



Cancer du pancréas

Grenoble, Samedi 15 Novembre 2014

F.Stenard

Rationnel

→ Interaction radiologue-chirurgien : décision traitement

- Anatomiques: Ligament arqué,
Distribution artérielle hépatique (artère hépatique droite)
- Résécabilité et planification du geste (résection vasculaire)
- (Gestion des complications vasculaires)

Anatomie: ligament arqué



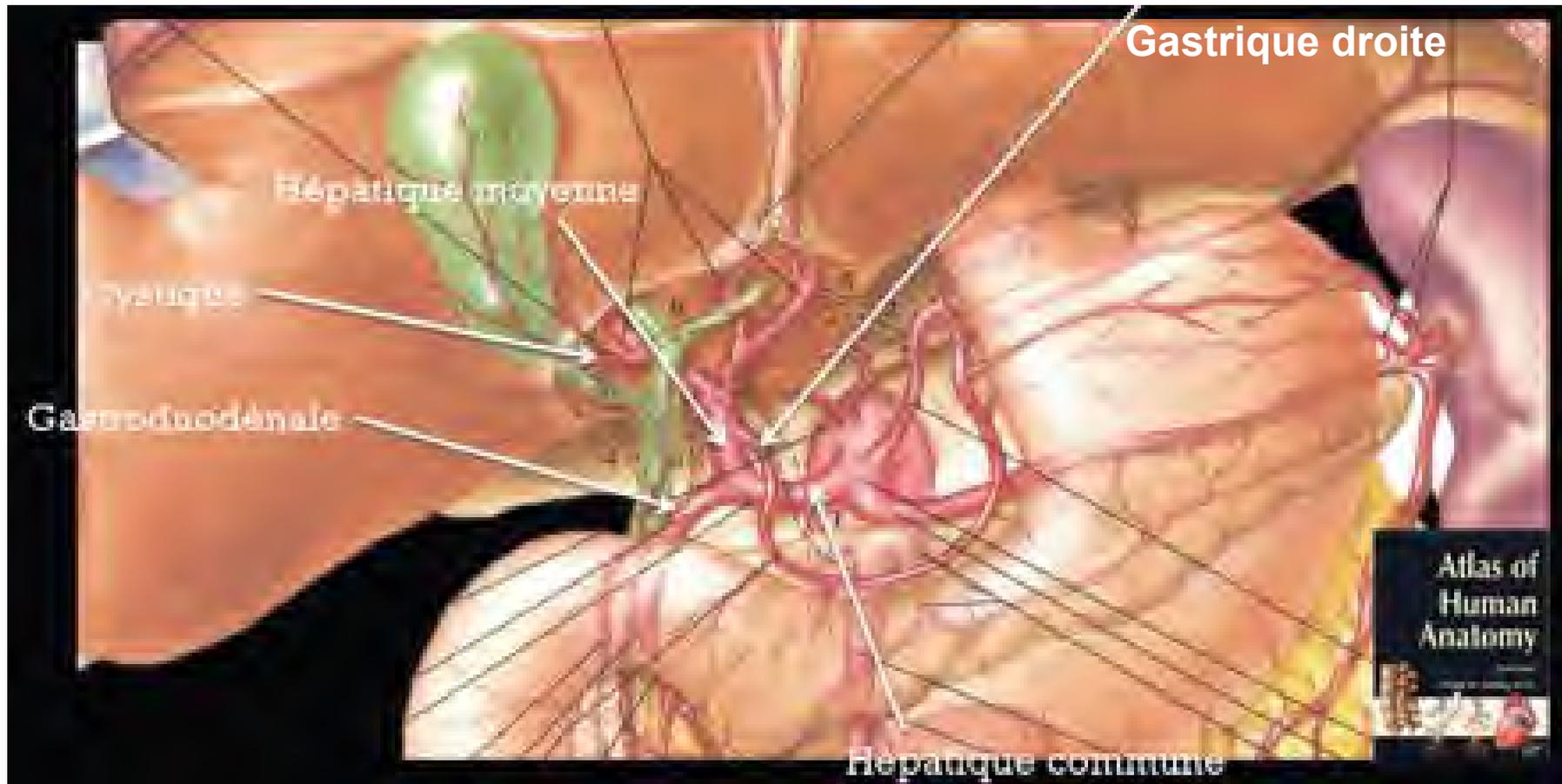
Empreinte du ligament arqué



Flux artériel hépatique par
L' artère gastroduodénale

Anatomie: ligament arqué

Vascularisation biliaire = artérielle



