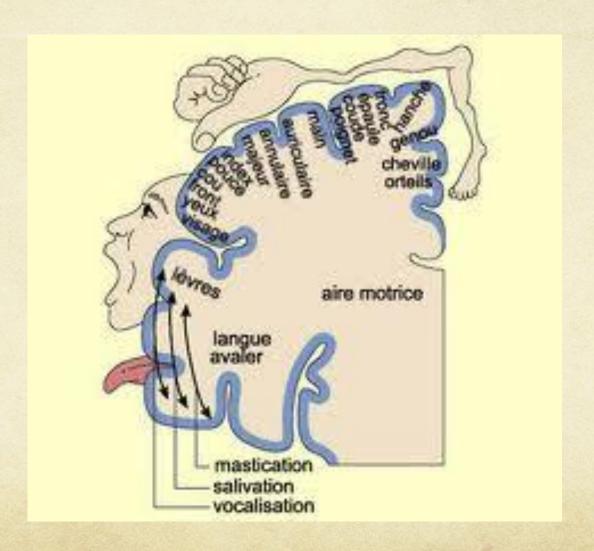


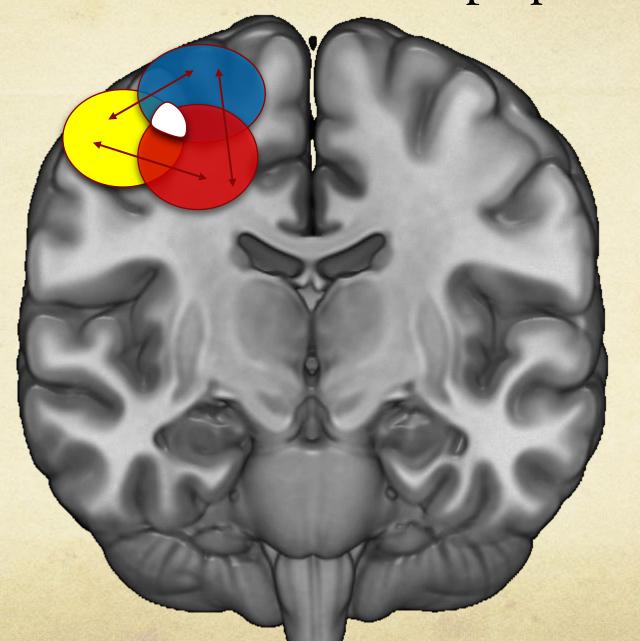


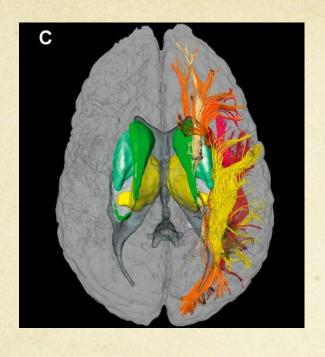
Semaine médicale de Lorraine Nancy 16 novembre 2016 Dr Fabien Rech, service de Neurochirurgie CHU Nancy Pr Luc Taillandier, service de Neurologie, CHU Nancy

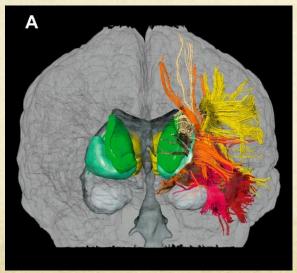
L'homonculus moteur

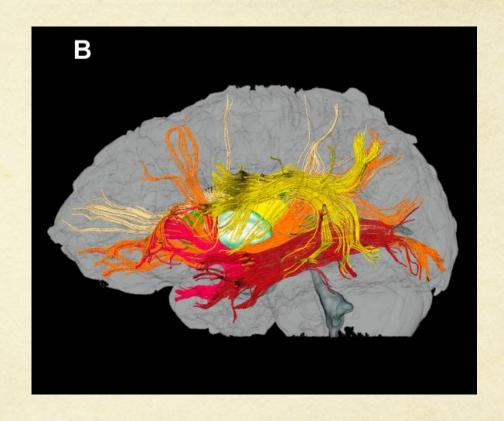


Le modèle hodotopique



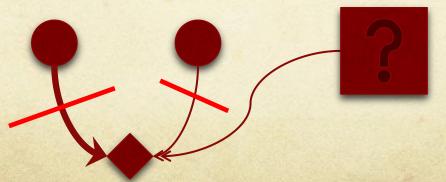






Le modèle hodotopique

- O Toute lésion peut entrainer des atteintes à distance
- O Fonctionnement en réseau
- O <u>Variabilité interindividuelle</u>
- O A la base de la plasticité cérébrale (redondance)



