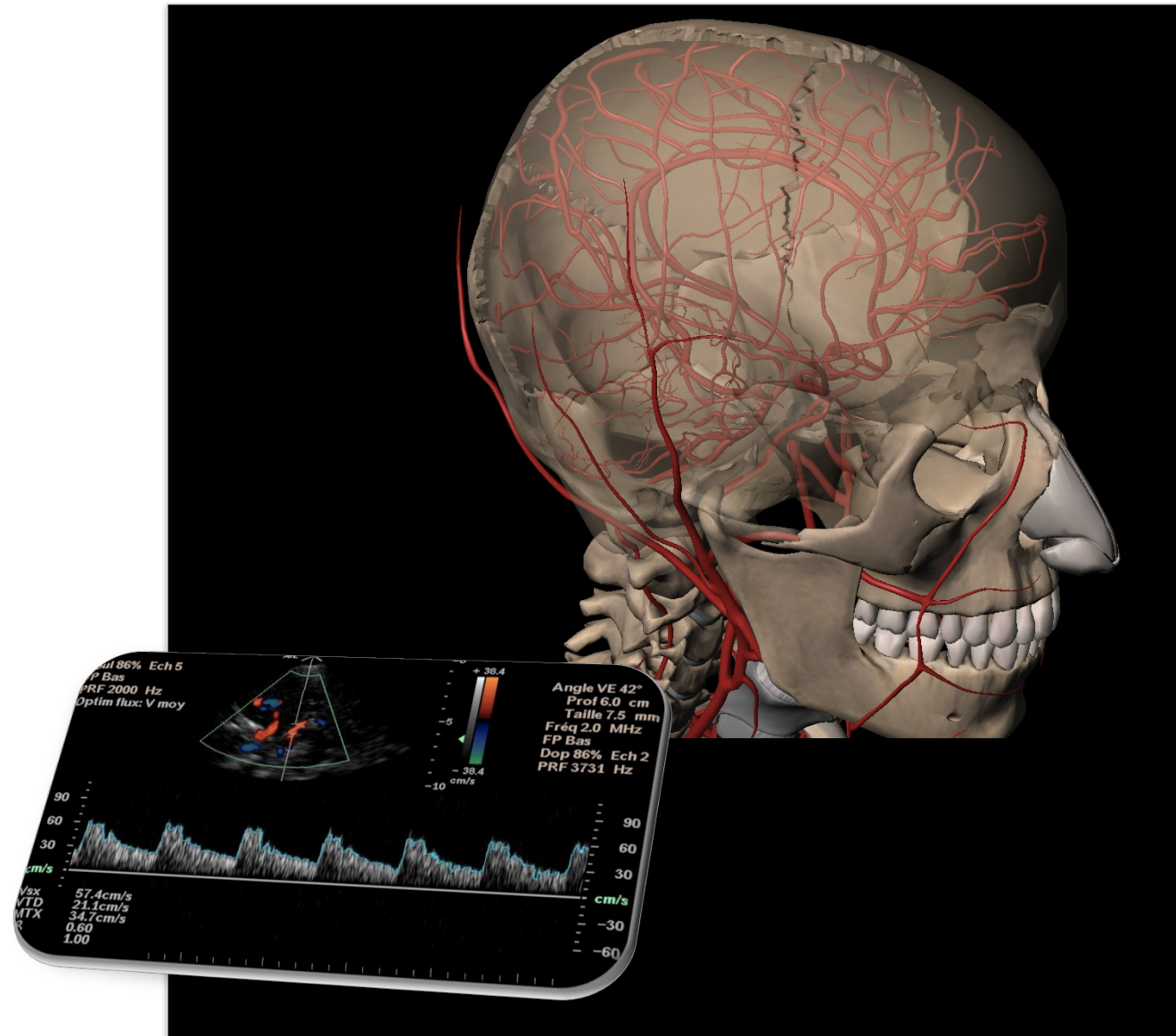


# Doppler Trans-Crâniens



# Doppler Trans-Crânien

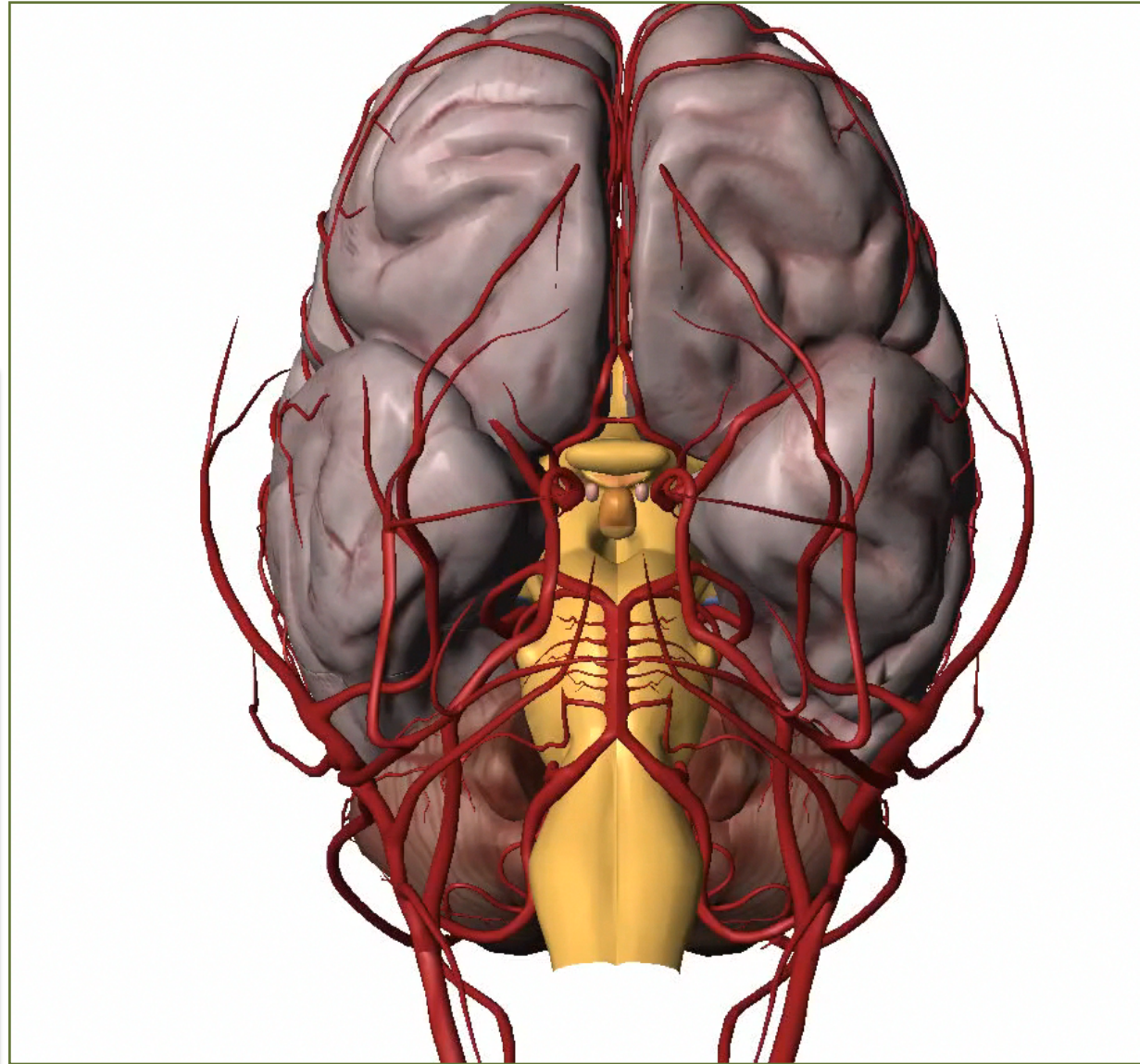
Chapitre 1/2

- **Anatomie fonctionnelle**
- Méthode d'examen
- Résultats normaux
- Indications et résultats



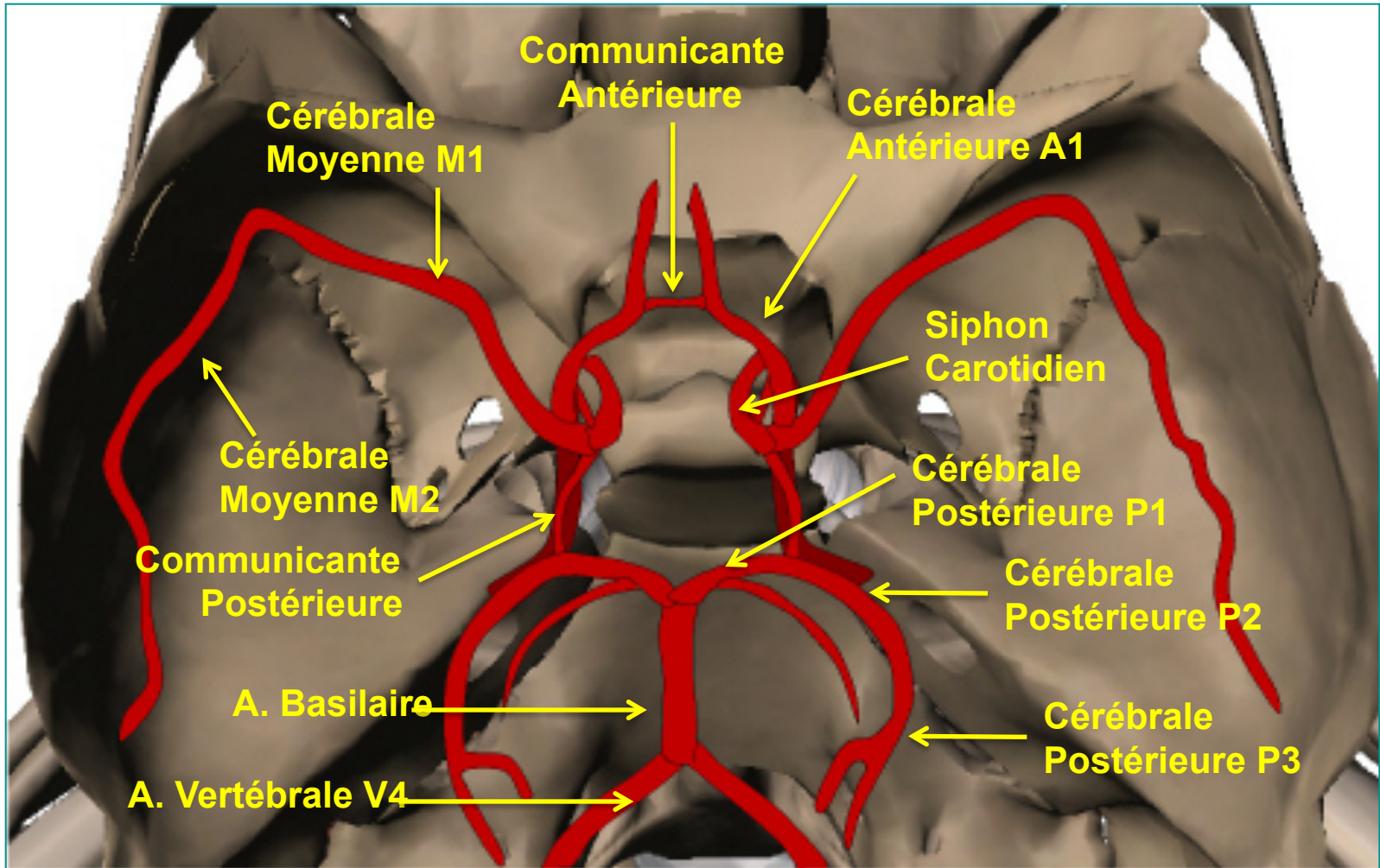
# Anatomie : Polygone de Willis

- Siphon carotidien D & G
- Cérébrale antérieure (A1)  
D & G
- Communicante antérieure
- Communicante postérieure  
D & G
- Cérébrale postérieure (P1)  
D & G
- Art. Basilaire



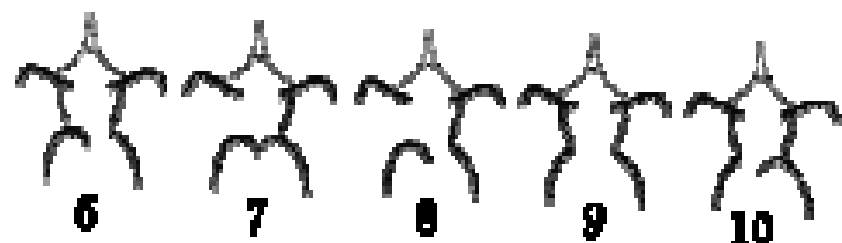
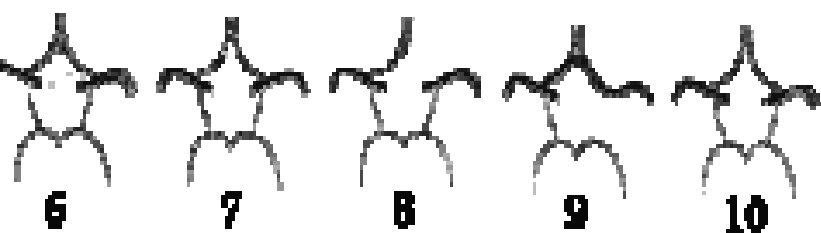
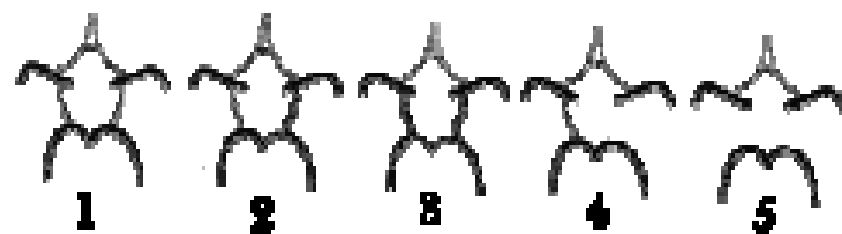
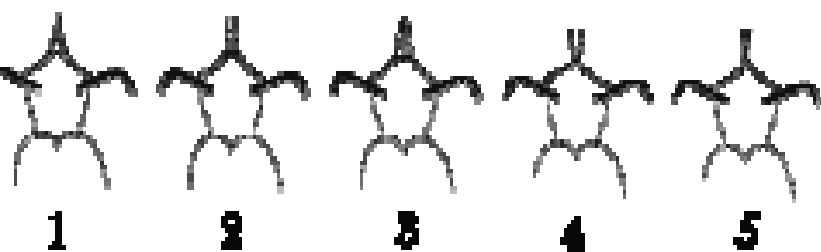


