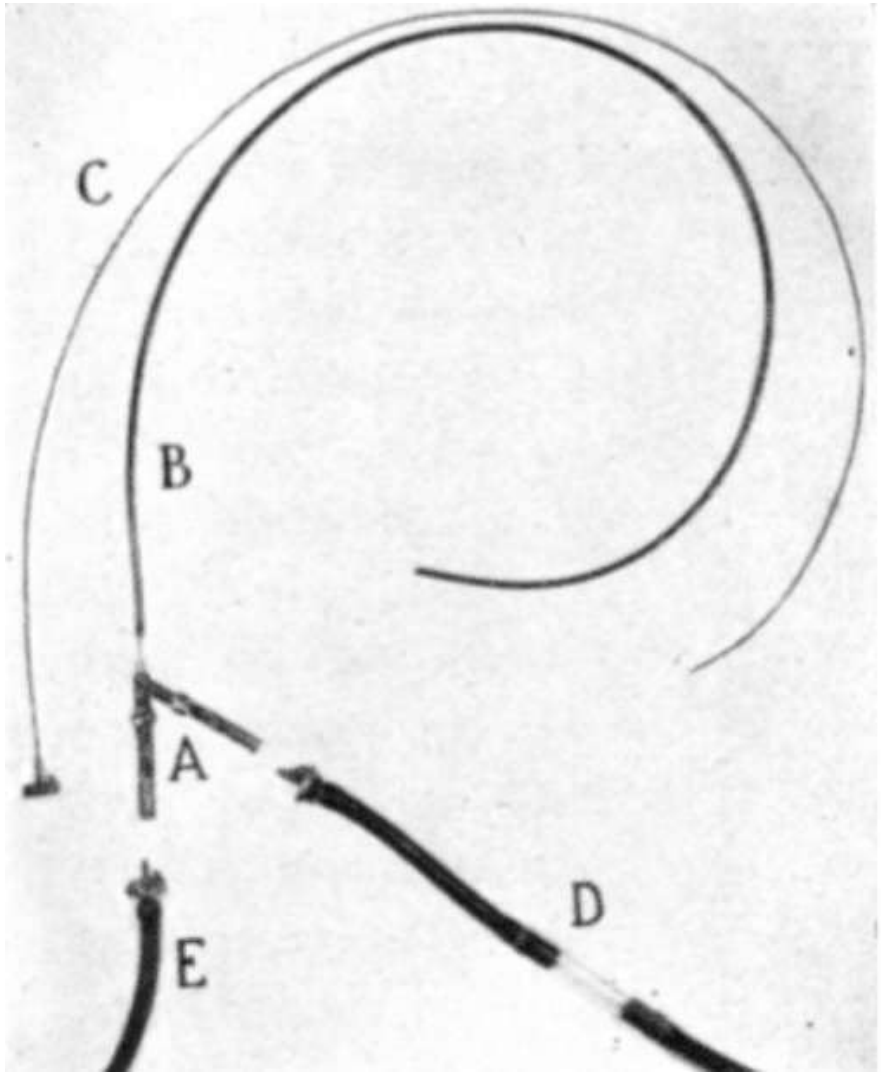
Le contraste



Atteindre l’inaccessible !

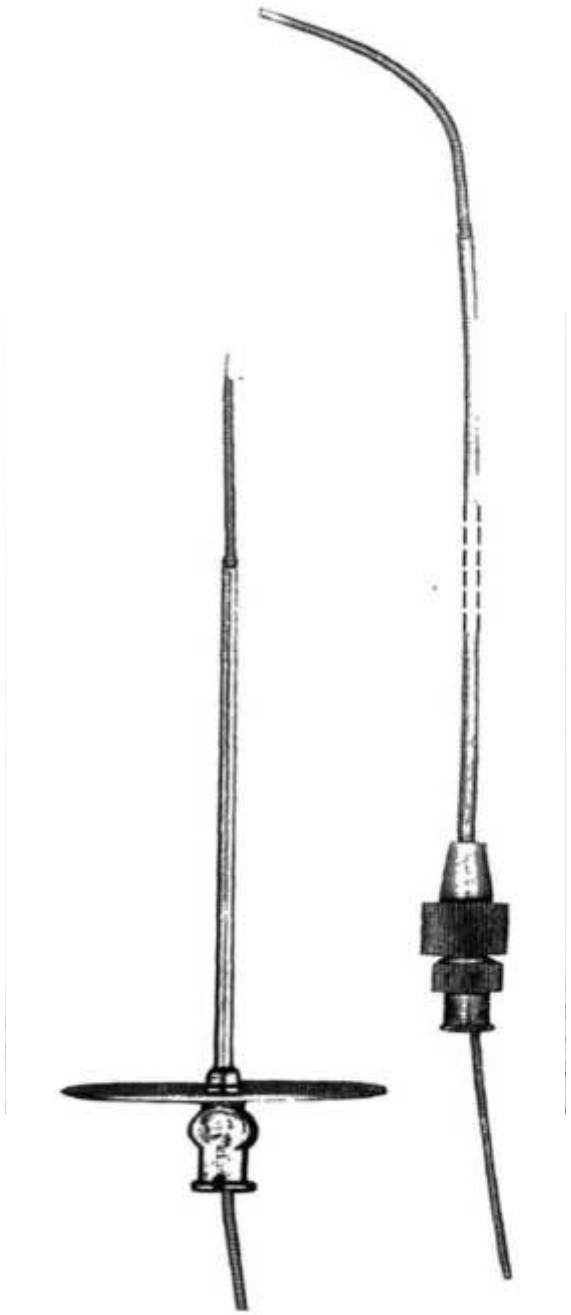


Atteindre l'inaccessible !

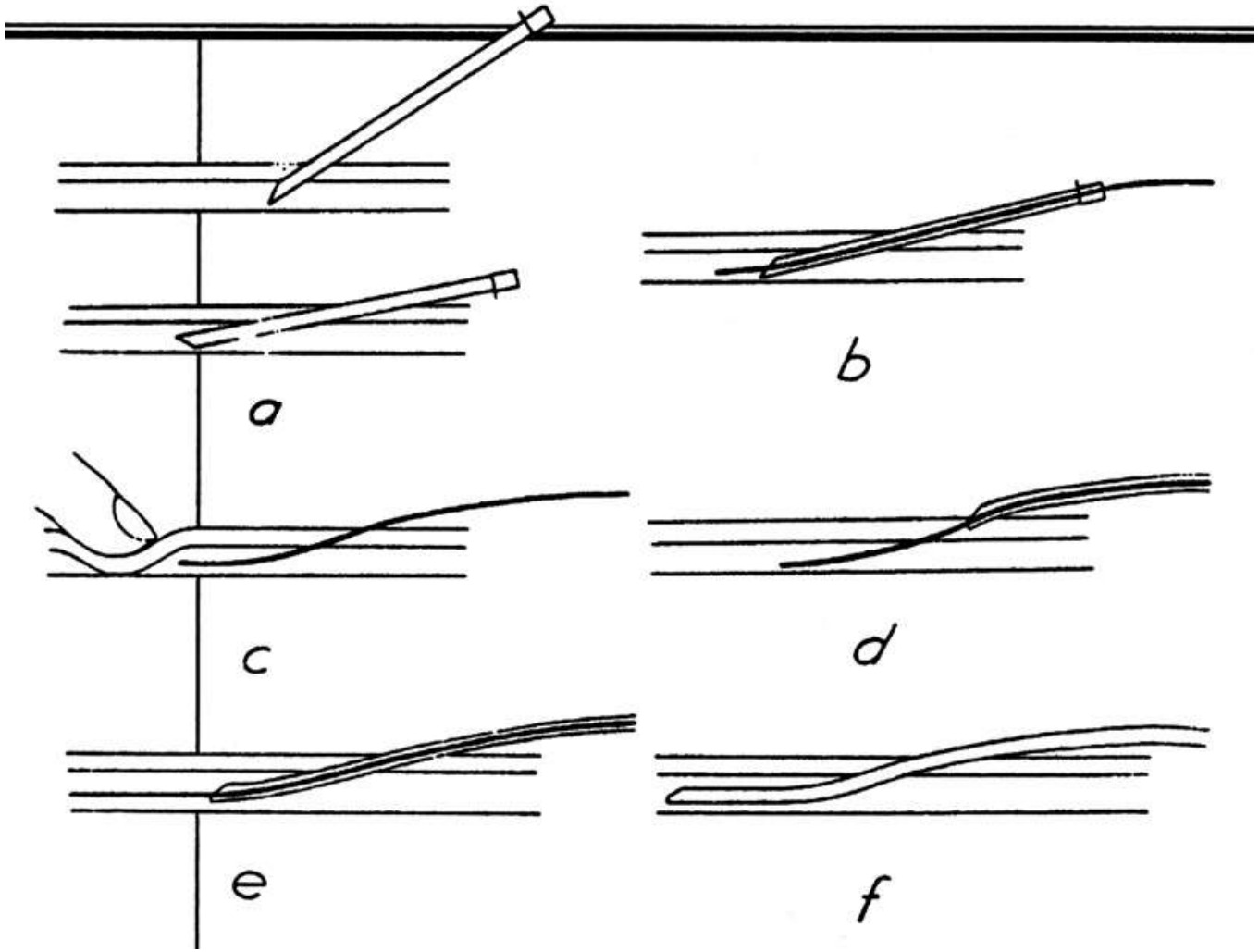


1953

« A severe attack of common sense »



Atteindre l'inaccessible !





CATHETER REPLACEMENT OF THE NEEDLE IN PERCUTANEOUS ARTERIOGRAPHY

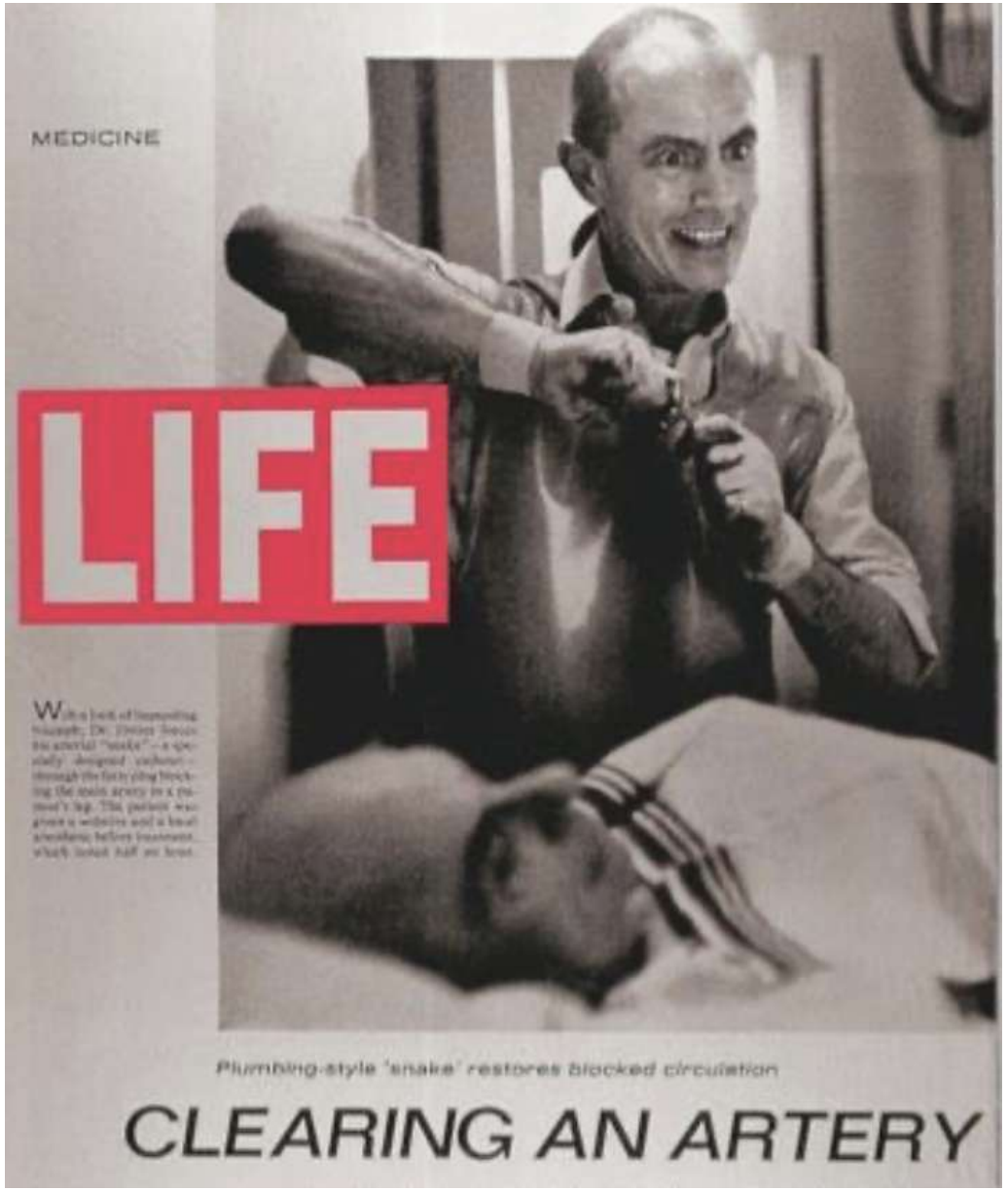
A new technique

by

Sven Ivar Seldinger

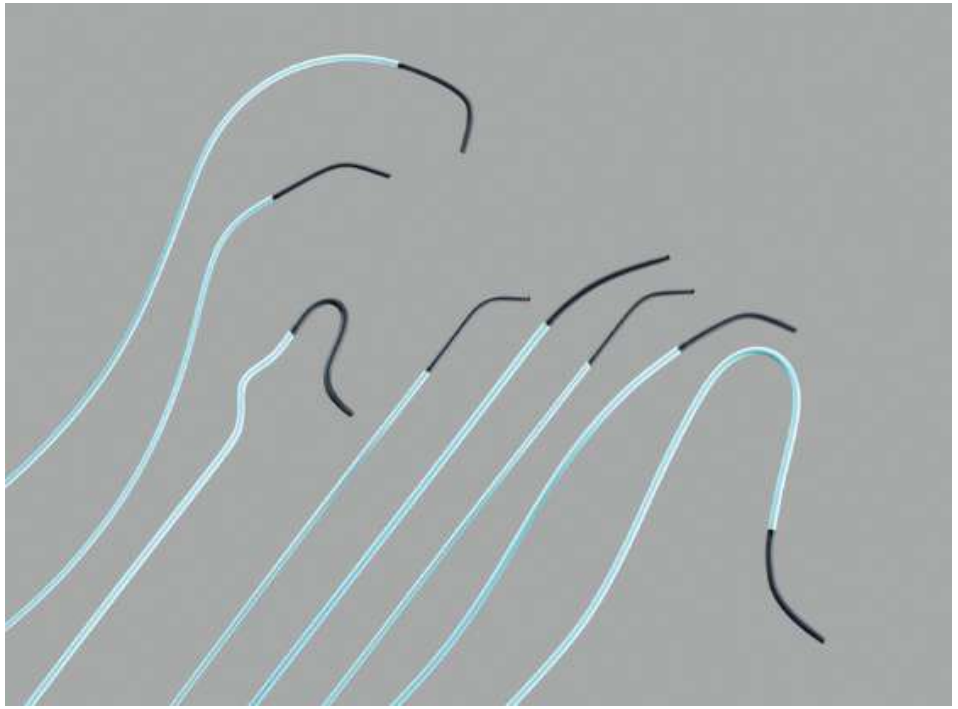
Guérir sans ouvrir !



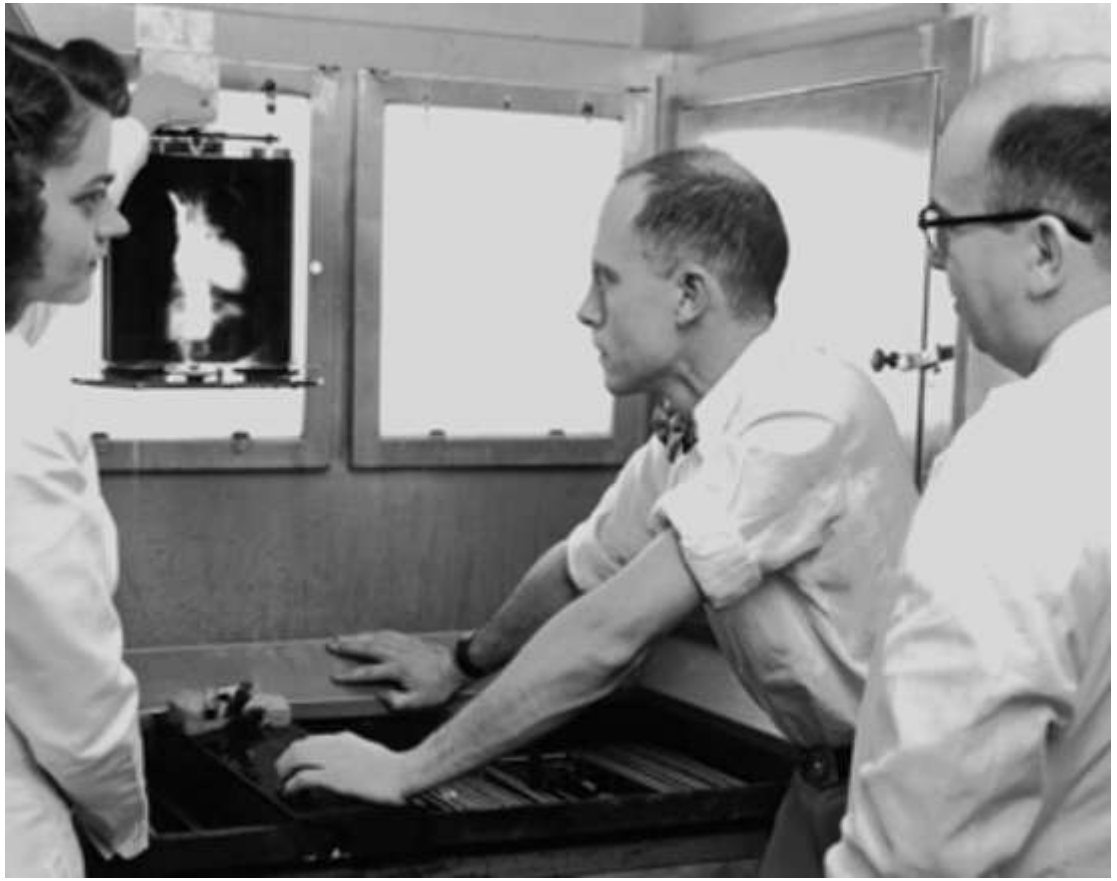


Guérir sans ouvrir !





Guérir sans ouvrir !

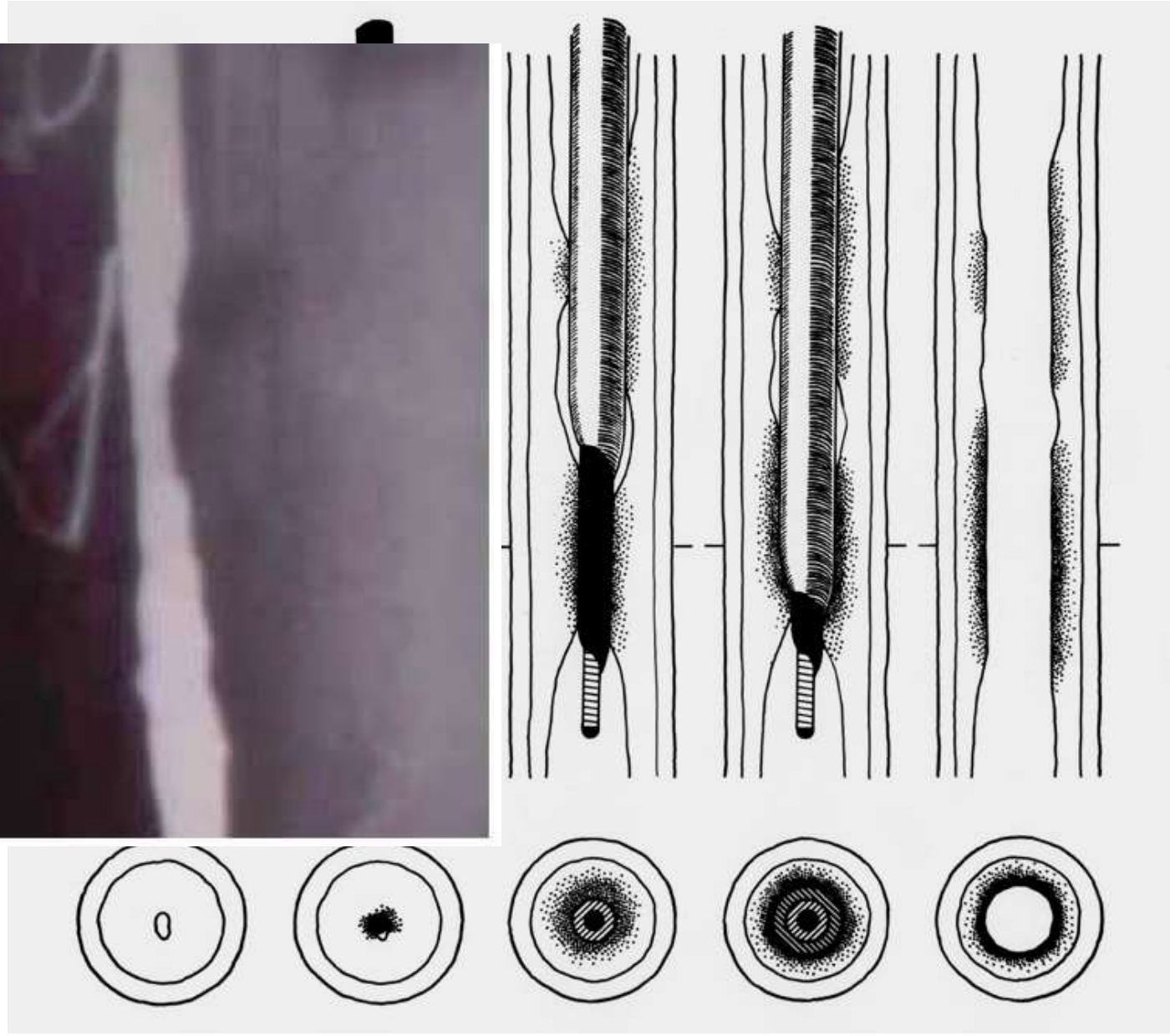






Guérir sans ouvrir !





