

Tumeurs pinéales

Aspects neurochirurgicaux



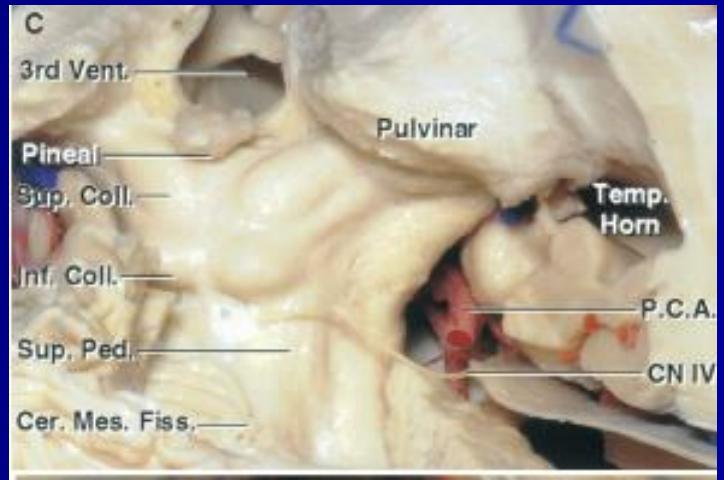
Hôpitaux de Lyon

Pr E. Jouanneau, Neurochirurgie A
Hospices Civils de Lyon, Université Claude Bernard Lyon I



Anatomie

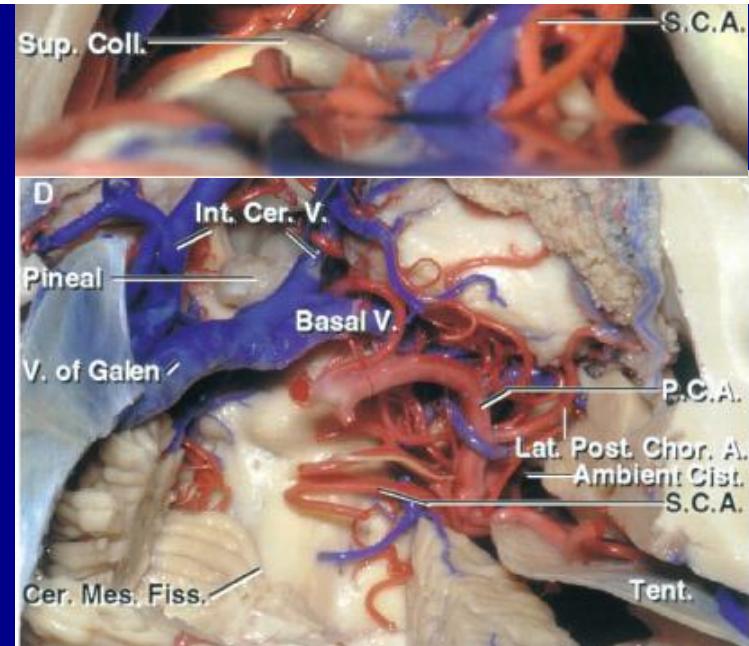
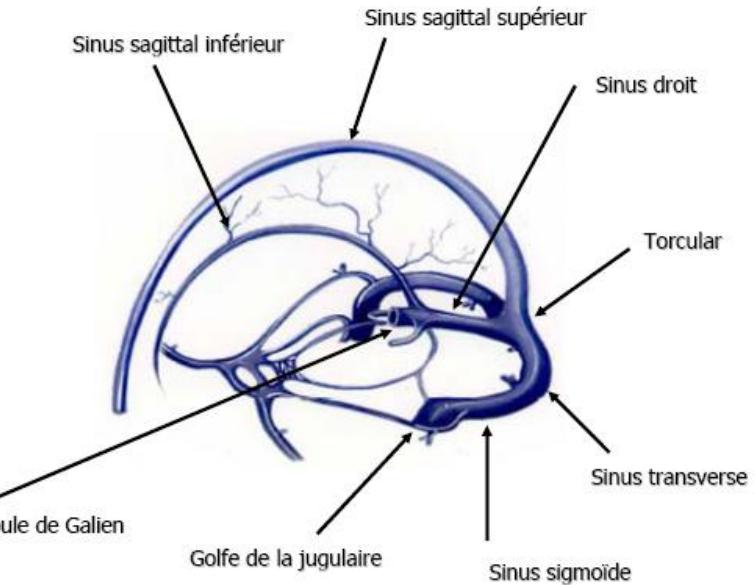
- Glande endocrine appendue à la partie postérieure du III ventricule (*150 mg*)
- Rythme circadien, sécrétion de mélatonine



Rhoton, Neurosurgery 2000

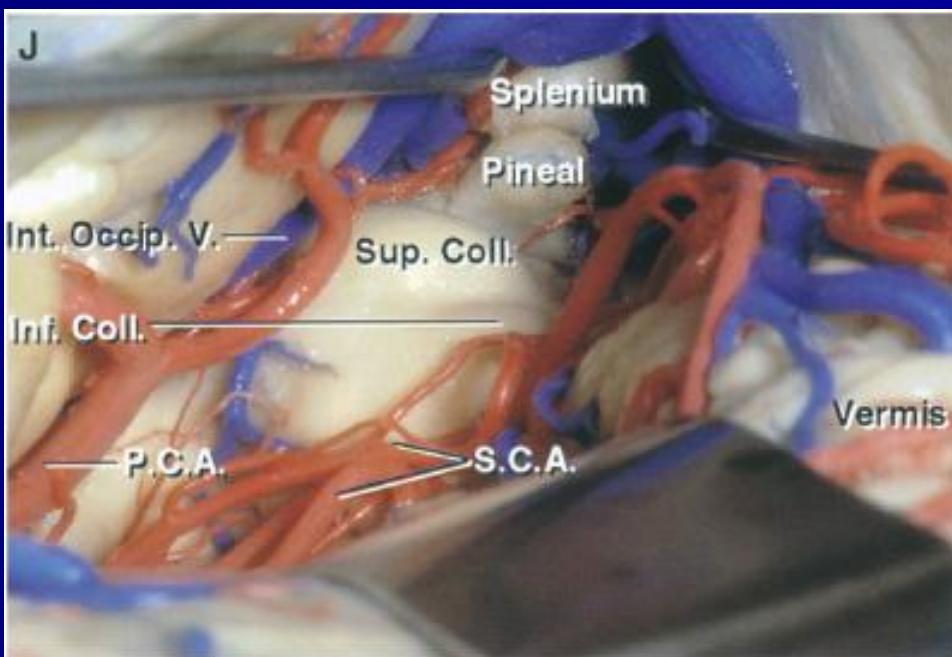
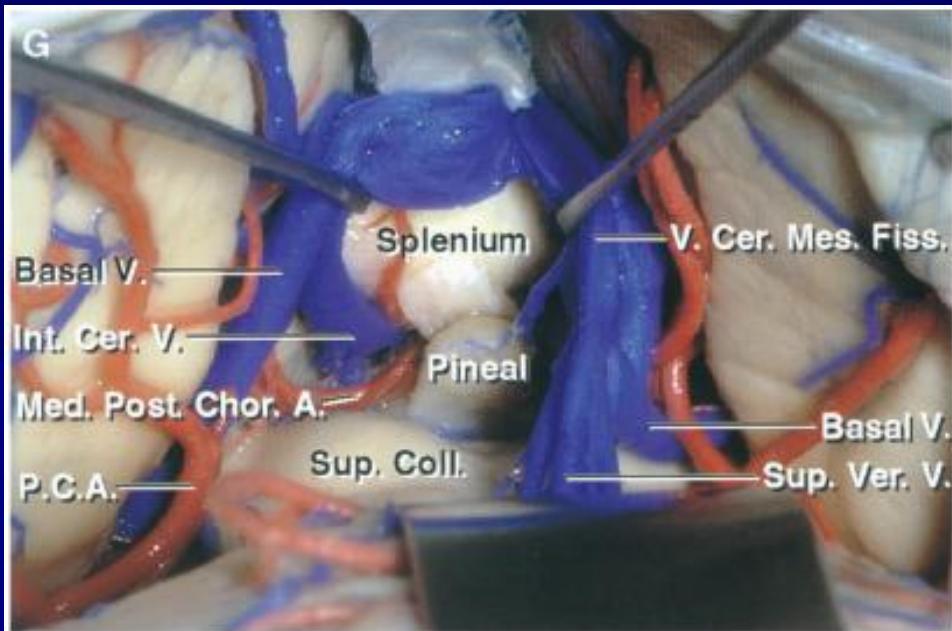
Rapports veineux

- Veines cérébrales internes
- Veines basilaires
- Veines occipitales internes
- Veines de la fissure cérébellomésencéphalique
- Veine de Galien
- Sinus droit



Rapports artériels

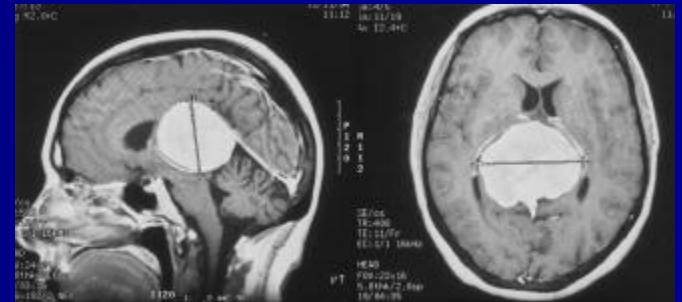
- Artères choroïdiennes postéro-médiales
- Artères cérébrales postérieures
- Artères cérébelleuses supérieures