# Anatomie : Le Polygone de Willis





# Variations anatomiques

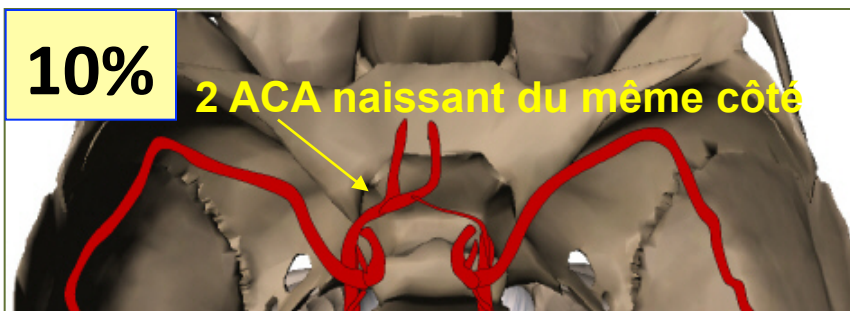
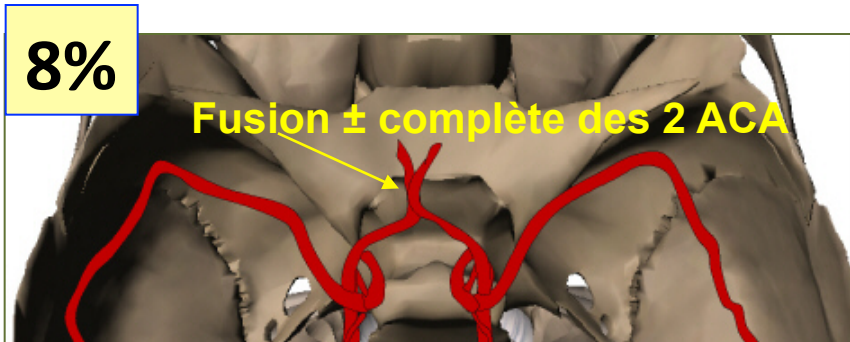
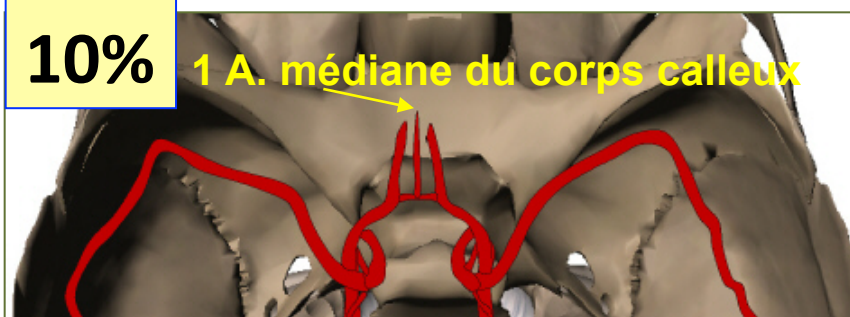
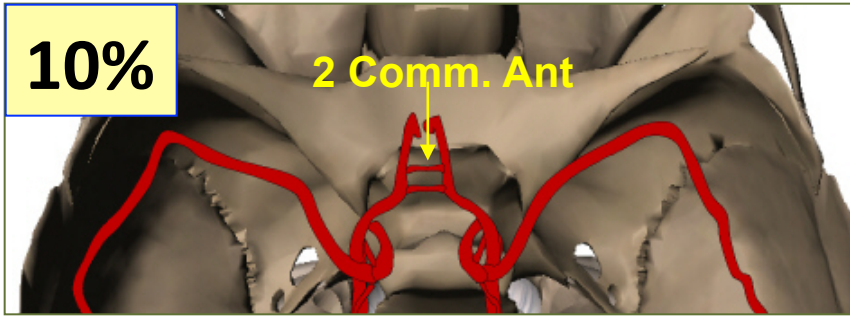


*Variations anatomiques du polygone de Willis (ABC de l'AVC)*

## ■ Références :

- Lazorthes G. Vascularisation et circulation cérébrale. Paris, France: Masson; 1961
- ABC de l'AVC jean-albert LOTTERIE <http://www.ifrance.com/abcavc/>

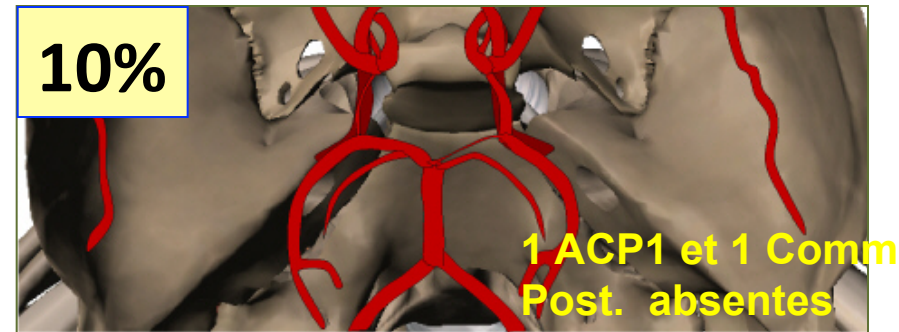
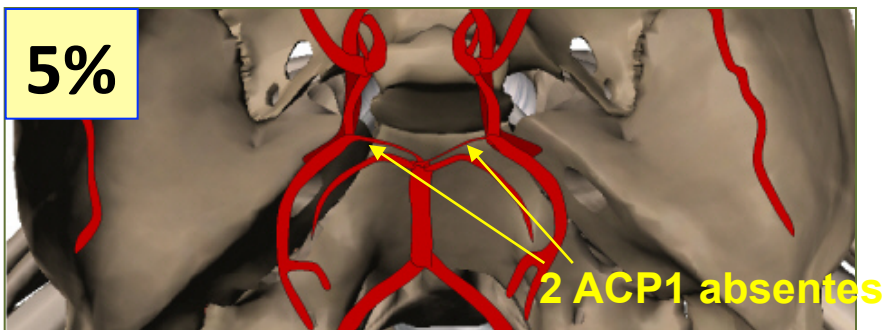
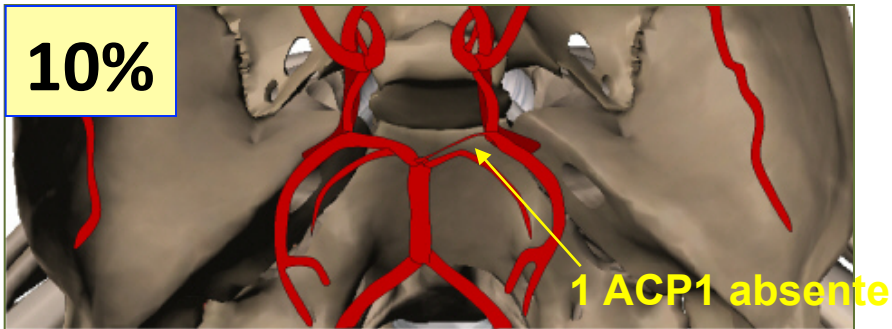
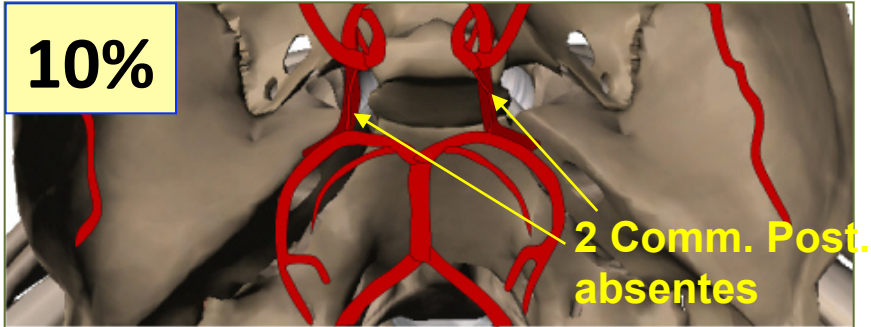
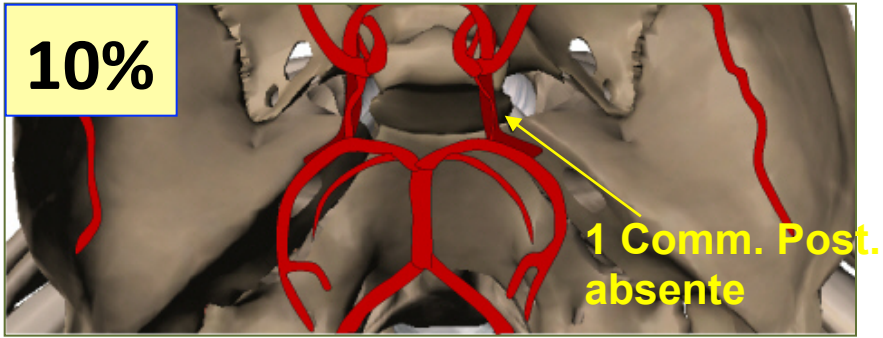
# Polygone de Willis Variations



*Partie Antérieure*

**Arterial Variations in Man  
Classification and Frequency**  
H Lippert, R Pabst.  
*JF Bergman Verlag, München 1985, p 92-93*

# Polygone de Willis Variations



*Partie Postérieure*

**Arterial Variations in Man  
Classification and Frequency**

H Lippert, R Pabst.

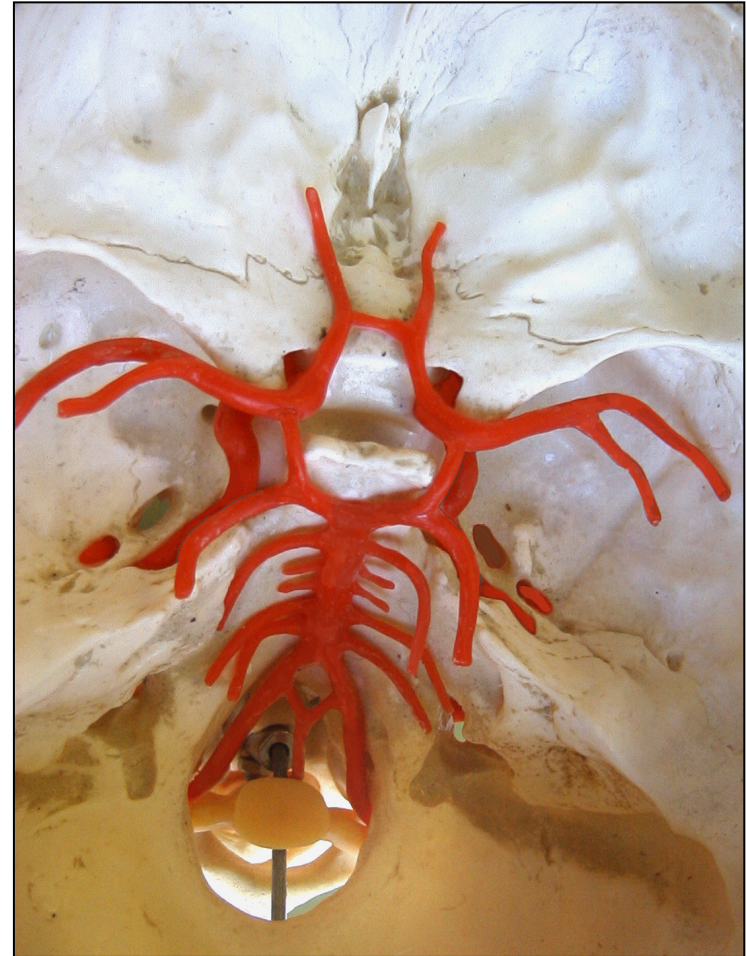
*JF Bergman Verlag, München 1985, p 92-93*



# Anatomie Fonctionnelle

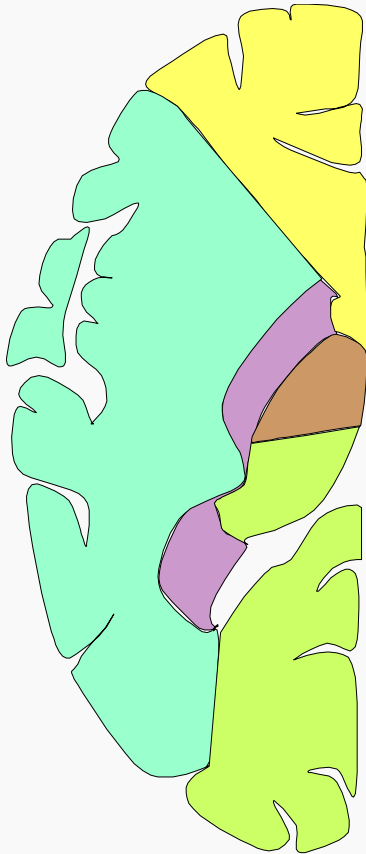
## Anastomoses :

- Polygone de Willis
- Extra-Intra-crâniennes
  - Ophthalmique / Faciale, frontale interne
  - Vertébrale / Cervicales / Occipitale
  - Méningée moyenne / Maxillaire interne...
- Corticales (limitrophes)
  - Cérébrale antérieure / moyenne
  - Cérébrale moyenne / postérieure
  - Cérébrale antérieure / postérieure

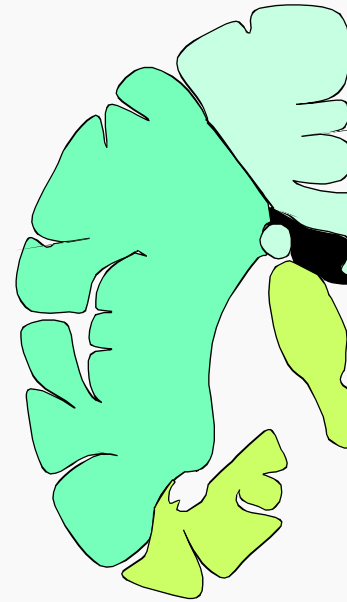








# Anatomie Fonctionnelle

## Coupe Horizontale



## Coupe Frontale



- |                                                                                     |                              |                                                                                       |                            |
|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------|----------------------------|
|   | Artère Cérébrale antérieure  |   | Artères Choroidiennes      |
|  | Artère Cérébrale moyenne     |  | Artères Communicante Post. |
|  | Artère Cérébrale postérieure |  | Artère Carotide interne    |

Les territoires vasculaires

# Doppler Trans-Crânien

- Anatomie fonctionnelle
- **Méthode d'examen**
- Résultats normaux
- Indications et résultats