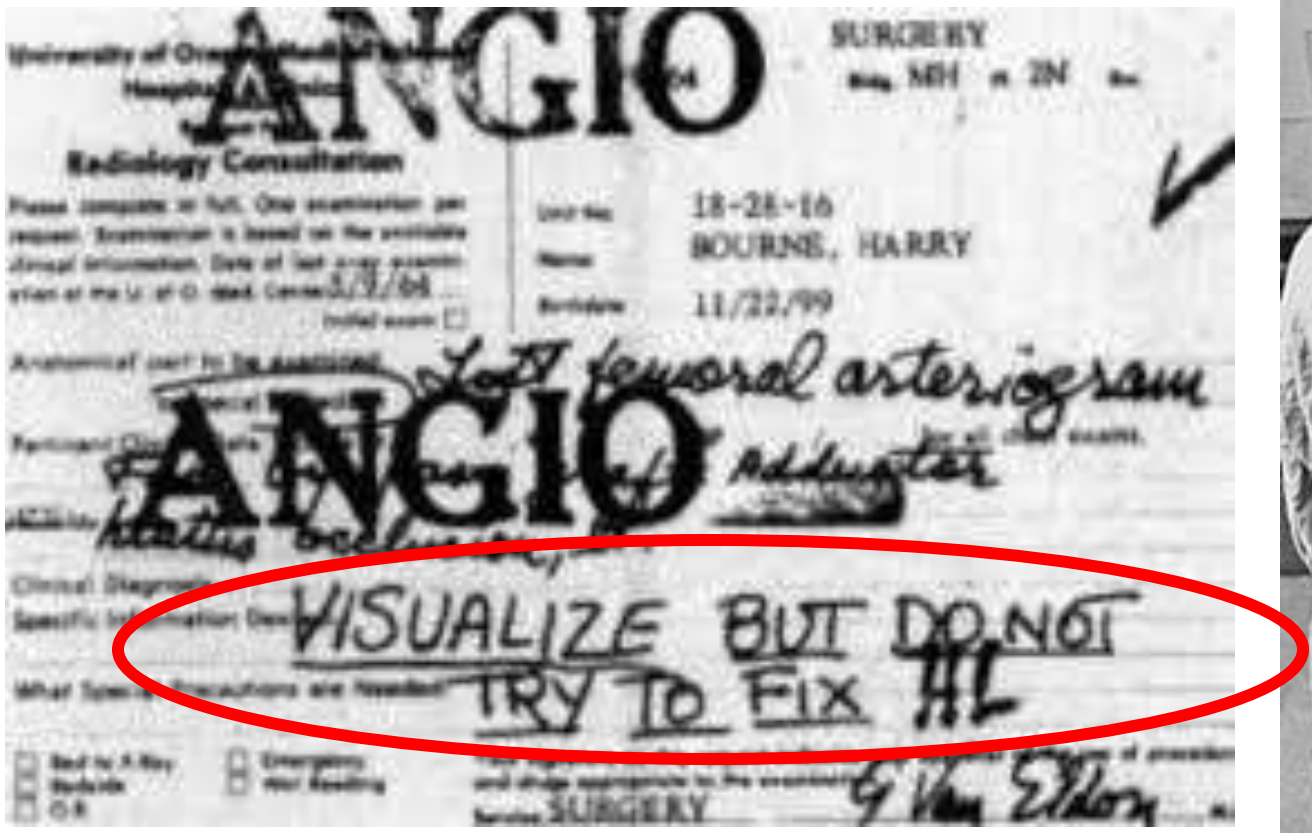






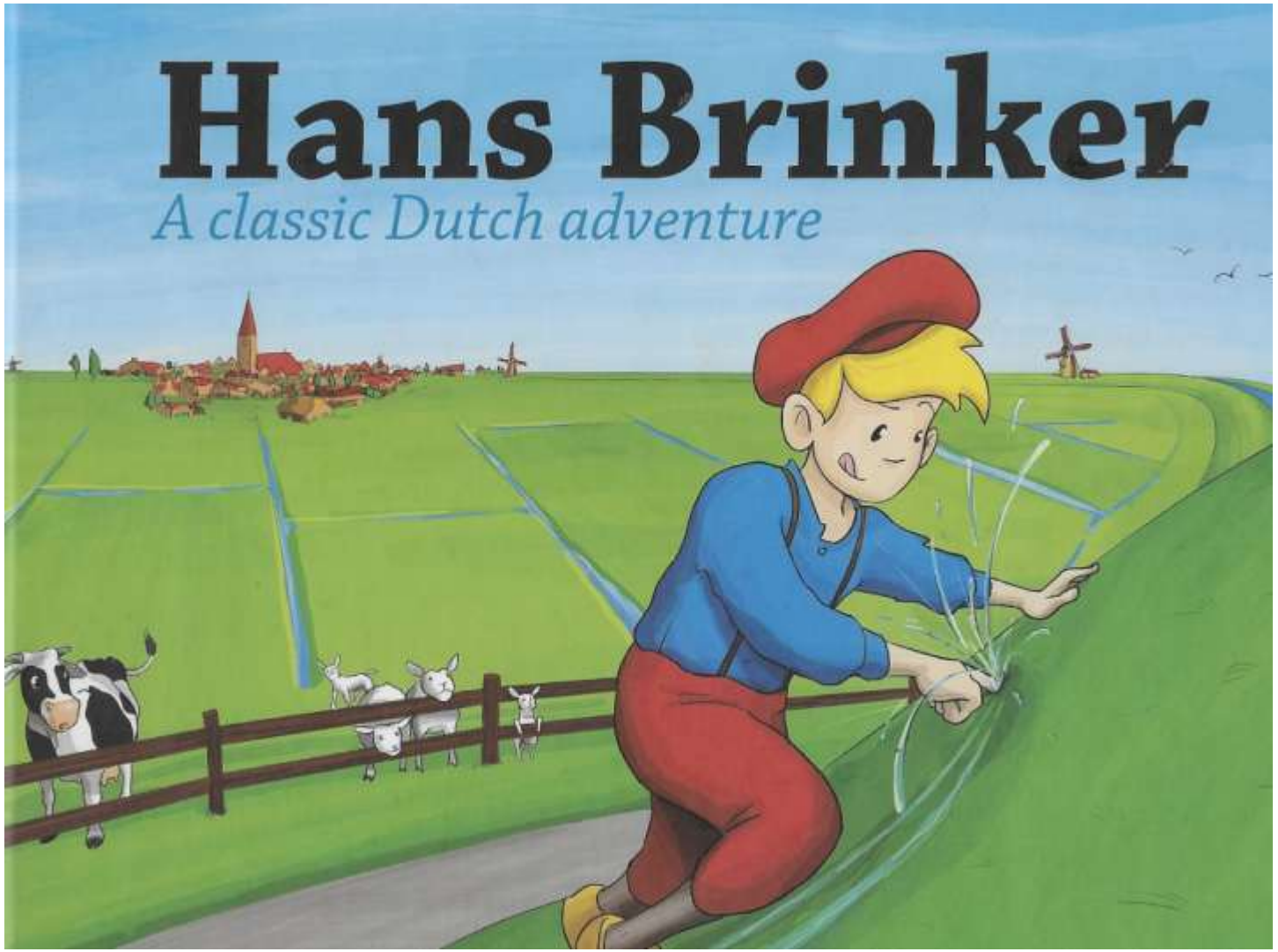
The angiographic catheter can be more than a tool for passive means for diagnostic observation; used with imagination, it can become an important surgical instrument. (Dotter, 1963)

Guérir sans ouvrir !





Occlure pour sauver !



Occlure pour sauver !

Hémorragies

Selective Arterial Embolization

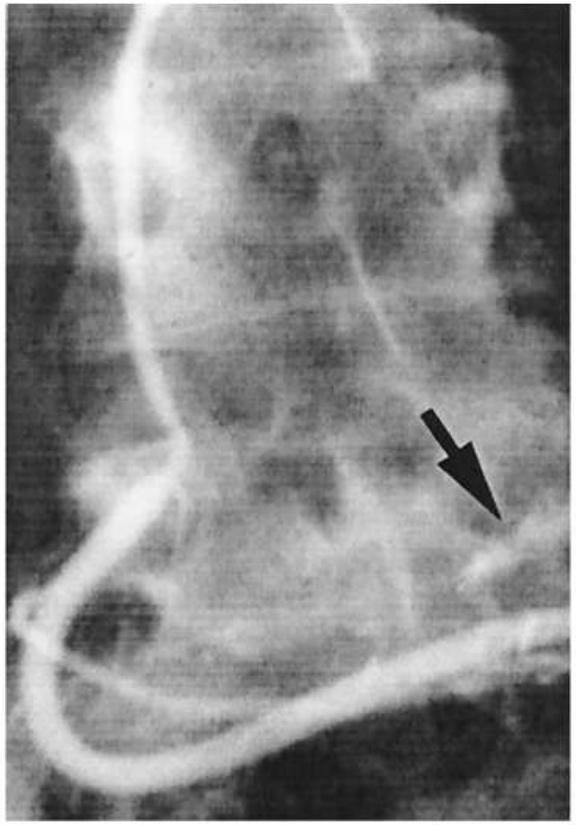
A New Method for Control of Acute Gastrointestinal Bleeding[1]

JOSEF RÖSCH, M.D., CHARLES T. DOTTER, M.D., and MICHAEL J. BROWN, M.D.

1970

Caillots

autologues

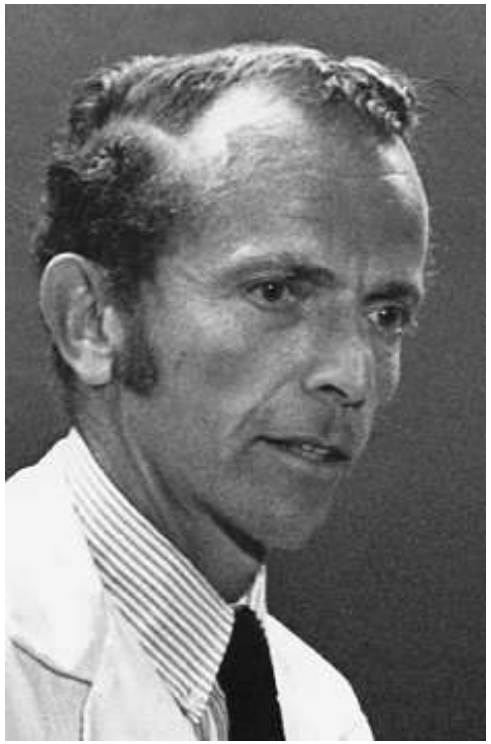






1980 MAV pulmonaires

Anomalies









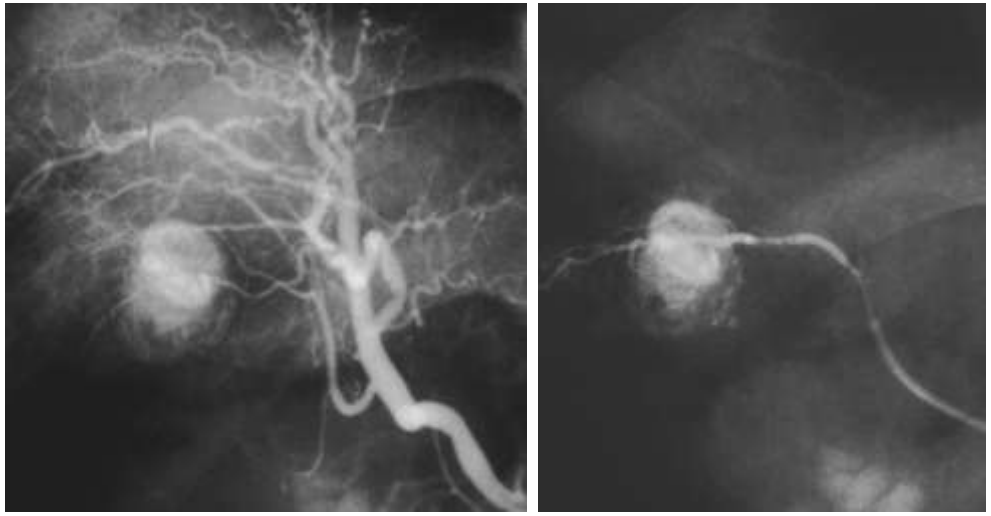
R. White

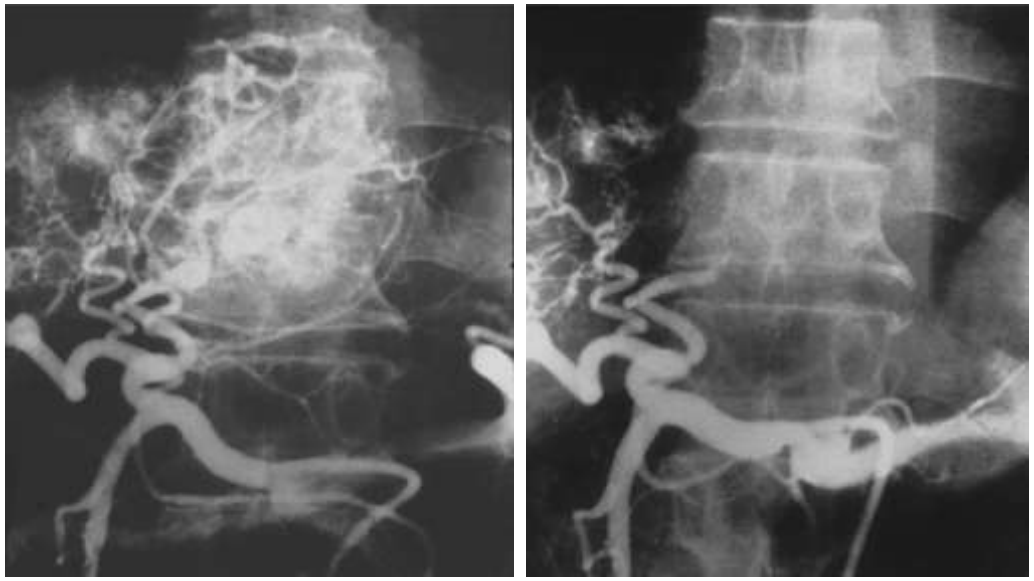
R. Günther

1988 Carcinone HC

Cancers



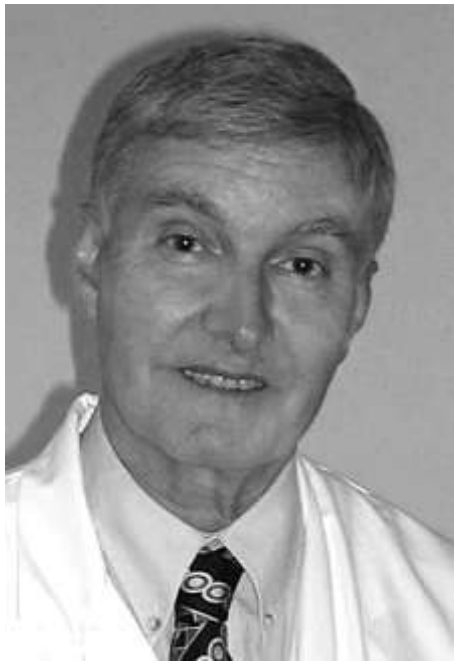


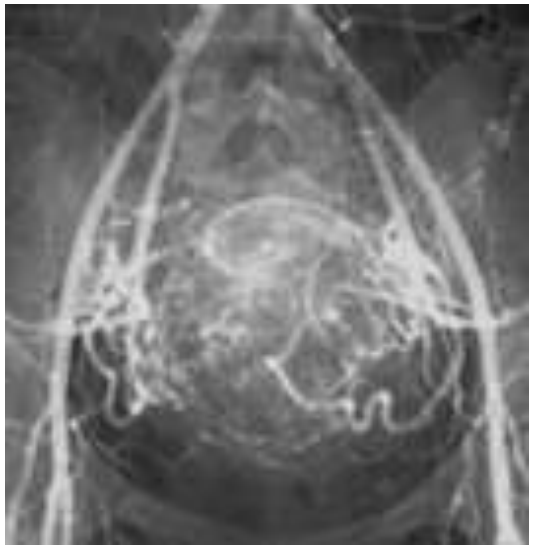


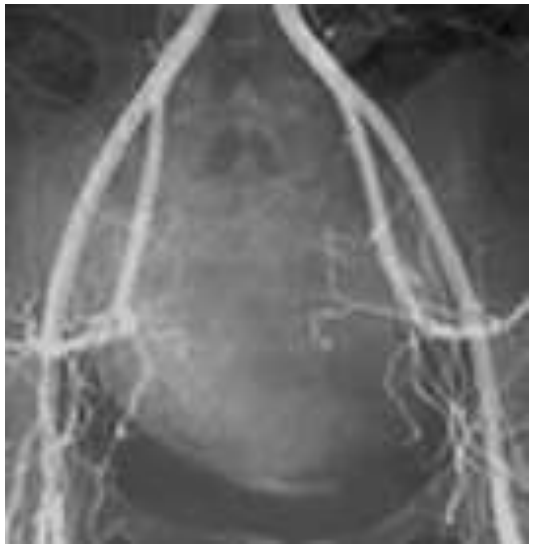
R. Yamada, H Uchida

1995 Fibromes utérins

Fonctionnel







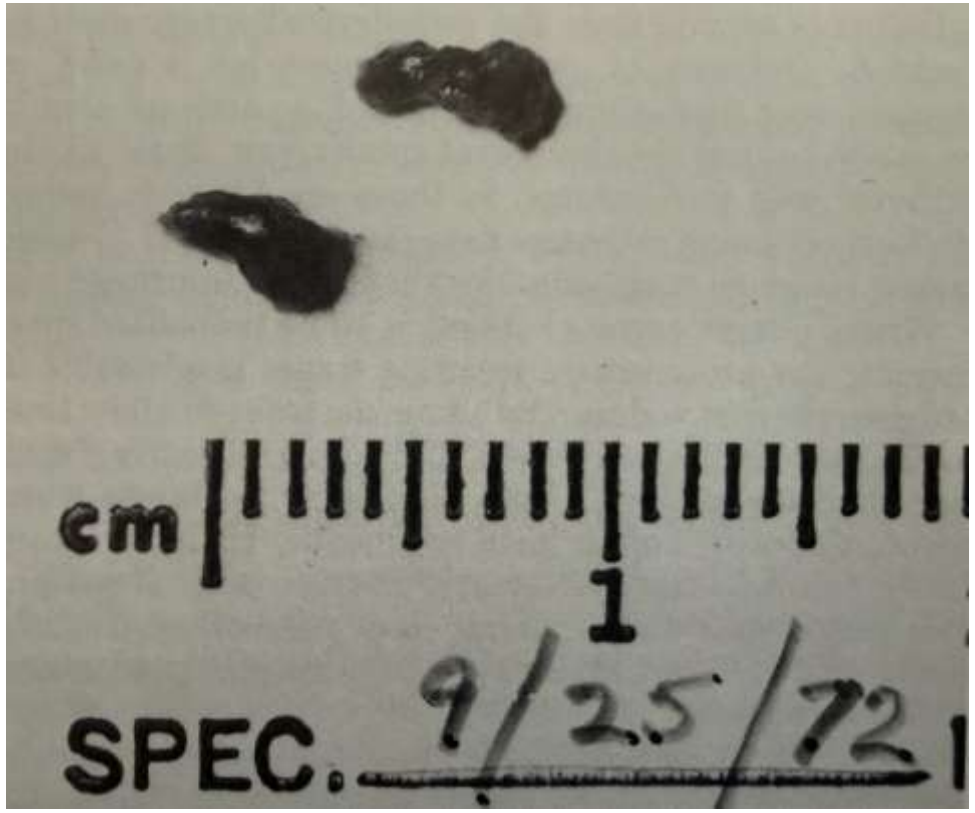


JJ. Merland

D. Herbreteau

Occlure pour sauver !

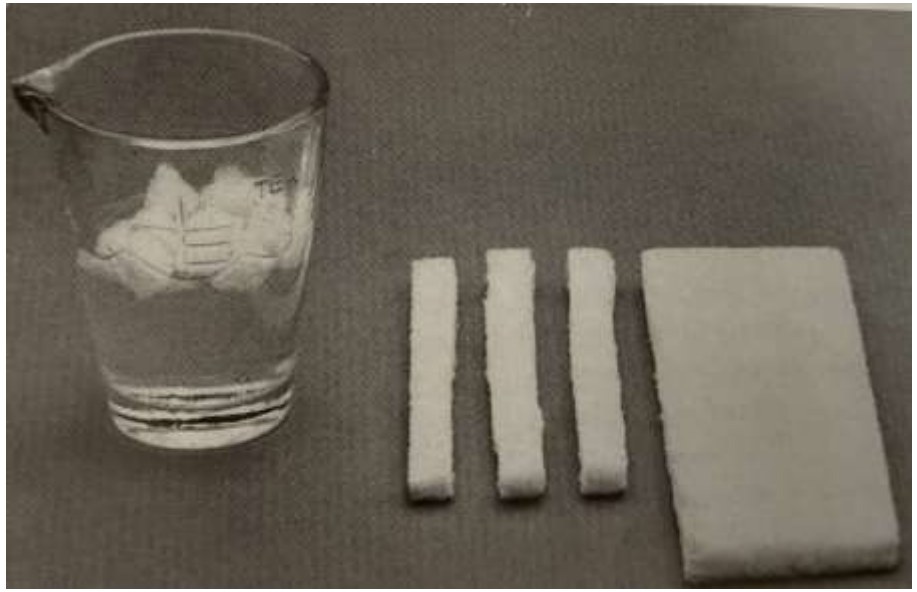
- 1970 Dotter et al : caillots autologues
- Gélatine résorbable
- PVA
- Les cyanoacrylates
- Coils
- Microsphères calibrées
- L'onyx
- Microsphères chargées



Occlure pour sauver !