Anatomie: ligament arqué

J Gastrointest Surg (2014) 18:638–640
DOI 10.1007/s11605-013-2445-5



GI IMAGE

Image Findings in Celiac Artery Stenosis Due to Median Arcuate Ligament Compression

A Crucial Diagnosis When Planning for Pancreaticoduodenectomy

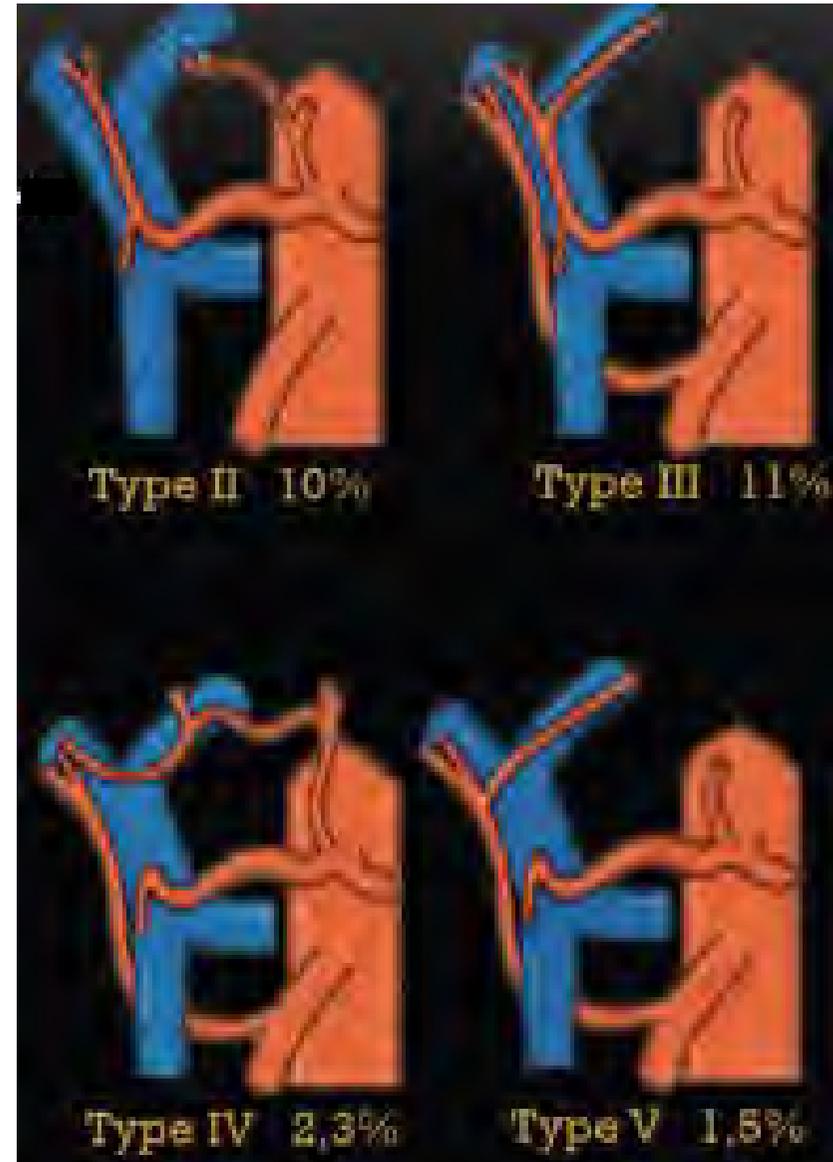
Keli M. Turner • Kunmi Majekodunmi •
Alif Manejwala • David Neschis • Zina Novak •
Cherif Boutros

« Failure to identify celiac artery stenosis prior to surgery
Or intraoperatively can lead to potentially devastating
Consequences that include frank liver necrosis and death »