Classification histologique

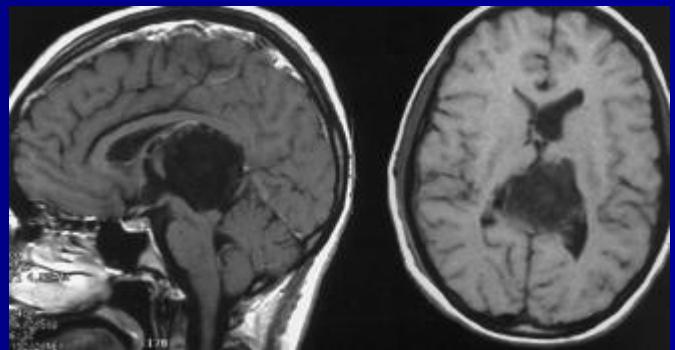
- Tumeurs de la région pineale

- ✓ 1 à 2% ensemble des tumeurs IC
- ✓ 4% japon
- ✓ 11% des tumeurs de l' enfant



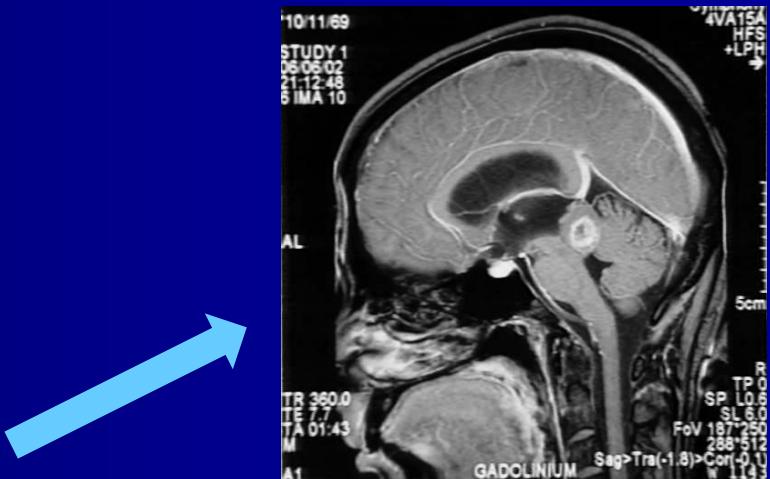
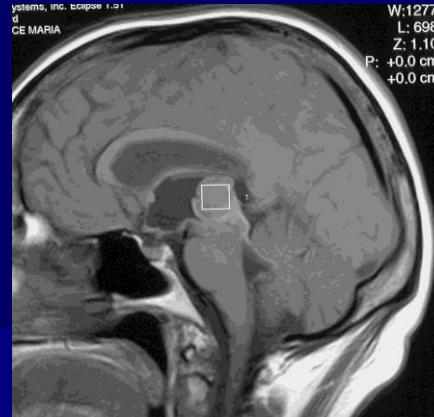
- Extra-axiales

- ✓ Méningiomes
- ✓ Kyste épidermoïde, lipome...



- Intra-axiales

- ✓ Métastases



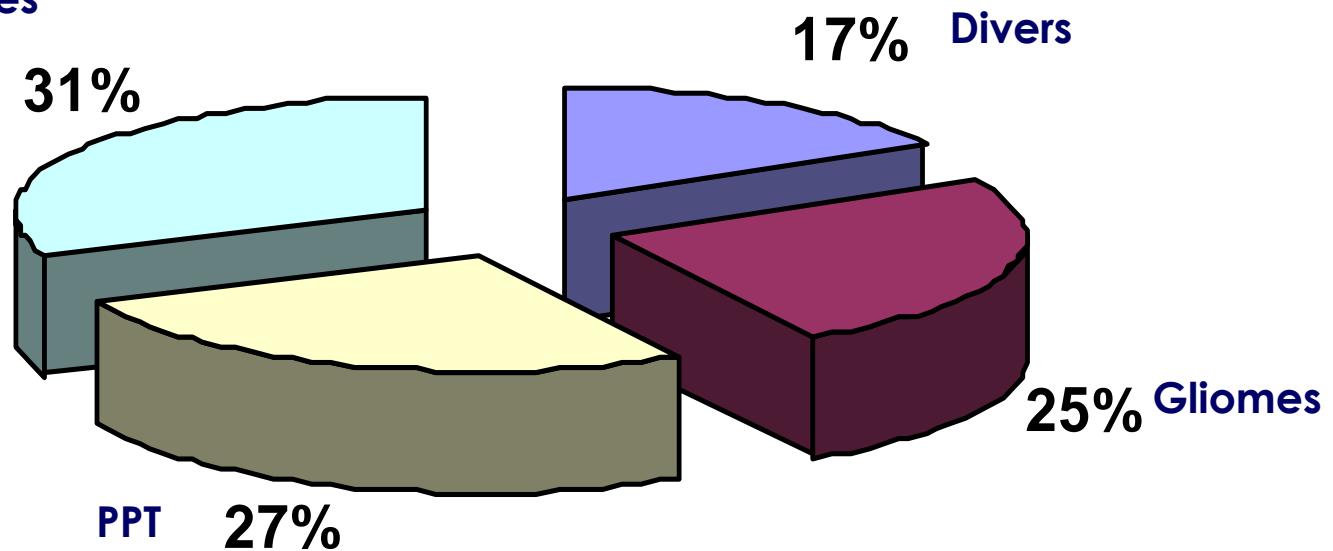
- ✓ Tumeurs d' origine neuro-épithéliale « gliomes »: Astrocytome pilocytique, oligodendrogliome, Gangliogliome, Ependymome

• Tumeurs pinéales

- ✓ enfant ou adulte jeune
- ✓ Tumeurs germinales +++: 50%, enfant, > 5ans, masculin
- ✓ Tumeurs du parenchyme pinéal: 30%, adulte jeune, sexe ratio 1

Série du professeur CI Lapras- A Jouvet

Tumeurs germinales



300 patients

Tumeurs germinales

Cellules Germinales Primitives

Germinome (50%)

Cellules Germinales Pluripotentes

Carcinome Embryonnaire (5%)

Différentiation Extraembryonnaire

Tumeur sac vitellin (7%)

Choriocarcinome (5%)

Différentiation Embryonnaire

Tératome avec transformation maligne

Combinaison possible

T Mixtes (15%)

Germinome avec:
• tératome mature
• tératome immature
• carcinome embryonnaire
• tumeur sac vitellin

Tératome Mature ↔ Tératome Immature

18%

Marqueurs des tumeurs germinales

Serum, CSF, Tissu

Tissu

AFP

HCG

PLAP

Cytokératines

Germinome (Pur)

-

-

+

+/-

Germinome (Mixte)

-

+ / -

+

+ / -

Tératome

+ / -

-

-

+ / -

T Sac vitellin

+

-

+ / -

+

Carcinome Embryonnaire

-

-

+

+

Choriocarcinome

-

+

+ / -

+ / -

CLASSIFICATION THERAPEUTIQUE

- Europe et USA
 - TERATOME MATURE
 - GERMINOMES PURS
 - Bas risque
 - Haut risque
 - «SECRETANTES »
 - Bas risque
 - Haut risque
- Japon
 - BON
 - tératome mature
 - Germinomes purs
 - INTERMEDIAIRE
 - Germinome sécrétant
 - Germinome mixte avec tératome
 - MAUVAIS
 - Choriocarcinome
 - Sac vitellin
 - Carcinome embryonnaire
 - Tératome contenant l' un des précédents

Tumeurs du parenchyme pinéal (PPT)

Nouveau grading

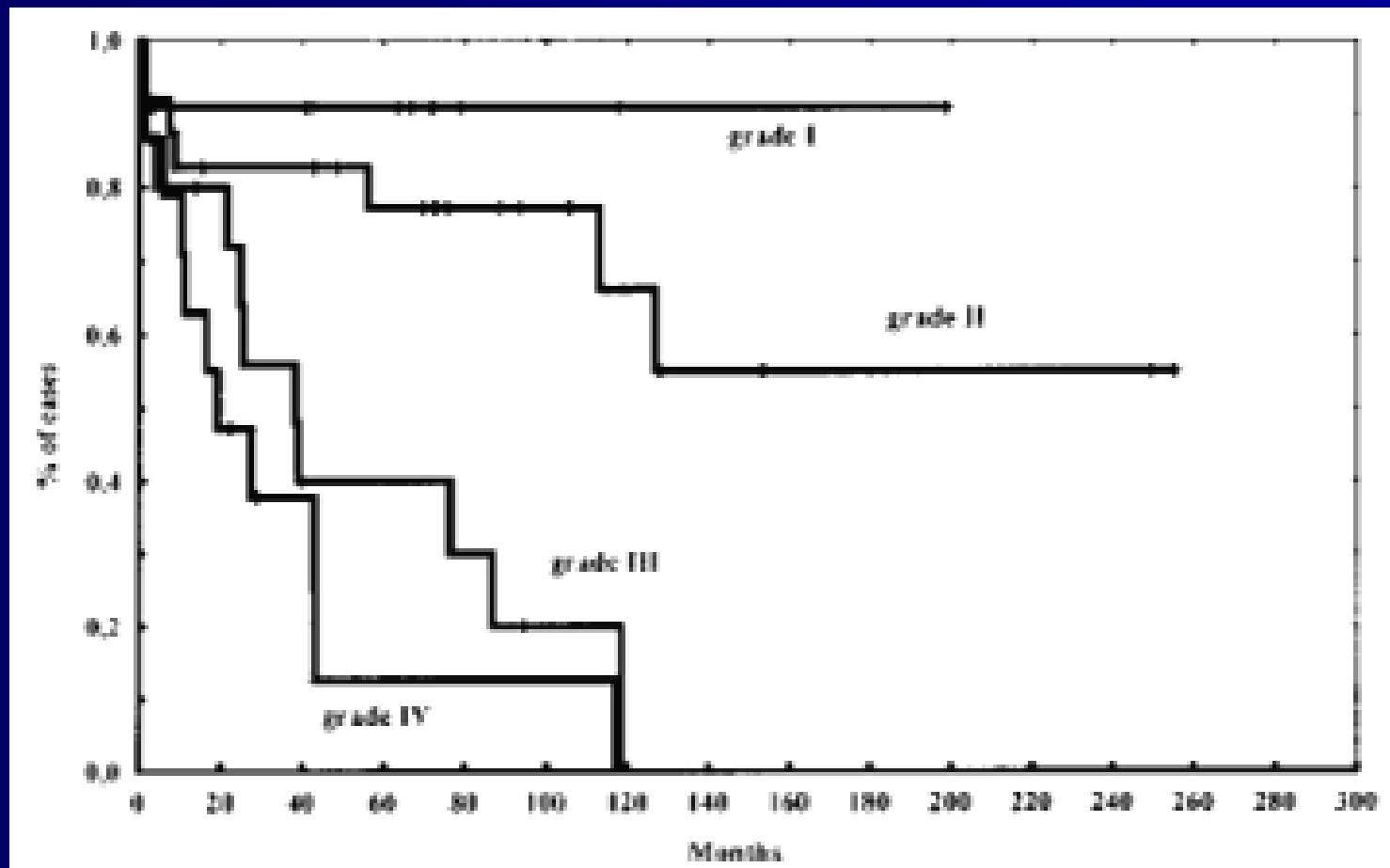
(Anne Jouvet; Brain pathology, 2000, 10, 49- 60)