- 1970 Dotter et al : caillots autologues
- **Gélatine résorbable**
- PVA
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Occlure pour sauver !

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Occlure pour sauver !



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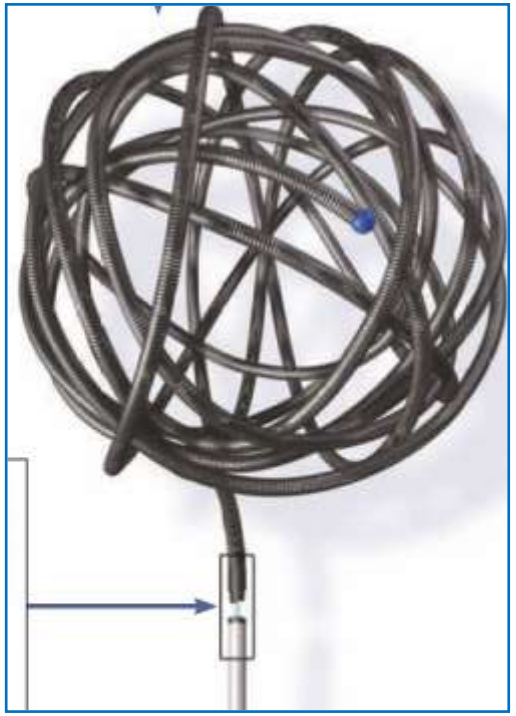




Occlure pour sauver !

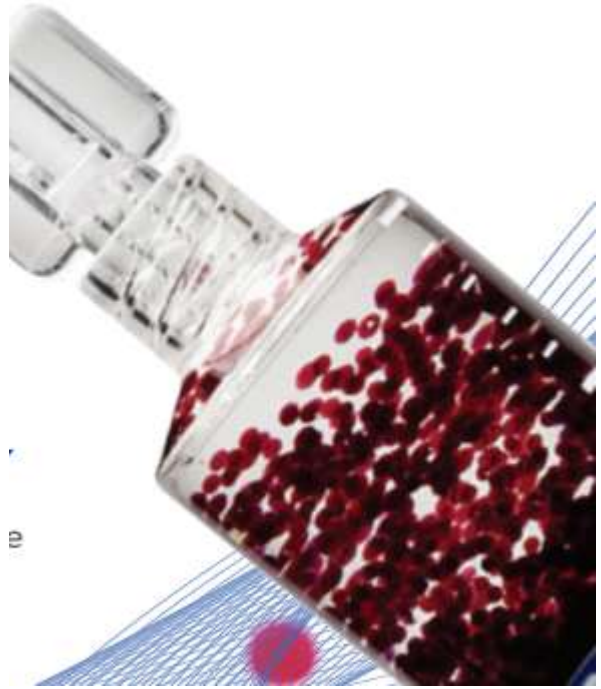
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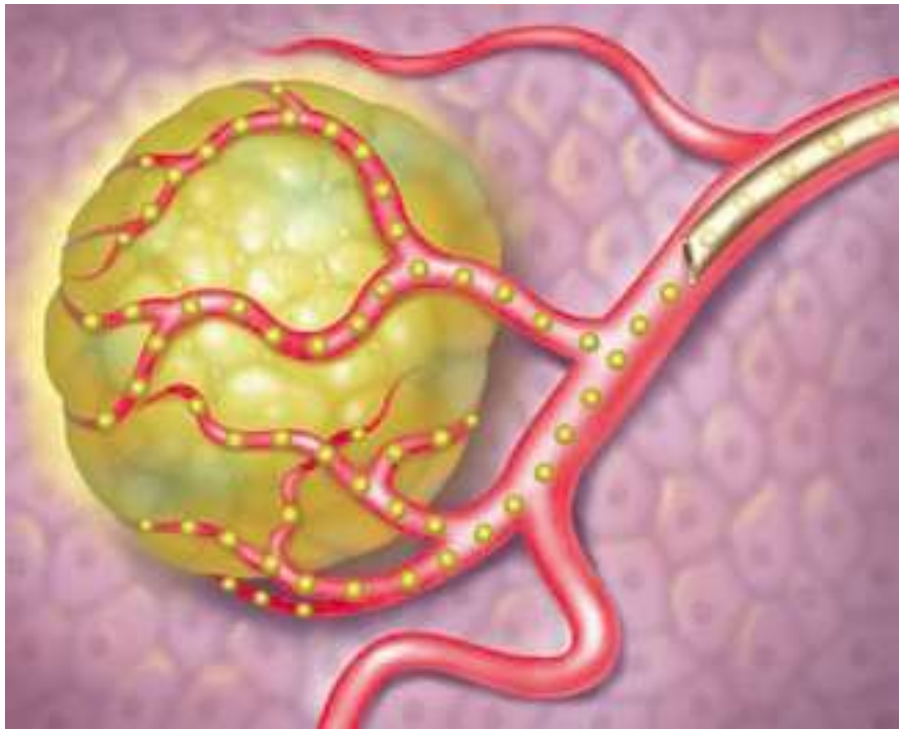
Occlure pour sauver !

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- 1970 Dotter et al : caillots autologues
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- L'onyx
- **Microsphères chargées**



L’embolisation moderne

Hémorragies

Trauma center

Chirurgie complexe

Anomalies

Anévrysme complexe

Malf AV

Malf veineuses

Cancers

Emb portale et VSH

SIRT Y90

Electro ChemoEmb

Fonctionnel

Fibromes

Varices pelviennes

Varicocèle

Troubles érectiles

Obésité

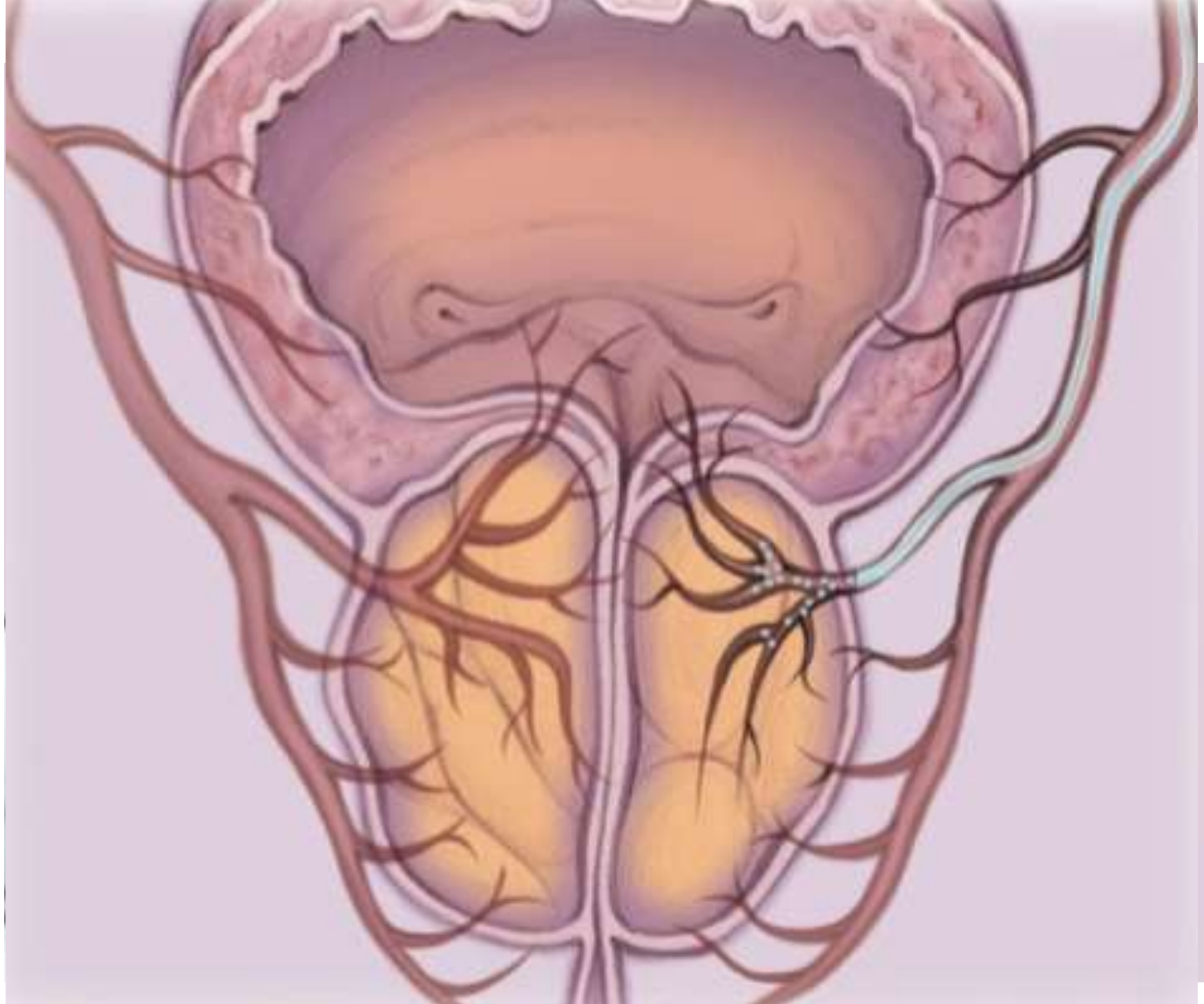
Arthrose et MSK

Hémorroïdes

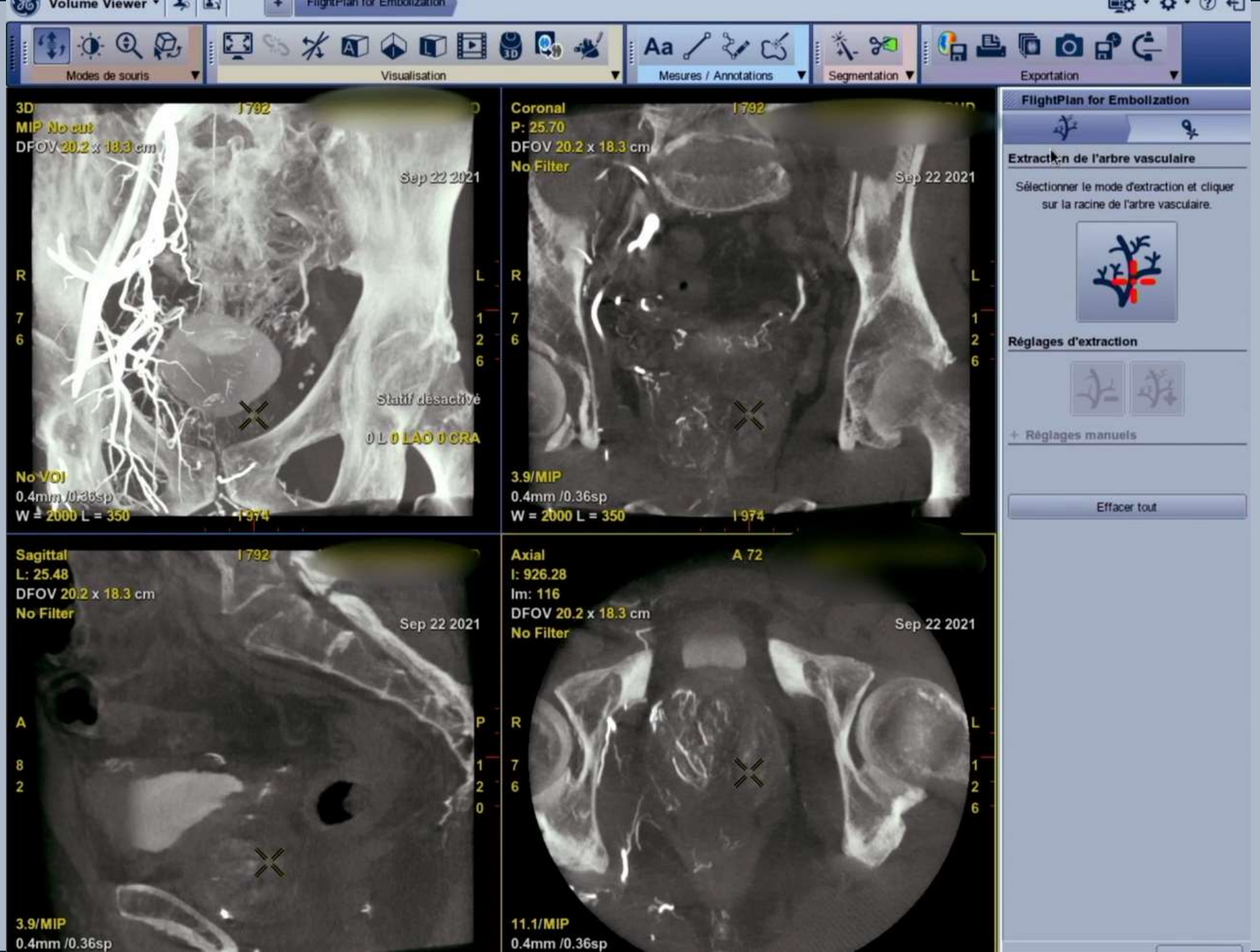
Prostate

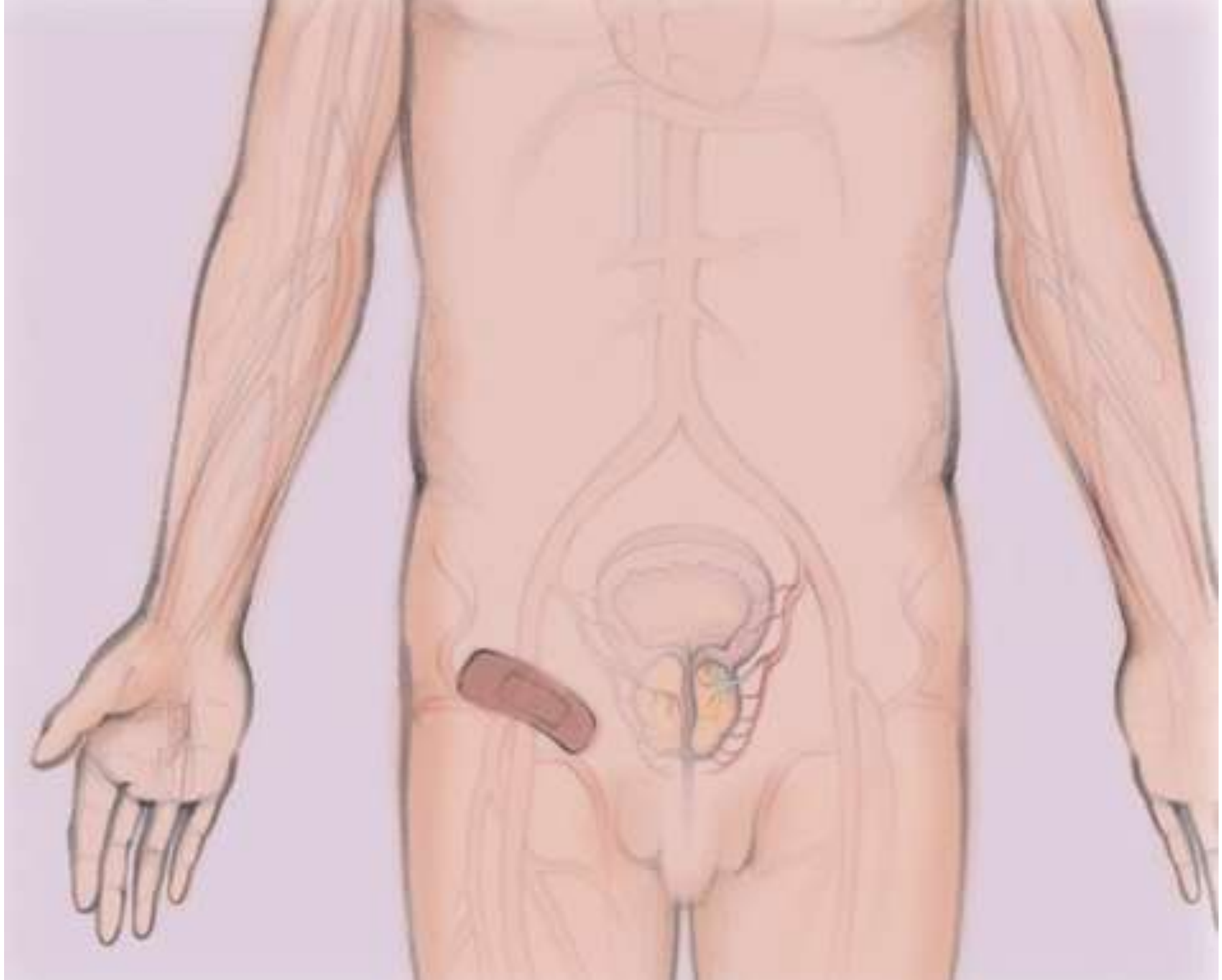



Dräger
76.8
30 cm
130 cm
13 cm
0 deg
LAO
CAU
88 deg
0 deg






Volume Viewer
FlightPlan for Embolization
Modes de souris
Visualisation
Mesures / Annotations
Segmentation
Exportation
3D
MIP No cut
DFOV 20.2 x 18.3 cm
Sep 22 2021
Statif désactivé
0 L 0 LAO 0 CRA
No VOI
0.4mm /0.36sp
W = 2000 L = 350
Coronal
P: 25.70
DFOV 20.2 x 18.3 cm
No Filter
Sep 22 2021
3.9/MIP
0.4mm /0.36sp
W = 2000 L = 350
Sagittal
L: 25.48
DFOV 20.2 x 18.3 cm
No Filter
Sep 22 2021
3.9/MIP
0.4mm /0.36sp
Axial
I: 926.28
Im: 116
DFOV 20.2 x 18.3 cm
No Filter
Sep 22 2021
11.1/MIP
0.4mm /0.36sp
FlightPlan for Embolization
Extraction de l'arbre vasculaire
Sélectionner le mode d'extraction et cliquer sur la racine de l'arbre vasculaire.
Réglages d'extraction
Réglages manuels
Effacer tout