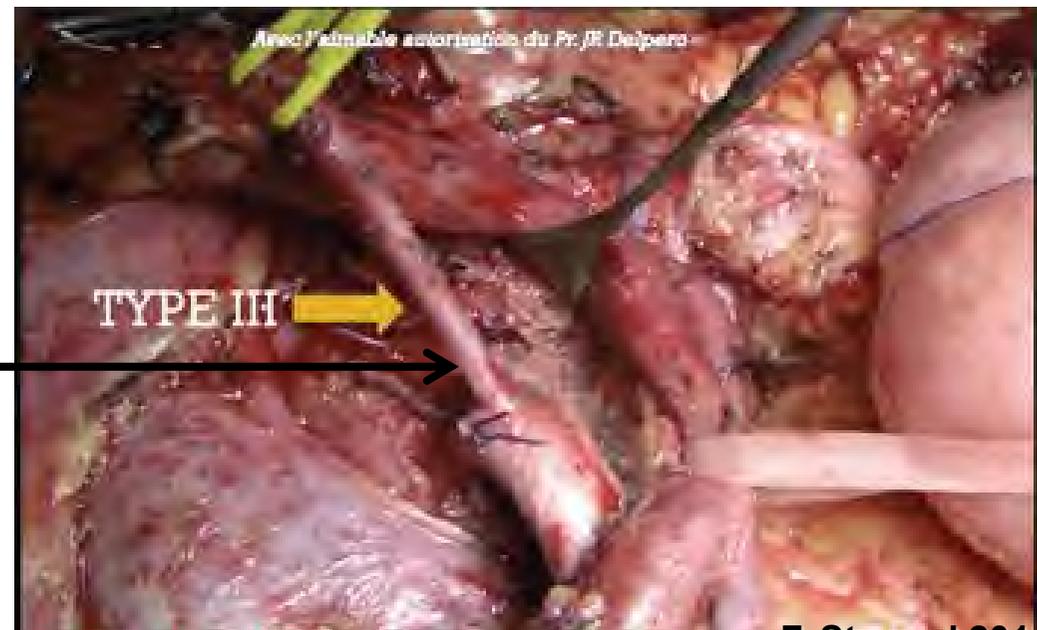
Anatomie: art hépatique dte

Distribution artérielle hépatique

- AH moy / foie total: 76% (type I)
- AH gauche: 10 % (type II)
- AH droite: 11% (type III)
- AH droite et gauche: 2,3 % (type IV)
- AH droite / foie total: 1,5 % (type V)