	GRADE 1	GRADE 2	GRADE 3	GRADE 4
Morphologie	Pinéocytome Typique ou Gangliocytique (PC)	Transitionnel, lobulé or diffuse PPT		Pineoblastome (PB)
Mitoses	0	<6	<6	≥ 6
IHC	NSE Syn ChrgA NF	+++	++	+/-
WHO classification		Grade II	PPT Intermediaire or PC/PB mixte	Grade IV

NSE: Neuron specific enolase, Syn: Synaptophysin, ChrgA: Chromogranin A, NF: Neurofilaments

Survie des PPT selon le grade

($p<0.008$)



Nouvelle entité

Tumeurs papillaires de la région pineale

Prognosis and Histopathologic Features in Papillary Tumors of the Pineal Region: A Retrospective Multicenter Study of 31 Cases

Michelle Fèvre-Montange, PhD, Martin Hasselblatt, MD, Dominique Figarella-Branger, MD, PhD, Laurent Chauveinc, MD, Jacques Champier, PhD, Ghislaine Saint-Pierre, MD, Luc Taillandier, MD, Alix Coulon, MD, Werner Paulus, MD, François Fauchon, MD, and Anne Jouvet, MD, PhD

- Adulte jeune (32 ans)
- Hypo T1, Hyper T2
- Homogène, bien circonscrite
- Prise de contraste
- Grade II/III
- Organe sub-commissural (épendyme)

J Neuropathol Exp Neurol
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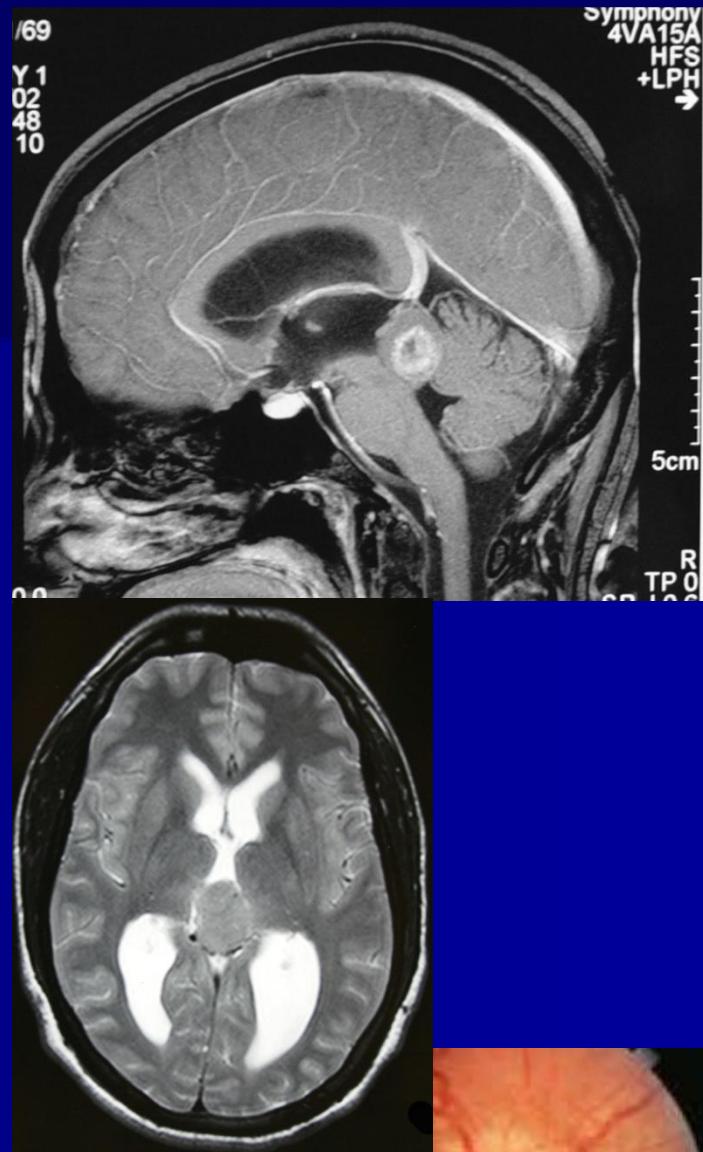
Vol. 65, No. 10
October 2006
pp. 1004–1011



Survie et PFS à 5 ans: 73% et 27% avec récidive locale

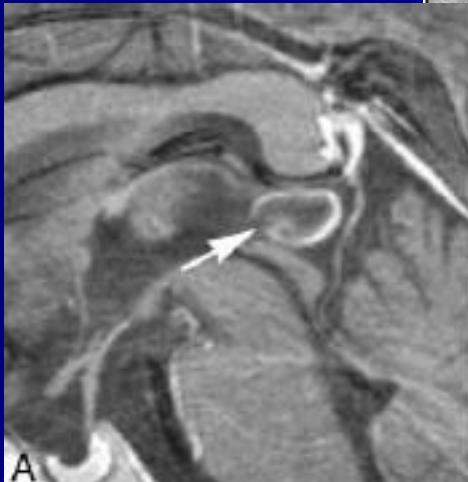
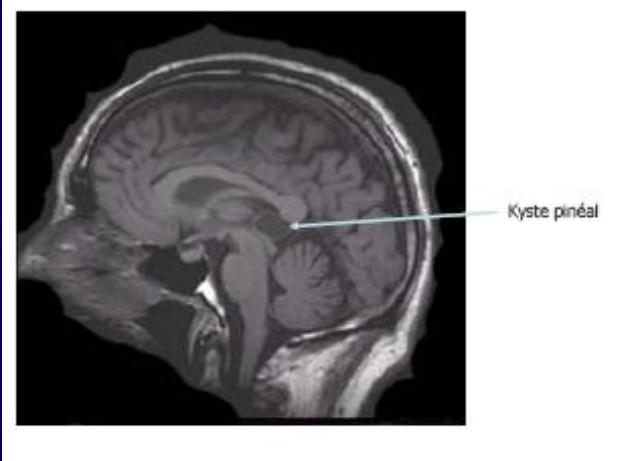
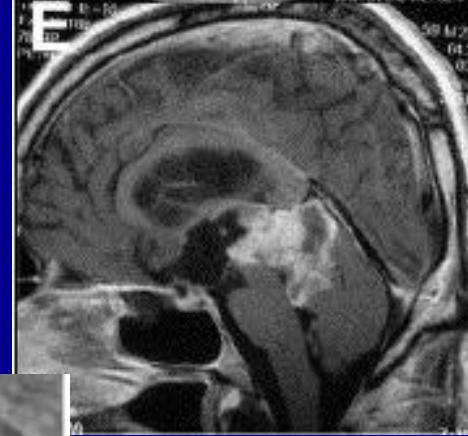
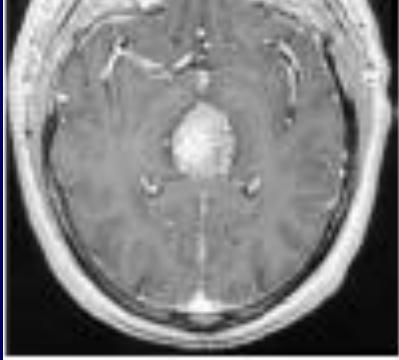
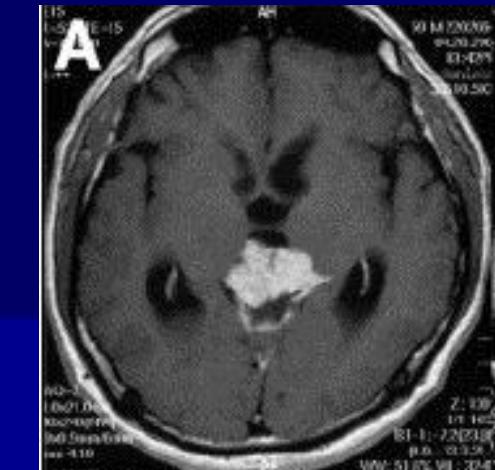
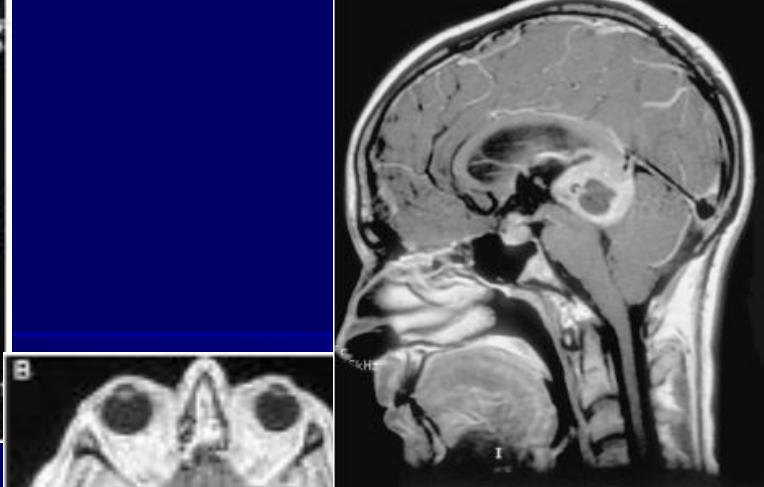
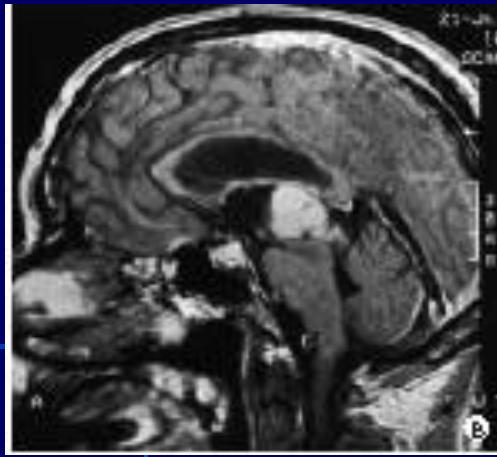
Mode de révélation