Les innovations marseillaises







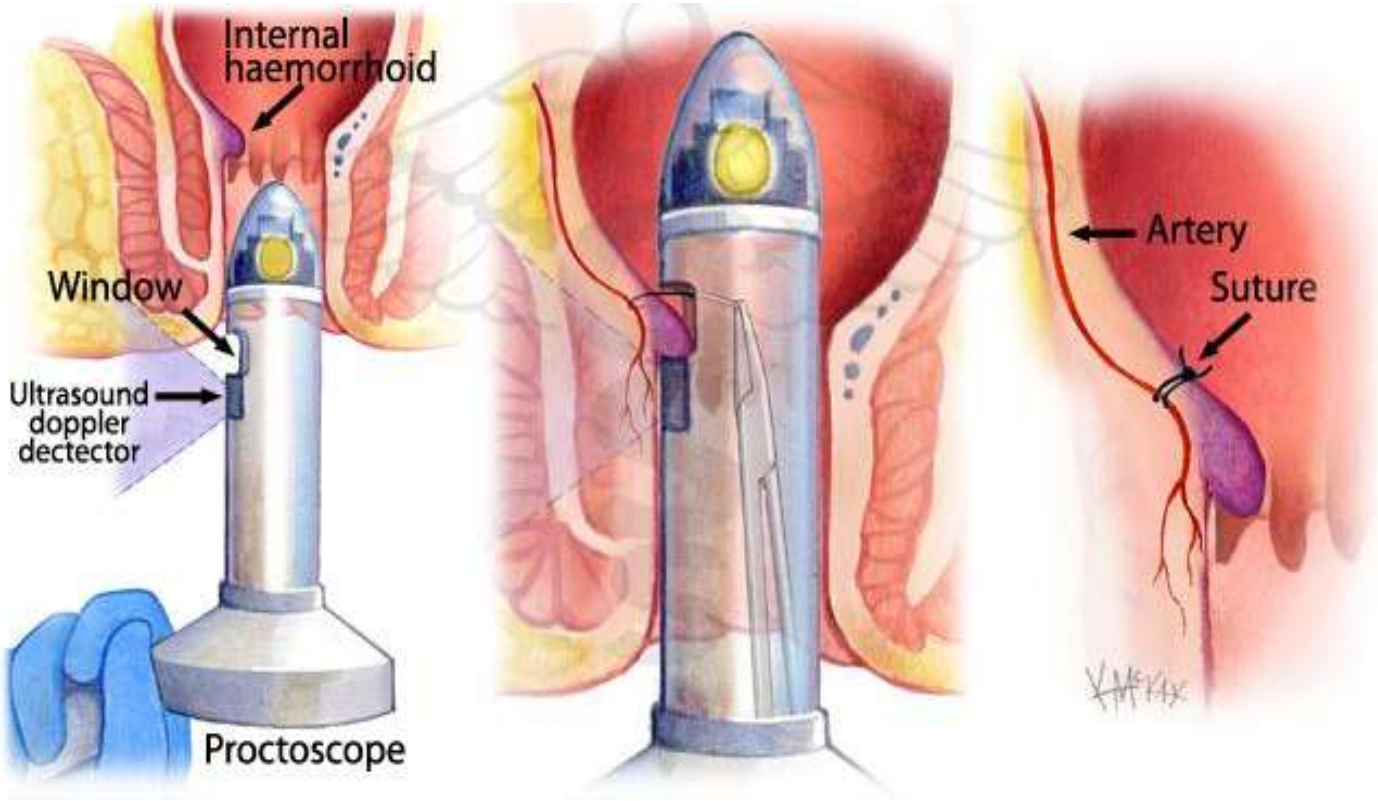


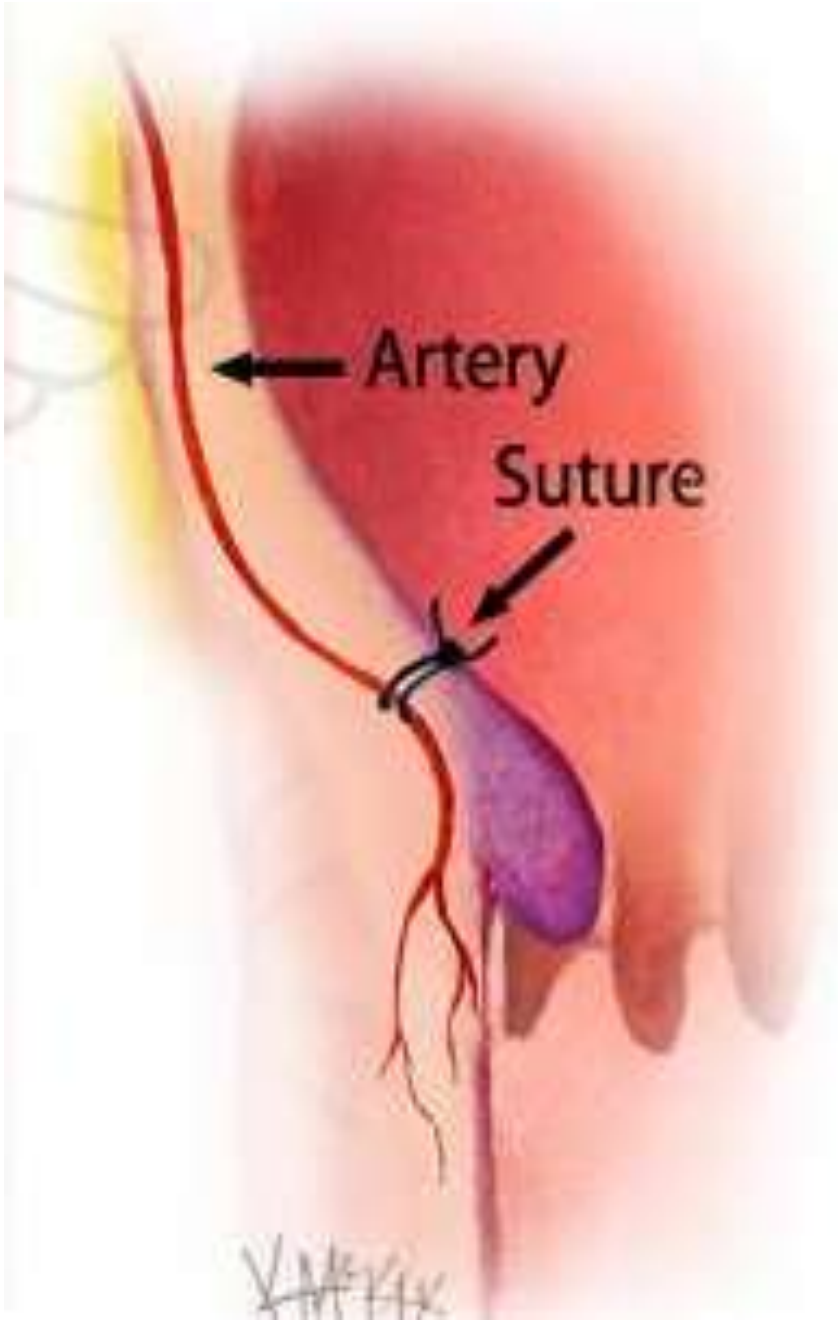
Les innovations marseillaises

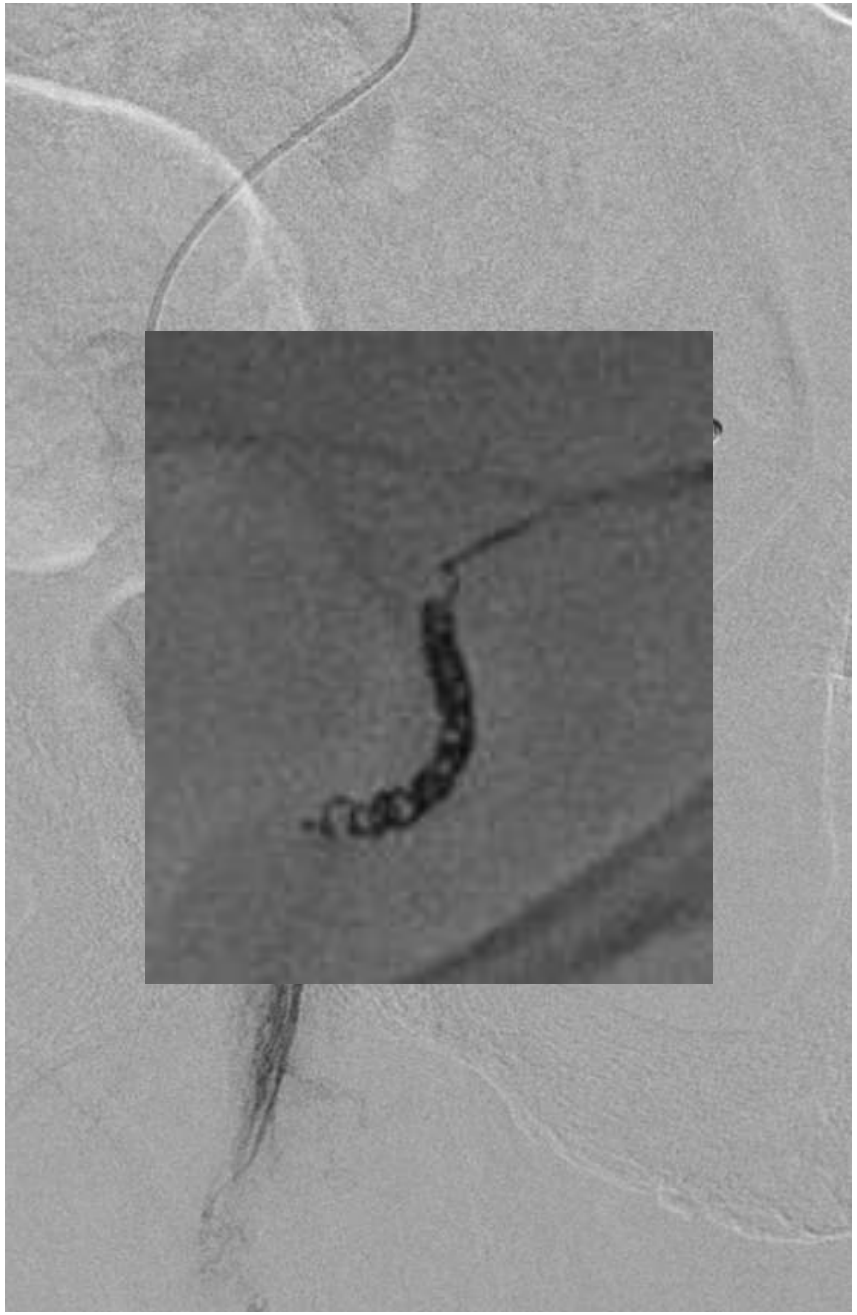
- 2013 - Embolisation des hémorroïdes : **Emborrhoid ®**
  - Marque déposée APHM
- 2018 - Embolisation équitable : **FairEmbo ®**
  - Coopération hospitalière internationale APHM
  - Chaire Amidex AMU
- 2020 - Embolisation organique : **Embobio ®**
  - Brevet AMU-APHM
  - Start-up incubée par ProtisValor

Les innovations marseillaises

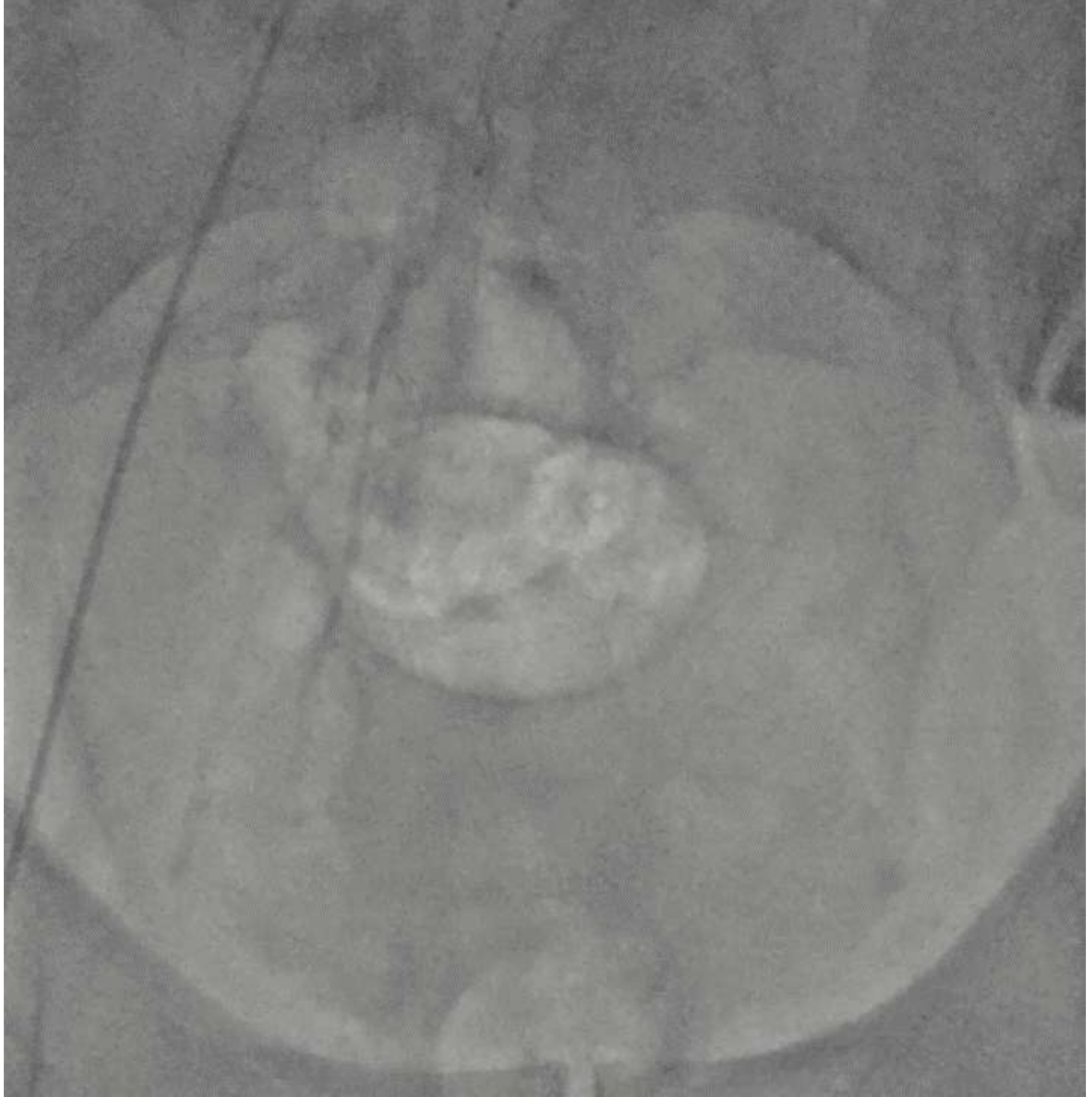
- Embolisation des hémorroïdes : **Emborrhoid ®**
  - **Marque déposée APHM**

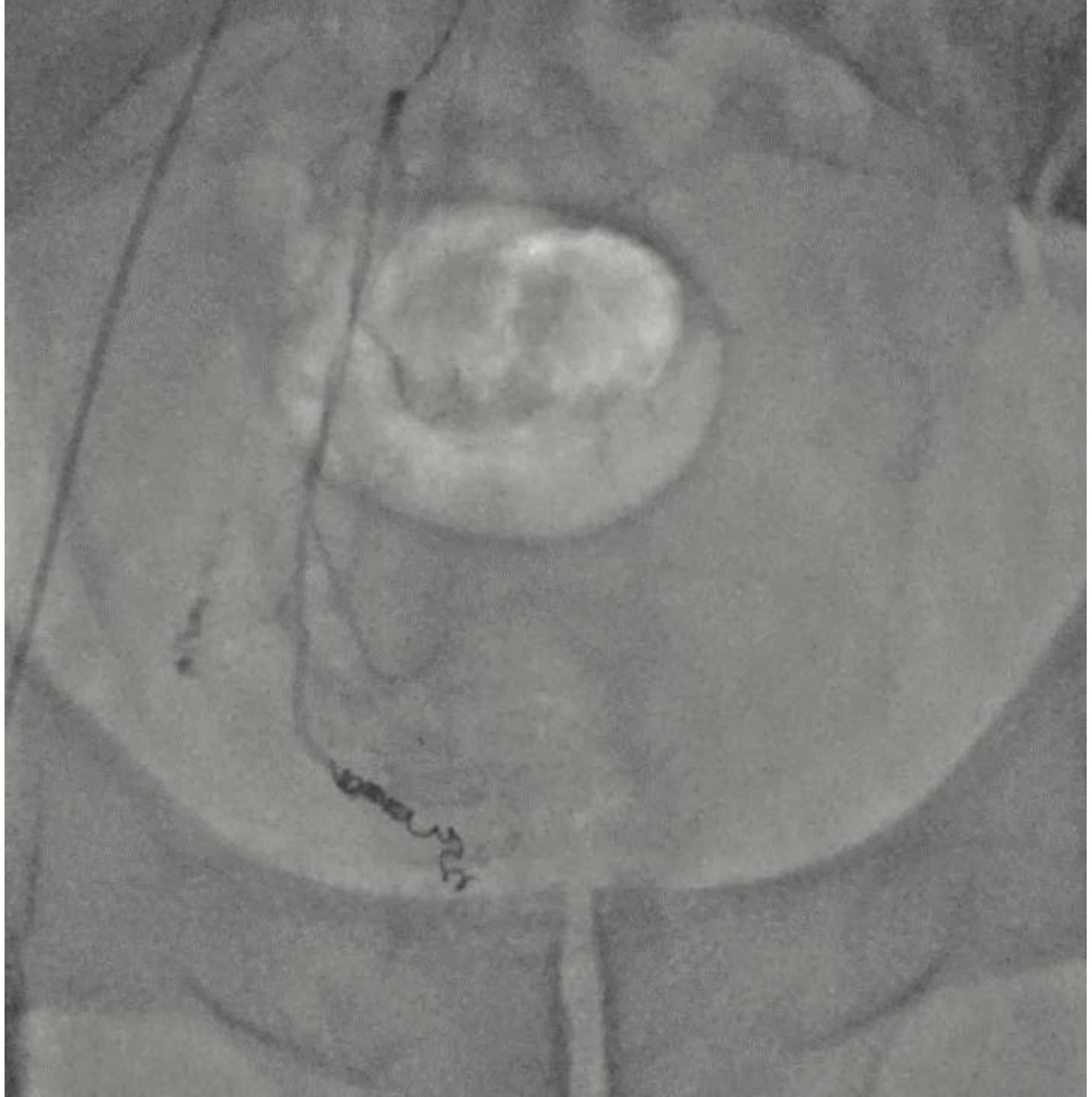



Artery
Suture



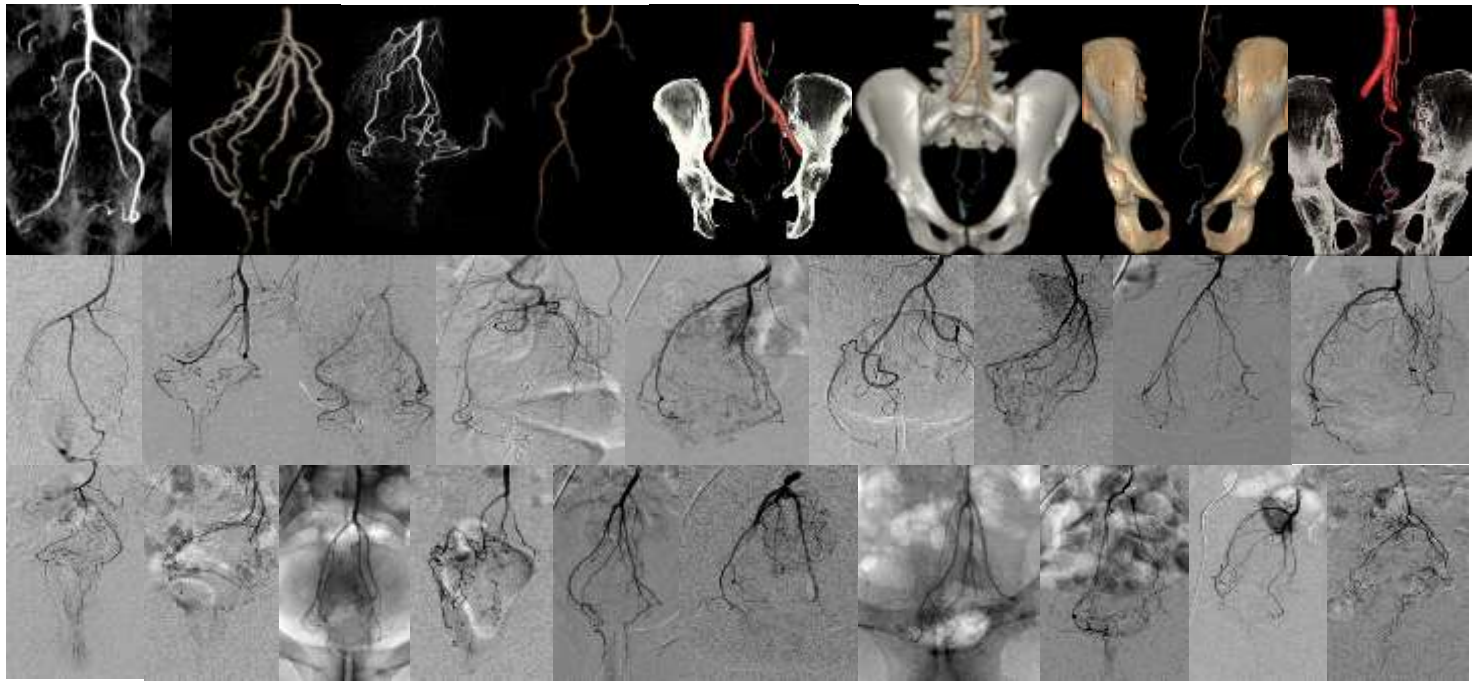






New Tools and Procedures

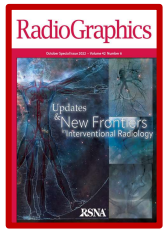
Rectal Artery Embolization for Hemorrhoidal Disease: Anatomy, Evaluation, and Treatment Techniques

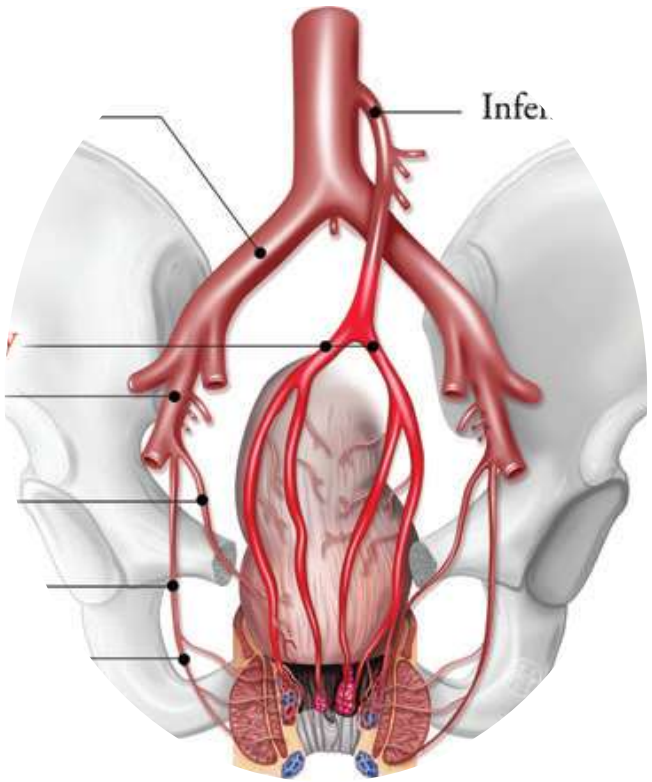




New Tools and Procedures

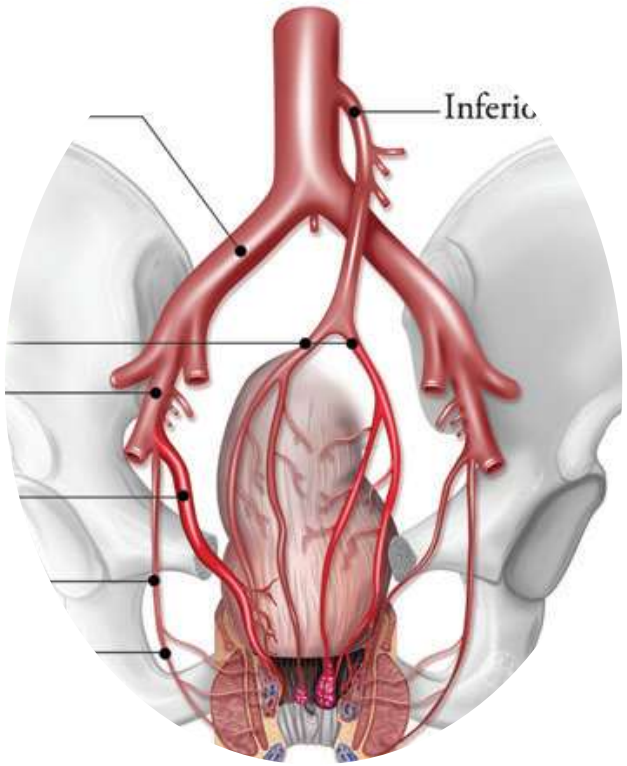
Rectal Artery Embolization for Hemorrhoidal Disease: Anatomy, Evaluation, and Treatment Techniques