Tumeurs cérébrales

TUMOURS OF NEUROEPITHELIAL TISSUE		Neuronal and mixed neuronal-glial tumours Dysplastic gangliocytoma of cerebellum		Perineurioma Perineurioma, NOS	
Astrocytic tumours		(Lhermitte-Duclos)	9493/0	Malignant perineurioma	9
Pilocytic astrocytoma	9421/11	Desmoplastic infantile astrocytoma/			
Pilomyxoid astrocytoma	9425/3*	ganglioglioma	9412/1	Malignant peripheral	
Subependymal giant cell astrocytoma	9384/1	Dysembryoplastic neuroepithelial tumour	9413/0	nerve sheath tumour (MPNST)	
Pleomorphic xanthoastrocytoma	9424/3	Gangliocytoma	9492/0	Epithelioid MPNST	9
Diffuse astrocytoma	9400/3	Ganglioglioma	9505/1	MPNST with mesenchymal differentiation	n S
Fibrillary astrocytoma	9420/3	Anaplastic ganglioglioma	9505/3	Melanotic MPNST	9
Gemistocytic astrocytoma	9411/3	Central neurocytoma	9506/1	MPNST with glandular differentiation	9
Protoplasmic astrocytoma	9410/3	Extraventricular neurocytoma	9506/1*	•	
Anaplastic astrocytoma	9401/3	Cerebellar liponeurocytoma	9506/1*		
Glioblastoma	9440/3	Papillary glioneuronal tumour	9509/1*	TUMOURS OF THE MENINGES	
	9441/3	Rosette-forming glioneuronal tumour	3303/1		
Giant cell glioblastoma Gliosarcoma	9441/3	of the fourth ventricle	9509/1*	Tumours of meningothelial cells	
Gilosarcoma Gliomatosis cerebri	9381/3	Paraganglioma	8680/1	Meningioma	9
aliomatosis cerebri	3301/3	rarayangiioma	0000/1	Meningothelial	Š
0"		Turneyer of the pincel region		Fibrous (fibroblastic)	Š
Oligodendroglial tumours	0.450/0	Tumours of the pineal region	9361/1	Transitional (mixed)	
Oligodendroglioma	9450/3	Pineocytoma	9361/1	Psammomatous	
Anaplastic oligodendroglioma	9451/3	Pineal parenchymal tumour of		Angiomatous	9
		intermediate differentiation	9362/3		
Oligoastrocytic tumours		Pineoblastoma	9362/3	Microcystic	
Dligoastrocytoma	9382/3	Papillary tumour of the pineal region	9395/3*	Secretory	
Anaplastic oligoastrocytoma	9382/3			Lymphoplasmacyte-rich	
		Embryonal tumours		Metaplastic	
pendymal tumours		Medulloblastoma	9470/3	Chordoid	
Subependymoma	9383/1	Desmoplastic/nodular medulloblastoma	9471/3	Clear cell	9
Myxopapillary ependymoma	9394/1	Medulloblastoma with extensive		Atypical	9
Ependymoma	9391/3	nodularity	9471/3*	Papillary	9
Cellular	9391/3	Anaplastic medulloblastoma	9474/3*	Rhabdoid	
Papillary	9393/3	Large cell medulloblastoma	9474/3	Anaplastic (malignant)	
Clear cell	9391/3	CNS primitive neuroectodermal tumour	9473/3		
Tanycytic	9391/3	CNS Neuroblastoma	9500/3	Mesenchymal tumours	
naplastic ependymoma	9392/3	CNS Ganglioneuroblastoma	9490/3	Lipoma	8
		Medulloepithelioma	9501/3	Angiolipoma	1
choroid plexus tumours		Ependymoblastoma	9392/3	Hibernoma	
Choroid plexus papilloma	9390/0	Atypical teratoid / rhabdoid tumour	9508/3	Liposarcoma	
Atypical choroid plexus papilloma	9390/1*			Solitary fibrous tumour	8
Choroid plexus carcinoma	9390/3			Fibrosarcoma	8
energy provide datalitation	2000.0	TUMOURS OF CRANIAL AND PARA	SPINAL	Malignant fibrous histiocytoma	
Other neuroepithelial tumours		NERVES		Leiomyoma	
Astroblastoma	9430/3			Leiomyosarcoma	8
Chordoid glioma of the third ventricle	9444/1	Schwannoma (neurilemoma, neurinoma)	9560/0	Rhabdomyoma	8
Angiocentric glioma	9431/1*	Cellular	9560/0	Rhabdomyosarcoma	8
angiocentilo gilorna	343 I/I	Plexiform	9560/0	Chondroma	9
		Melanotic	9560/0	Chondrosarcoma	9
Manager of the International Control of the I	f 0	Weia/IUIC	3300/0	Osteoma	9
Morphology code of the International Classification of Diseases 814A) and the Systematized Nomenclature of Medicine	(http://snomed.org)	Neurofibroma	9540/0	Osteoma	
ehaviour is coded /0 for benign tumours, /3 for malignant tumoun	s and /1 for borderline			Osteosarcoma Osteochondroma	
r uncertain behaviour.		Plexiform	9550/0		
The italicised numbers are provisional codes proposed for the 4th edition expected to be incorporated into the next ICO-O edition, they cum	on of ICD-O. While they			Haemangioma	9
change.	,			Epithelioid haemangioendothelioma	