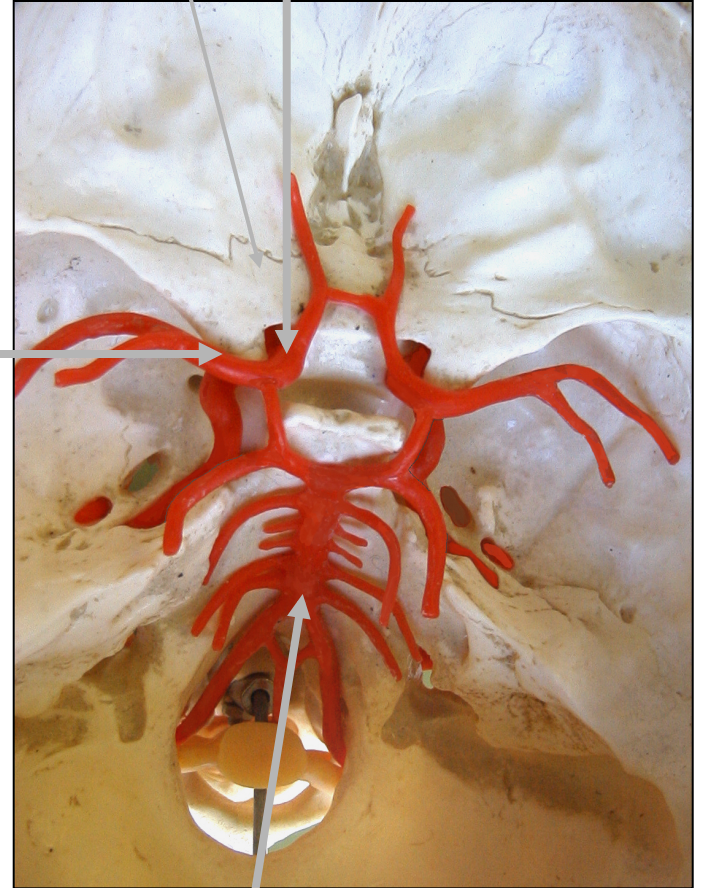


# Méthode d'examen

Voie Frontale

Voie Orbitaire

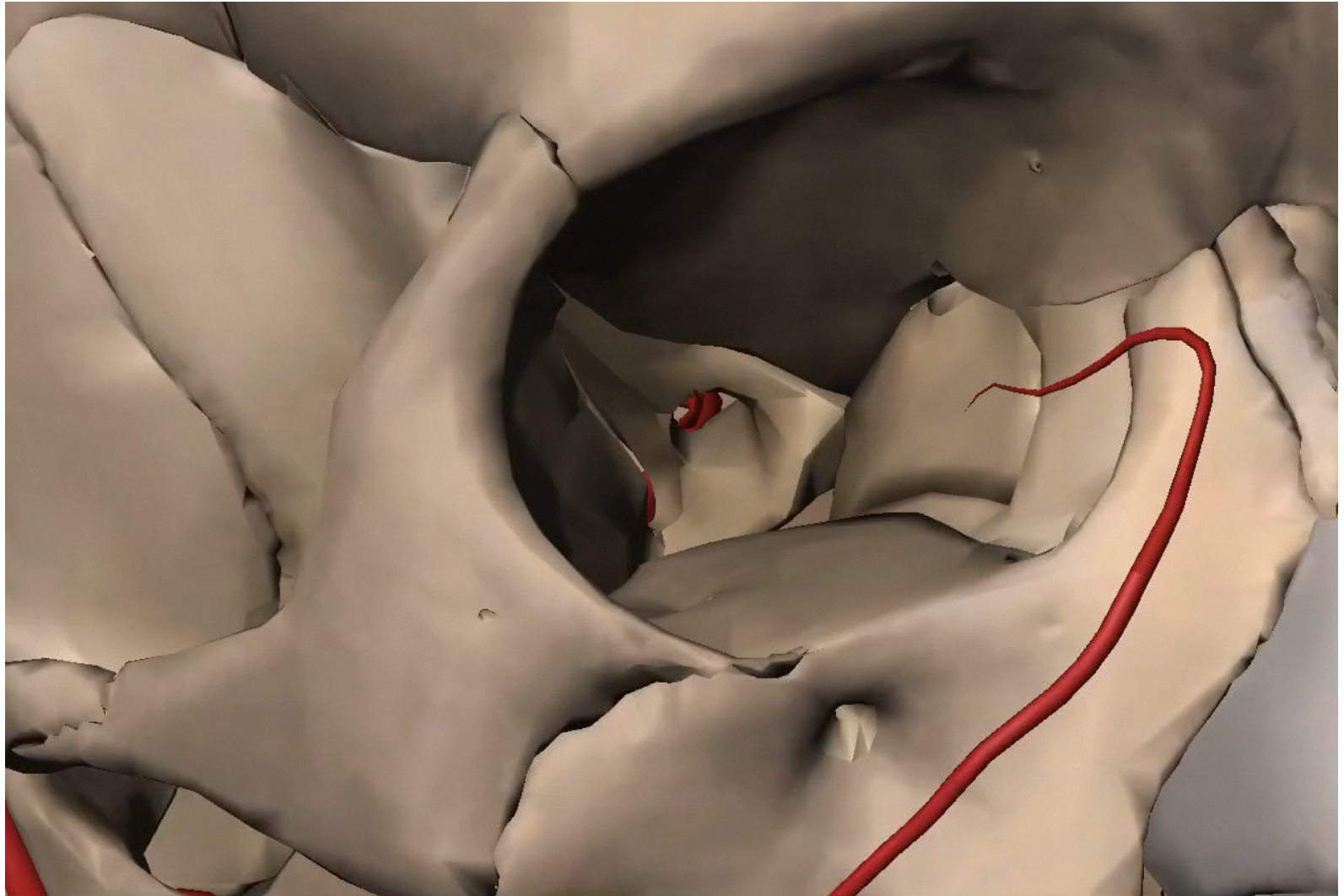
Voie Temporale



Voie Occipitale

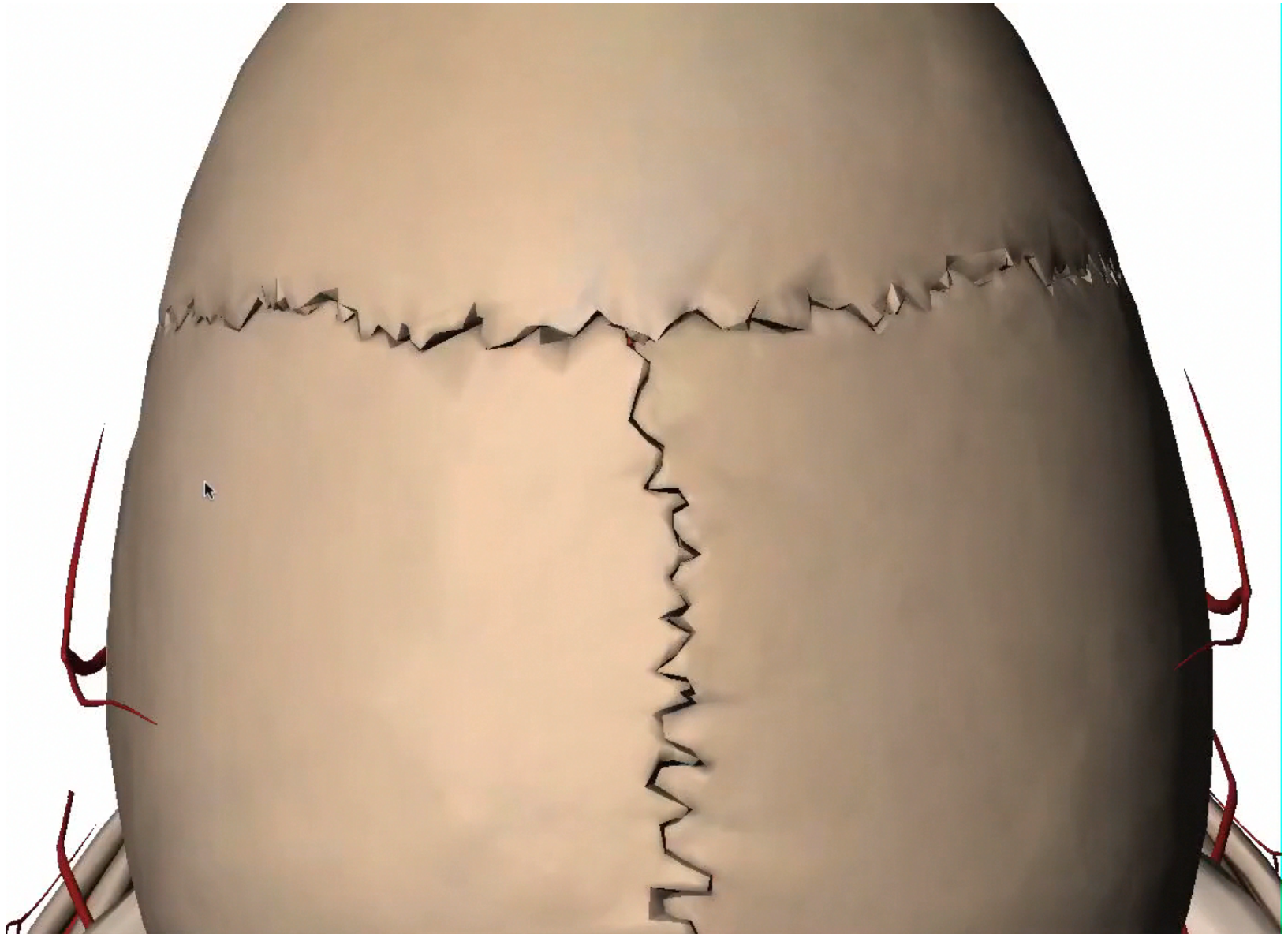
Voies d'abord

# Méthode : la voie orbitaire

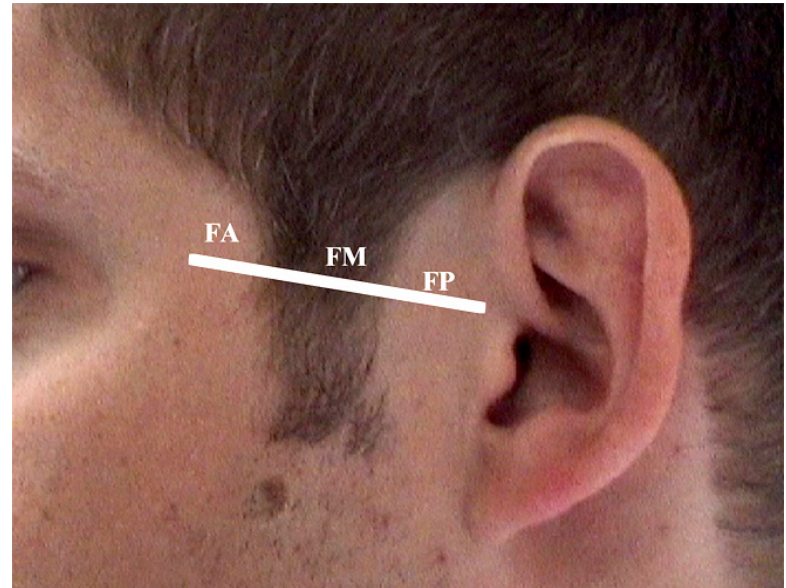
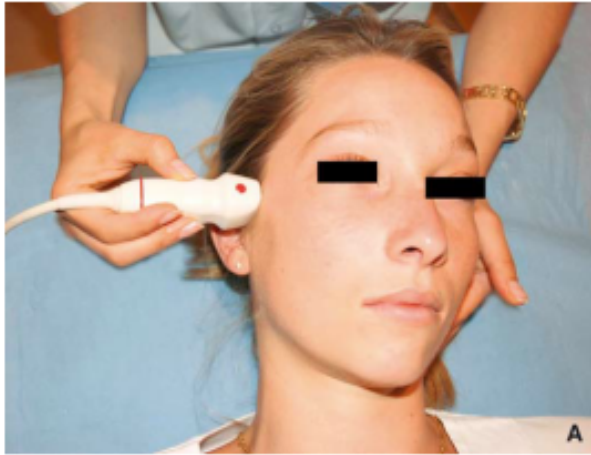