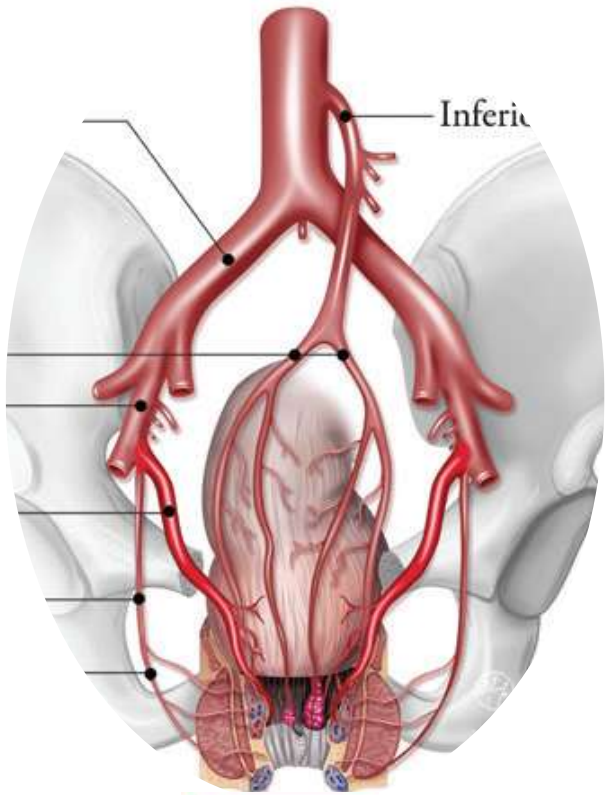
Type 1

65%



Type 2

25%



Type 3

15%

Emborrhoid ®

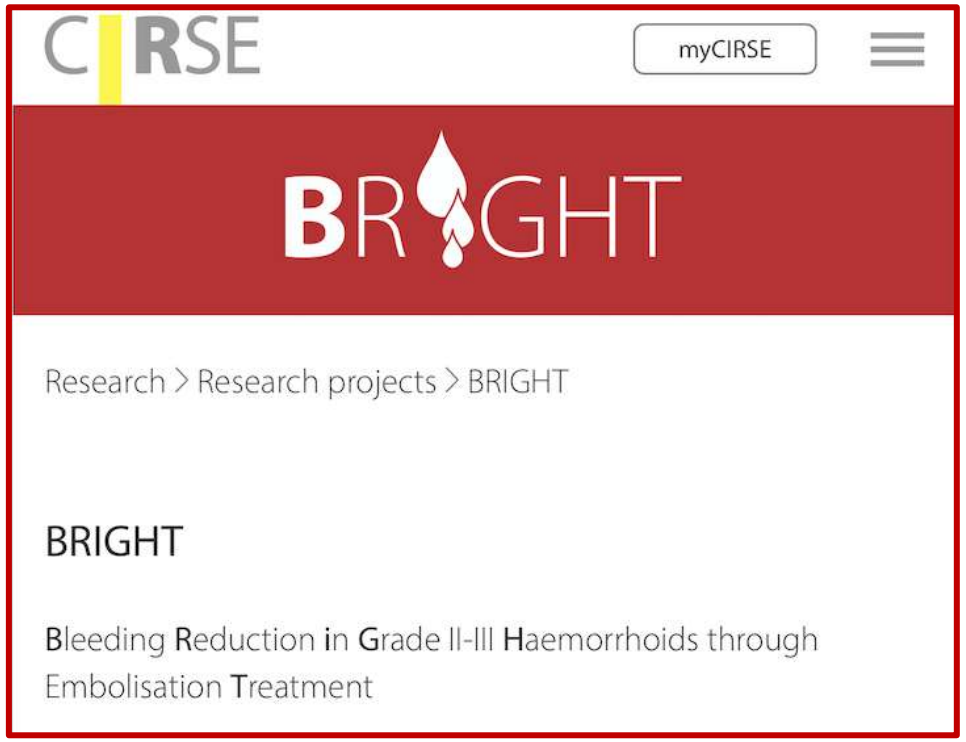
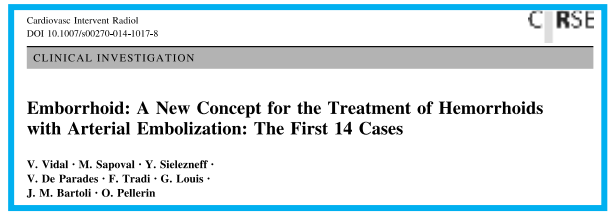


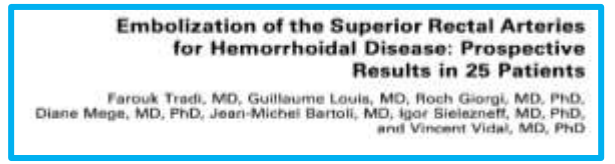
Table 2: Hemorrhoidal Bleeding Score

Variable	Score
Bleeding frequency	
Never	0
Less than once per day or at each bowel movement	1
Once or more per day or at each bowel movement	2
Bleeding type	
Never	0
With wiping; blood in or not in underwear	1
In toilet bowl	2
Anemia	
Never	0
Iron deficiency without anemia	1
Without transfusion	2
With transfusion	3
Discomfort	
Little or none	0
Moderate	1
Extreme or permanent	2
Overall score	...


Cardiovasc Interv Radiol
DOI 10.1007/s00270-014-1017-8
CIRSE
CLINICAL INVESTIGATION

Emborrhoid: A New Concept for the Treatment of Hemorrhoids with Arterial Embolization: The First 14 Cases

V. Vidal · M. Sapoval · Y. Sielezneff · V. De Parades · F. Tradi · G. Louis · J. M. Bartoli · O. Pellerin


Embolization of the Superior Rectal Arteries for Hemorrhoidal Disease: Prospective Results in 25 Patients

Farouk Tradi, MD, Guillaume Louis, MD, Roch Giorgi, MD, PhD, Diane Mege, MD, PhD, Jean-Michel Bartoli, MD, Igor Sielezneff, MD, PhD, and Vincent Vidal, MD, PhD

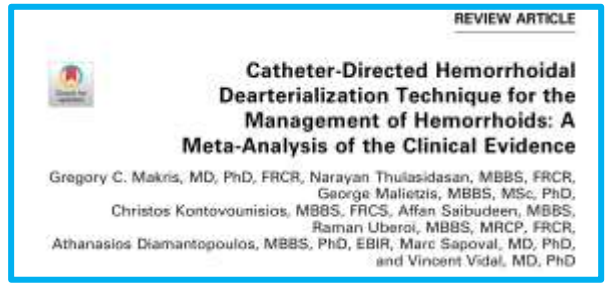

New Tools and Procedures

Rectal Artery Embolization for Hemorrhoidal Disease: Anatomy, Evaluation, and Treatment Techniques

Julien Panneau, Diane Mege, Mathieu Di Bisceglie, Julie Ducos, Paul-Hubert, Axel Bartoli, Vincent Vidal, Farouk Tradi

Author Affiliations

Published Online: Oct 3 2022


REVIEW ARTICLE

Catheter-Directed Hemorrhoidal Dearterialization Technique for the Management of Hemorrhoids: A Meta-Analysis of the Clinical Evidence

Gregory C. Makris, MD, PhD, FRCR, Narayan Thulasidasan, MBBS, FRCR, George Malietzis, MBBS, MSc, PhD, Christos Kontovounisios, MBBS, FRCS, Affan Saibudeen, MBBS, Raman Uberoi, MBBS, MRCP, FRCR, Athanasios Diamantopoulos, MBBS, PhD, EBIR, Marc Sapoval, MD, PhD, and Vincent Vidal, MD, PhD


Embolization of the Superior Rectal Arteries versus Closed Hemorrhoidectomy (Ferguson Technique) in the Treatment of Hemorrhoidal Disease: A Randomized Clinical Trial

Priscila Mina Falsarella, MD, Felipe Nasser, PhD, Breno Bueri Affonso, MD, Francisco Leonardo Galastri, PhD, Joaquim Mauricio da Motta-Leal-Filho, PhD, Leonardo Guedes Moreira Valle, MD, Marcela Juliano Silva Cunha, MD, Sergio Eduardo Alonso Araújo, PhD, Rodrigo Gobbo Garcia, PhD, and Marcelo Katz, PhD

Les innovations marseillaises

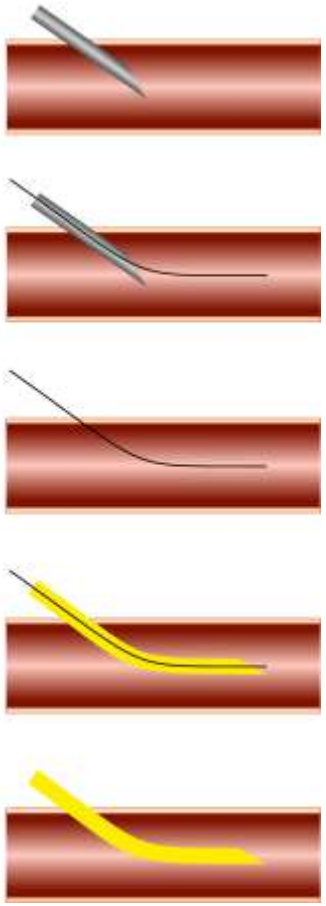
- Embolisation des hémorroïdes : Emborrhoid ®
  - Marque déposée APHM

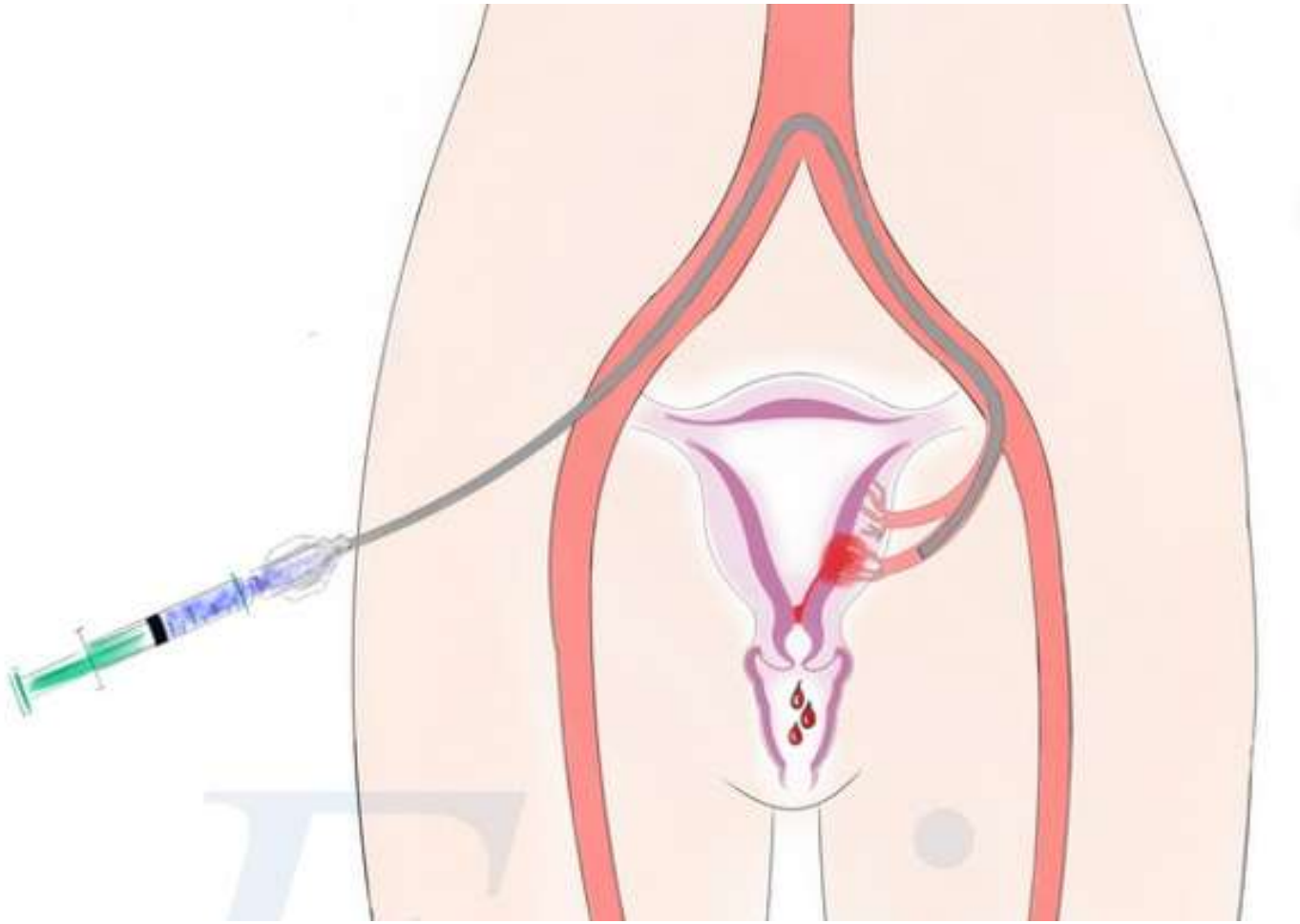
- **Embolisation équitable : FairEmbo**
  - **Coopération hospitalière internationale APHM**
  - **Chaire Amidex AMU**



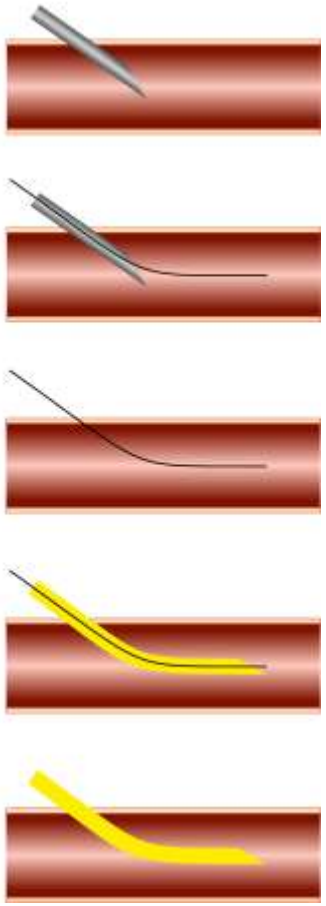

Emeline Sovadrevna

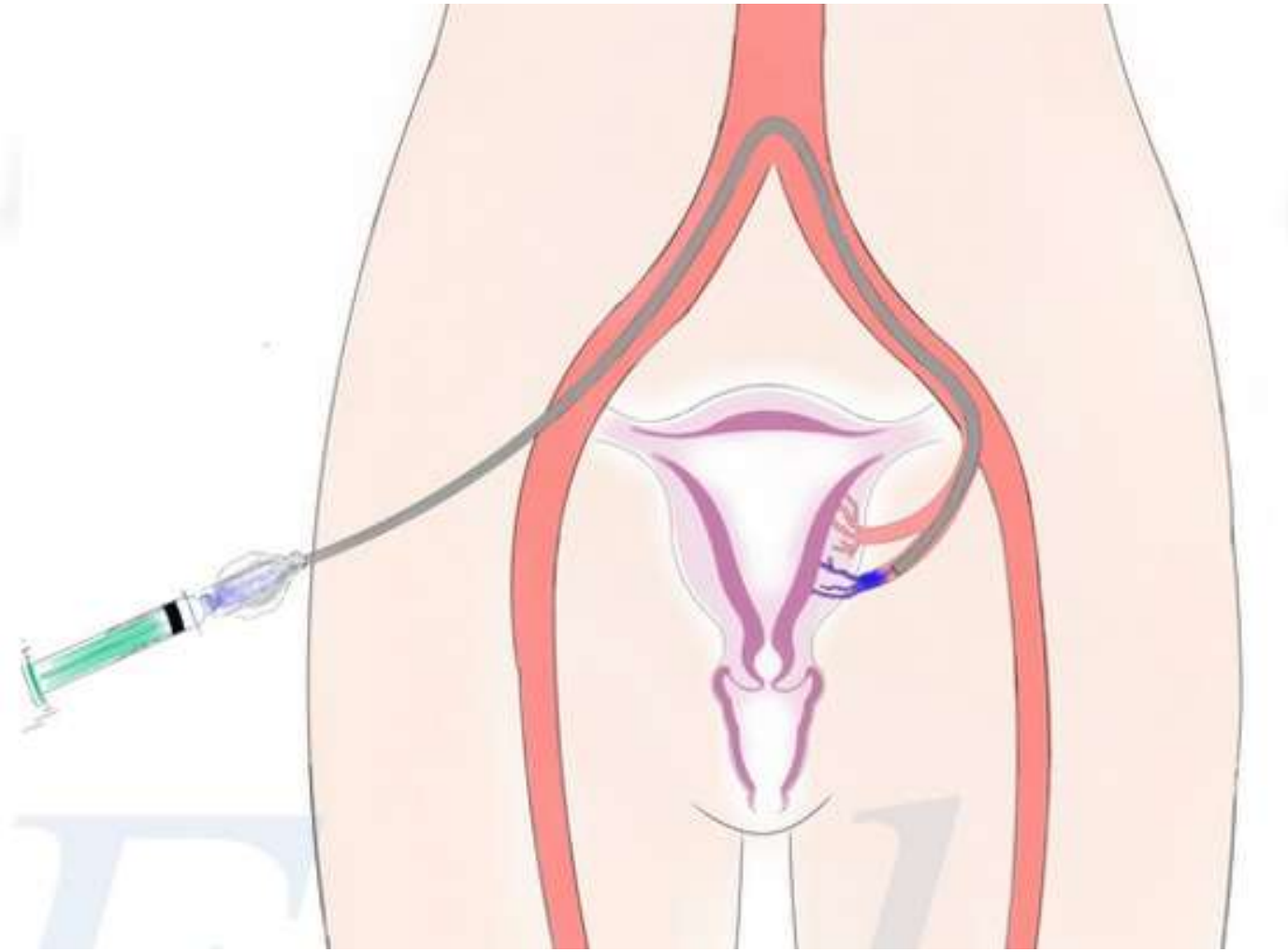
Embolisation





Embolisation















France : 100 €

Afrique : 800 €

LABORATORY INVESTIGATION

Nylon Fibered Versus Non-Fibered Embolization Coils: Comparison in a Swine Model

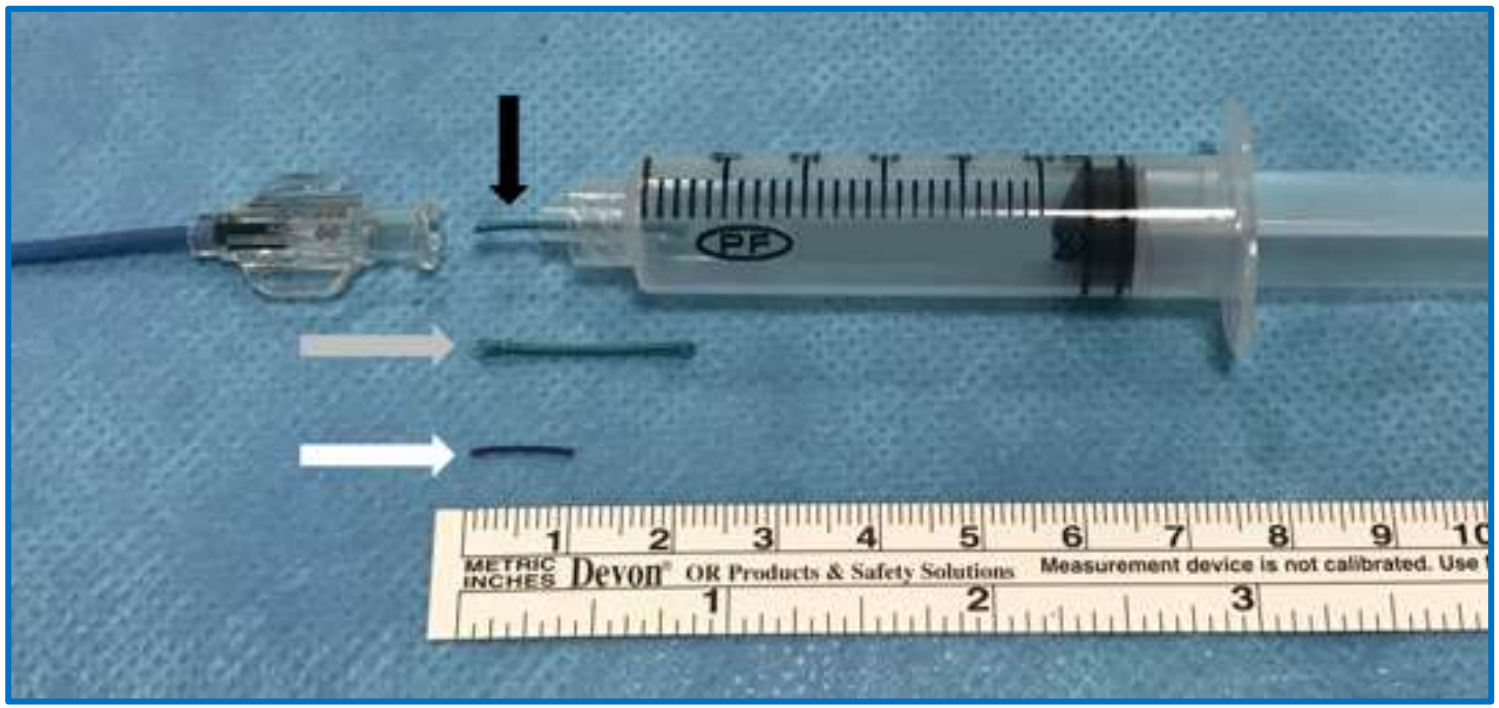
Scott O. Trerotola, MD, Gary A. Pressler, PhD, and
Christopher Premanandan, DVM, PhD, DACVP, DACT