Anatomie: art hépatique dte

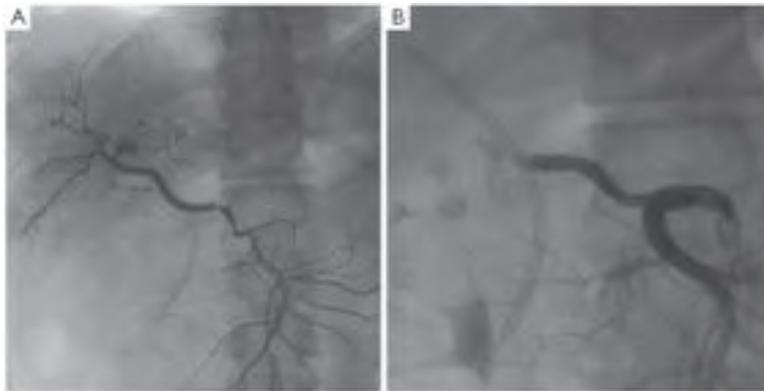


→ Vue perop
Après ablation de la pièce
Avant reconstruction

Anatomie: art hépatique dte

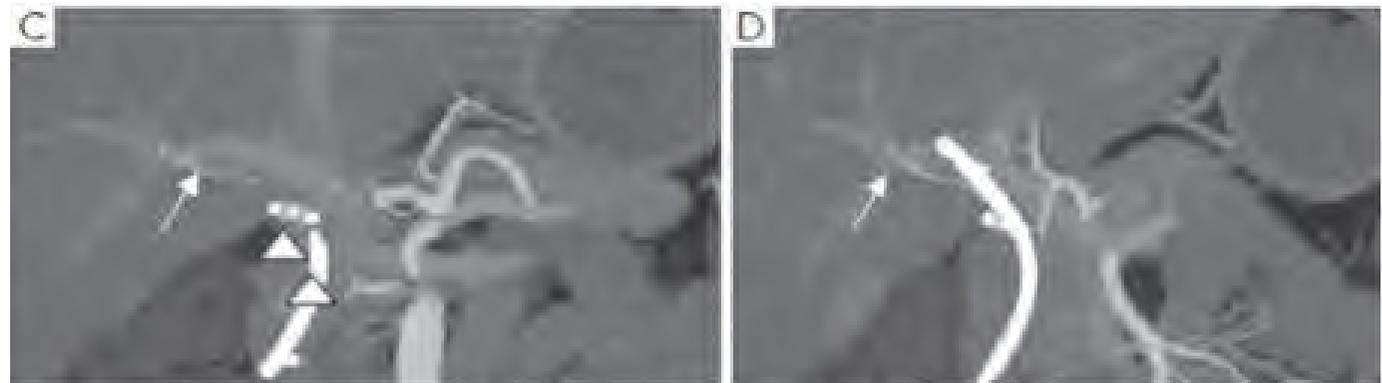
Pancreatic head carcinoma and right hepatic artery: embolization management – A case report

Mehdi El amrani¹, Emmanuelle Lecomte², Géraldine Sergeant³, Olivier Erust⁴, Vincent Maunoury⁴, Julien Branche⁴, François-René Pruvot¹, Stéphanie Truant¹



Embolisation préop de l'AH dte

Revascularisation
du foie droit
3 semaines après
Provenant
de l'AH gauche



Résécabilité

CONSENSUS STATEMENT

Pancreatic Ductal Adenocarcinoma Radiology Reporting Template: Consensus Statement of the Society of Abdominal Radiology and the American Pancreatic Association¹

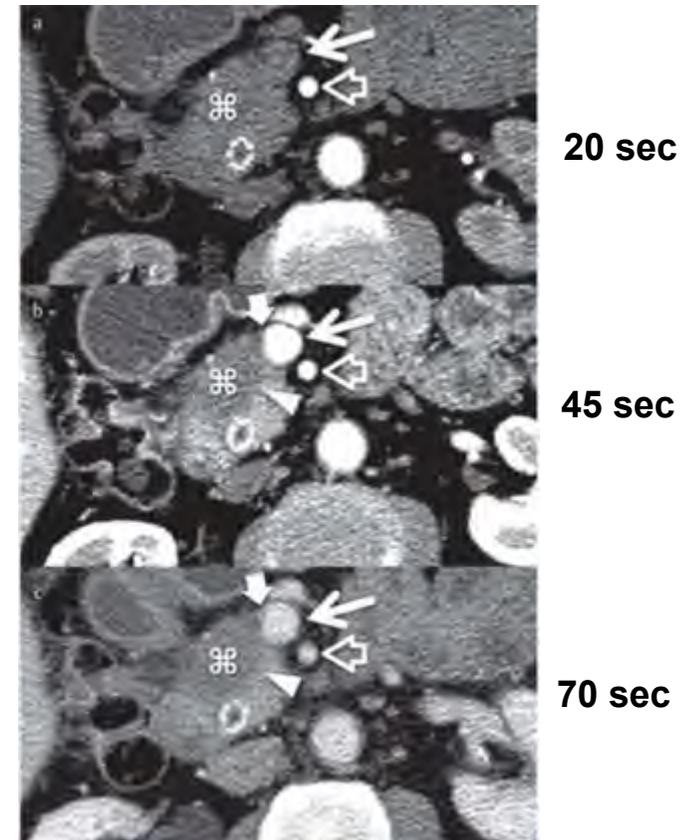
Mahmoud M. Al-Hawary, MD, Isaac R. Francis, MD, Suresh T. Chari, MD,
Elliot K. Fishman, MD, David M. Hough, MD, David S. Lu, MD, Michael Macari, MD,¹
Alec J. Megibow, MD, Frank H. Miller, MD, Koenraad J. Mortele, MD, Nipun B. Merchant, MD,
Rebecca M. Minter, MD, Eric P. Tamm, MD, Dushyant V. Sahani, MD, and
Diane M. Simeone, MD