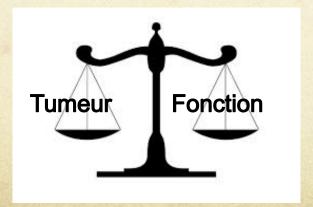
			04504
Perineurioma	0574/0	Haemangiopericytoma	9150/1
Perineurioma, NOS	9571/0	Anaplastic haemangiopericytoma	9150/3
Malignant perineurioma	9571/3	Angiosarcoma	9120/3
		Kaposi sarcoma	9140/3
Malignant peripheral nerve sheath tumour (MPNST)		Ewing sarcoma - PNET	9364/3
Epithelioid MPNST	9540/3	Primary melanocytic lesions	
MPNST with mesenchymal differentiation	9540/3	Diffuse melanocytosis	8728/0
Melanotic MPNST	9540/3	Melanocytoma	8728/1
MPNST with glandular differentiation	9540/3	Malignant melanoma	8720/3
		Meningeal melanomatosis	8728/3
TUMOURS OF THE MENINGES		Other neoplasms related to the men	
		Haemangioblastoma	9161/1
umours of meningothelial cells			
Meningioma	9530/0		
Meningothelial	9531/0	LYMPHOMAS AND HAEMATOPOIET	IC
Fibrous (fibroblastic)	9532/0	NEOPLASMS	
Transitional (mixed)	9537/0		
Psammomatous	9533/0	Malignant lymphomas	9590/3
Angiomatous	9534/0	Plasmacytoma	9731/3
Microcystic	9530/0	Granulocytic sarcoma	9930/3
Secretory	9530/0		
Lymphoplasmacyte-rich	9530/0		
Metaplastic	9530/0	GERM CELL TUMOURS	
Chordoid	9538/1		
Clear cell	9538/1	Germinoma	9064/3
Atypical	9539/1	Embryonal carcinoma	9070/3
Papillary	9538/3	Yolk sac tumour	9071/3
Rhabdoid	9538/3	Choriocarcinoma	9100/3
Anaplastic (malignant)	9530/3	Teratoma	9080/1
		Mature	9080/0
Mesenchymal tumours		Immature	9080/3
ipoma	8850/0	Teratoma with malignant transformation	
Angiolipoma	8861/0	Mixed germ cell tumour	9085/3
libernoma	8880/0		
iposarcoma	8850/3	TURALIDA AE TUE AELL AD DEGLA	
Solitary fibrous tumour	8815/0	TUMOURS OF THE SELLAR REGIO	N
ibrosarcoma	8810/3	0	0050/4
Malignant fibrous histiocytoma	8830/3	Craniopharyngioma	9350/1
eiomyoma	8890/0	Adamantinomatous	9351/1
eiomyosarcoma	8890/3	Papillary	9352/1
Rhabdomyoma	8900/0	Granular cell tumour	9582/0
Rhabdomyosarcoma	8900/3	Pituicytoma	9432/1*
Chondroma	9220/0	Spindle cell oncocytoma	0004 (01
Chondrosarcoma	9220/3	of the adenohypophysis	8291/0*
Osteoma	9180/0		
Osteosarcoma	9180/3	METASTATIC TUMOURS	
Osteochondroma	9210/0	METASTATIC TUMOURS	
łaemangioma	9120/0 9133/1		
pithelioid haemangioendothelioma	9133/1		

Principes généraux

- Objectif: retirer la tumeur
- O Chirurgie:
 - 1 er traitement
 - O Conditionne le pronostic
 - O Peut être le seul traitement (méningiome)