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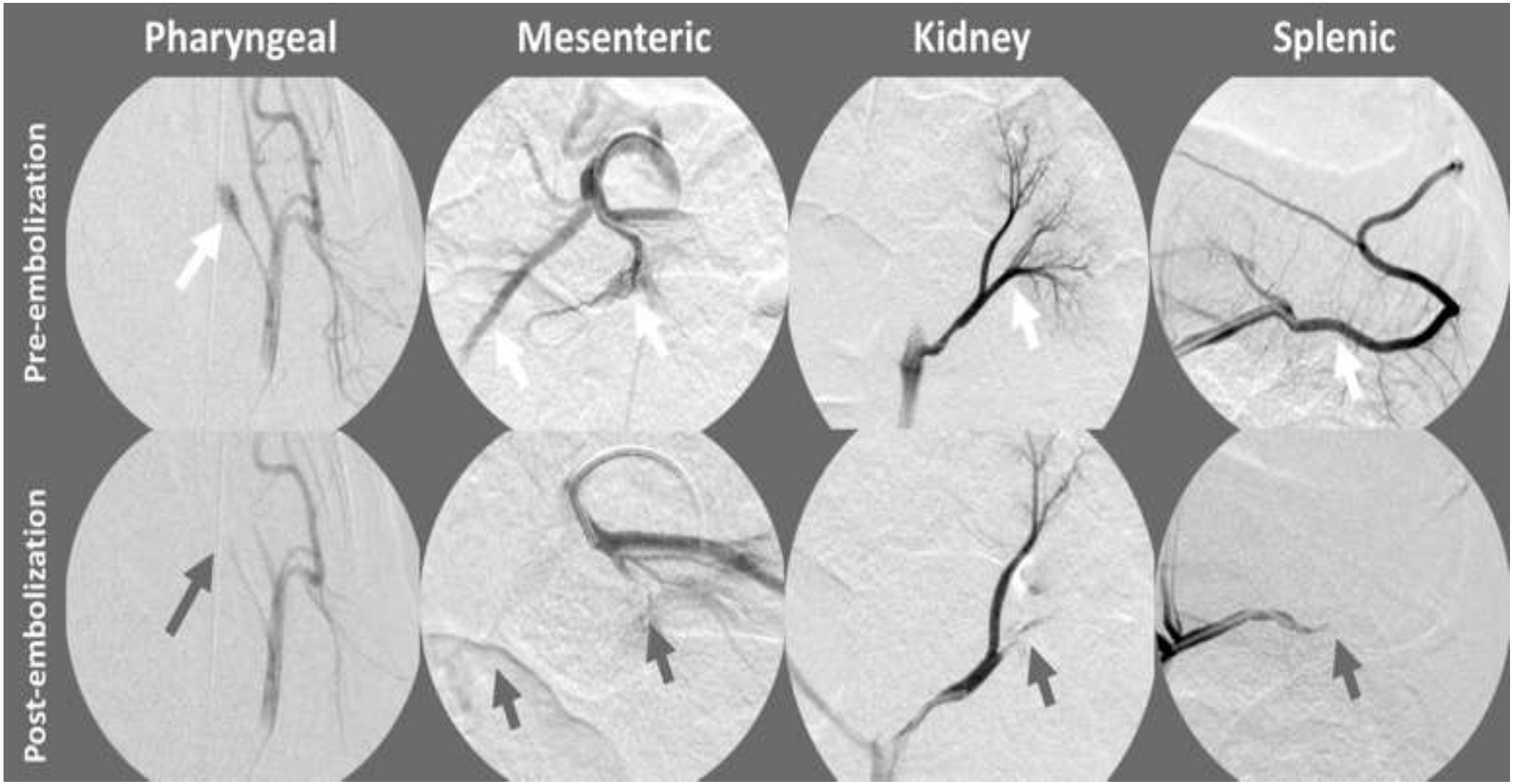

PF
METRIC
INCHES
Devon
OR Products & Safety Solutions
Measurement device is not calibrated. Use

Matériels & méthodes : Ex VIVO

SUTURE	USP		10	9	8	7	6	5	3+4	2	1	0	2-0		3-0	4-0
	Decimal		12	11	10	9	8	7	6	5	4	3.5	3	2.5	2	1.5
	Diameter (mm)		1.2-1.3	1.1-1.2	1.0-1.1	0.9-1.0	0.8-0.9	0.7-0.8	0.6-0.7	0.5-0.6	0.4-0.5	0.35-0.4	0.3-0.35	0.25-0.3	0.2-0.25	0.15-0.2
CATHETER 6F	Outer diameter (French)	6 Fr														
	Internal diameter (inch)	0.070" to 0.071"														
	Internal diameter (mm)	1.78 to 1.80														
CATHETER 5F	Outer diameter (French)	5 Fr														
	Internal diameter (inch)	0.040" to 0.059"	NOT COMPATIBLE													
	Internal diameter (mm)	1.02 to 1.50														
CATHETER 4F	Outer diameter (French)	4 Fr														
	Internal diameter (inch)	0.035" to 0.038"	NOT COMPATIBLE													
	Internal diameter (mm)	0.89 to 0.97														
MICROCATHETER 1.7F	Outer diameter (French)	Proximal extremity: 2.4 F Distal end: 1.7 F	NOT COMPATIBLE													
	Internal diameter (inch)	0.014" to 0.017"														
	Internal diameter (mm)	0.36 to 0.43														

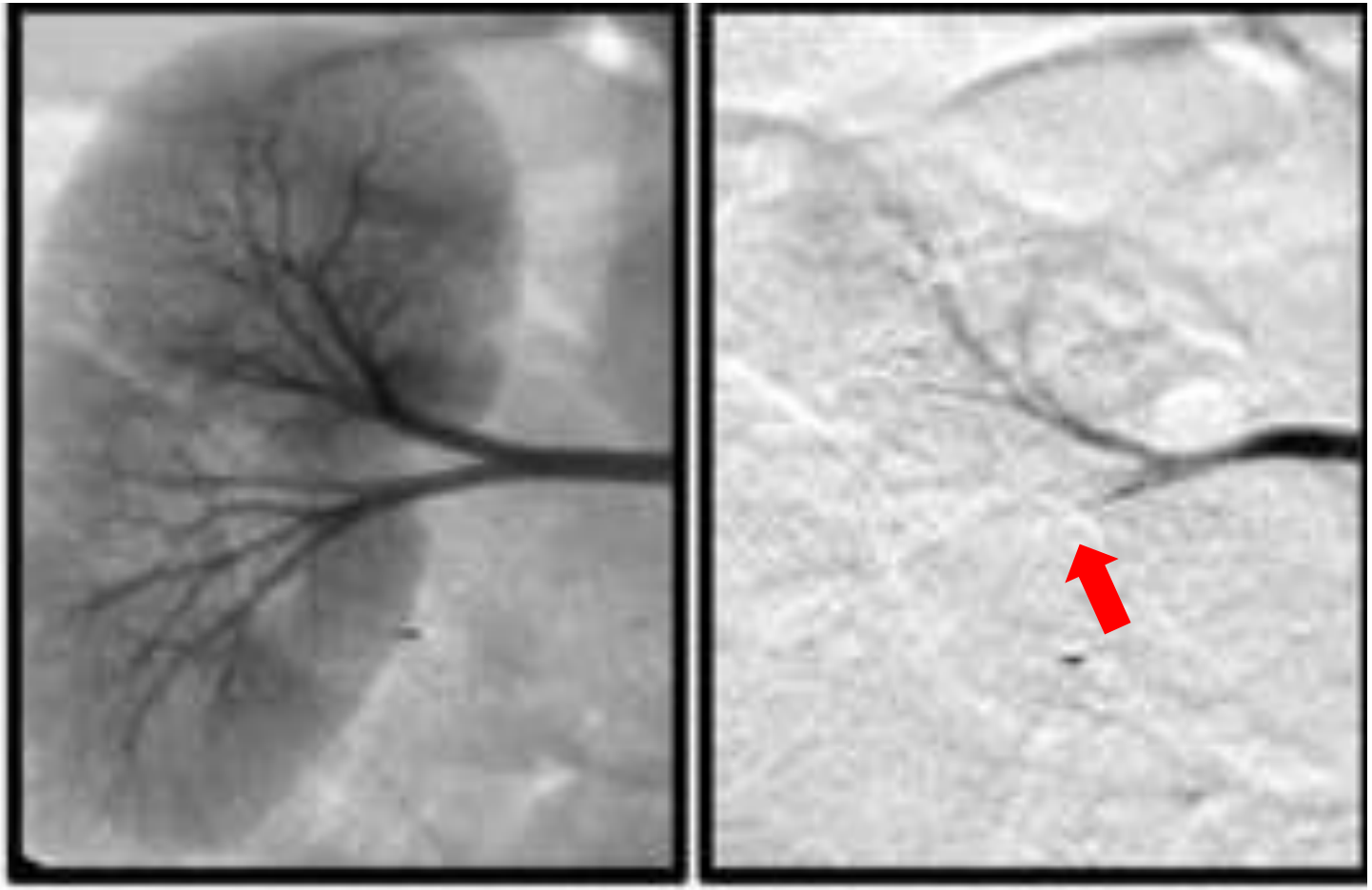


Résultats : In VIVO



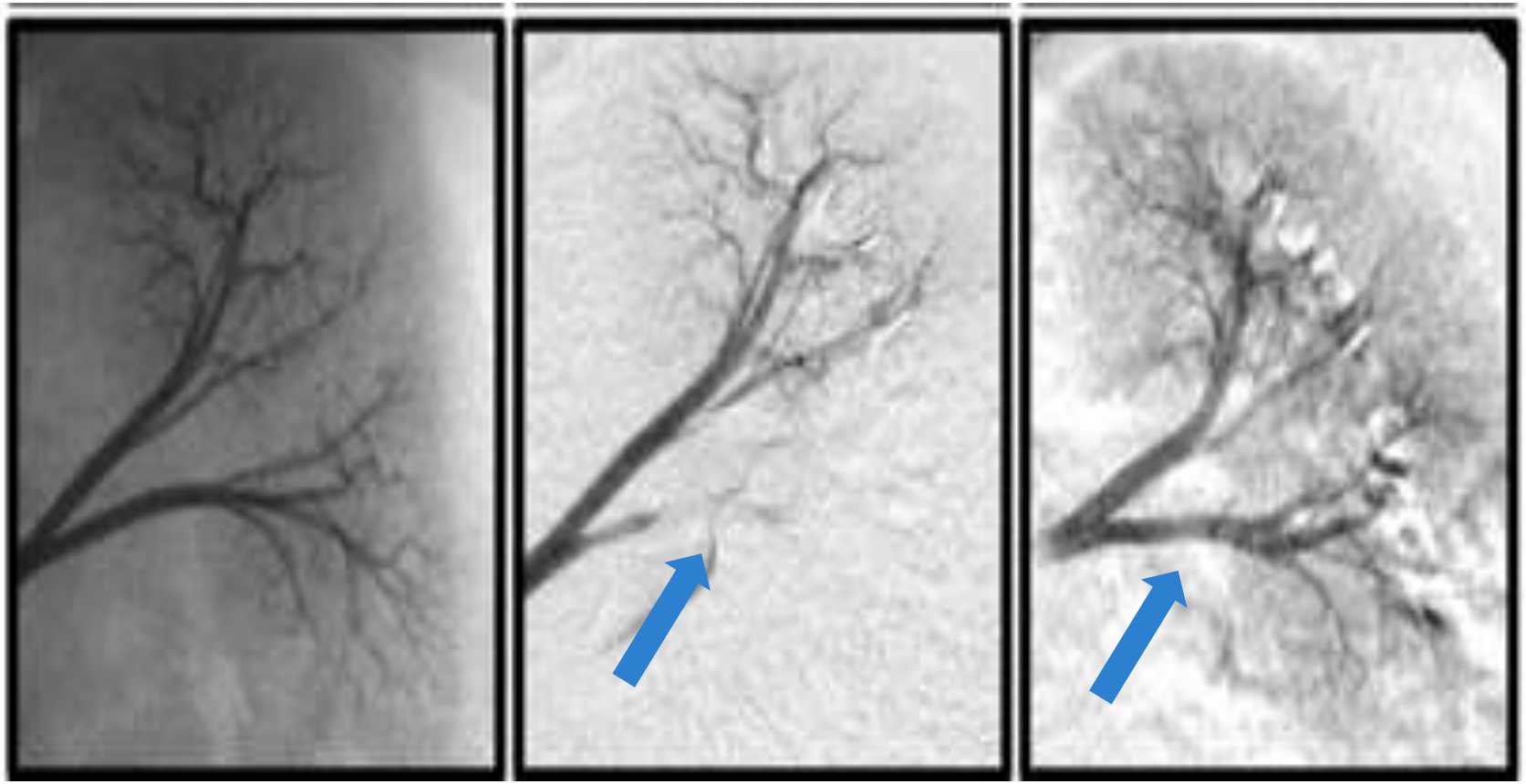
Résultats : In VIVO

Suture non résorbable



Résultats : In VIVO

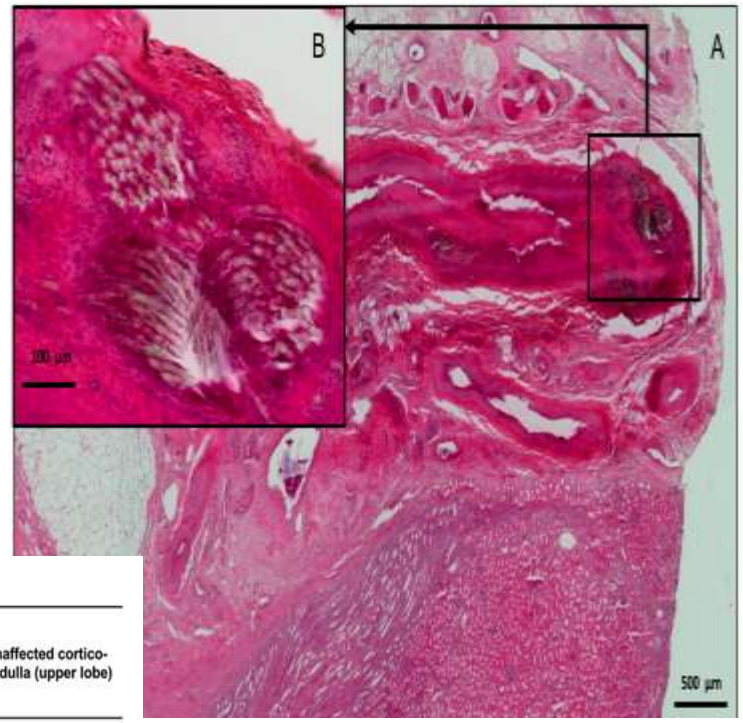
Suture resorbable



Résultats : In VIVO

Résorption totale à 3 mois

Pas d'infiltration périvasculaire



C

	NAS			AS		
	Embolized cortex (lower lobe)	Embolized medulla (lower lobe)	Unaffected cortico-medulla (upper lobe)	Embolized cortex (lower lobe)	Embolized medulla (lower lobe)	Unaffected cortico-medulla (upper lobe)
Fibroplasia	1/1/2	1/1/2	0/0/0	2/1/1	1/2/1	0/0/0
Calcification	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Neovascularization	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Haemorrhage	0/0/0	0/1/0	0/0/0	0/0/0	1/0/0	0/0/0
Polymorphonuclear Cells	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Lymphocytes	1/0/0	1/1/0	0/0/0	1/0/0	1/0/0	0/0/0
Plasma Cells	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Macrophages	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Giant Cells	0/0/0	0/0/1	0/0/0	0/0/0	0/0/0	0/0/0
Necrosis	2/0/0	0/0/0	0/0/0	0/2/0	0/0/0	0/0/0
Material Degradation	0/0/0	0/0/1	0/0/0	4/3/4	4/4/3	0/0/0
Infarcts	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Mural fibrosis	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Angionecrosis	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Perivascular Granulocytic Infiltration	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Extravasation of embolic agent	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Capillary recanalisation	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0

PUBLICATION *CVIR Avril 2019*

Cardiovasc Intervent Radiol
https://doi.org/10.1007/s00270-019-02211-y

CIRSE

Check for updates

LABORATORY INVESTIGATION ARTERIAL INTERVENTIONS

In Vivo Feasibility of Arterial Embolization with Permanent and Absorbable Suture: The FAIR-Embo Concept

V. Vidal[1,2,3] · J. F. Hak[1,2,3] · P. Brige[2,3] · S. Chopinet[2,3,4] · F. Tradi[1,2,3] · M. Bobot[3,5,6] · P. Gach[1,2,3] · A. Haffner[7] · G. Soulez[8] · A. Jacquier[1] · G. Moulin[1] · J. M. Bartoli[1] · B. Guillet[3,6,9]

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© Springer Science+Business Media, LLC, part of Springer Nature and the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) 2019

Abstract

Purpose Arterial embolization has been shown to be effective and safe for the management of bleeding, especially for postpartum and pelvic traumatic bleeding. We propose to evaluate the proof of concept of feasibility and effectiveness of arterial embolization with absorbable and non-absorbable sutures in a porcine model.

Materials and Methods In the acute setting (n = 1), several different arteries (mesenteric, splenic, pharyngeal, kidney) were embolized using non-absorbable sutures (NAS): Mersutures™ braided sutures (polyethylene terephthalate). In the chronic setting (n = 3), only lower pole renal arteries were embolized. On the right side, NAS was used, whereas on the left side embolization was realized with absorbable suture (AS): Vicryl® braided suture (polyglactin 910). The chronic group was followed for 3 months. The pigs received contrast-enhanced CT the day before embolization (D-1), after the embolization (D0), at 1 month and 3 months after embolization (M1 and M3); digital subtrac-

PUBLICATION *Diag Interv Im* *Avril 2020*

› Diagn Interv Imaging. 2020 Apr 23;S2211-5684(20)30095-4. doi: 10.1016/j.diii.2020.04.002.
Online ahead of print.

Hemostatic Embolization of Renal Artery Pseudoaneurysm Using Absorbable Surgical Suture (FairEmbo Concept)

A.D. Diop[a]
A.N. Diop[b]
J.-F. Hak[c,d,*]
M. Di Bisceglie[c,d]
J.-M. Bartoli[c]
B. Guillet[d]
V. Vidal[c,d]

[a] *Diagnostic and Medical Imaging Center, Fann National University Hospital Center, 5035 Dakar, Senegal*