Gastroenterology 2014;146:291–304

Résécabilité: morphologique

- Evaluation Morphologique

Paramètre	Finding
Appearance (in the pancreatic parenchymal phase)	Hypo-, iso-, or hyperattenuating
Size (maximal axial dimension in centimeters)	Measurable or nonmeasurable (scattered tumors)
Location (head/neck of SMV, body/tail)	Head/uncinate or body/tail
Pancreatic duct narrowing/abrupt cut-off with or without upstream dilatation	Present or absent
Ellipty tree abrupt cut-off with or without upstream dilatation	Present or absent



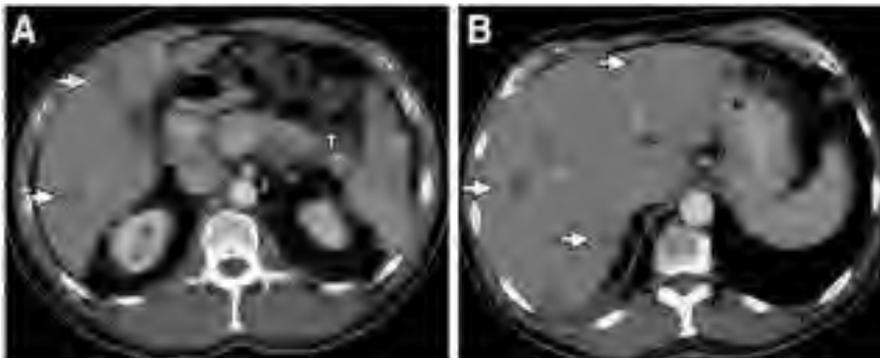
TDM dynamique