- HTIC par hydrocéphalie triventriculaire
- Syndrome de parinaud
- Puberté précoce (sécrétion de β HCG)



Imagerie

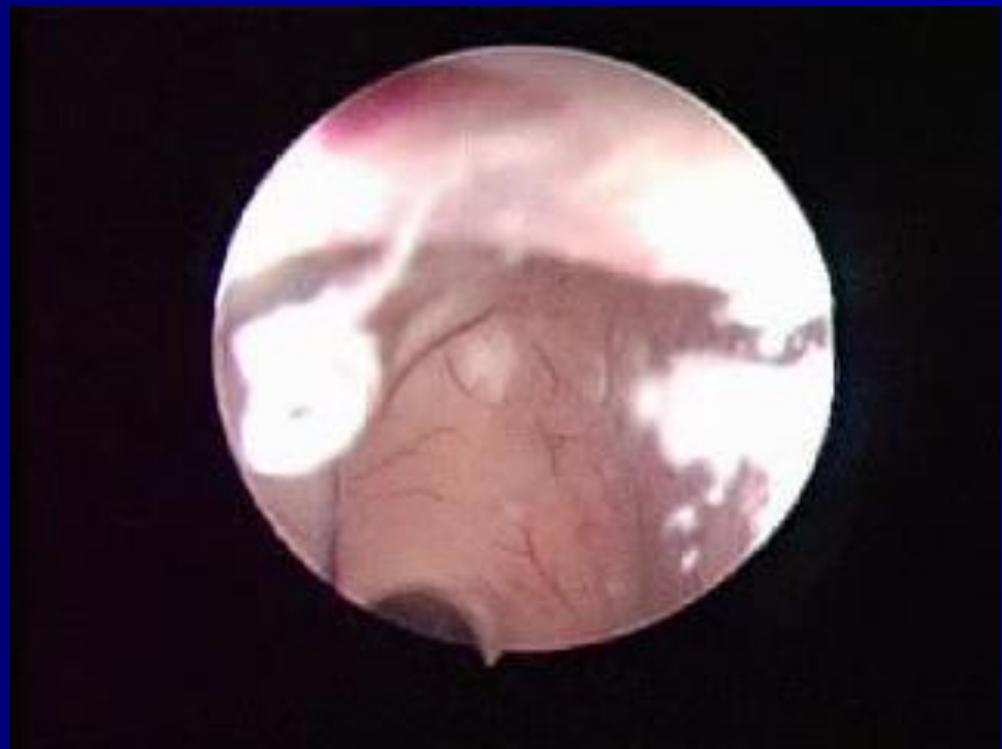
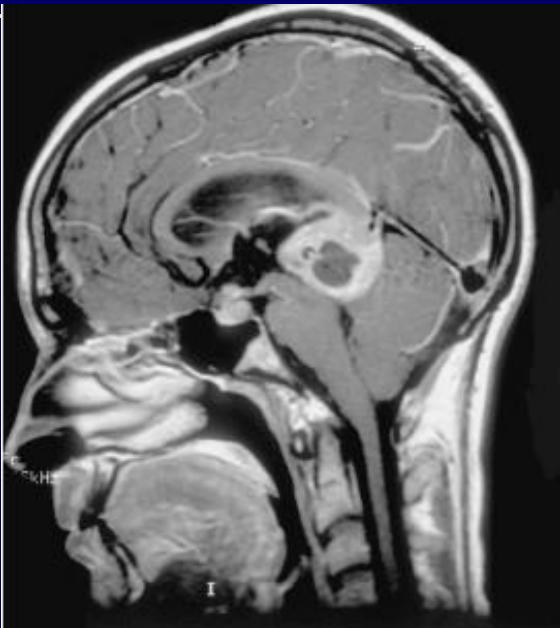
- **IRM, Non spécifique**
- Tumeurs charnues
- Iso ou hypo T1, hyperintense T2 en IRM, Prise de contraste
- Double localisation → germinome (DI)
- Calcifications
- Kystes intratumoraux → Tératome
- Hémorragie intratumorale → Choriocarcinome



Stratégies de prise en charge

- **Hydrocéphalie aigue** →

Ventriculocisternostomie+biopsie
Dérivation de LCR



- **Contexte:**

- ✓ Sexe
- ✓ Antécédents
- ✓ IRM crano-spinale; Bilan d' extension
- ✓ Marqueurs sang et LCR ; Cellules tumorales LCR

Tumeurs région pineale

Marqueurs et cellules -

Marqueurs et cellules +

Chirurgie+++/biopsie+



RT

Ch

Chirurgie sur reliquat tumoral

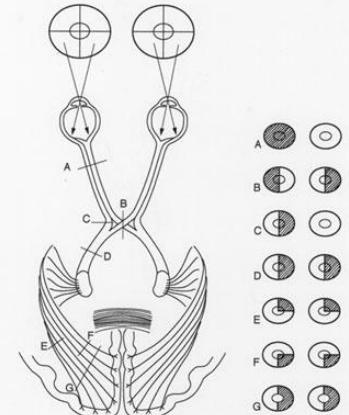
Biopsie versus Chirurgie



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Figure 1 : Hémianopsie (Disparition de la moitié du champ visuel)

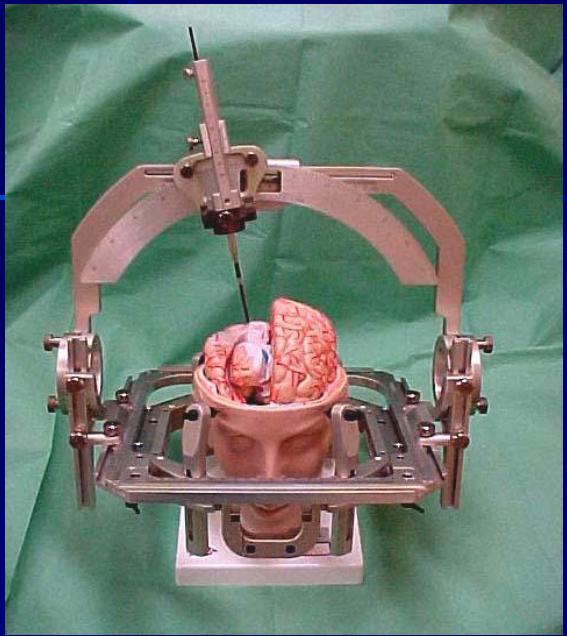
- ✓ 1% versus 5% de morbidité
- ✓ Morbidité ophthalmologique
- ✓ Ataxie
- ✓ Syndrome de la belle au bois dormant