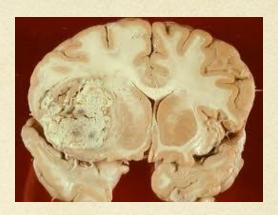
Principes généraux

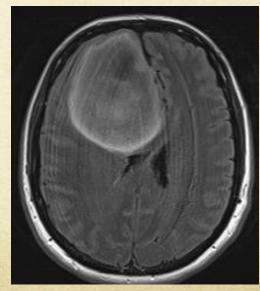
- O Problème: tumeurs infiltrantes
 - O Envahissent le cerveau sain
 - O À distance
 - O Risque de lésion neurologique
 - O Risque d'exérèse incomplète



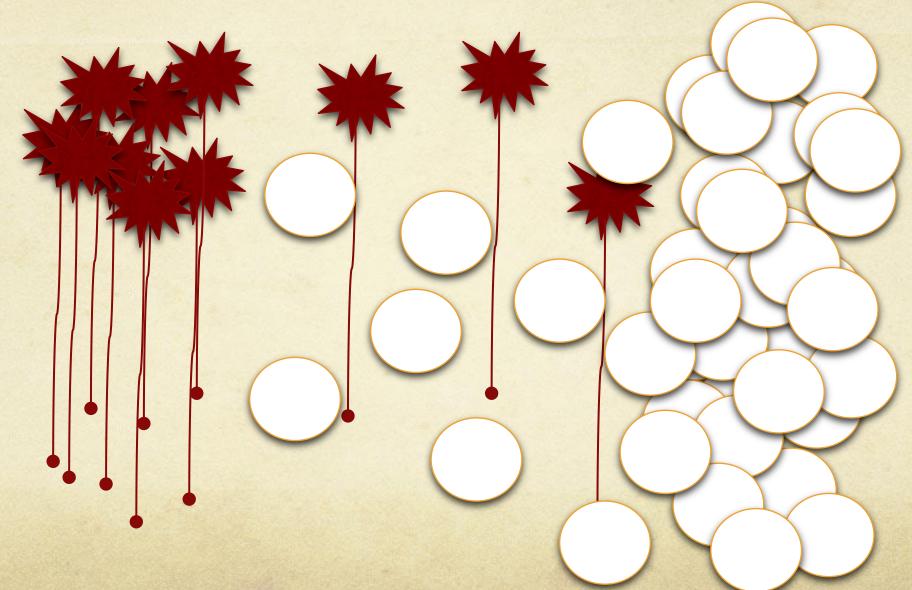
Les gliomes de bas grade

- Tumeur gliale : infiltrante
- Pas du tout bénigne
- Evolution lente:
 - Plasticité cérébrale
 - Lésion parfois volumineuse
 - O Zones fonctionnelles



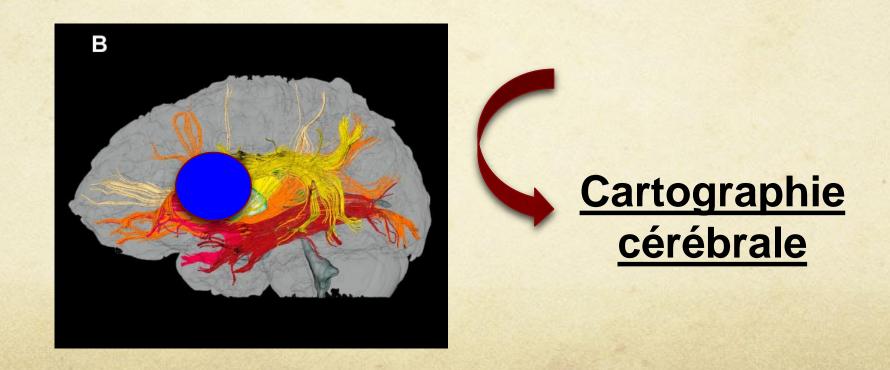


Les gliomes de bas grade



Les gliomes de bas grade

O Comment réséquer une tumeur infiltrant du cerveau sain en tenant compte de l'hodotopie ?



O Définition:

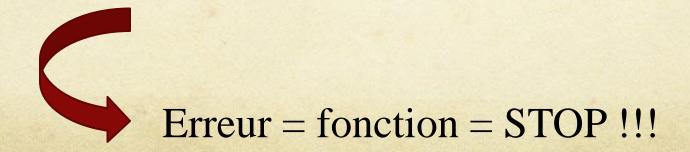
Réalisation de cartographie cortico-sous corticale per-opératoire par stimulation électrique directe chez un patient éveillé, dans le but de préserver les structures fonctionnelles lors de l'exérèse de lésions intra-parenchymateuses