# Méthode : la voie temporale



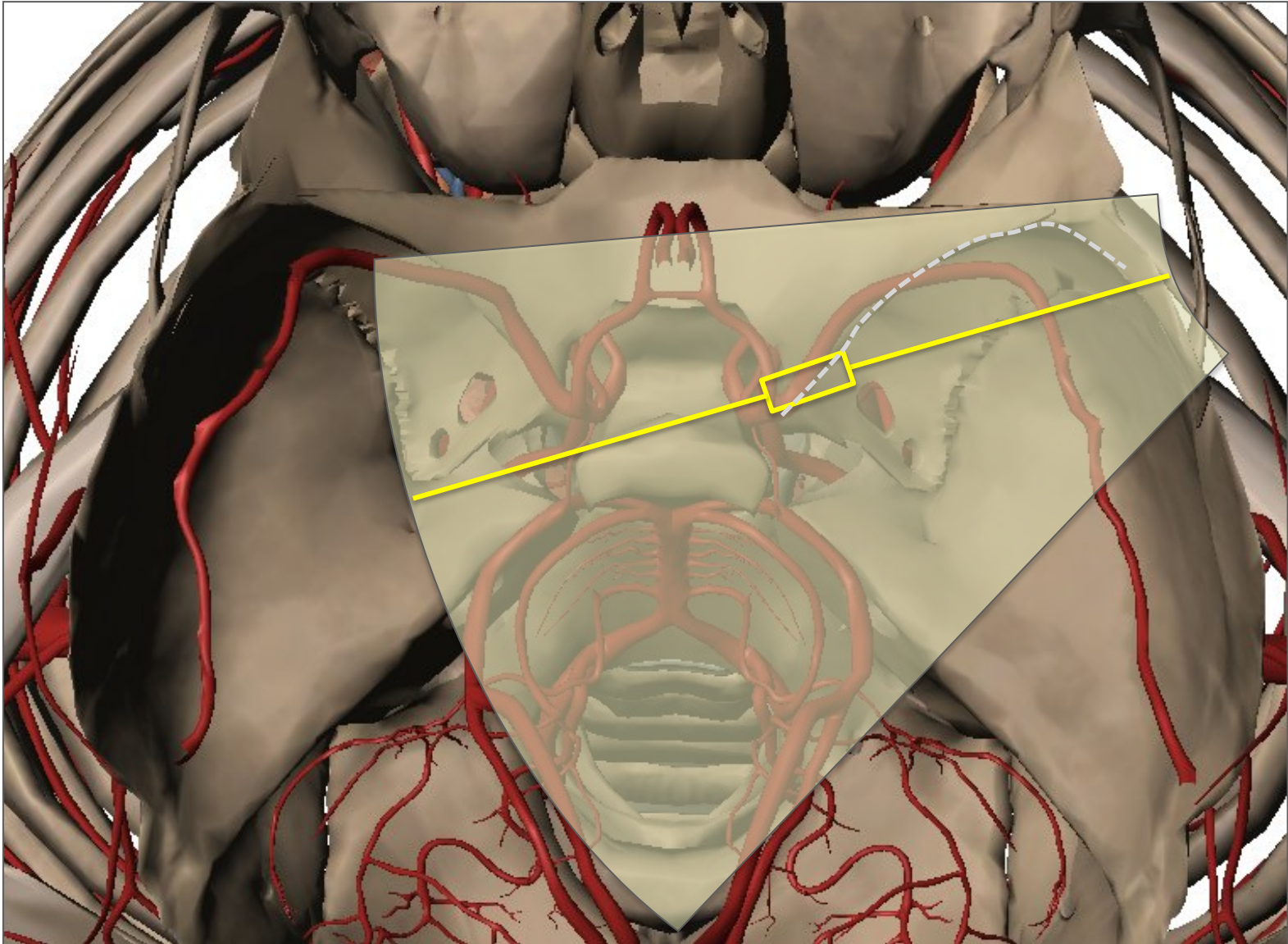




DTC et Drépanocytose



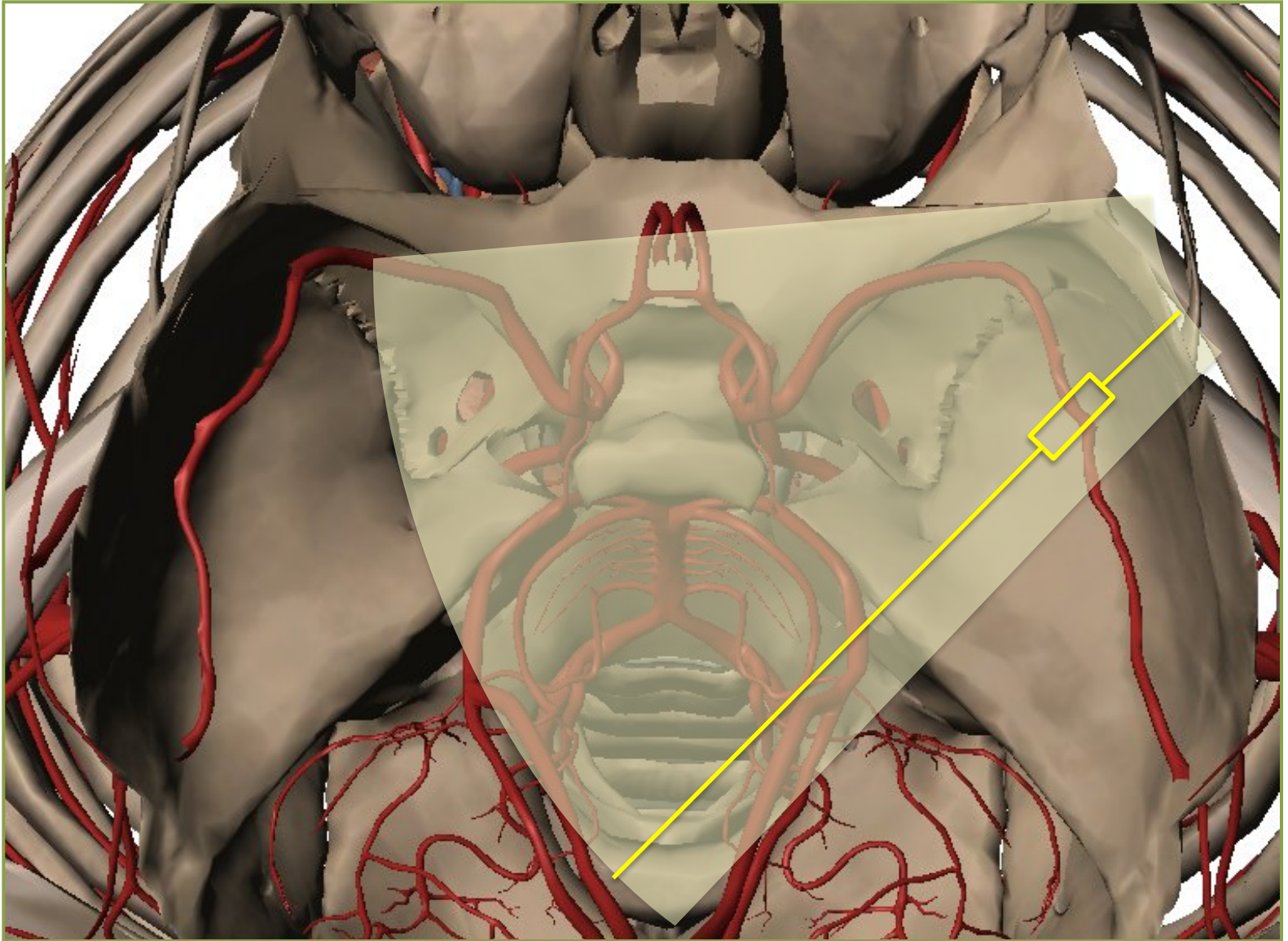
# Méthode : la voie temporale



**Artère Cérébrale Moyenne M1**



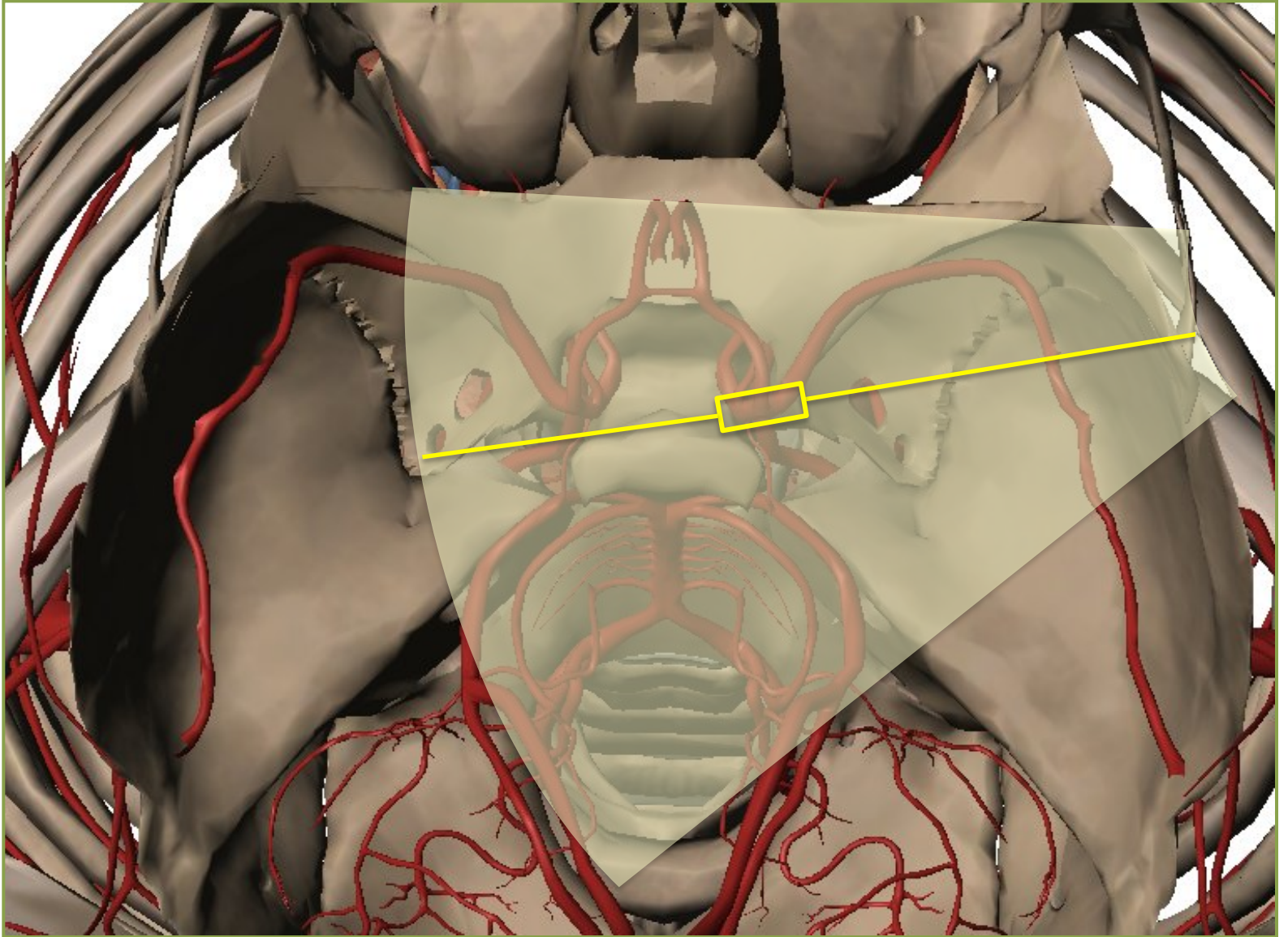
# Méthode : la voie temporale



**Artère Cérébrale Moyenne M2**

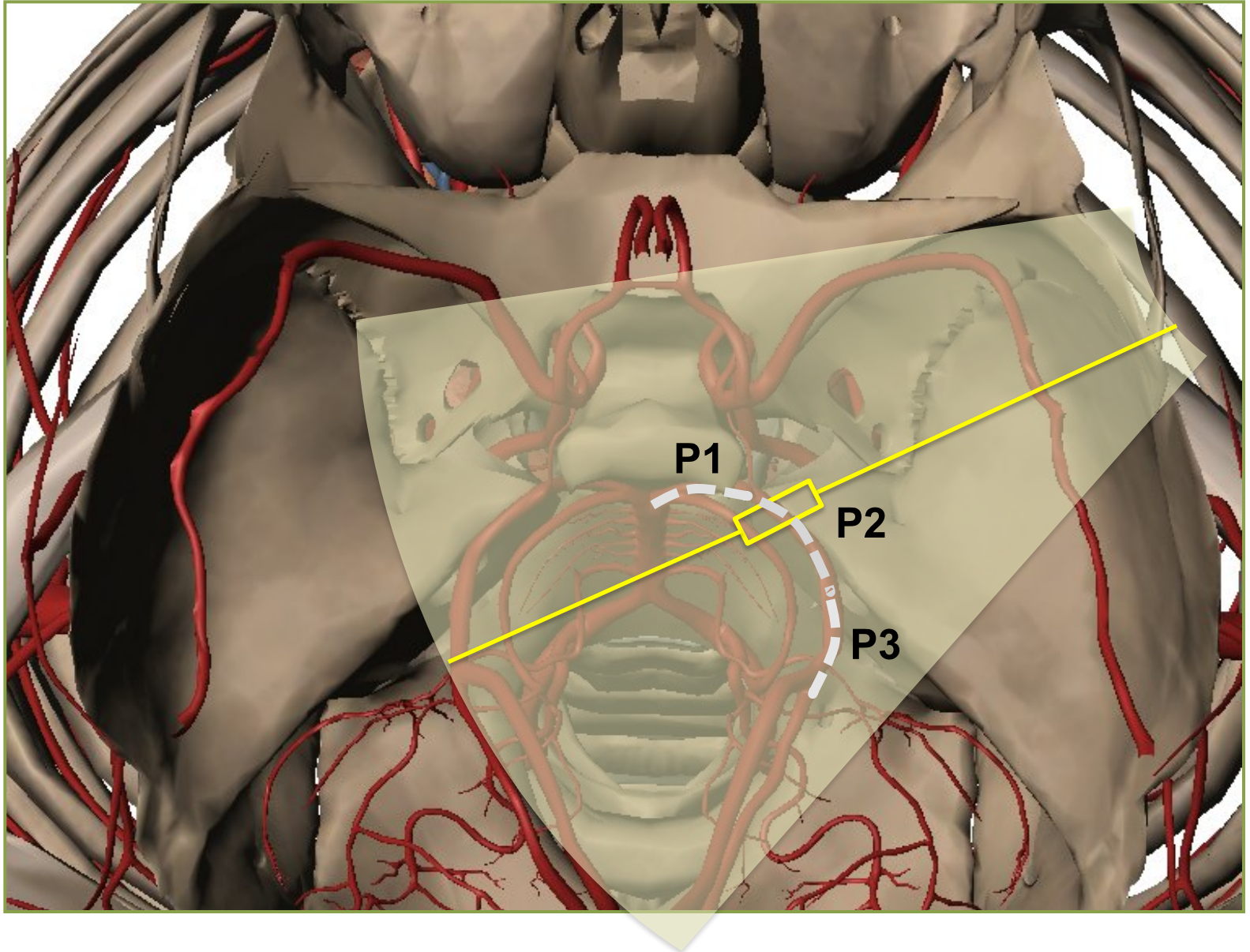


# Méthode : la voie temporale



**Siphon Carotidien**

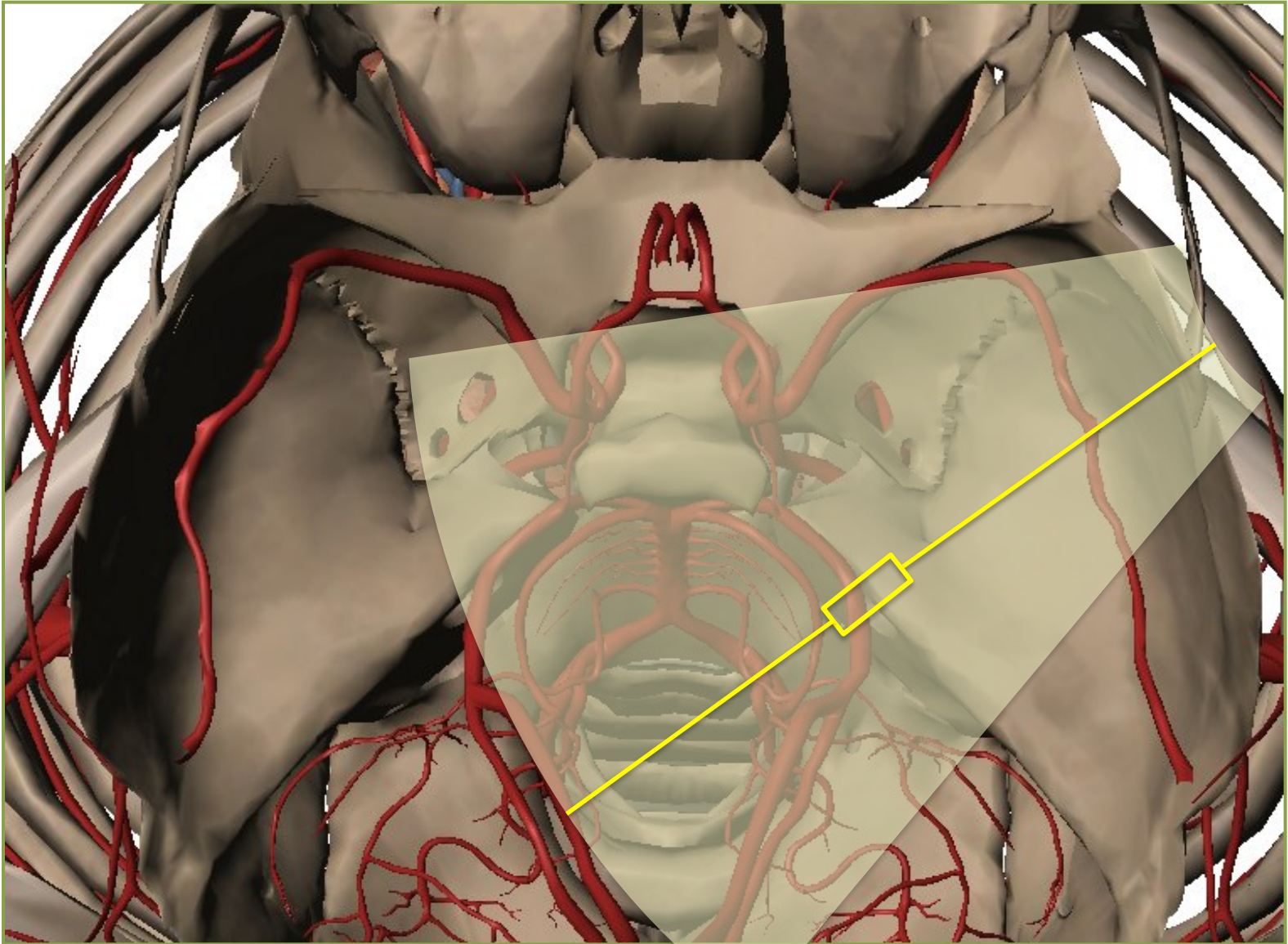
# Méthode : la voie temporale



**Artère Cérébrale Postérieure  
P2**



# Méthode : la voie temporale



**Artère Cérébrale Postérieure  
P3**



# Méthode : voie temporale

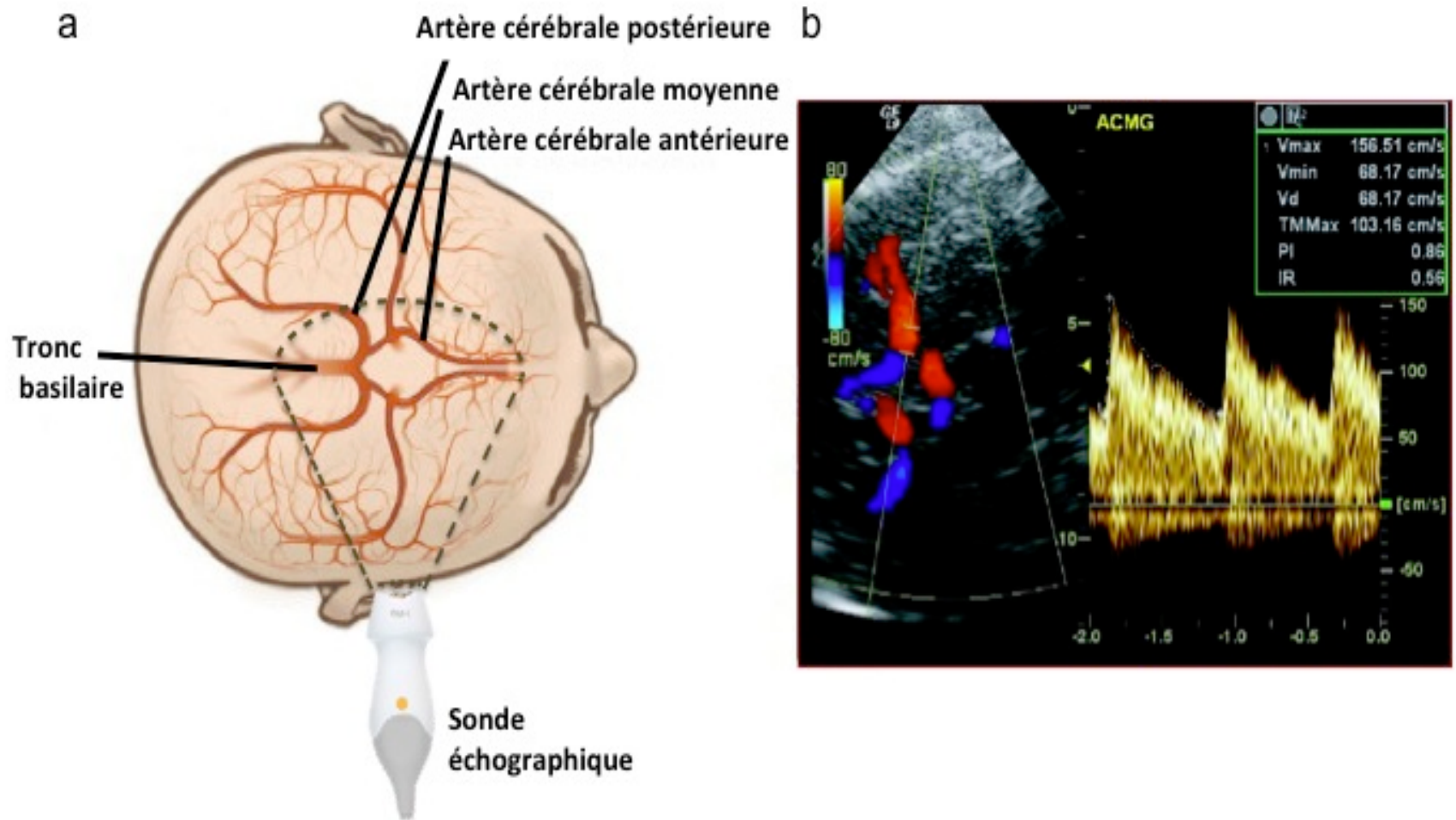


Figure 1 : Représentation des artères accessibles par ultrasons (A) et visualisation en doppler couleur (B).