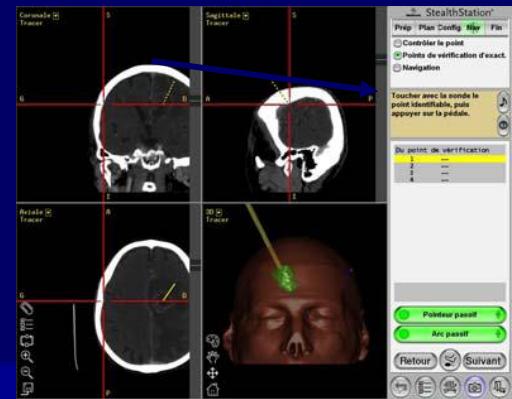
Parinaud's syndrome

edited by Mr. C.N.Chua
@April, 2001

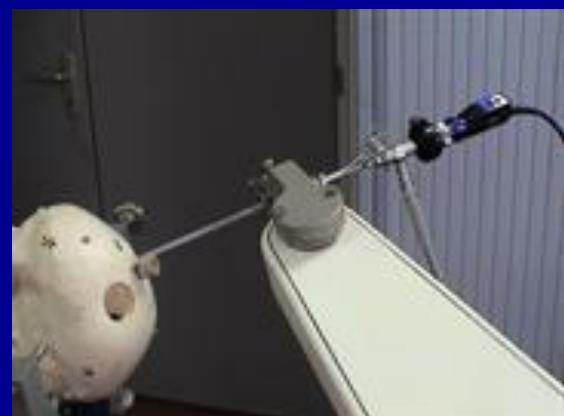
Stéréotaxie



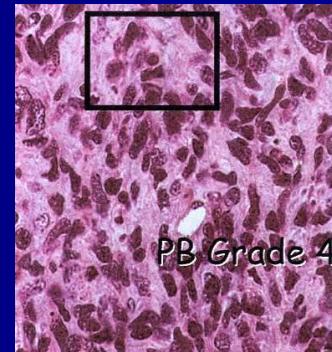
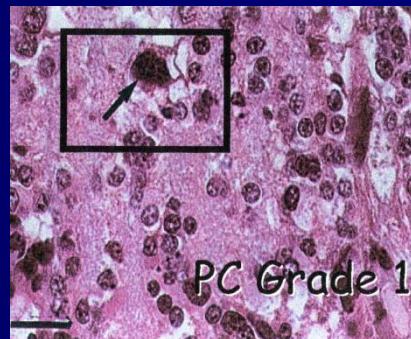
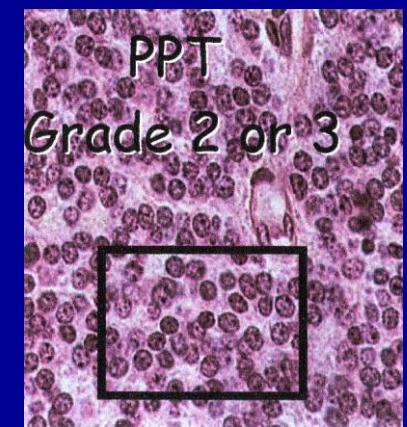
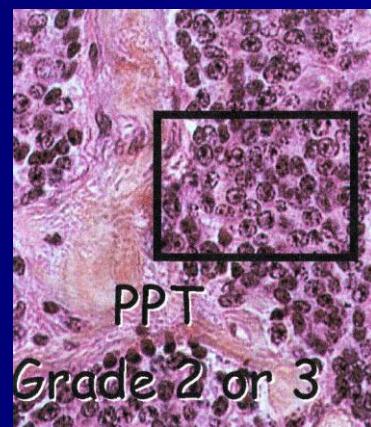
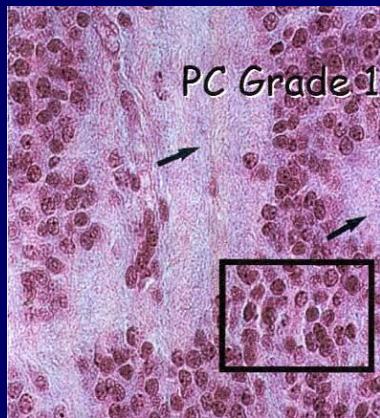
Neuronavigation



Biopsie robotisée



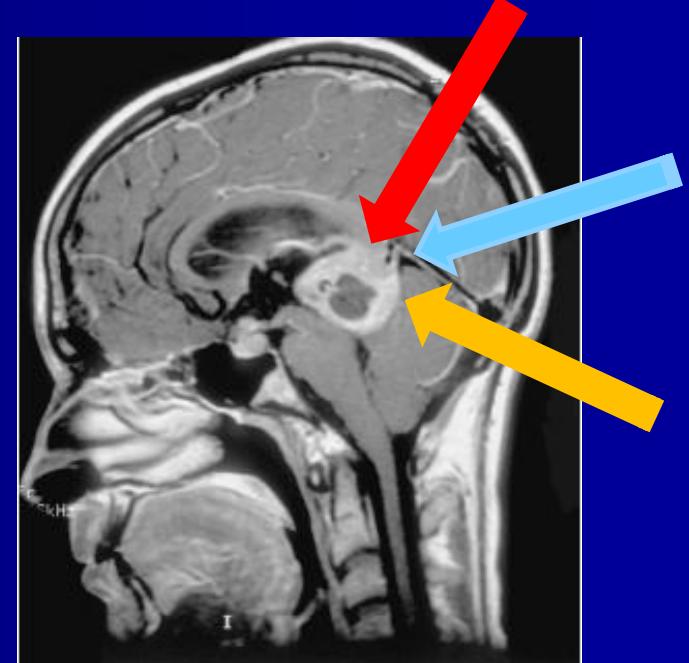
Chirurgie versus Biopsie



Approches chirurgicales de la région pineale

• Voies d' abord postérieures +++

- ✓ Occipitale, transtentorielle OTT (*Foerster 1928, Poppen*)
- ✓ Infratentorielle, supracérébelleuse IFSC (*Krause 1926, Stein*)
- ✓ Combinée (*Sehkar 1998*)
- ✓ Pariéto-occipital (*Aussman 1988, Brotchi 1991*)



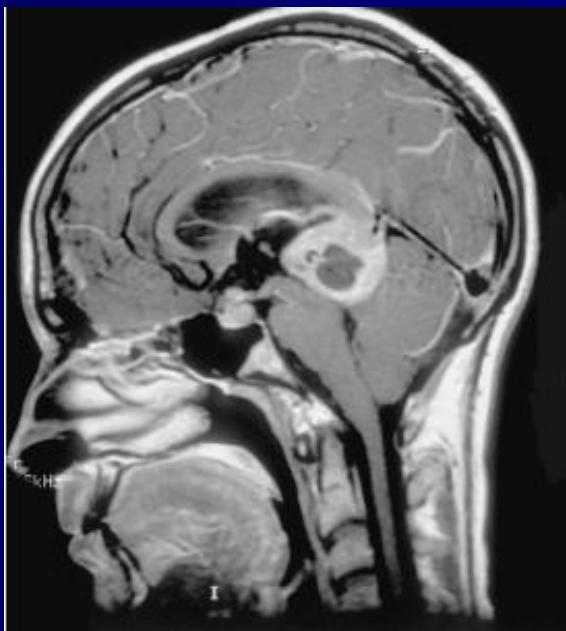
• Autres

- ✓ Transcalleux (*Dandy-Foerster, Arch Sur 1936*)
- ✓ Transventriculaire (*Van Wangenhen, Surg Gynecol Obstet 1931*)

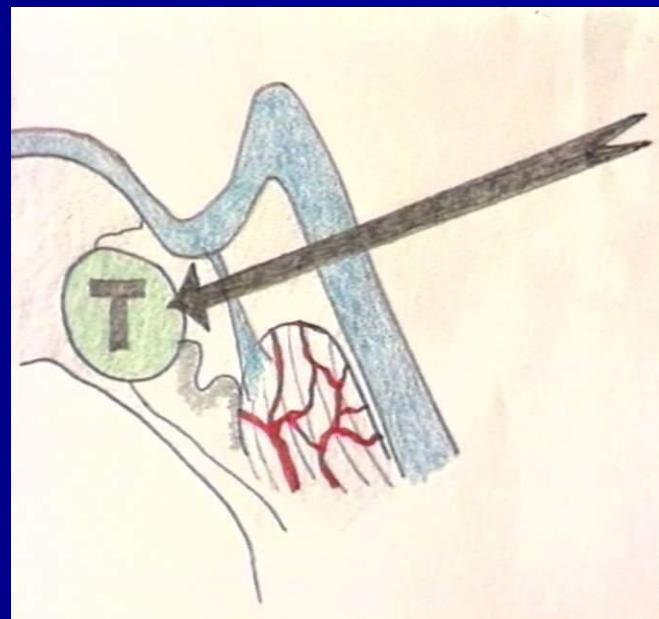
Choix du type de voie d' abord postérieure

- Extension crânio-caudale de la tumeur
- Inclinaison de la tente du cervelet
- Expérience de l' opérateur

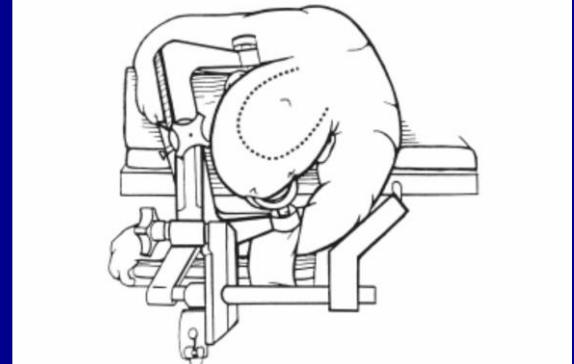
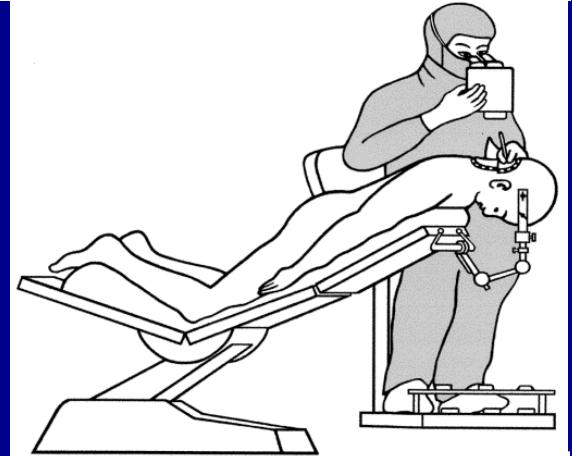
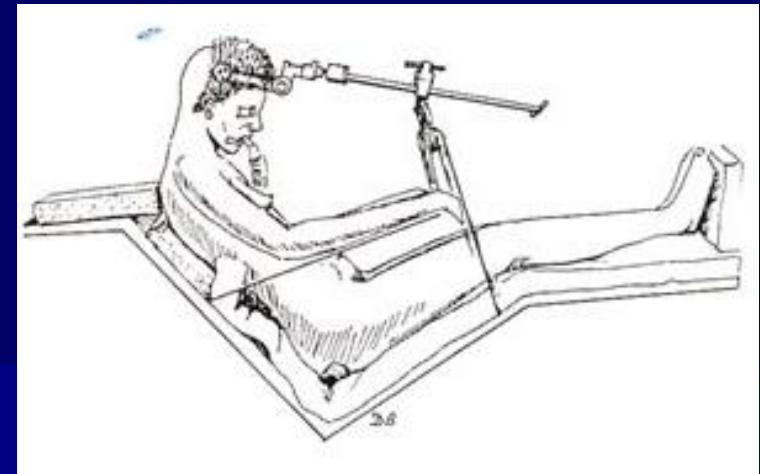
- Tente horizontalisée: abord ITSC