[b] *UFR 2S, Gaston Berger University, 234 Saint-Louis, Senegal*

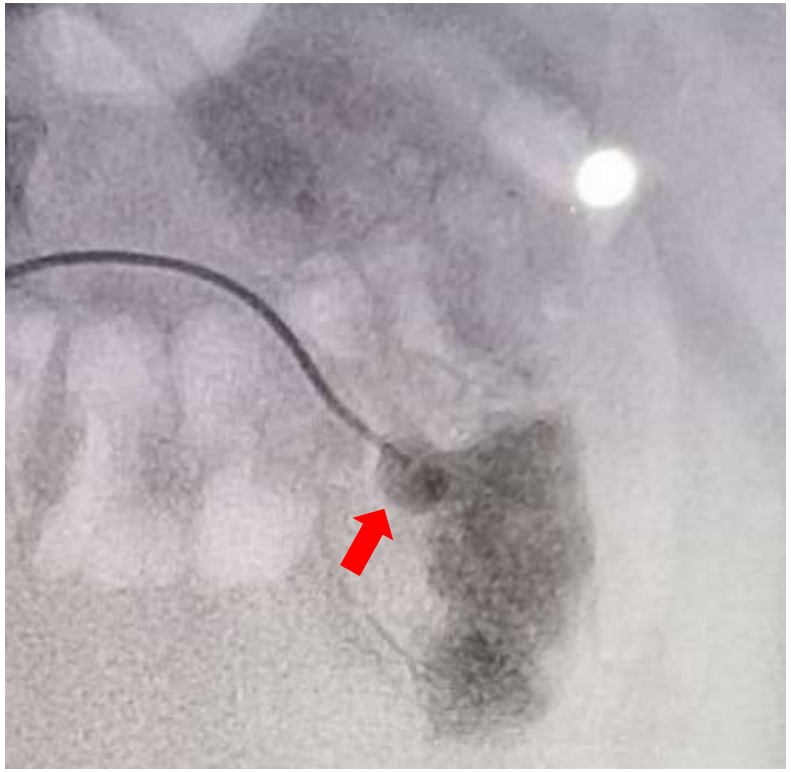


- ***Courtesy Prof A. DIOP – Dakar – SENEGAL***



- **Choc hémorragique**
- Faux anévrysme renal avec hématome rétropéritonéal





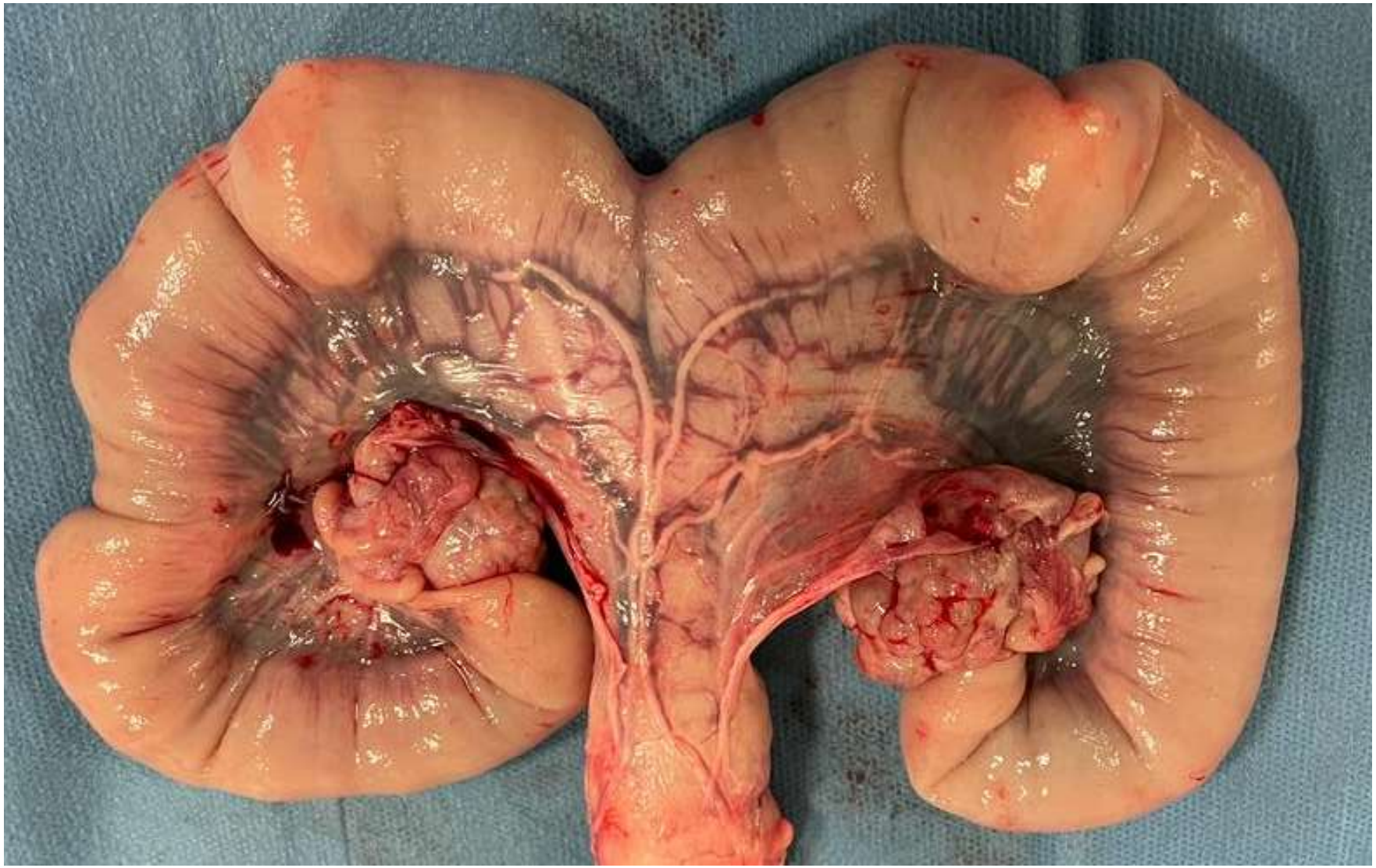


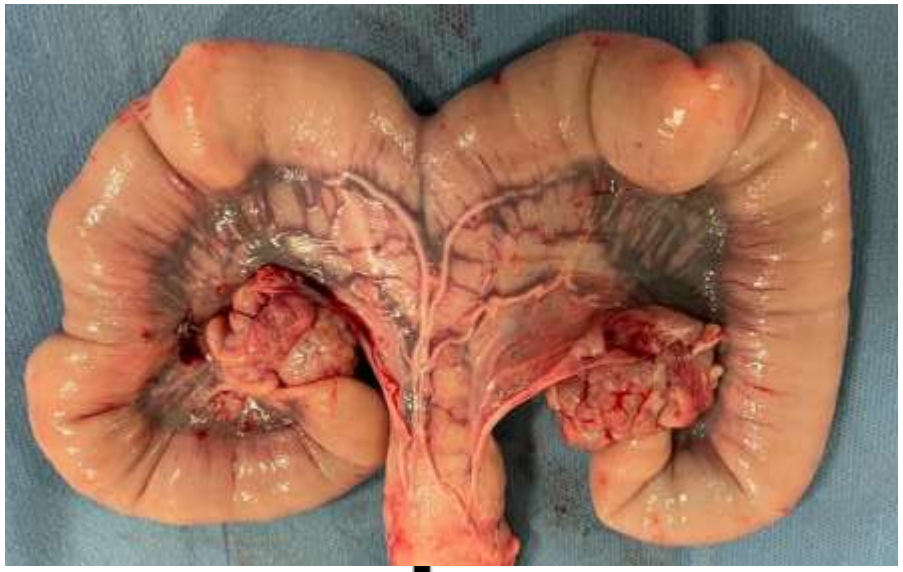
- 4 Fr Cobra
- 4 fragments (1cm) sutures (polyamide monofilament non absorbable suture USP 2-0).
- Occlusion en 3 minutes et recuperation hémodynamique.

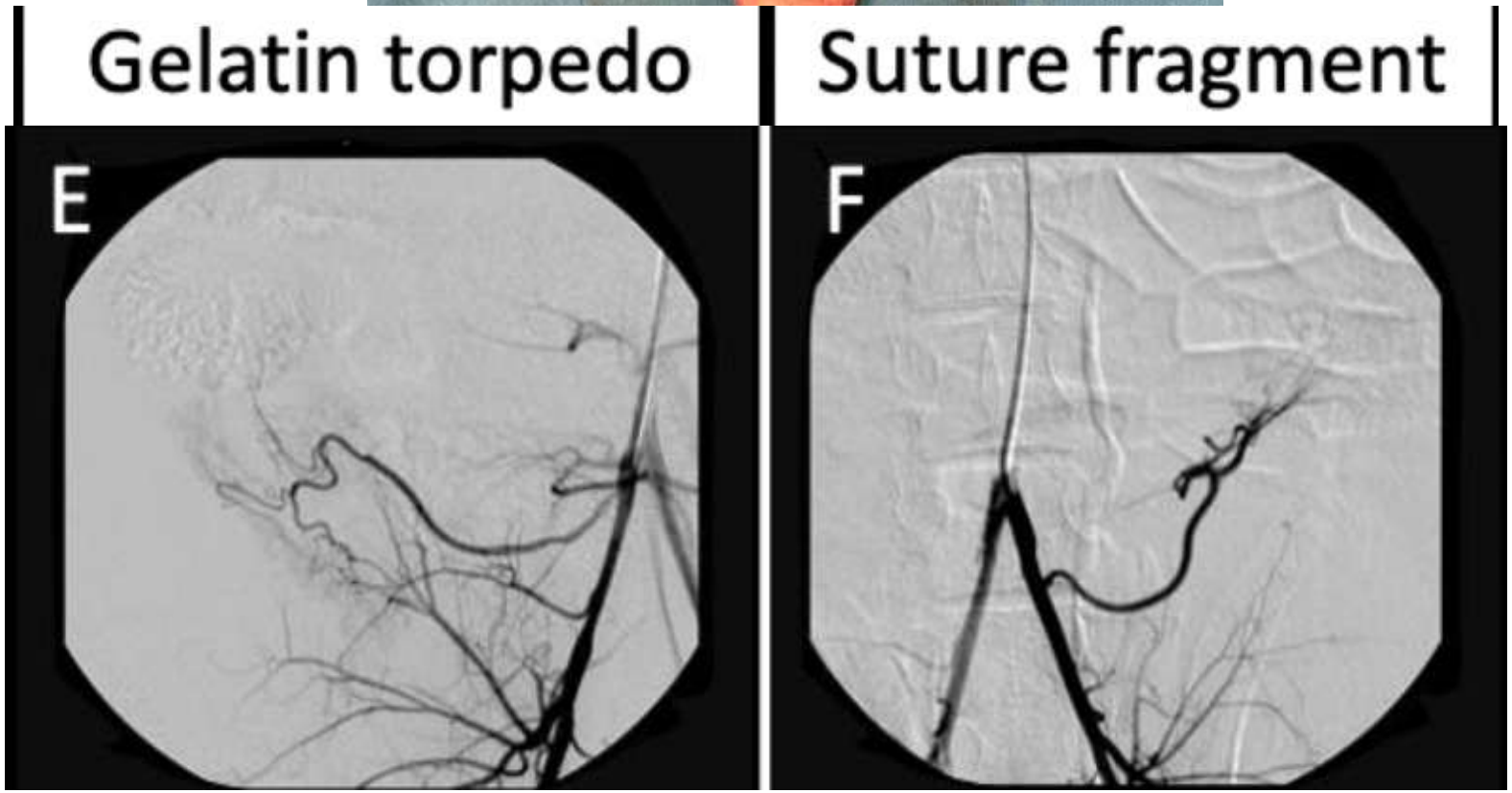




Modèle animal






Gelatin torpedo
Suture fragment
E
F

PUBLICATION *J Pers Med*

Jan 2023



Journal of *Personalized Medicine*

MDPI

Article

FairEmbo Concept for Postpartum Hemorrhage: Evaluation of the Efficacy of Suture Fragment Compared with Gelatin Sponge Torpedo Embolization in a Post-Gravid Swine Model

Amandine Banata Gang-Ny [1], Julien Panneau [1,2,3], Pauline Brige [2,3], Jean-François Hak [1,2,3], Paul Habert [1,2,3], Vincent Vidal [1,2,3], Farouk Tradi [1,2,3] and Mathieu Di Bisceglie [1,2,3,*]

J. Pers. Med. **2023**, *13*, 124. https://doi.org/10.3390/jpm13010124

PAIRS 2022

Largest Endovascular and Interventional Radiology Conference in the Middle East

Courtesy, Pr A.HABOUCHI

CHU Bab el oued, Alger



- **29 ans, G1P1, Hémorragie du post partum.**



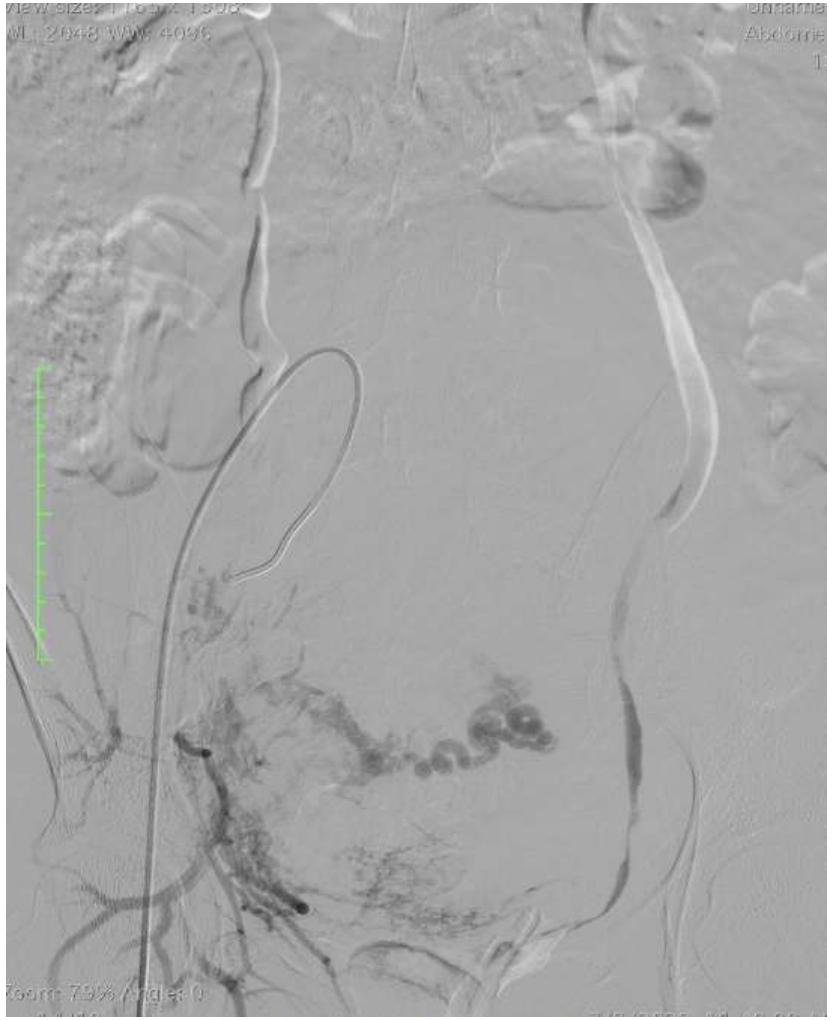


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PUBLICATION

Cardiovasc Intervent Radiol
https://doi.org/10.1007/s00270-023-03626-4

Feasibility of the FairEmbo Concept to Treat Women Postpartum Hemorrhage: Embolization with Suture Fragments

M. A. Habouchi[1] · M. Tabouche[2] · C. Hamadache[2] · R. Ait Chalal[1] · L. Oukaour[1] · C. Aimeur[2] · A. Gang-Ny[3] · V. Vidal[3]

We conclude that embolization with absorbable suture fragments (FairEmbo concept) is feasible, and effective in the medium term for the treatment of PPH.

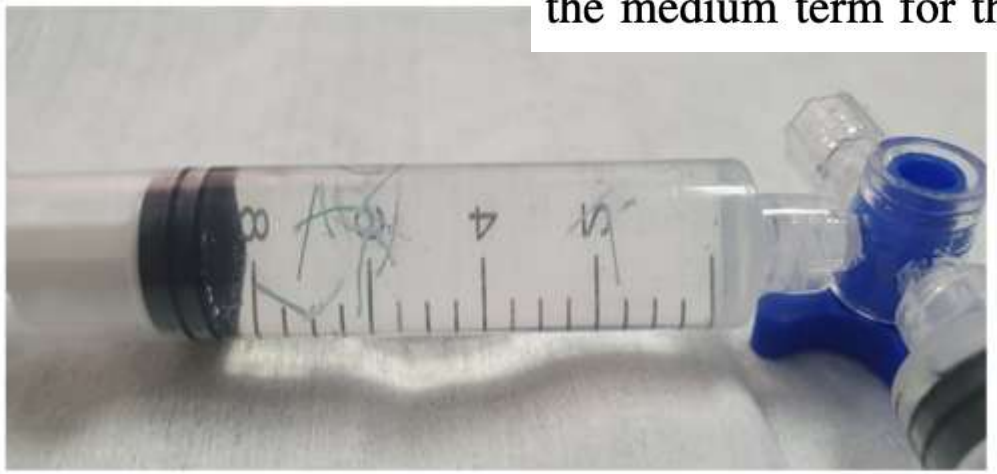


Fig. 1 Suture fragments in the syringe before embolization

Les innovations marseillaises

- Embolisation des hémorroïdes : Emborrhoid ®
  - Marque déposée APHM
- Embolisation équitable : FairEmbo
  - Coopération hospitalière internationale APHM
  - Chaire Amidex AMU
- **Embolisation organique : Embobio ®**
  - **Brevet AMU APHM**
  - **Start-up incubée par ProtisValor**



Embolisation Bio Organique







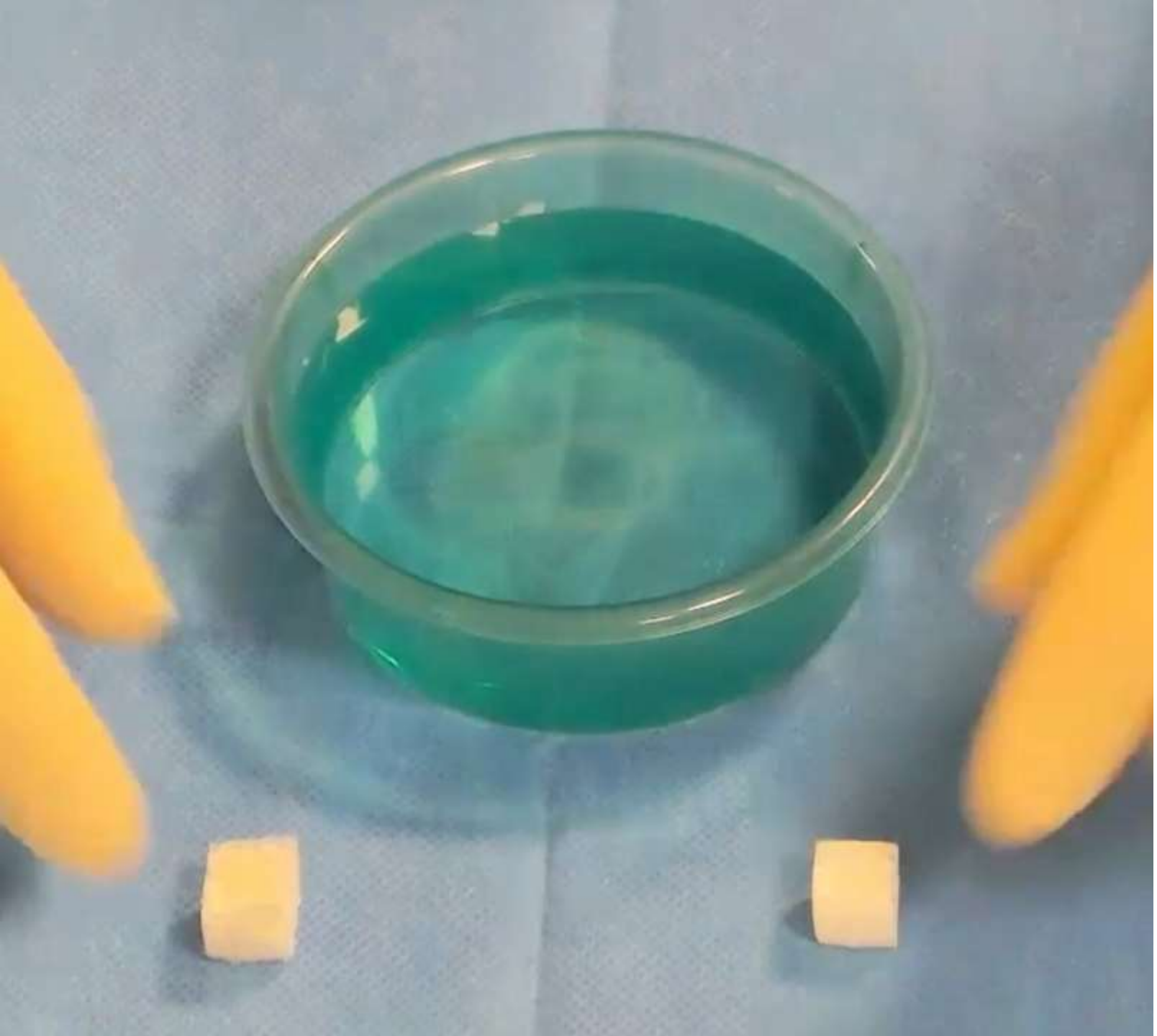
(A) Global Warming Potential (kg CO_2-eq/kg)

Lowest — Highest

H																	He 0.9
Li 7.1	Be 122											B 1.5	C	N	O	F	Ne
Na	Mg 5.4											Al 8.2	Si	P	S	Cl	Ar
K	Ca 1.0	Sc 5,710	Ti 8.1	V 33.1	Cr 2.4	Mn 1.0	Fe 1.5	Co 8.3	Ni 6.5	Cu 2.8	Zn 3.1	Ga 205	Ge 170	As 0.3	Se 3.6	Br	Kr
Rb	Sr 3.2	Y 15.1	Zr 1.1	Nb 12.5	Mo 5.7	Tc	Ru 2,110	Rh 35,1[illegible]	Pd 3,880	Ag 196	Cd 3.0	In 102	Sn 17.1	Sb 12.9	Te 21.9	I	Xe
Cs	Ba 0.2	La-Lu*	Hf 131	Ta 260	W 12.6	Re 450	Os 4,560	[illegible]	Pt 12,500	[illegible]	Hg 12.1	Tl 376	Pb 1.3	Bi 58.9	Po	At	Rn
Fr	Ra	Ac-Lr**	Rf	Db	Sg	Bh	Hs	Mt									




able
conomique







Embobio

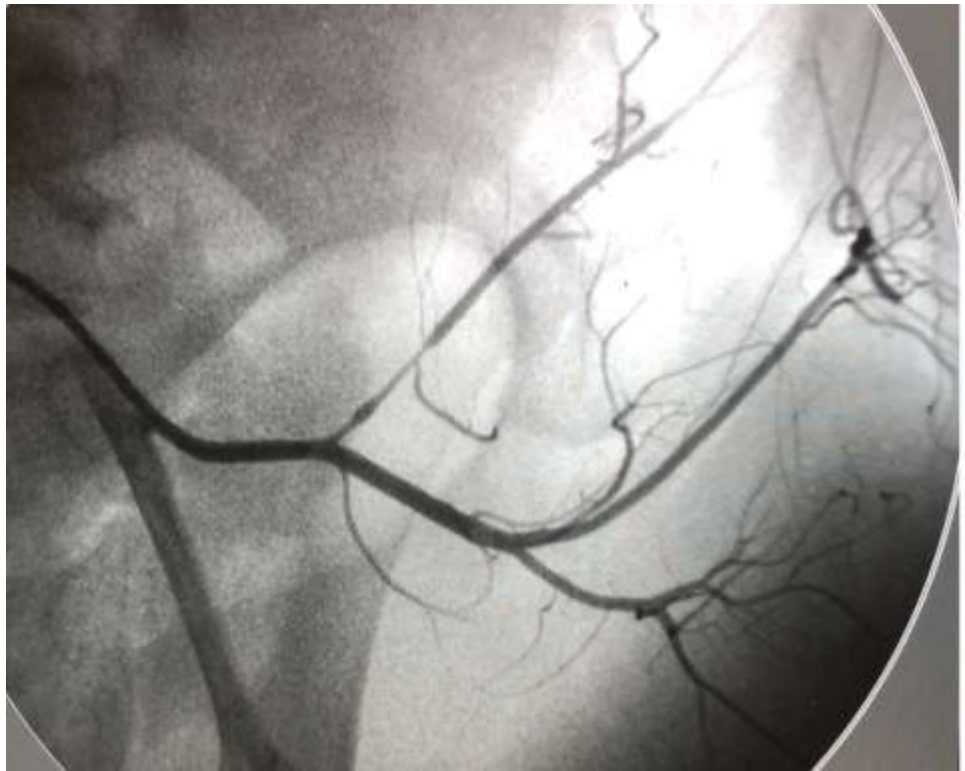
permanent

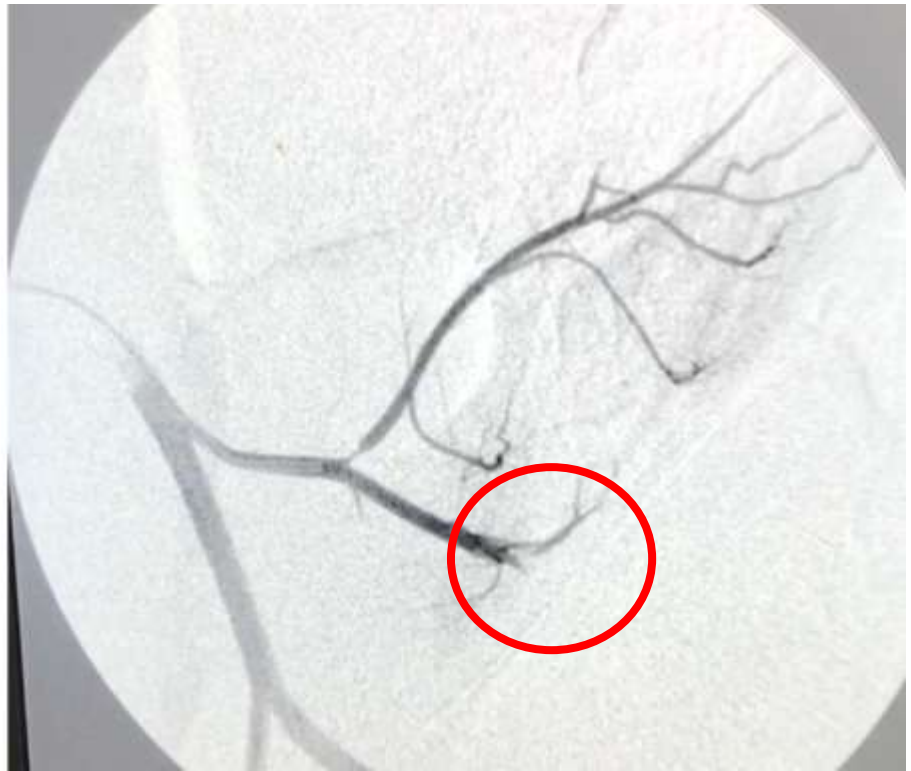
Implant



Dry

Hydrated





Embobio Medical

EMBOBIO
100% BIO
We preserve.