# Voie occipitale



*B. En position d'achève.*





# Doppler Trans-Crânien

- Anatomie fonctionnelle
- Méthode d'examen
- **Résultats normaux**
- Indications et résultats

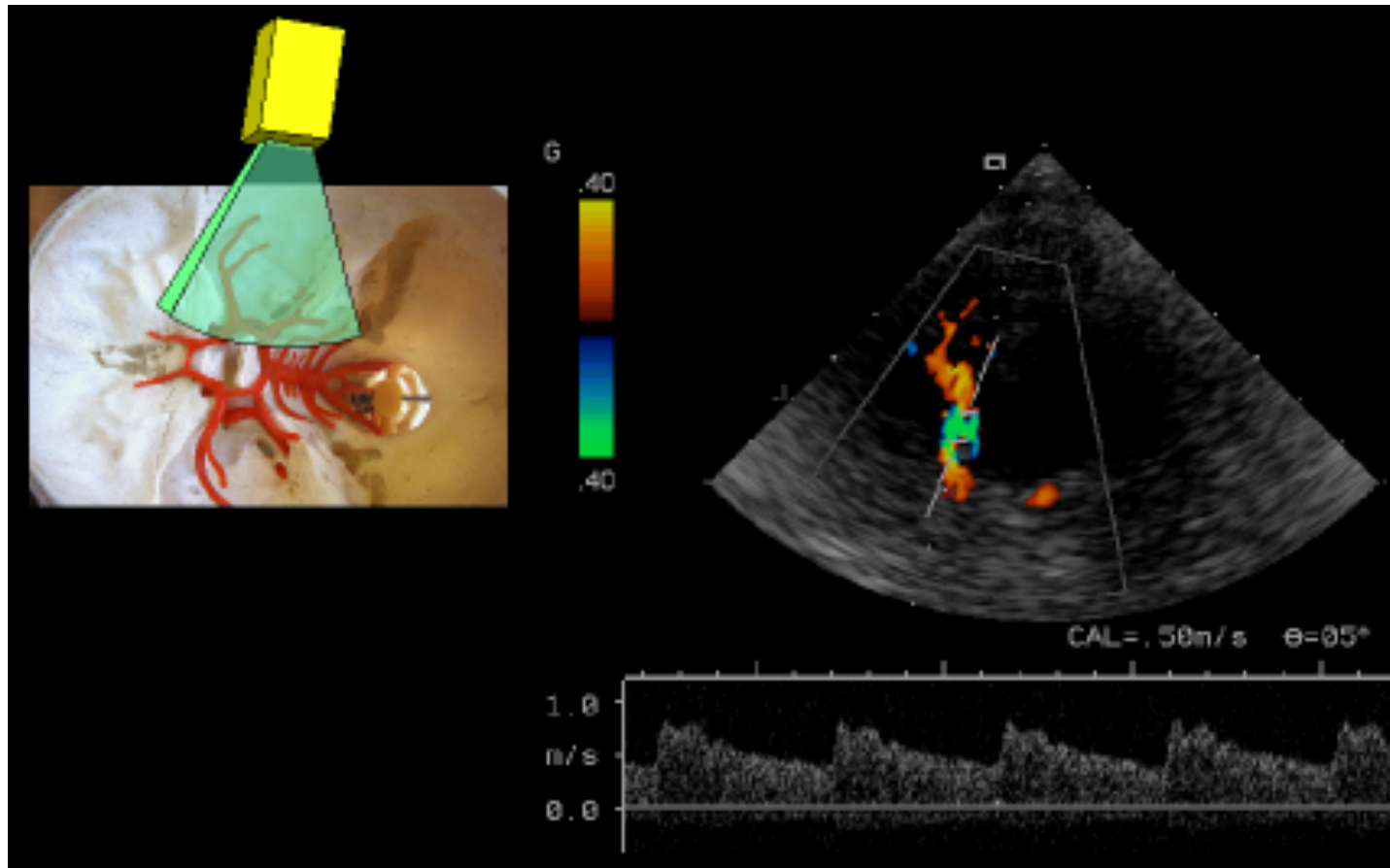


# Examen Normal



Artères Cérébrales normales en mode Doppler couleur  
et B-Flow

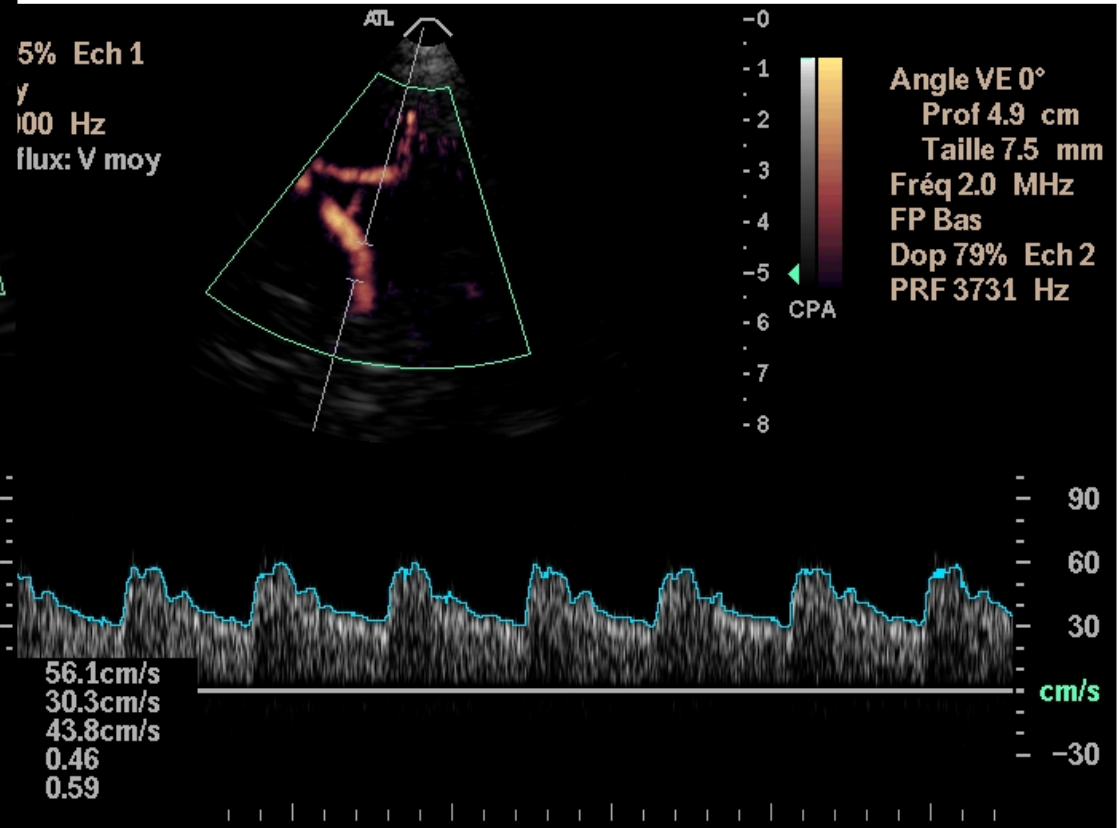
# Examen Normal



Artère Cérébrale Moyenne

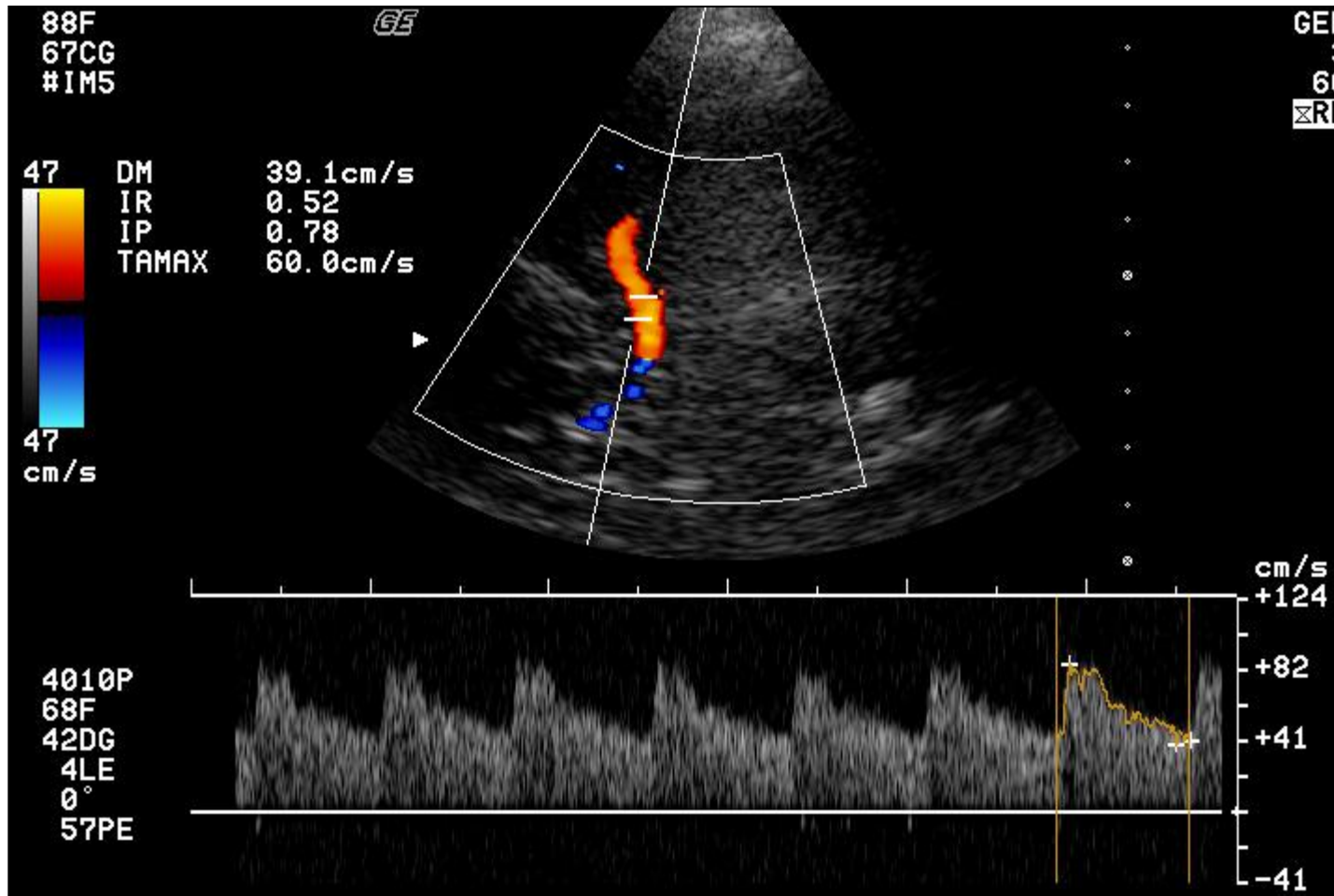


# Examen Normal



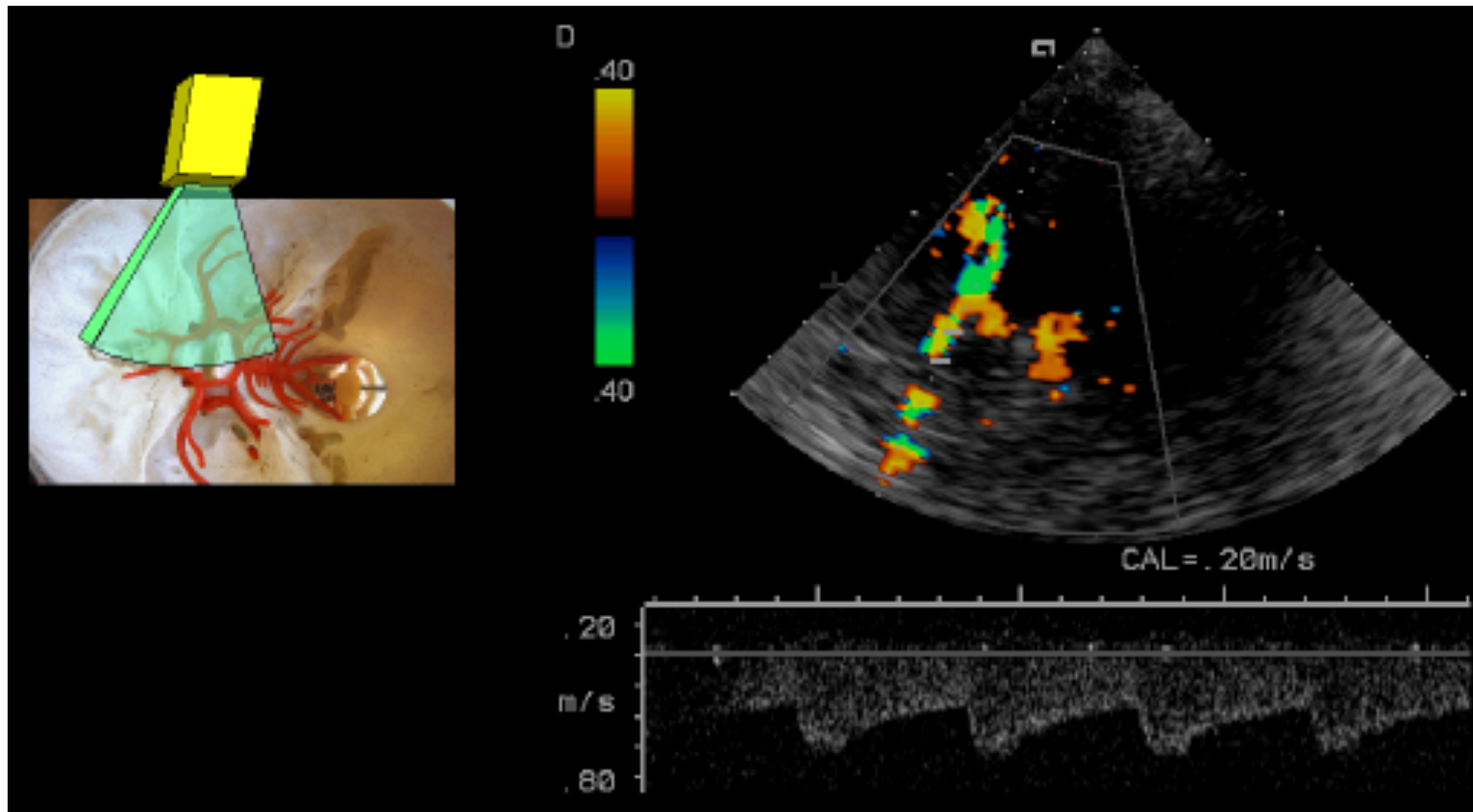