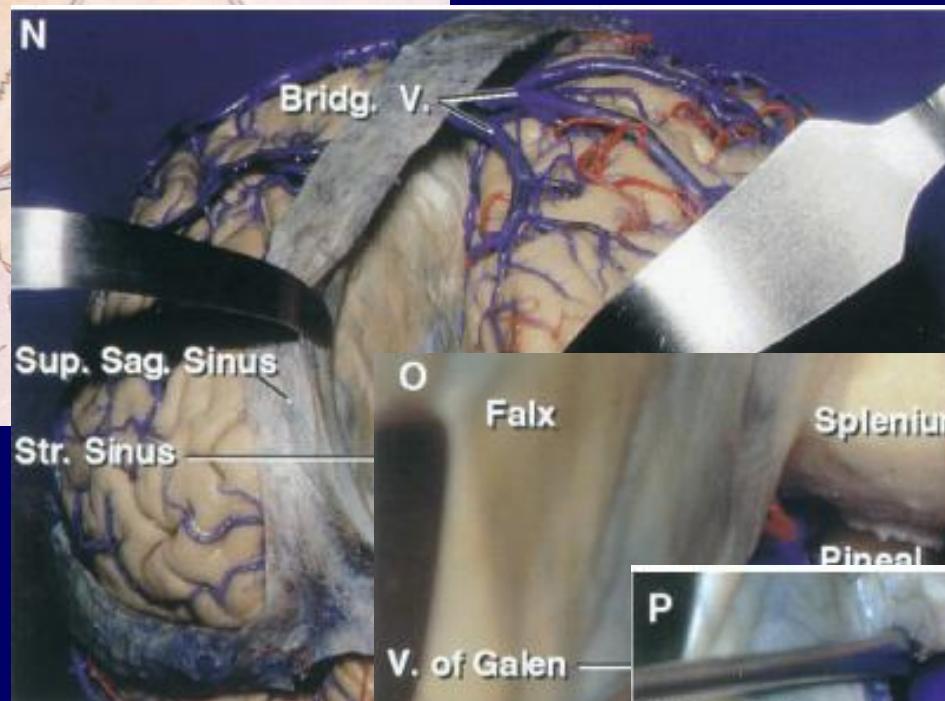
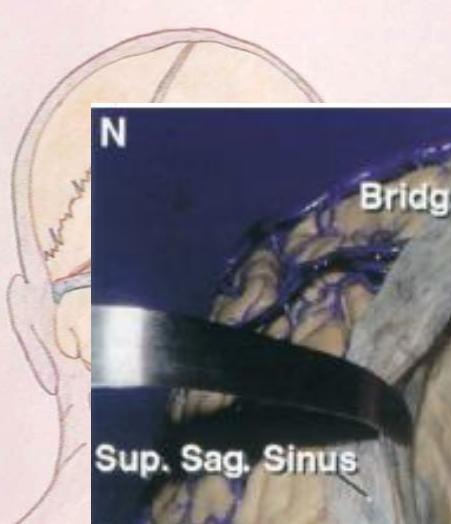
- Tente verticalisée: abord OTT



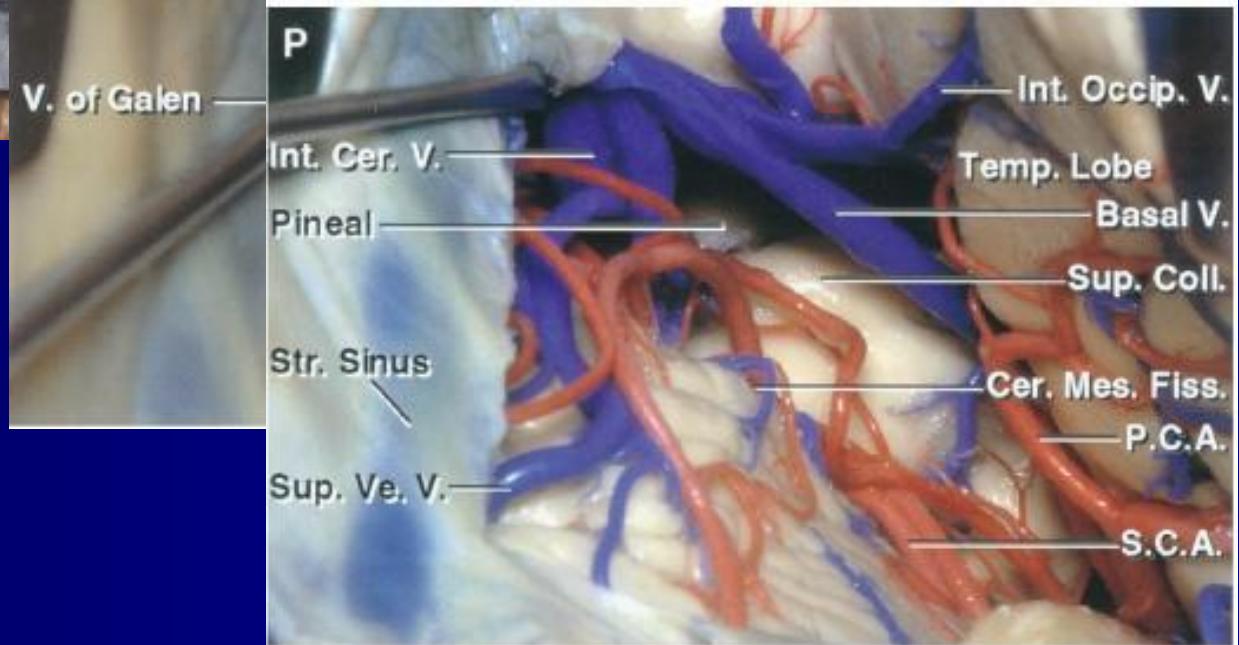
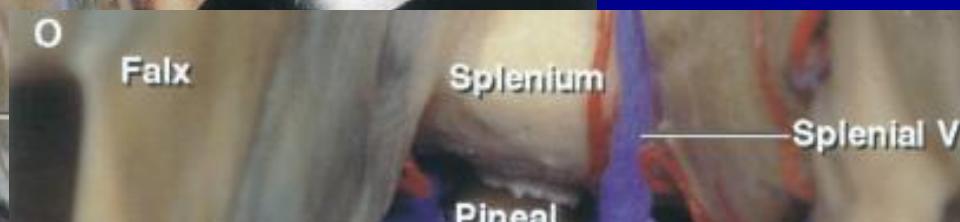
Installation du patient



Occipitale Transtentorielle

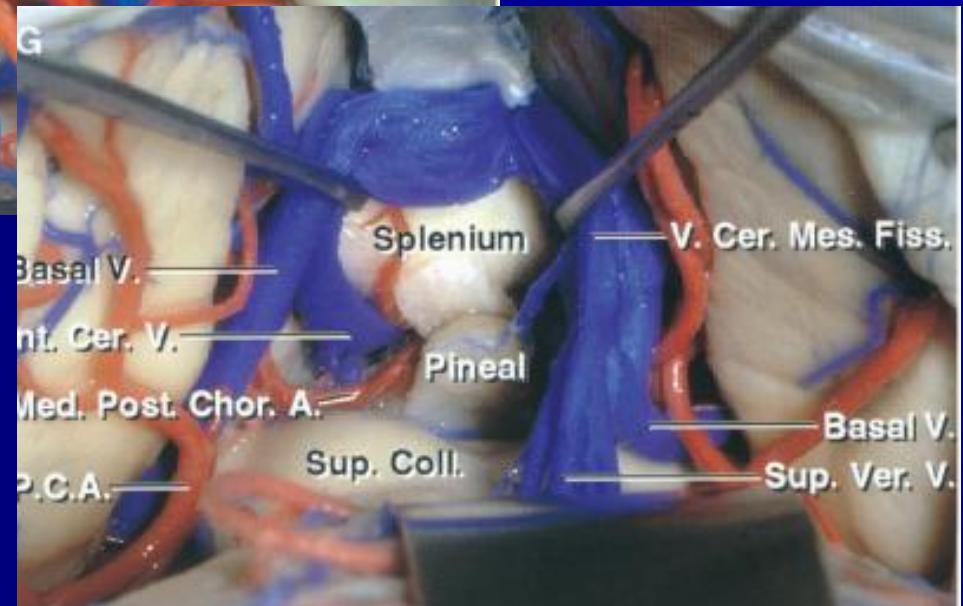
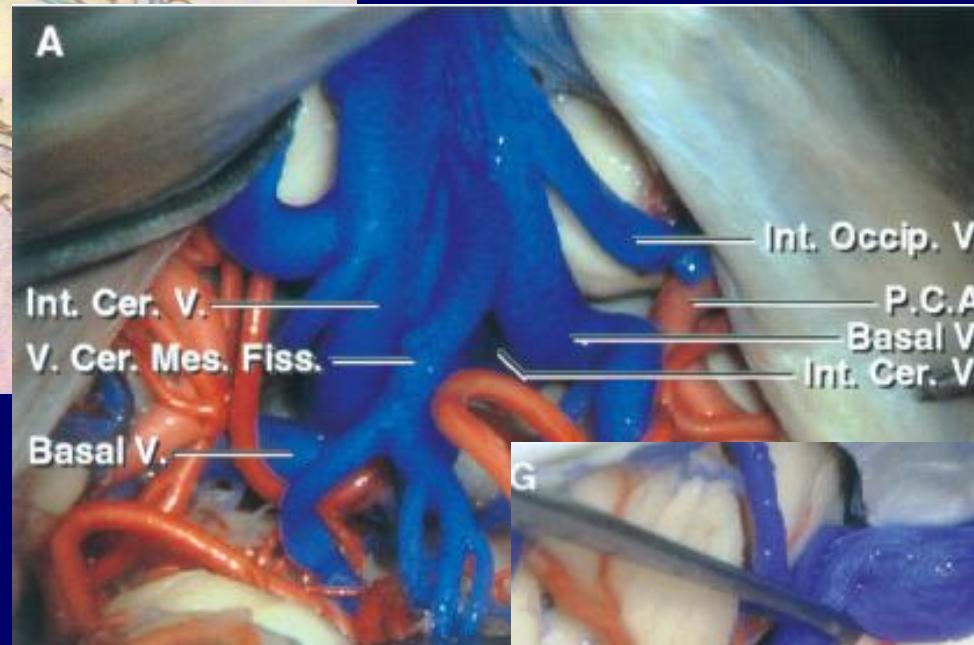
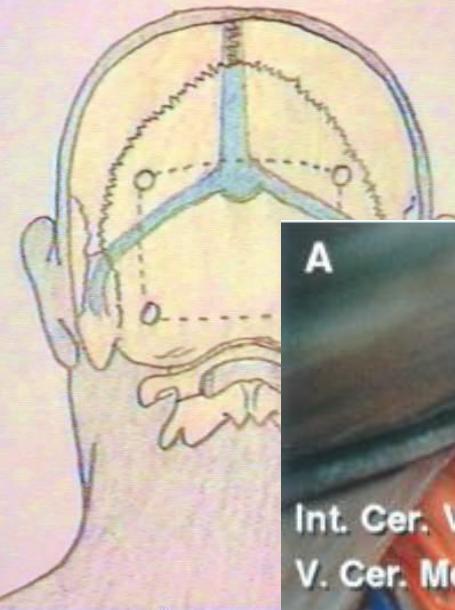