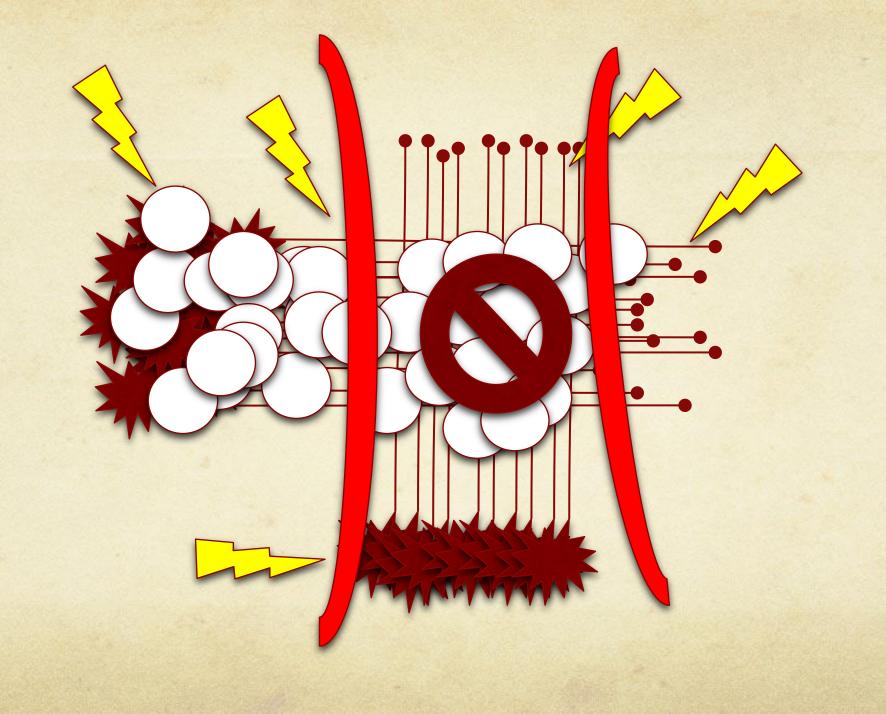
O Indications:

- O Toute lésion cérébrale infiltrante et/ou localisée dans des zones dites « fonctionnelles »
- O Chez un patient non déficitaire

O Moyens:

La stimulation électrique per-opératoire au contact de réseaux neuronaux va les perturber entrainant un échec dans la réalisation des tâches effectuées par le patient :

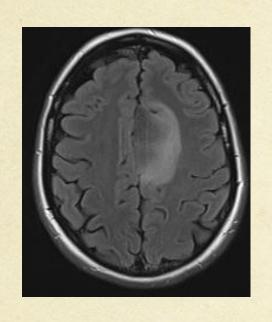


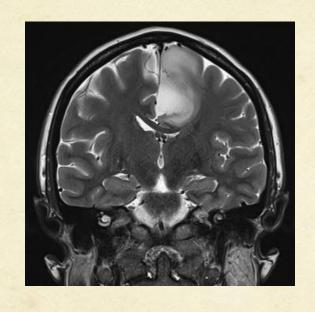


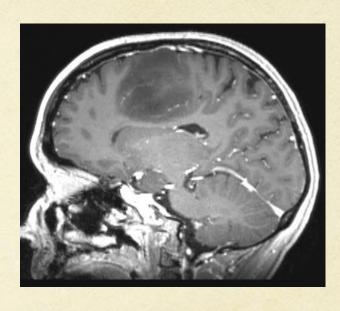
- O Exérèse possible en zone fonctionnelle
 - O Plasticité cérébrale
 - O Imprévisible
 - O Cartographie nécessaire