Artère Cérébrale  
Moyenne

# Examen Normal



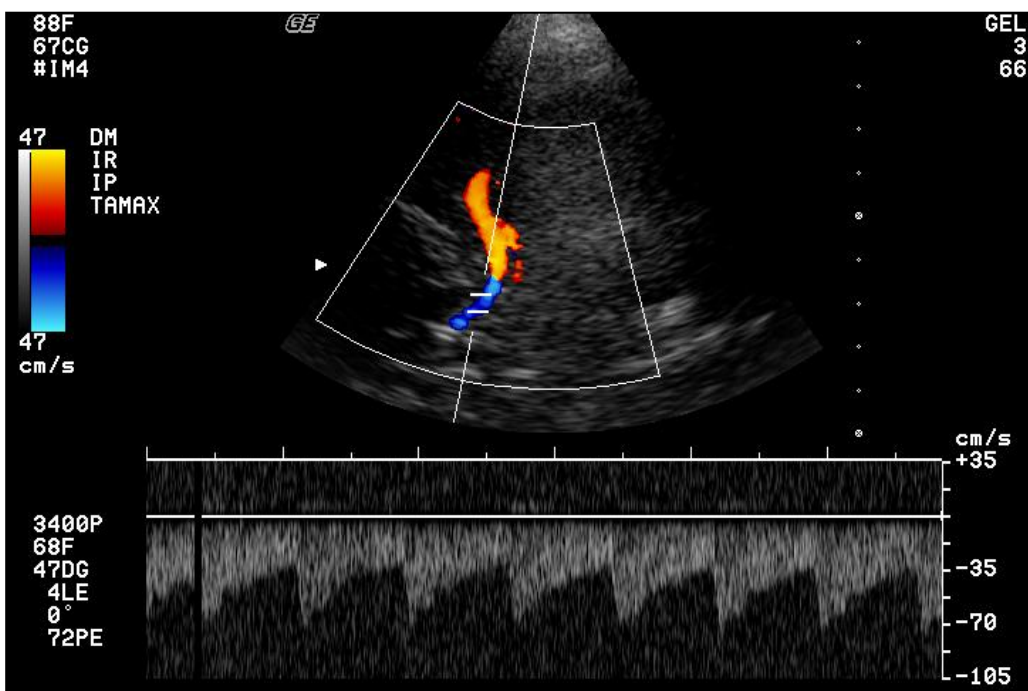
Artère Cérébrale Moyenne

# Examen Normal

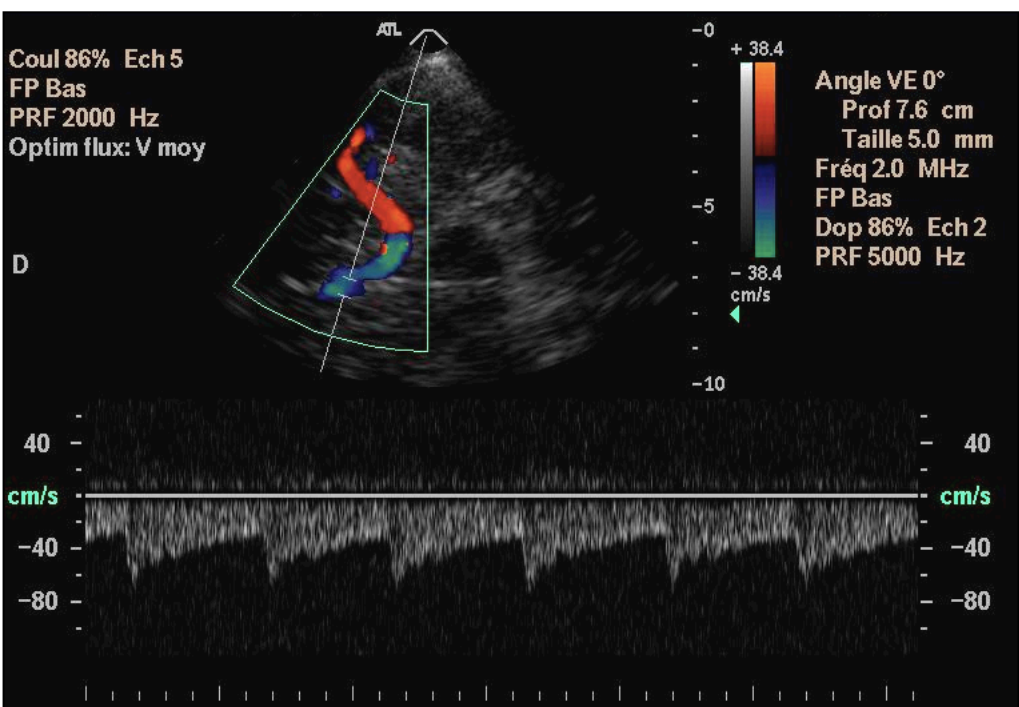


Artère Cérébrale Antérieure



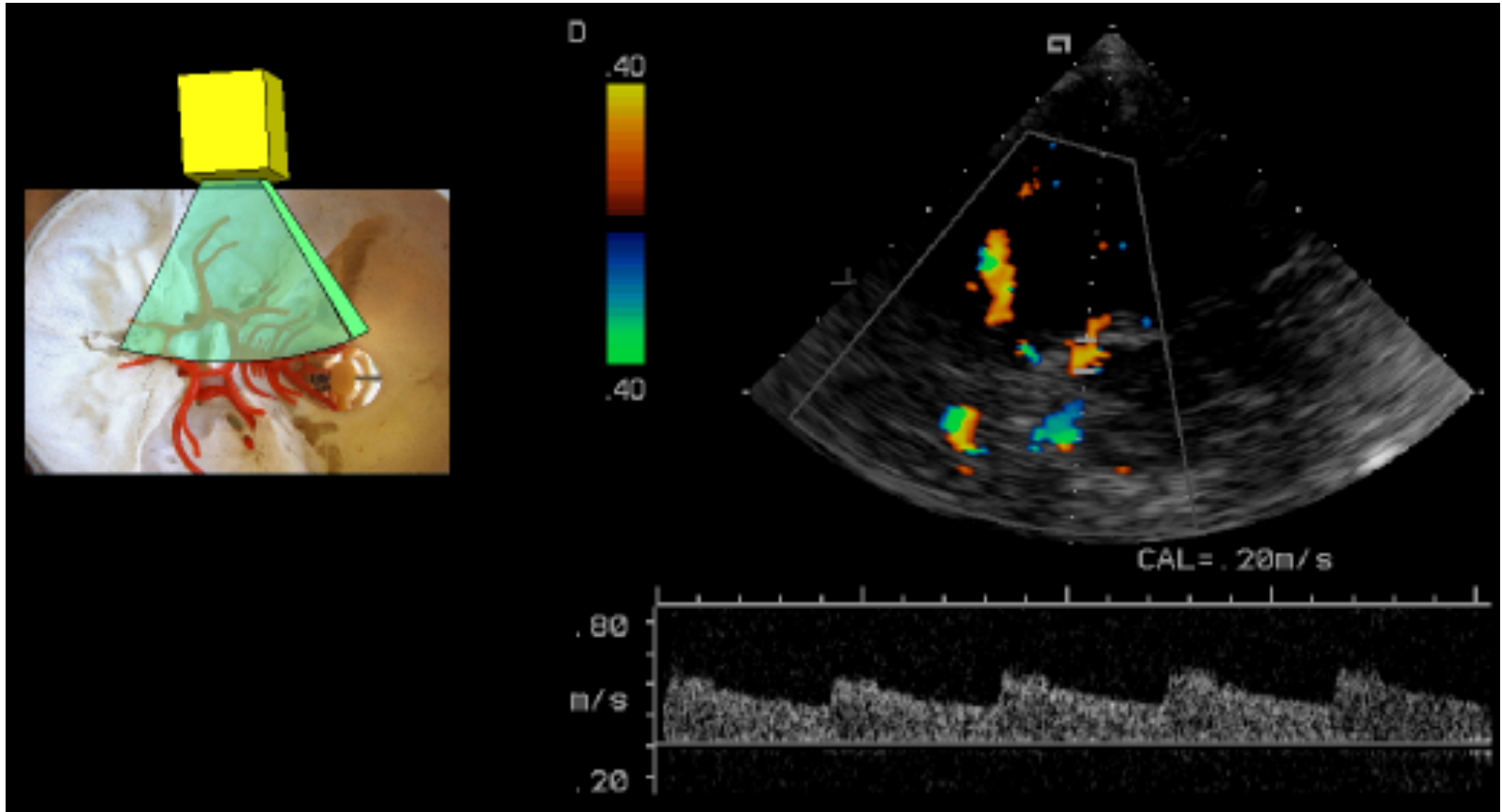


Examen Normal



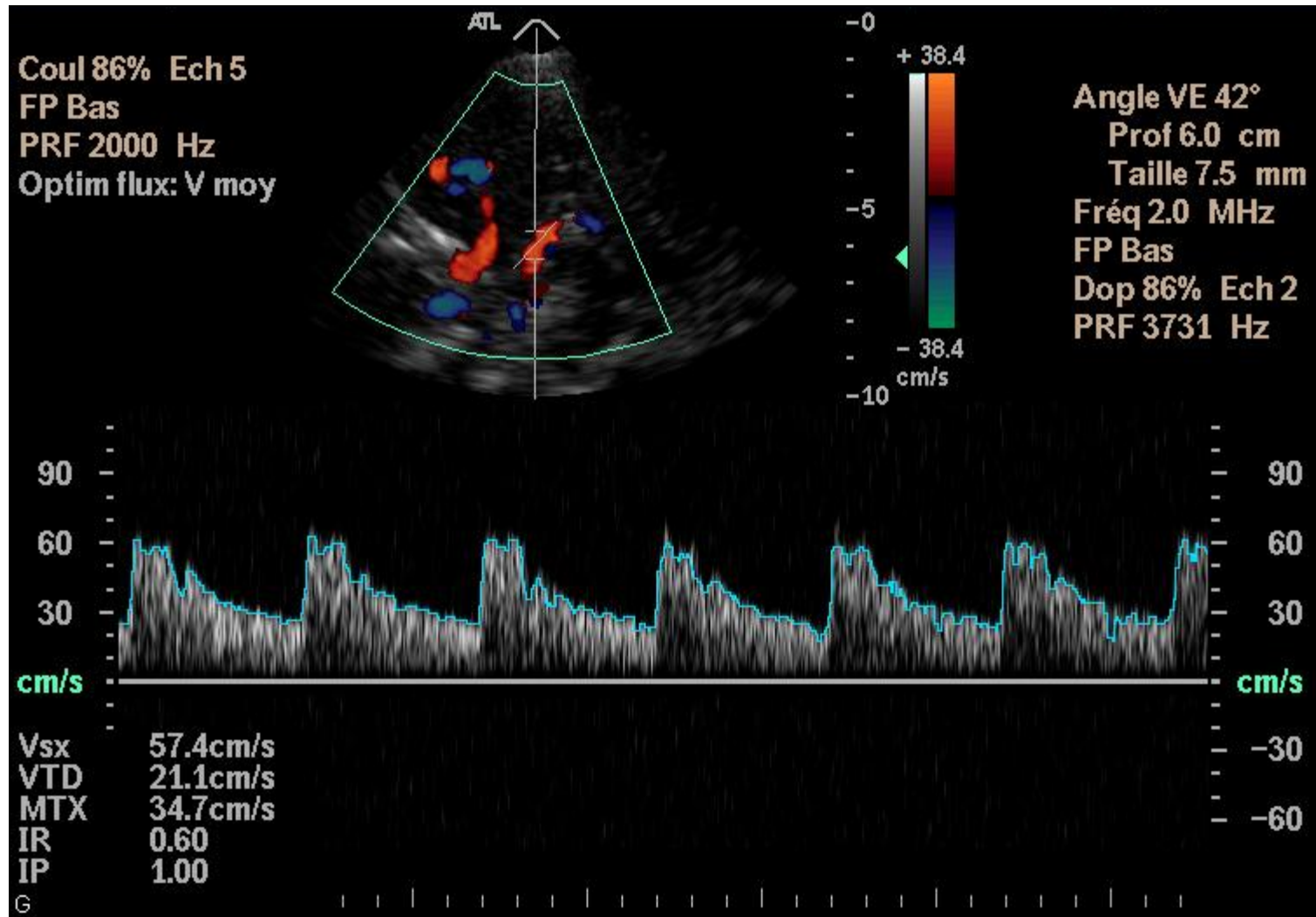
Artère Cérébrale Antérieure

# Méthode



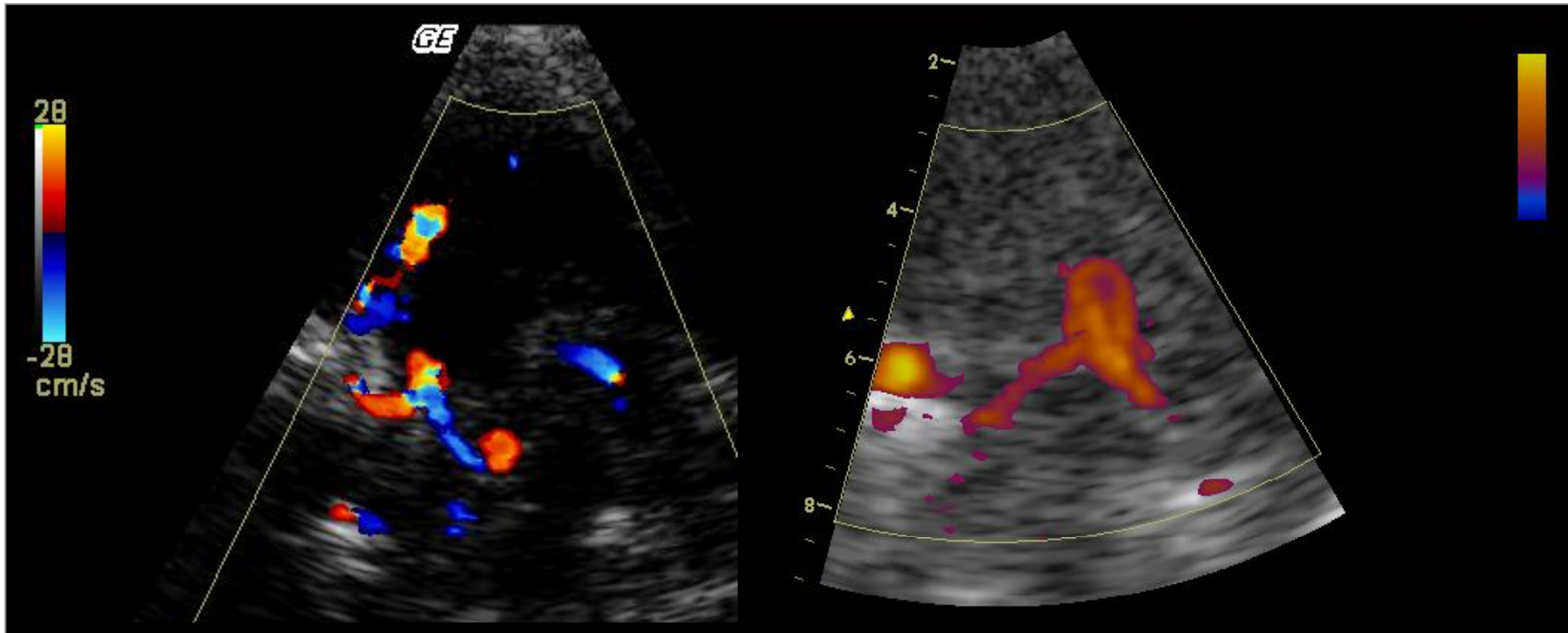
Artère Cérébrale Postérieure (P2)

# Examen Normal



Artère Cérébrale Postérieure (P2)