Cathétérisme ventriculaire

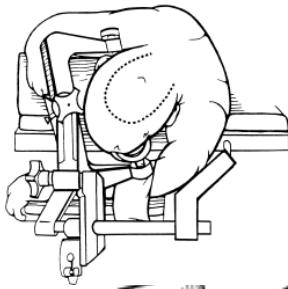


Limites

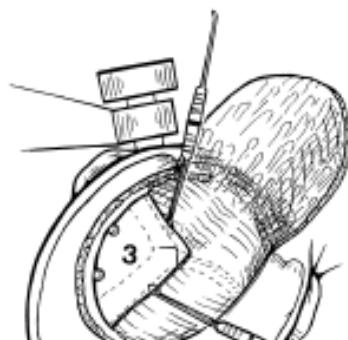
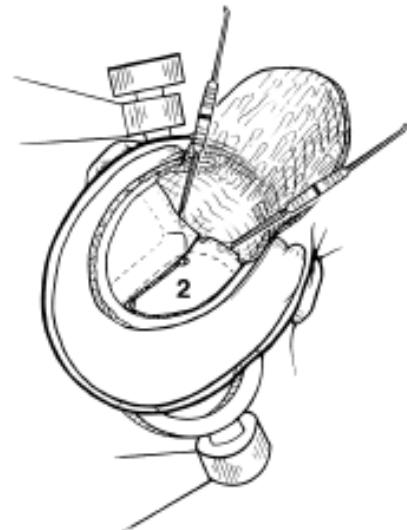
Infratentorielle, supracérébelleuse



Limites



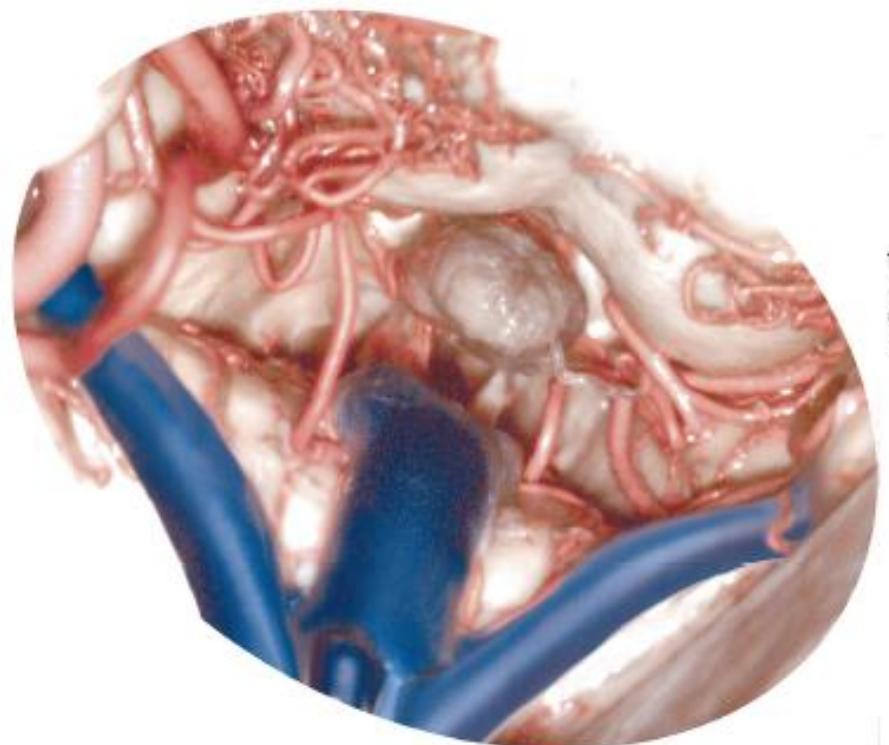
Infra et Transtentorielle combinée

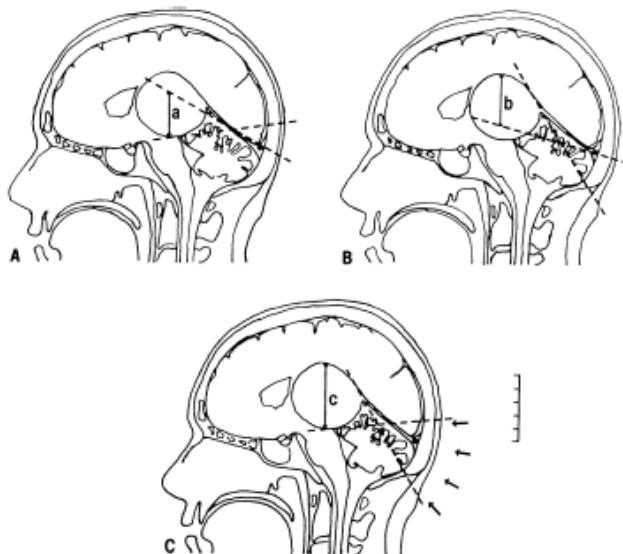


A

B

Cathétérisme ventriculaire





Combined supra/infratentorial-transsinus approach to large pineal region tumors

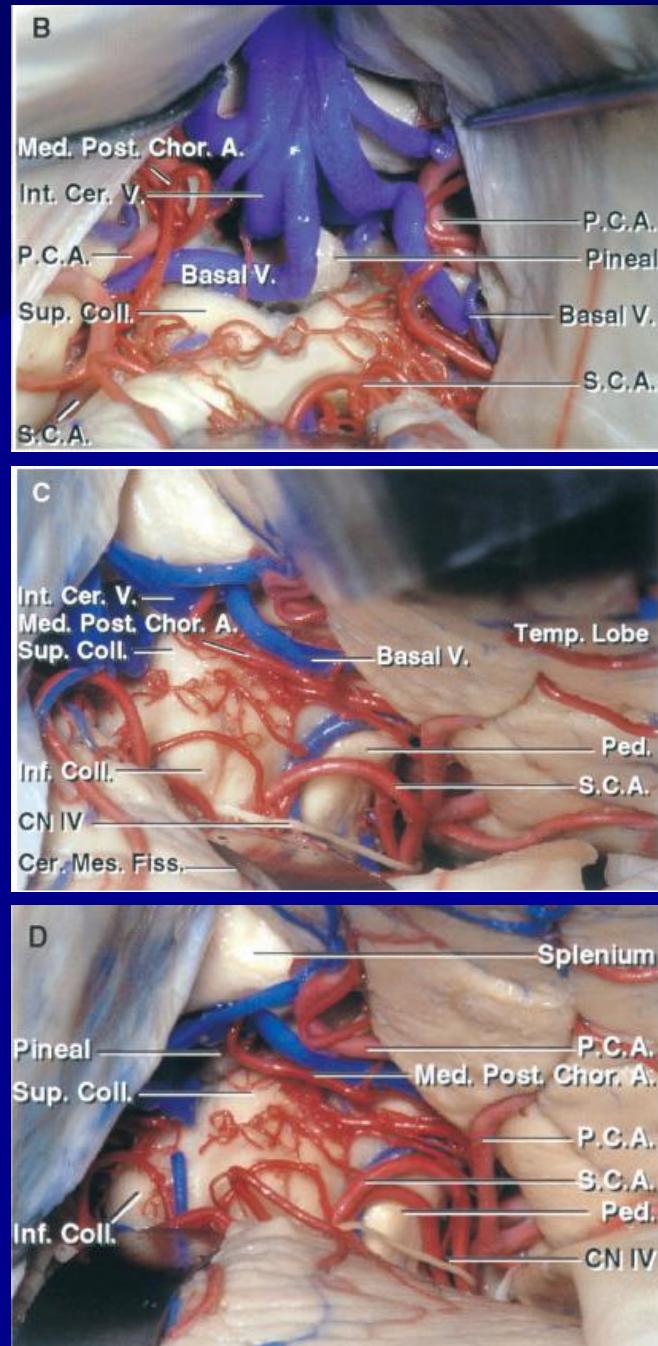
IBRAHIM M. ZIYAL, M.D., LALIGAM N. SEKHAR, M.D., EDUARDO SALAS, M.D., AND WAYNE J. OLAN, M.D.