- O Patient installé pendant l'éveil
- O Sédation et fixation de la tête

- O Incision cutanée
- Craniotomie
- O Réveil
- Ouverture durale

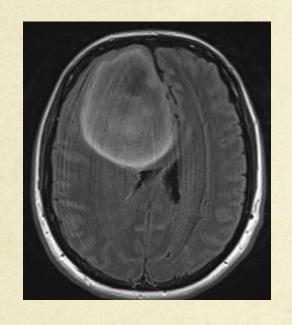


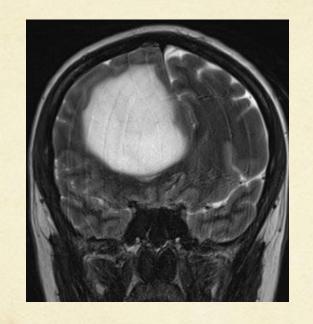


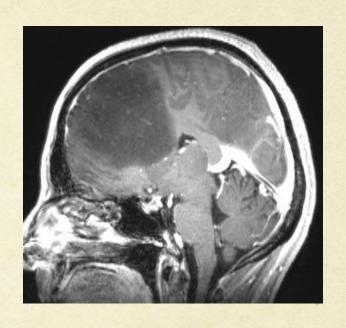


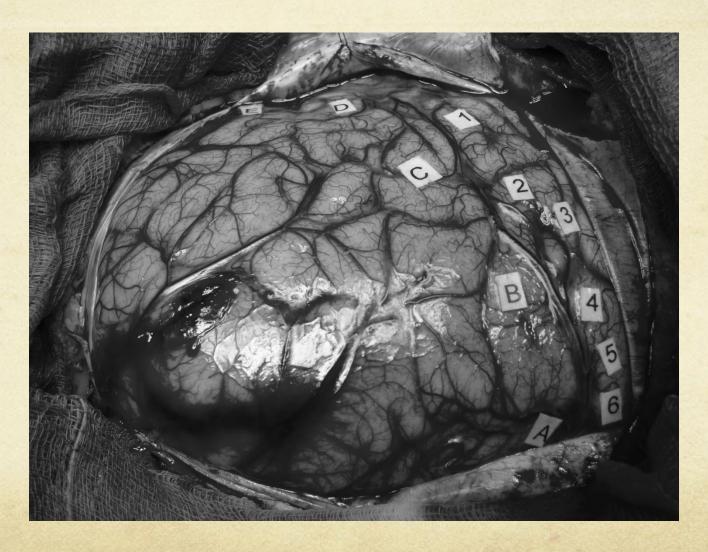


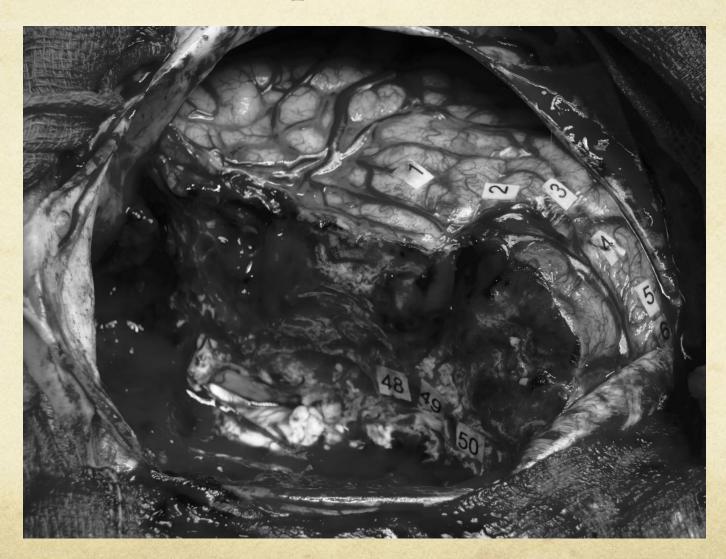


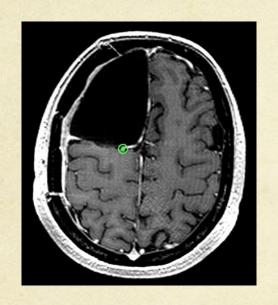


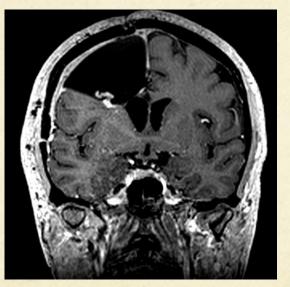


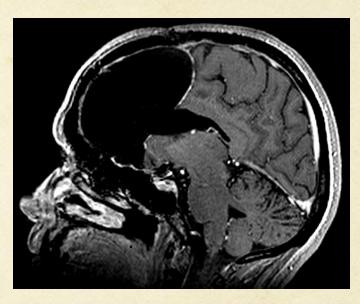






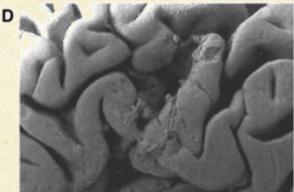




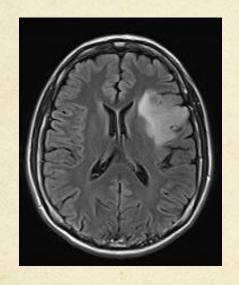


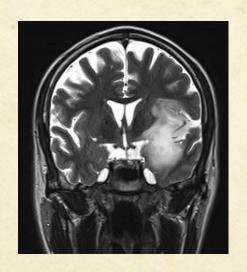
O Broca...