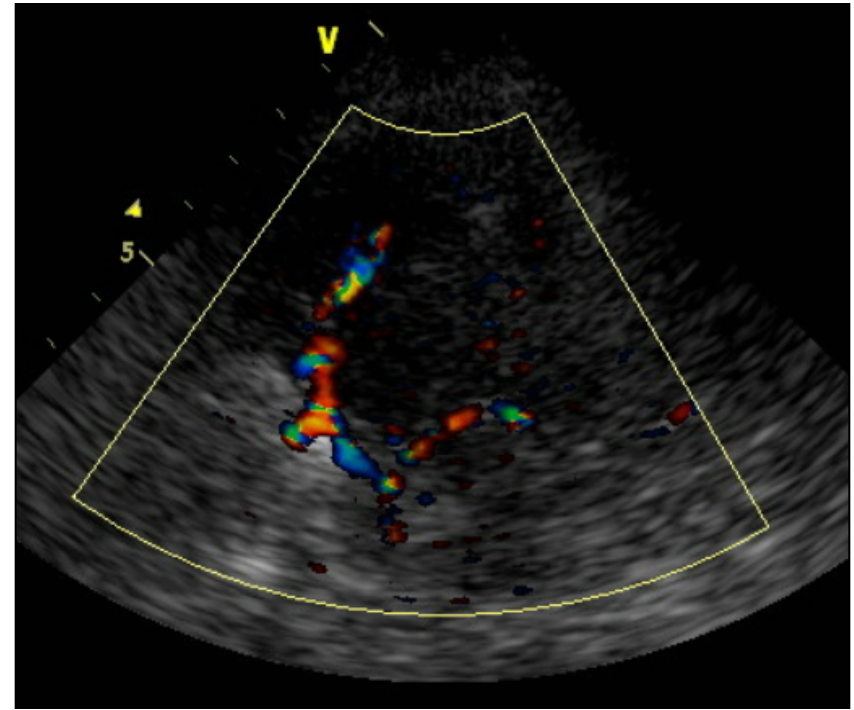
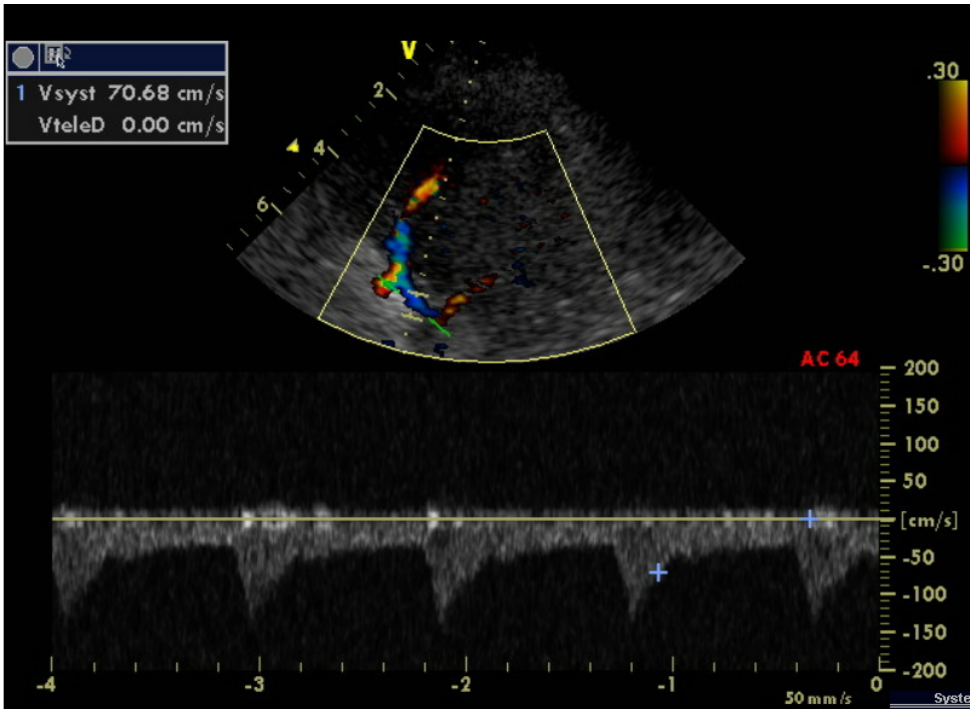
# Examen Normal



Artère Communicante Postérieure

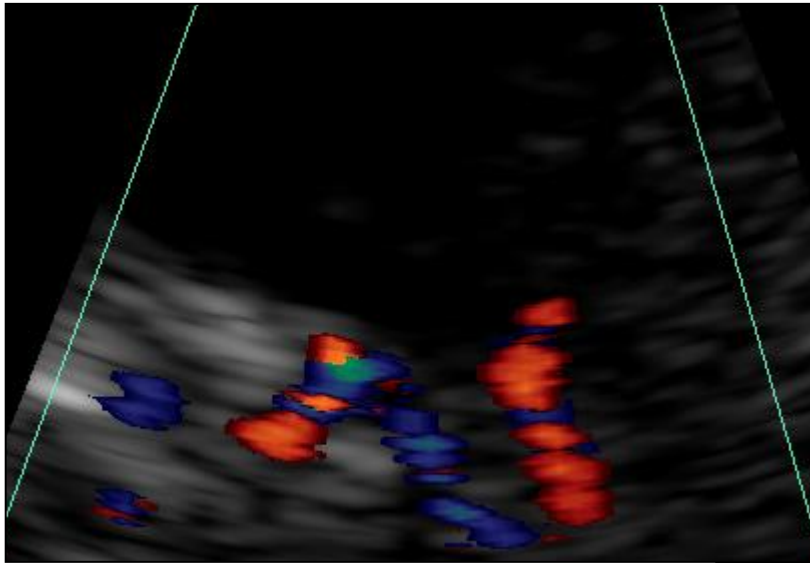


# Examen Normal

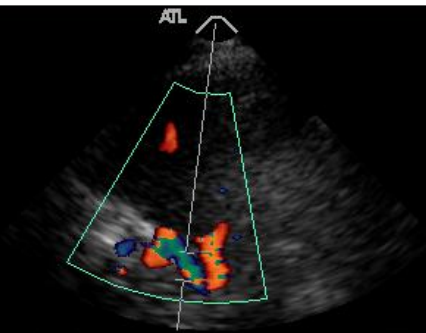


Artère Communicante Postérieure

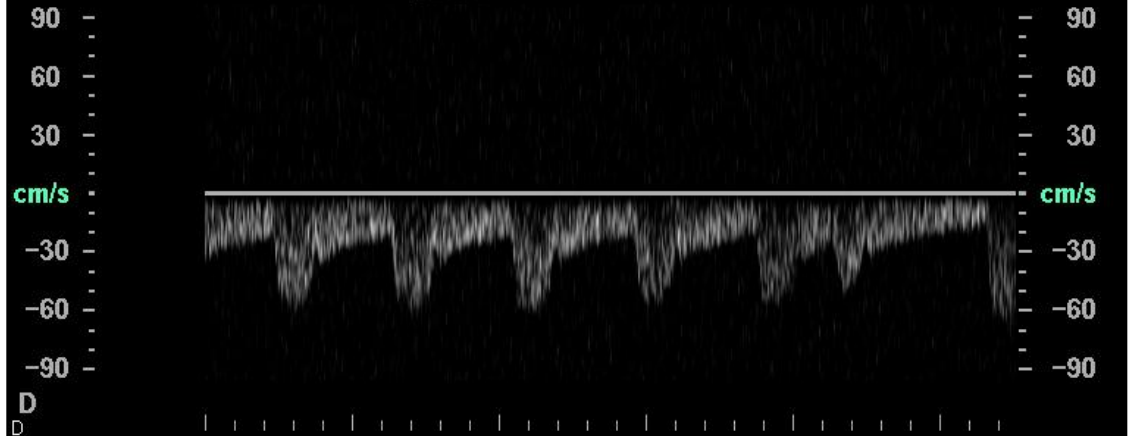
# Examen Normal



Coul 86% Ech 5  
FP Bas  
PRF 2000 Hz  
Optim flux: V moy

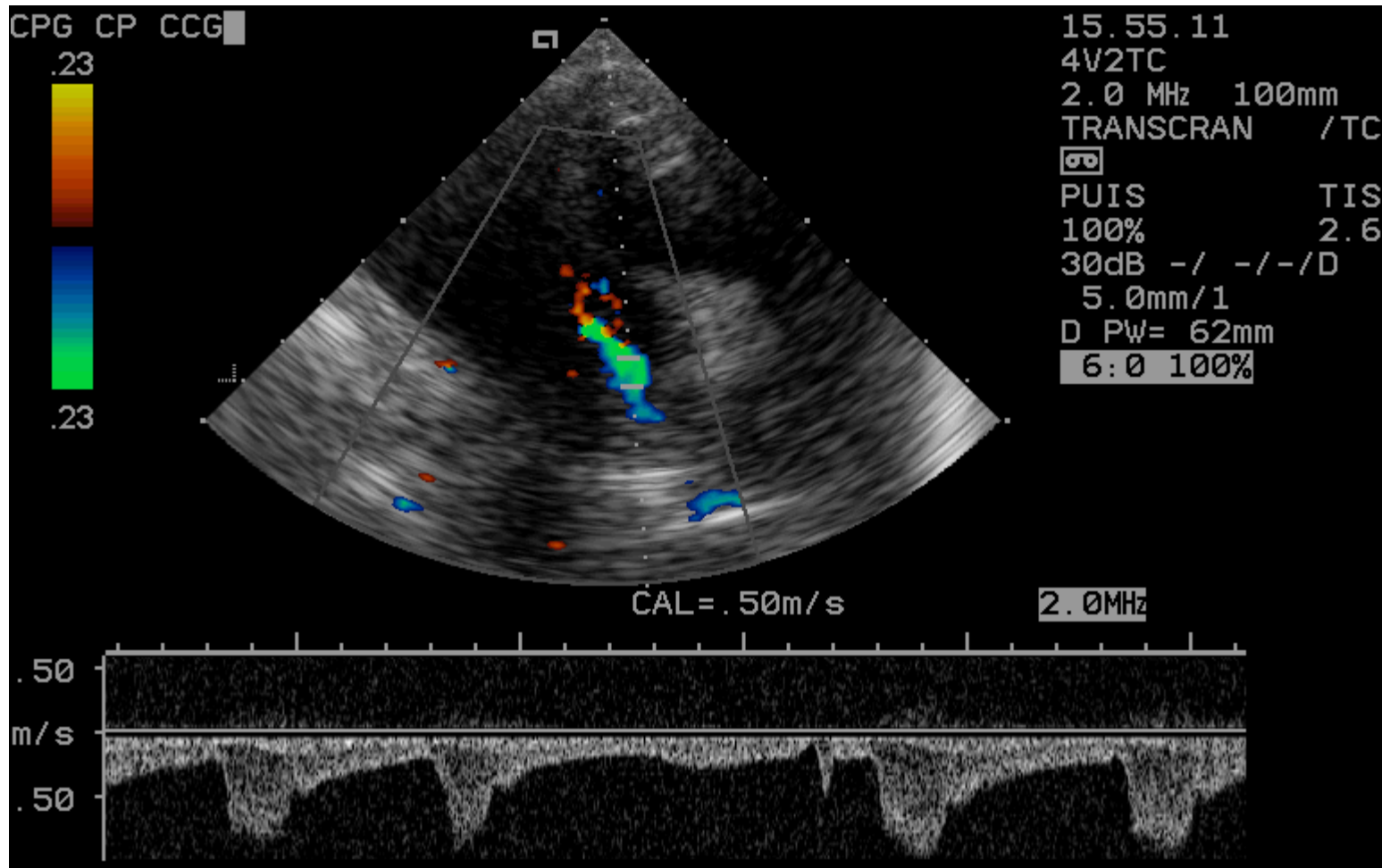


Angle VE 0°  
Prof 6.7 cm  
Taille 7.5 mm  
Fréq 2.0 MHz  
FP Bas  
Dop 87% Ech 2  
PRF 5000 Hz