J. Neurosurg. / Volume 88 / June, 1998

Tentorial Incisura

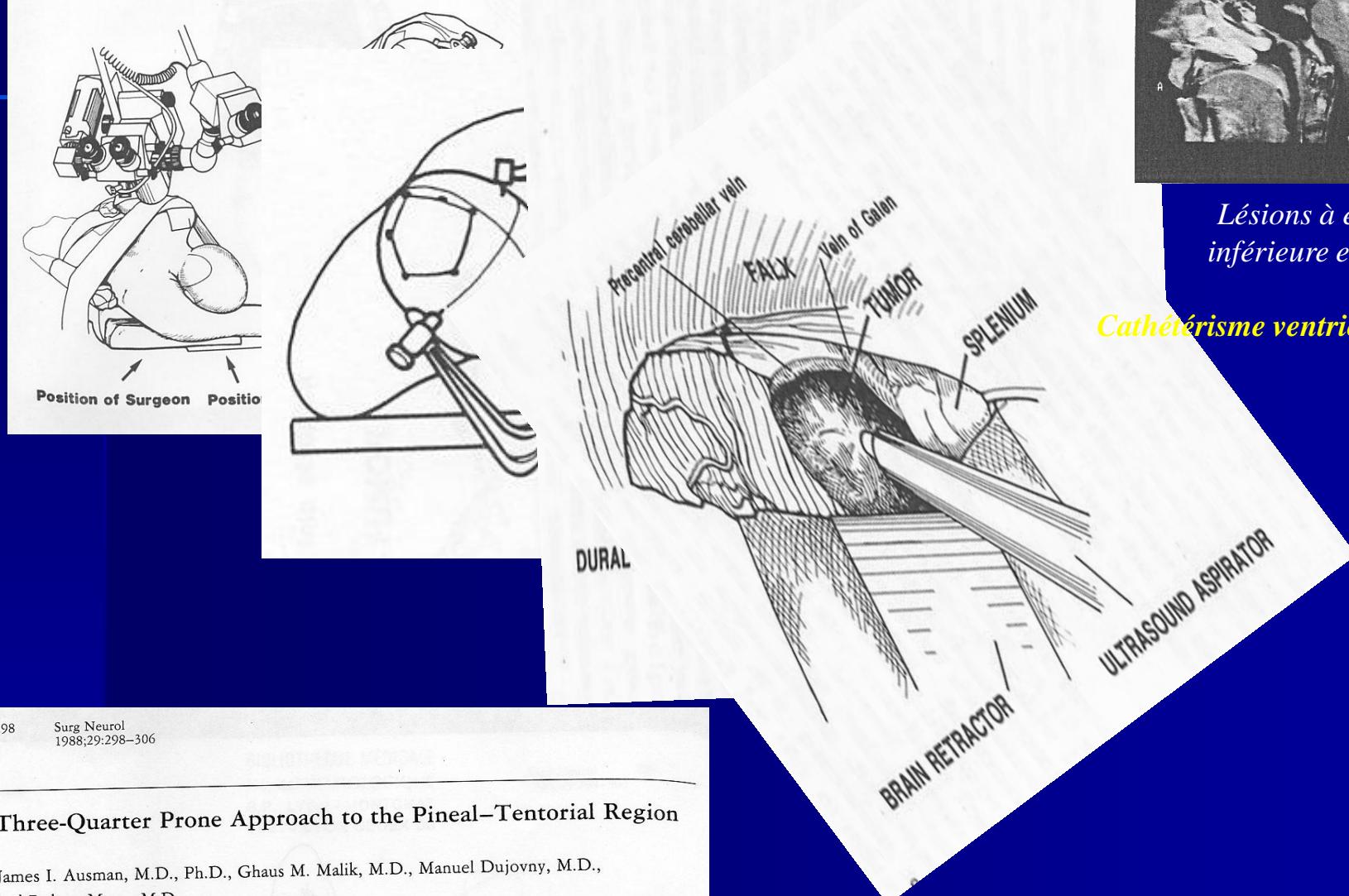
Albert L. Rhoton, Jr., M.D.

Neurosurgery, Vol. 47, No. 3, September 2000 Supplement



Abord pariéto-occipital en ¾ ventral

(Aussman Surg Neurol 1988; Brotchi, Acta Neurochir 1991)



298 Surg Neurol
1988;29:298-306

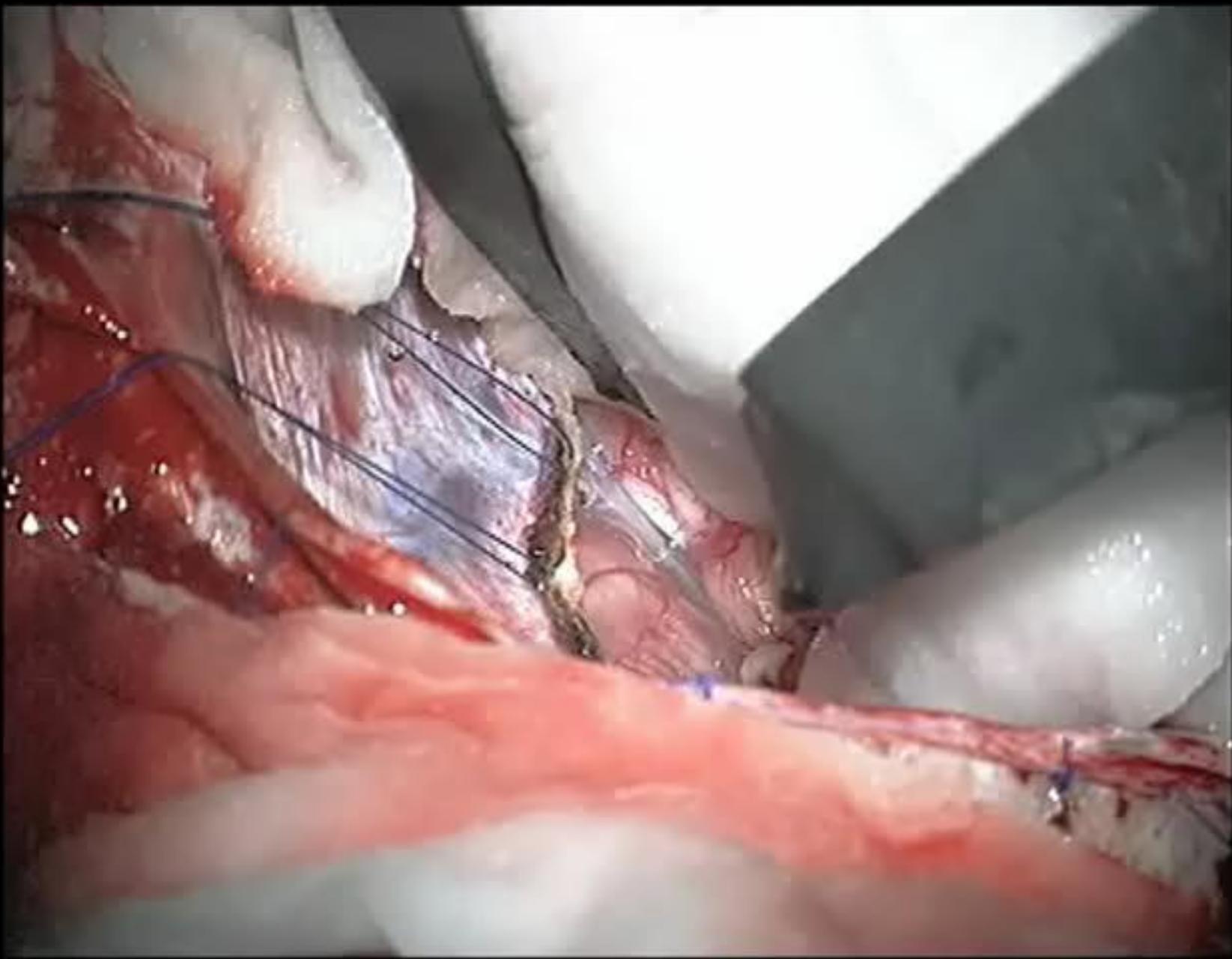
Three-Quarter Prone Approach to the Pineal-Tentorial Region

James I. Ausman, M.D., Ph.D., Ghaus M. Malik, M.D., Manuel Dujovny, M.D.,
and Robert Mann, M.D.

Department of Neurological Surgery, Henry Ford Hospital, Detroit, Michigan

Lésions à extension
inférieure et latérale

Cathétérisme ventriculaire

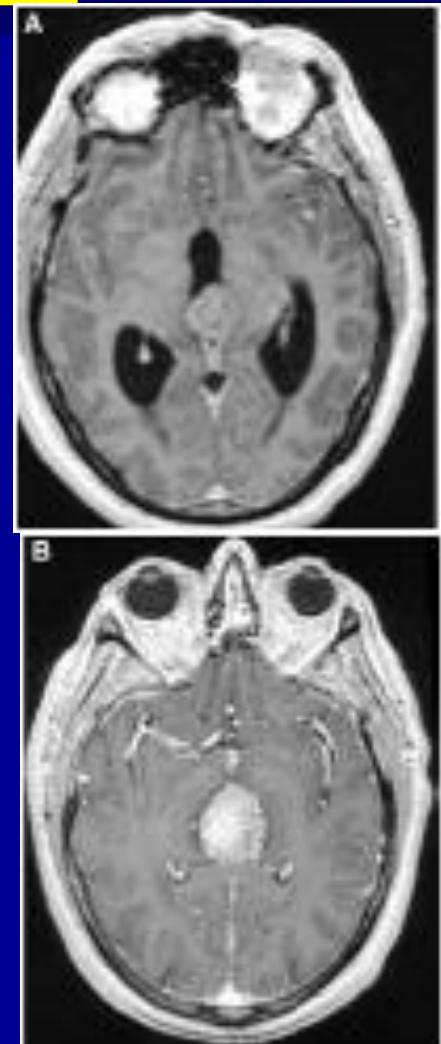


Conclusions

- Multidisciplinarité
- Bilan exhaustif
- Xie curatrice pour Tératome mature/ Pinéocytome
- Biopsie/exérèse pour autres types de tumeurs si marqueurs négatifs ou xie de « second look »

Imagerie des pinéocytomes

- Hypointense en T1
- Hyperintense en T2
- Prise de contraste hétérogène
- Calcifications périphériques



Imagerie des Pinéoblastomes

- Lobulée, mal limitée
- Hypo or isointense en T1
- Prise de contraste hétérogène
- Calcifications périphériques