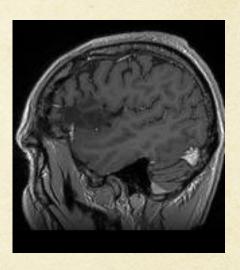




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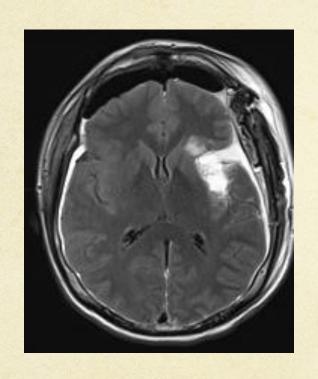


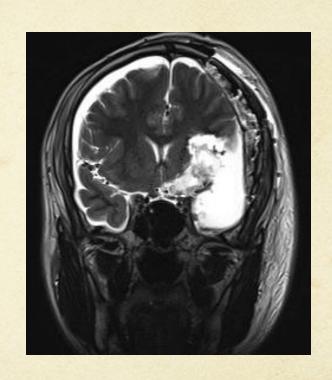


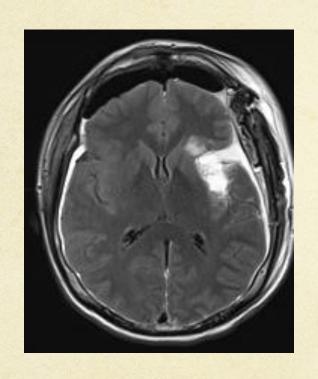


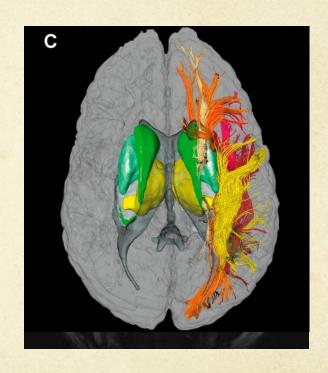


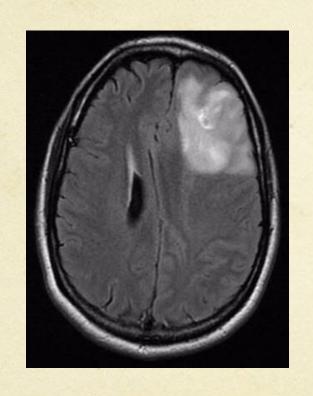


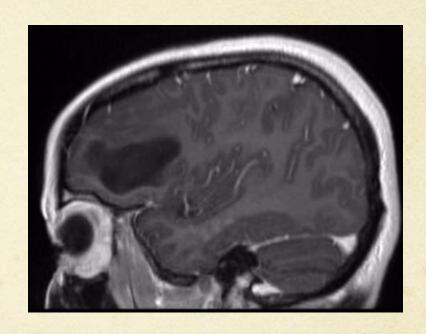




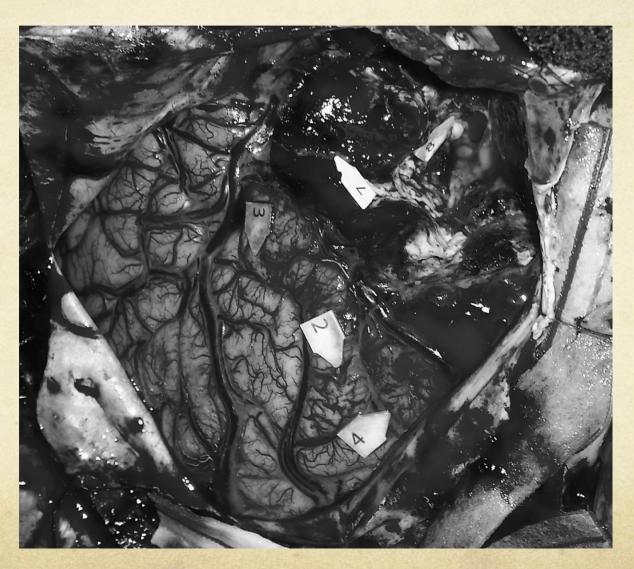


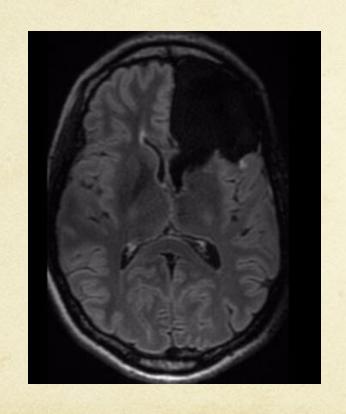


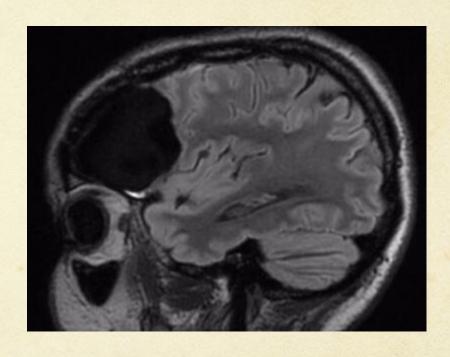




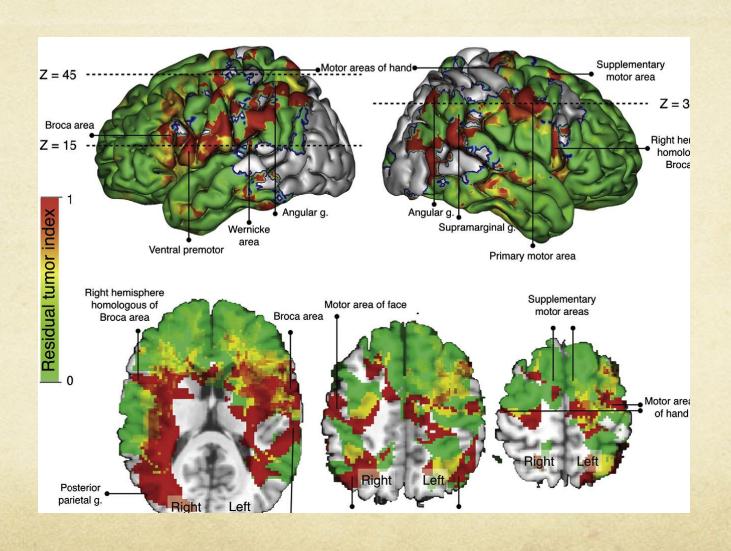


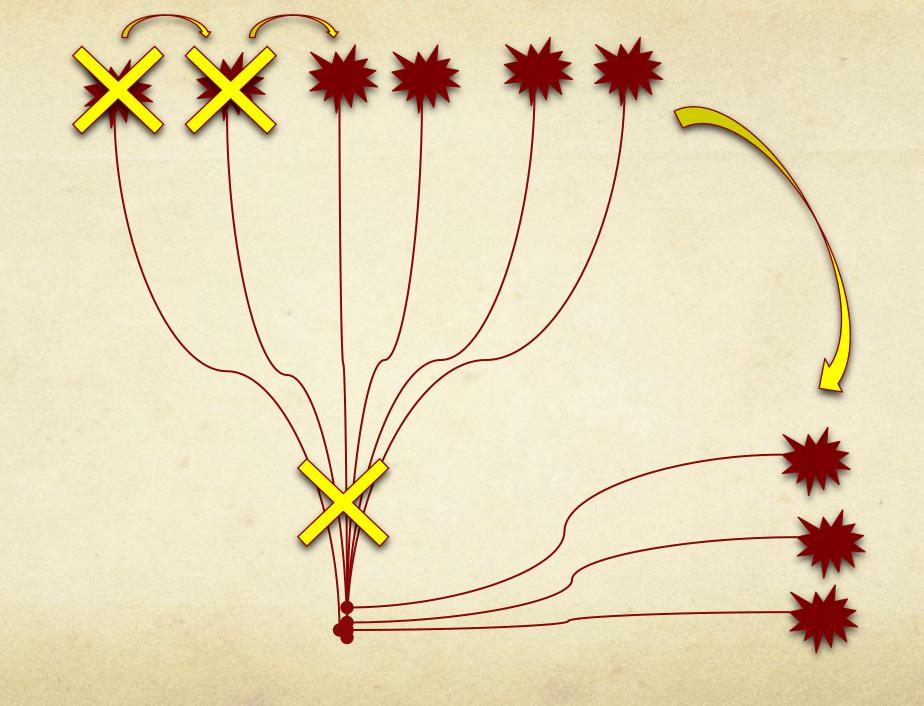






Le minimal common brain





- O Une fois la lésion déconnectée
 - O Ultime test sans stimulation : vérification de l'absence de déficit
 - Sédation
 - O Poursuite de l'exérèse en zone « non fonctionnelle »
 - 6 Fermeture

Post-opératoire

- O Déficit neurologique transitoire car exérèse au contact des zones fonctionnelles
- O Récupération dans les 3 mois

Suivi à long terme

- O Surveillance radio-clinique trimestrielle
- O Progression tumorale
- O Plasticité
- O 2^{nde} chirurgie
- O Sinon chimiothérapie

Merci de votre attention