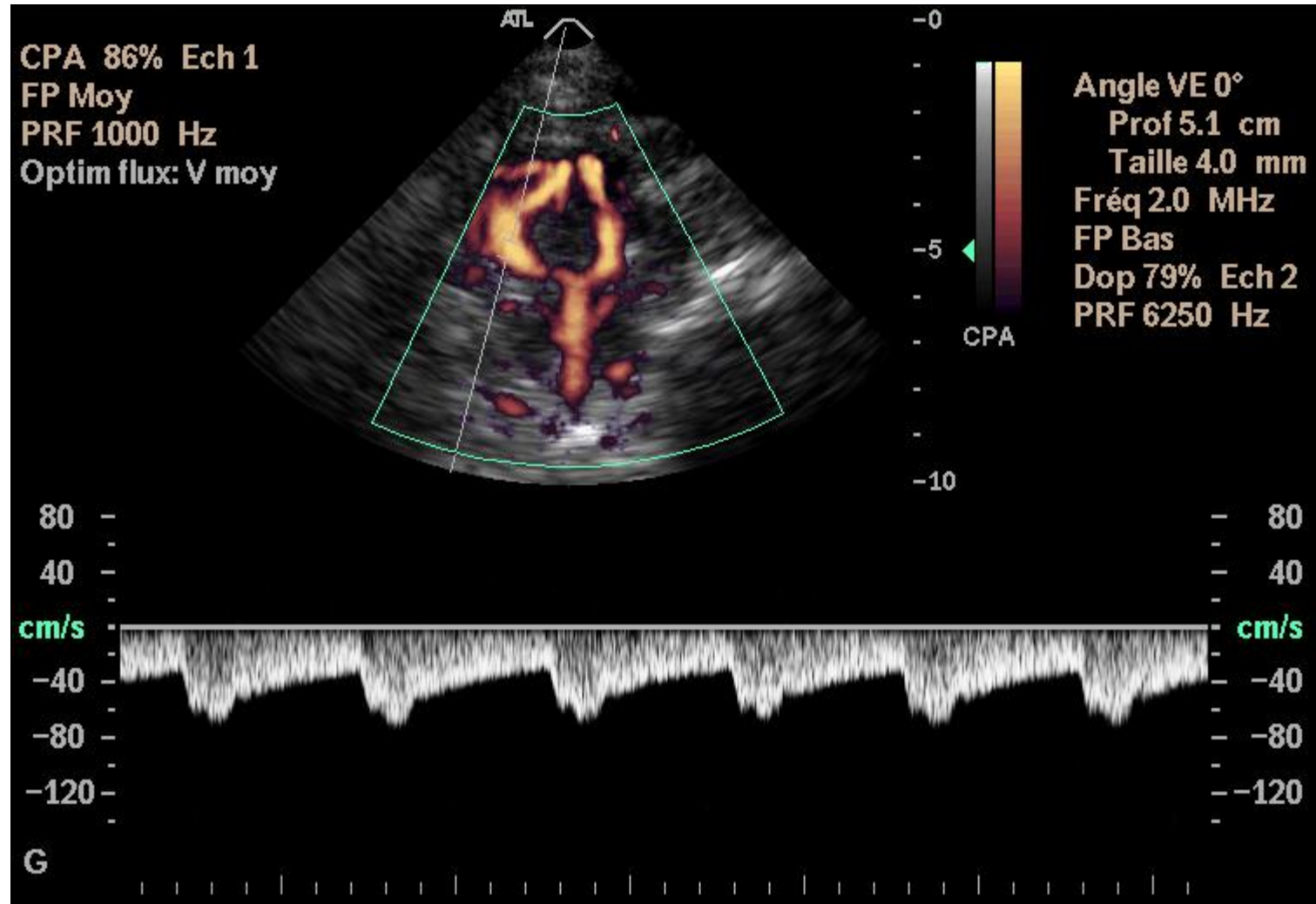
**Artère Communicante  
Postérieure**

# Examen Normal



Artère Cérébrale Postérieure  
Test de compression carotidienne

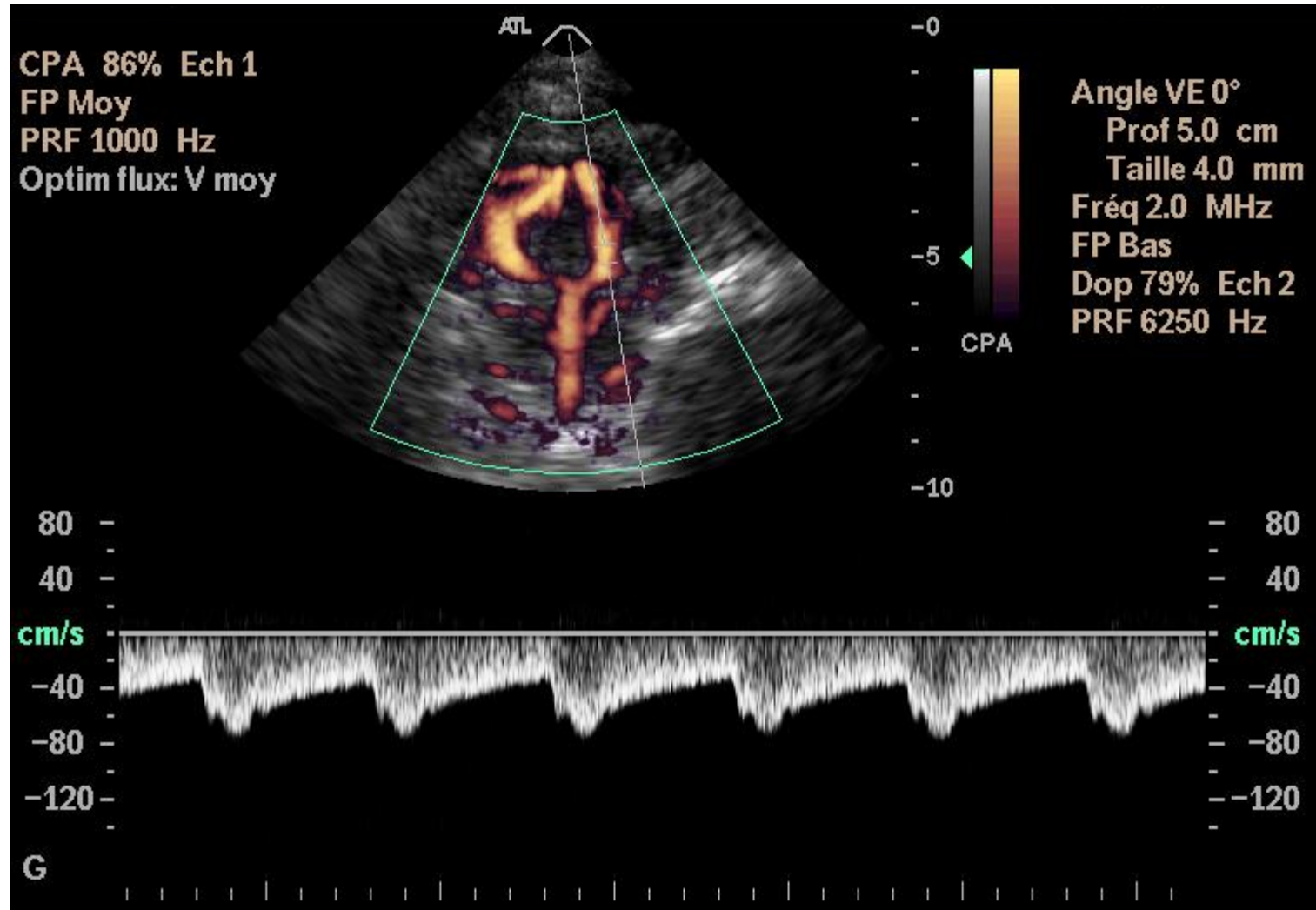
# Examen Normal



Artère Vertébrale droite V4

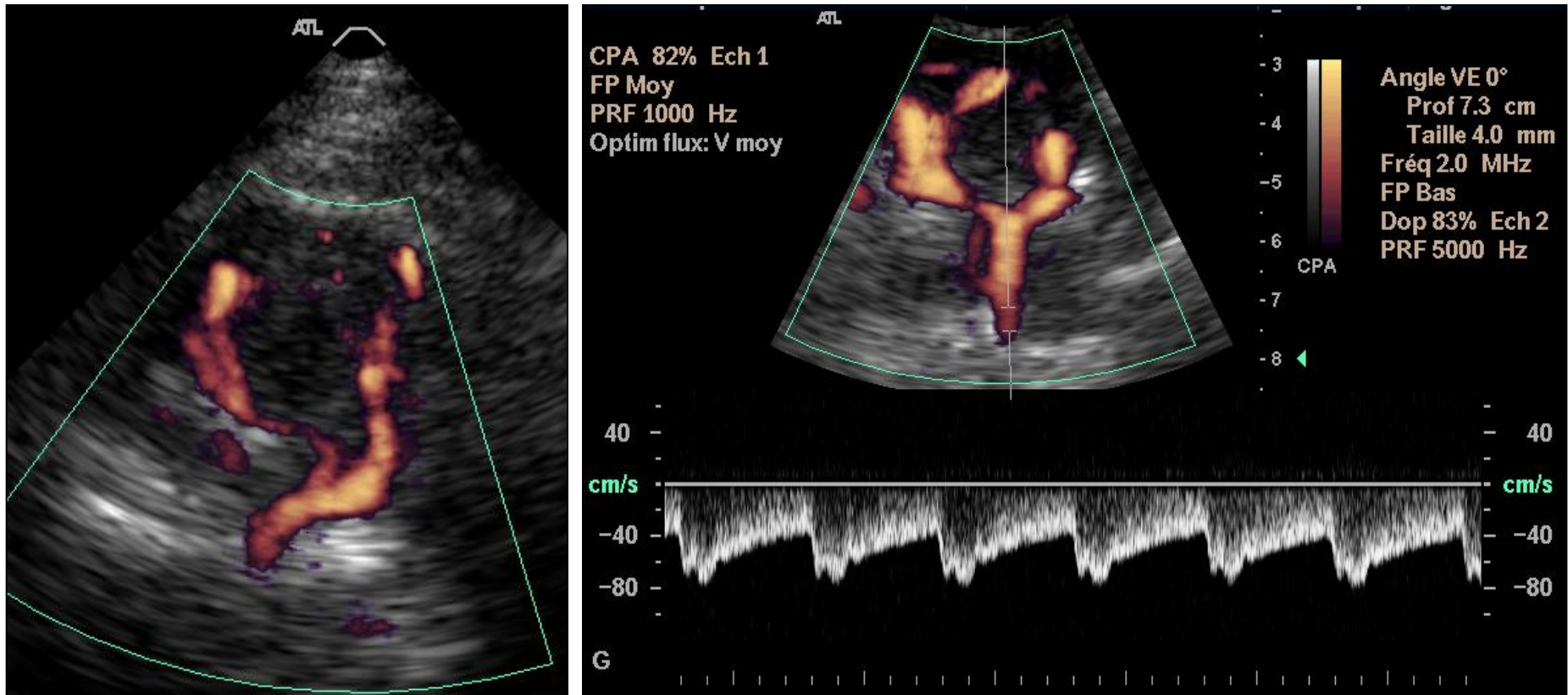


# Examen Normal



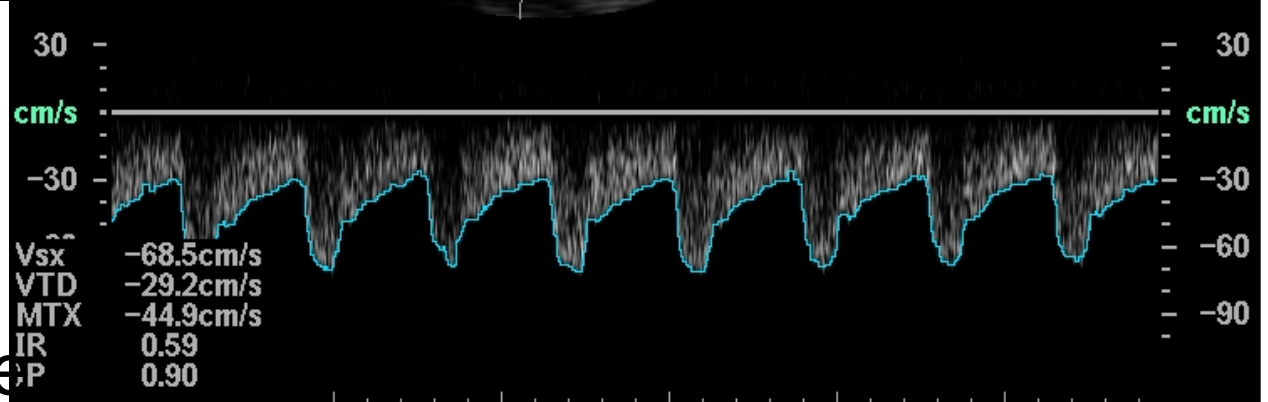
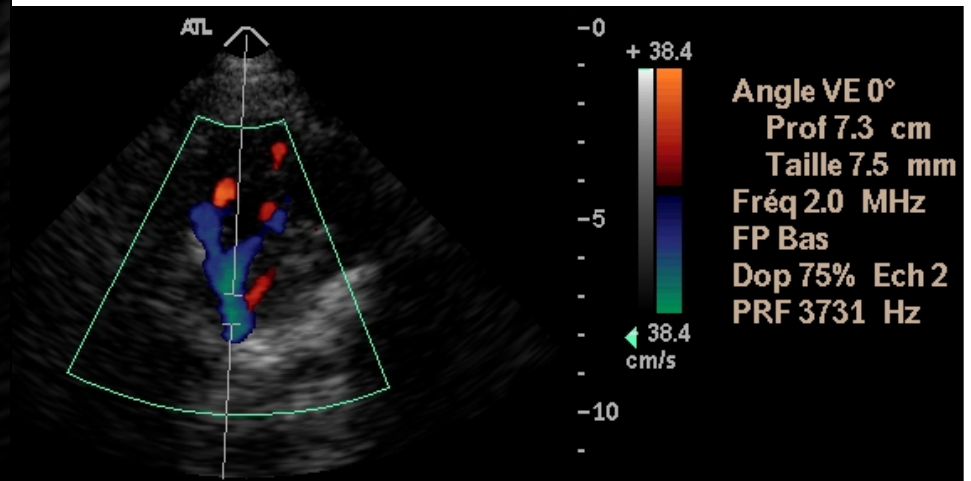
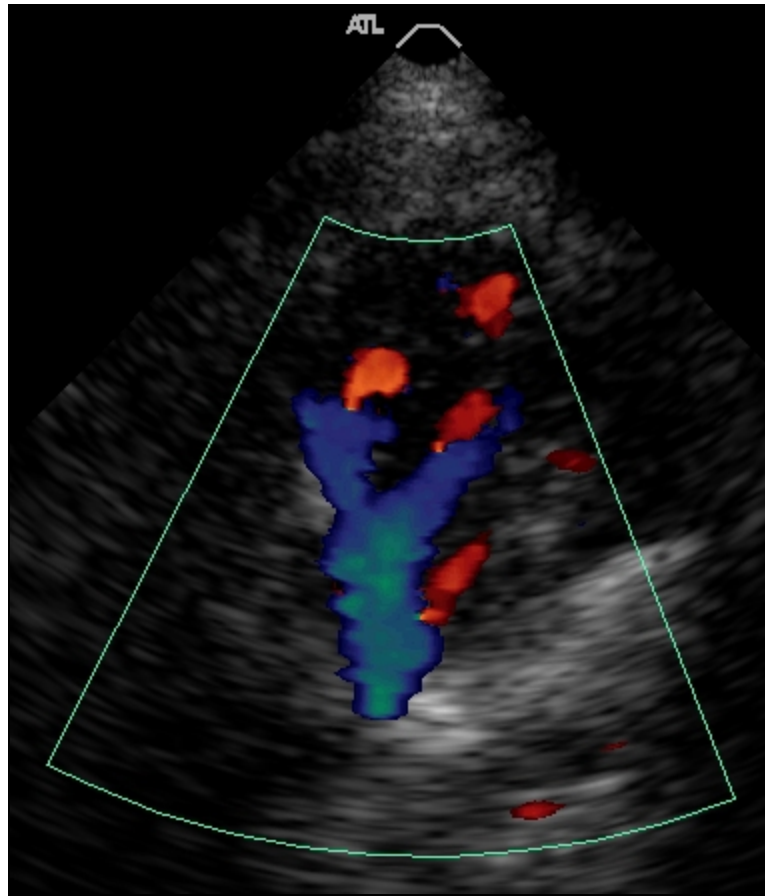
Artère Vertébrale gauche V4

# Examen Normal



Artère Basilaire

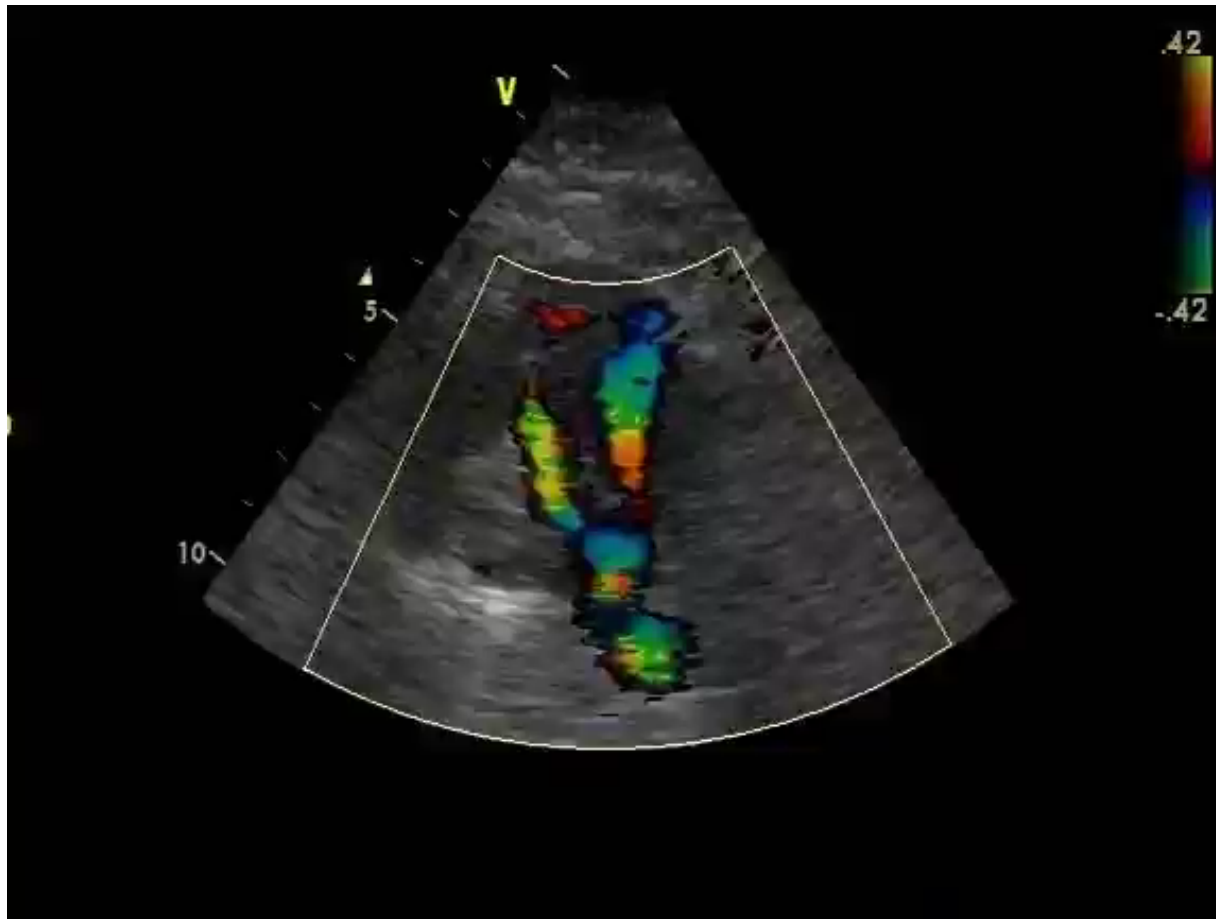
# Examen Normal



Artère Basilaire



# Examen Normal



Artère Basilaire

# Examen Normal



Produits de Contraste Ultrasonore

# Vitesse de « référence »

- ACI segment pétreux
  - VSM:  $53 \pm 14$  , VTD:  $25 \pm 7$
- ACM M1:
  - VSM:  $108 \pm 18$ , VTD:  $48 \pm 8$ ,
  - moyVmax: 80cm/s
  - IR: 0,5-0,6
  - IP: 0,8-1,2
- ACA A1:
  - VSM:  $91 \pm 17$ ; VTD:  $40 \pm 8$ ,
  - moyVmax: 70cm/s
  - IR: 0,5-0,6

ARTERE	PROFONDEUR	moyVmax
M2	30-45 mm	< 80 cm/s
M1	45-65 mm	< 80 cm/s
A1	60-80 mm	< 80 cm/s
A2	45-65 mm	< 80 cm/s
SC	60-80 mm	< 70 cm/s
AO	40-60 mm	Variable
ACP	60-70 mm	< 60 cm/s
TB	80-120 mm	< 60 cm/s
V4	60-80 mm	< 50 cm/s

Tableau 1 : Profondeur et moyenne de Vmax (pour un angle d'inc



# Vitesses

- ACP P1
- VSM:  $60 \pm 14$ ; VTD:  $28 \pm 9$ ,
- moyVmax: 60cm/s,
- IR: 0,5-0,6
  
- Attention en dehors
  - Anomalie des TSA
  - FEVG N

ACP	60-70 mm	< 60 cm/s
TB	80-120 mm	< 60 cm/s
V4	60-80 mm	< 50 cm/s

# Doppler Trans-Crânien

- Anatomie fonctionnelle
- Méthode d'examen
- Résultats normaux
- **Indications et résultats**