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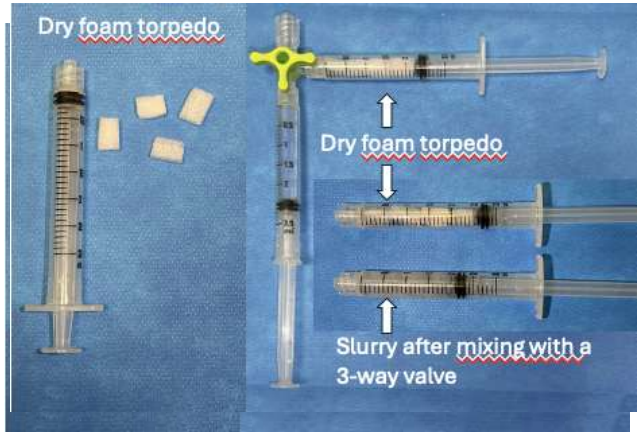
In Vivo Feasibility of Arterial Embolization with a New Permanent Agar–agar-Based Agent

LABORATORY INVESTIGATION | Embolisation (arterial) | Published: 15 October 2024

Volume 48, pages 258–264, (2025) Cite this article



CardioVascular and Interventional Radiology





Cardiovasc Intervent Radiol
https://doi.org/10.1007/s00270-024-03917-4

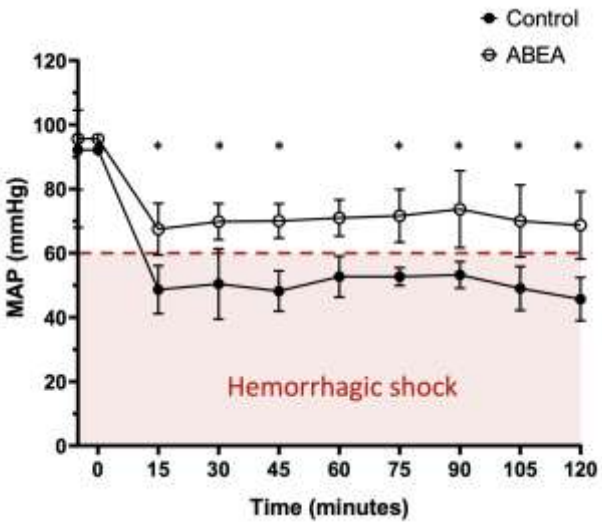
CIRSE

COMMENTARY COMMENTARY

In vivo Feasibility of Arterial Embolization with a New Permanent Agar–Agar-Based Agent: Cause for Excitement and Restraint

Gary Siskin[1]





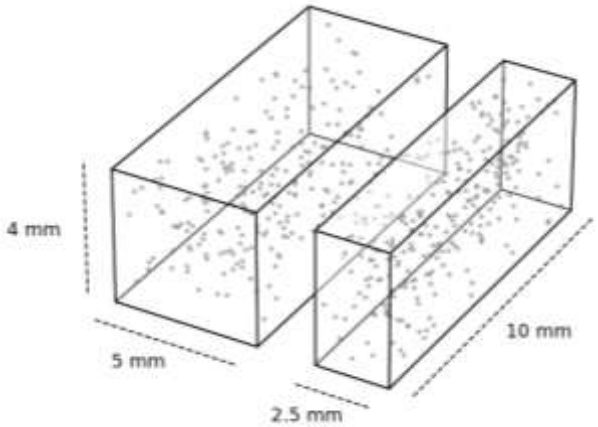
Article

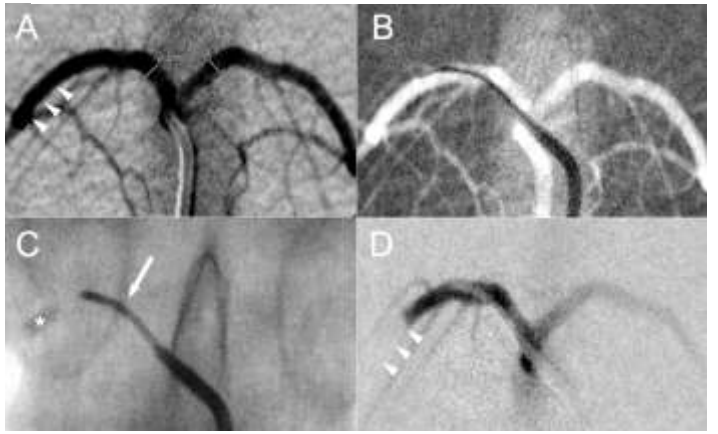
A New Generation of Eco-Designed Embolic Agents: Towards Sustainable and Personalized Interventional Radiology

Alexis Ruimy [1,2,3,*], Thibault Agripnidis [1,2,3], Julien Panneau [1,2,3], Johanna Nguyen [2,3,4], Farouk Tradi [1,2,3], Thierry Marx [5], Raphaël Haumont [6], Pauline Brige [2,3], Benjamin Guillet [3,4,7] and Vincent Vidal [1,2,3]

In Vivo Feasibility of Arterial Embolization with a new permanent organic dry foam comprising agar-agar (Embobio®)

V. VIDAL, A RUIMY, T AGRIPNIDIS, J NGUYEN, J PANNEAU, V NAIL, A HAFFNER, P BRIGE, R HAUMONT, B GUILLET





In Vivo Feasibility of Arterial Embolization with a Slurry comprising agar-agar agent (Embobio®)

Thibault AGRIPNIDIS , Alexis RUIMY , Johanna NGUYEN, Julien PANNEAU, Pauline BRIGE, Raphaël HAUMONT, Benjamin GUILLET, Vincent VIDAL

Clinical Study Embobio 1

45 patients

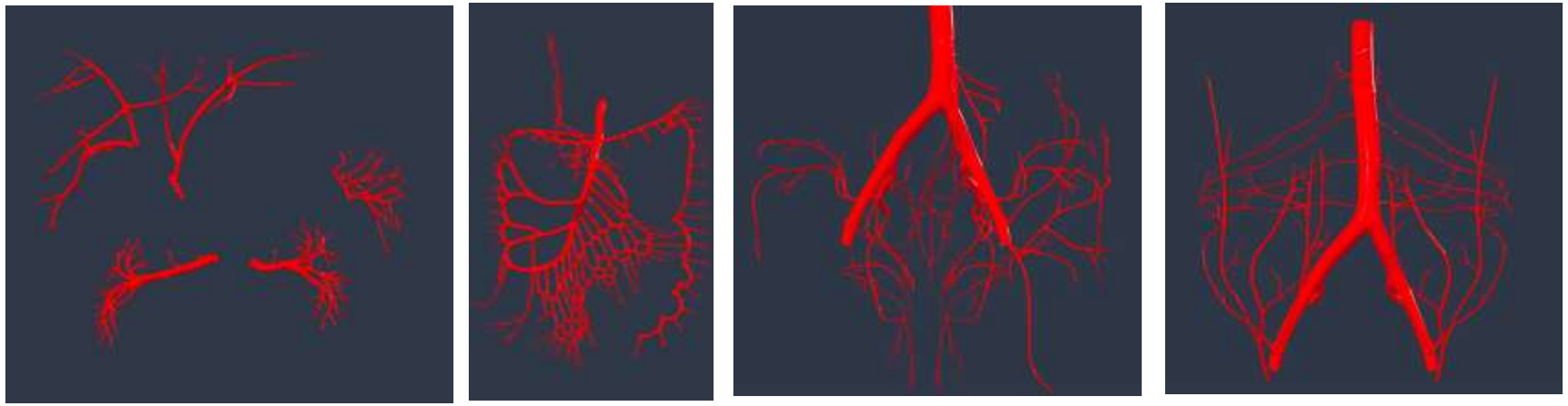
A Safety and Performance Study of the Use of EmboBio for the Intra-arterial Treatment of Abdominopelvic Bleeding (EMBOBIO-1)

ClinicalTrials.gov ID NCT07199348

Sponsor Embobio Medical

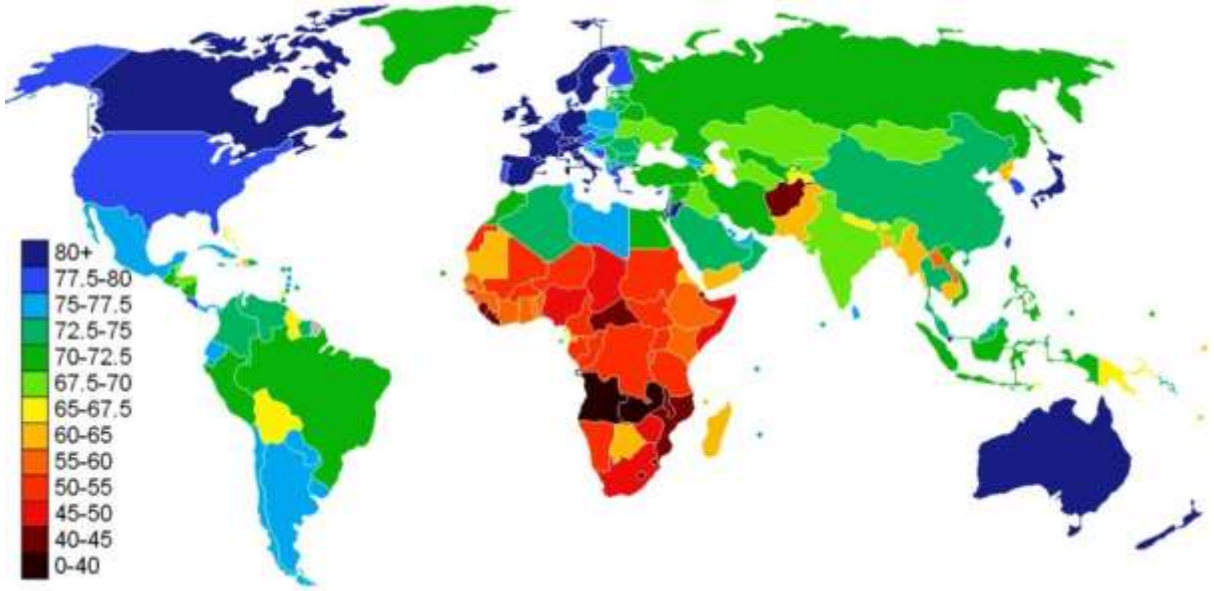
Information provided by Embobio Medical (Responsible Party)

Last Update Posted 2025-09-30



"Just agar, air and water."





Cardiovasc Intervent Radiol
https://doi.org/10.1007/s00270-020-02750-9



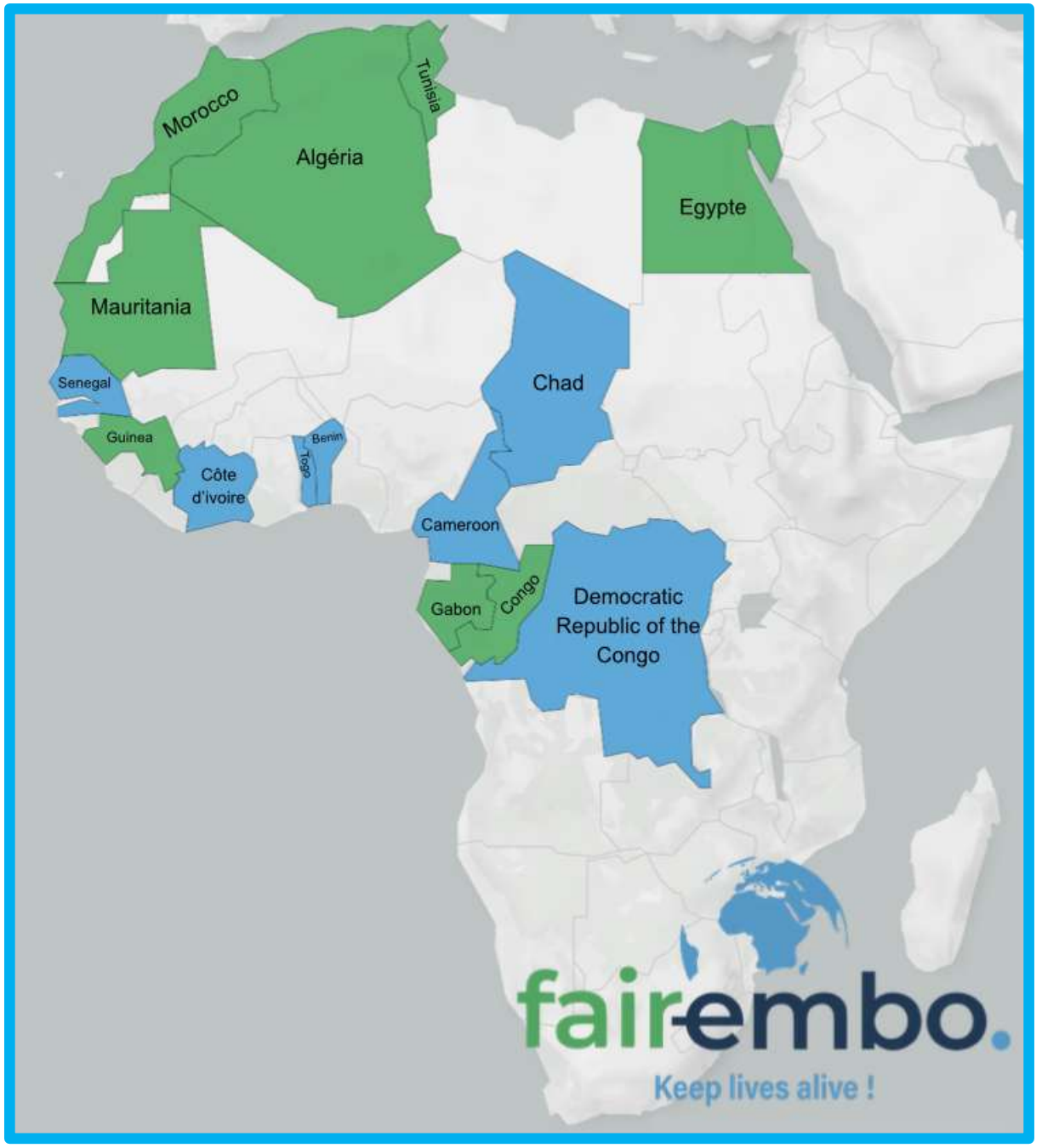
COMMENTARY

Interventional Radiology for Whom

Yasuaki Arai[1]

Our IR should not be just for the wealthy. We should look to "cheaper IR" to make IR loved by everyone on the planet.


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Keep lives alive !


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Tunisia
Egypte
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Guinea
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Trésorier, FAIREMBO
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Docteur en physiologie
Responsable scientifique LIE
Secrétaire, FAIREMBO

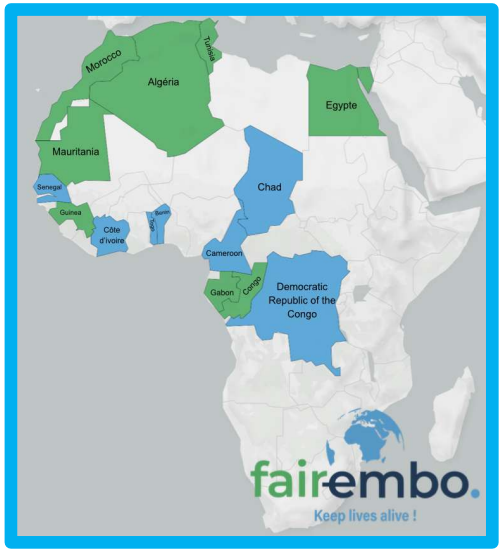

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Média / Communication
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2019	1 Dakar	2025	10 Lomé
			11 Kinshasa
2020	2 Pnom Pehn		12 N'djamena
			13 Dakar
2022	3 Dakar		14 Cotonou
	4 Abidjan		
2023	5 Yaoundé	2026	15 Lomé
	6 Abidjan		16 Yaoundé
	7 Yaoundé		17 Kinshasa
			18 Libreville
2024	8 Abidjan		19 Yaoundé
	9 Yaoundé		20 Cotonou
	Douala	2027	20 ...
			21 ...









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	7 Yaoundé		16 Yaoundé
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	9 Yaoundé		18 Libreville
	Douala		19 Yaoundé
			20 Cotonou
		2027	20 ...
			21 ...








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2019
1 Dakar
2020
2 Pnom Pehn
2022
3 Dakar
4 Abidjan
2023
5 Yaoundé
6 Abidjan
7 Yaoundé
2024
8 Abidjan
9 Yaoundé
Douala
2025
10 Lomé
11 Kinshasa
12 N'djamena
13 Dakar
14 Cotonou
2026
15 Lomé
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18 Libreville
19 Yaoundé
20 Cotonou
2027
20 ...
21 ...


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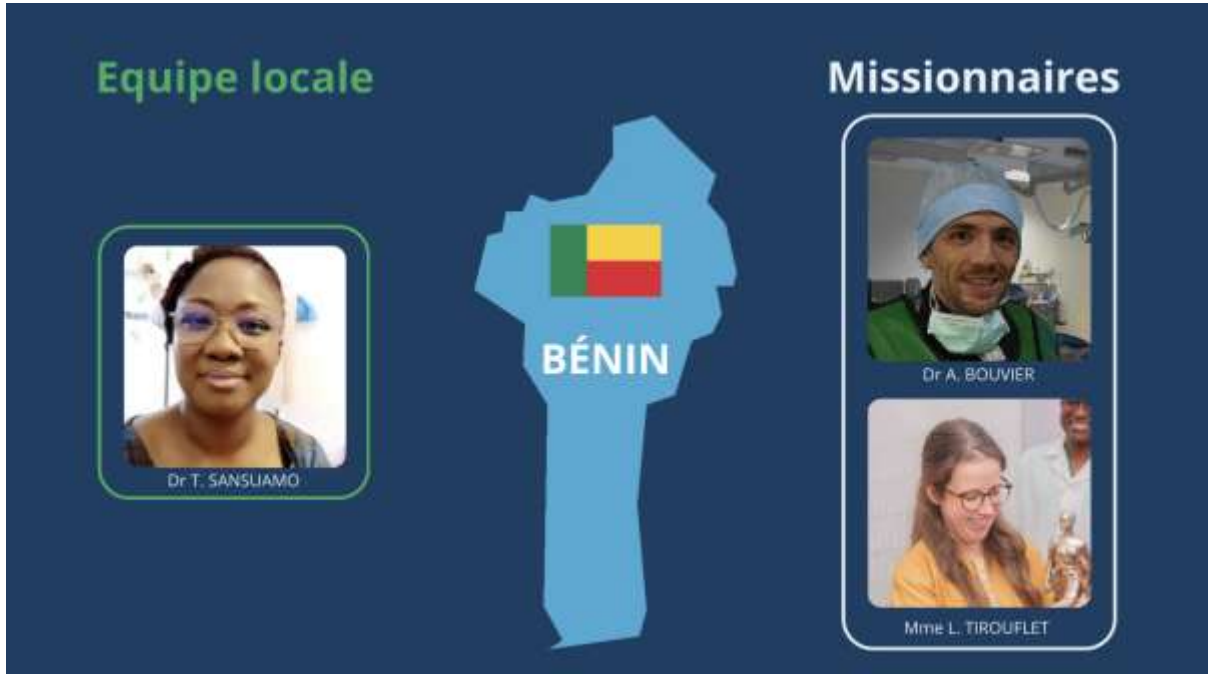

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	9 Yaoundé		18 Libreville
	Douala		19 Yaoundé
			20 Cotonou
		2027	20 ...
			21 ...







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Parrains



Claude LELOUCH



Yannick NOAH



Bernard WERBER


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Imaginez ce que sera
notre quotidien demain !

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LIIE Laboratoire d'Imagerie Interventionnelle Expérimentale