Gastroenterology 2014;146:291-304

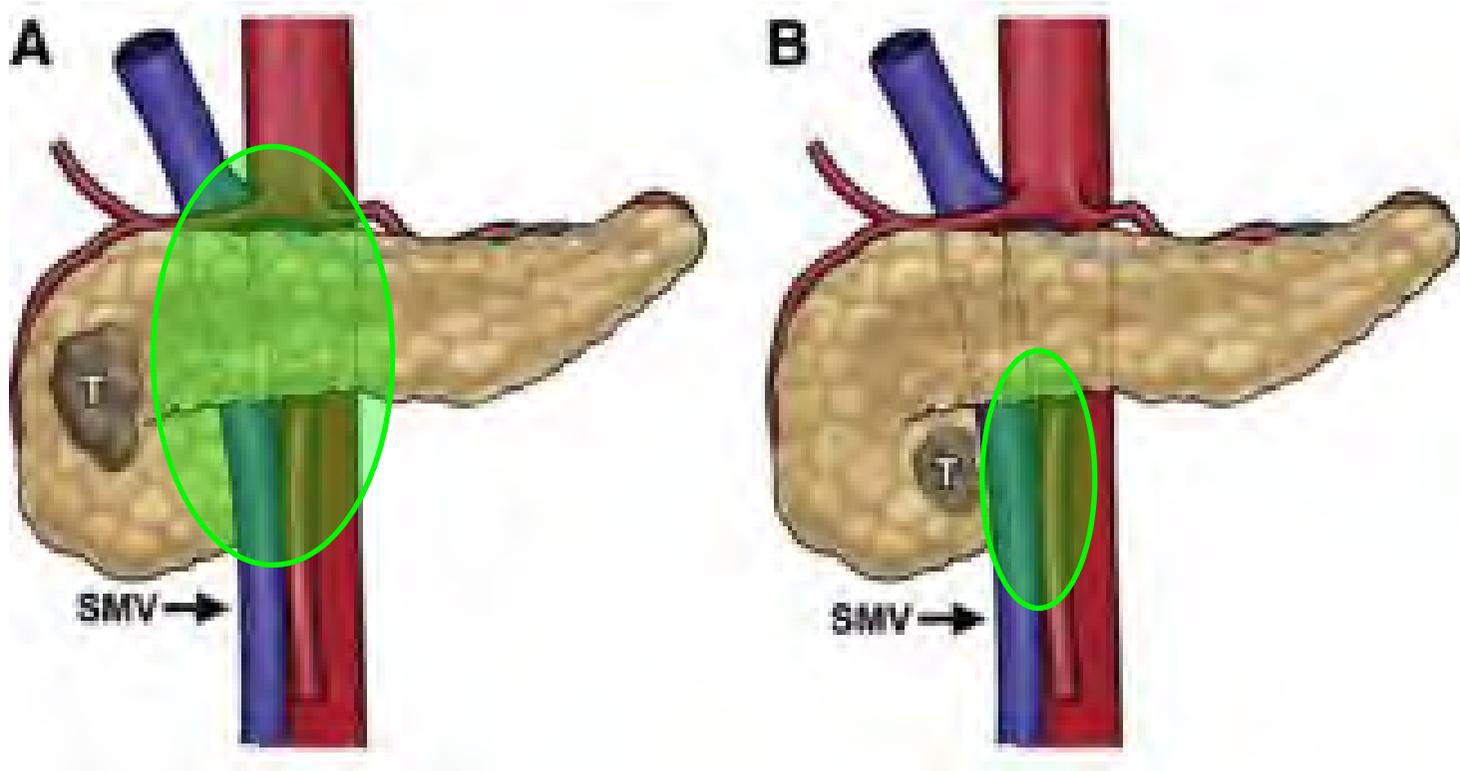
Résécabilité: extrapancréatique

- Evaluation extrapancréatique

Parameter	Finding
Liver lesions [†]	Present or absent Suspicious/Indeterminate or likely benign
Pertoneal or omental nodules	Present or absent
Ascites	Present or absent
Suspicious lymph nodes [†]	Present or absent (porta hepatis, celiac, splenic hilum, paraaortic, aortocaval)
Other extrapancreatic disease (invasion of adjacent structures)	Present or absent



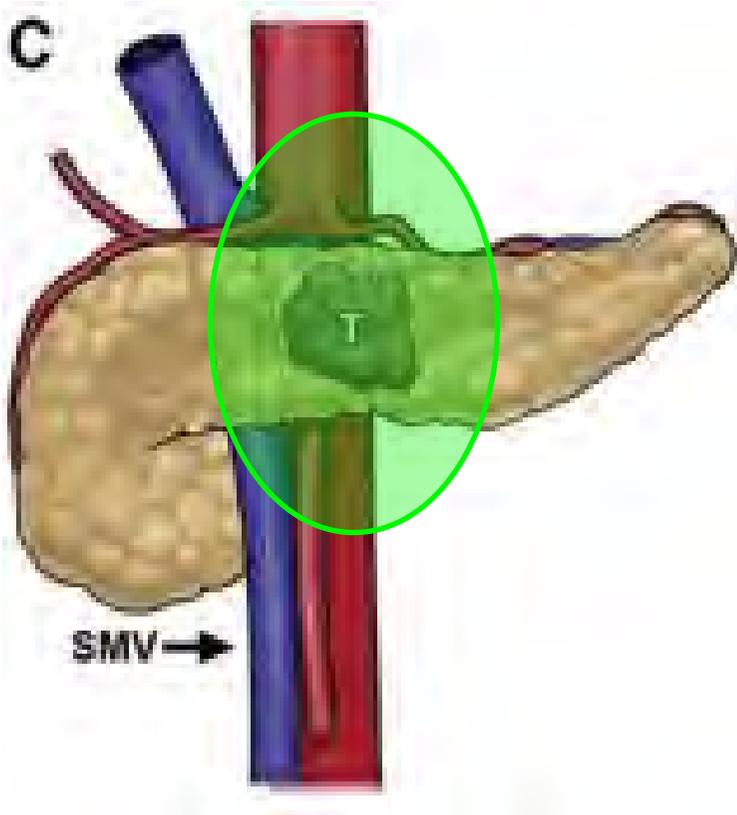
Résécabilité: artère et/ou veine



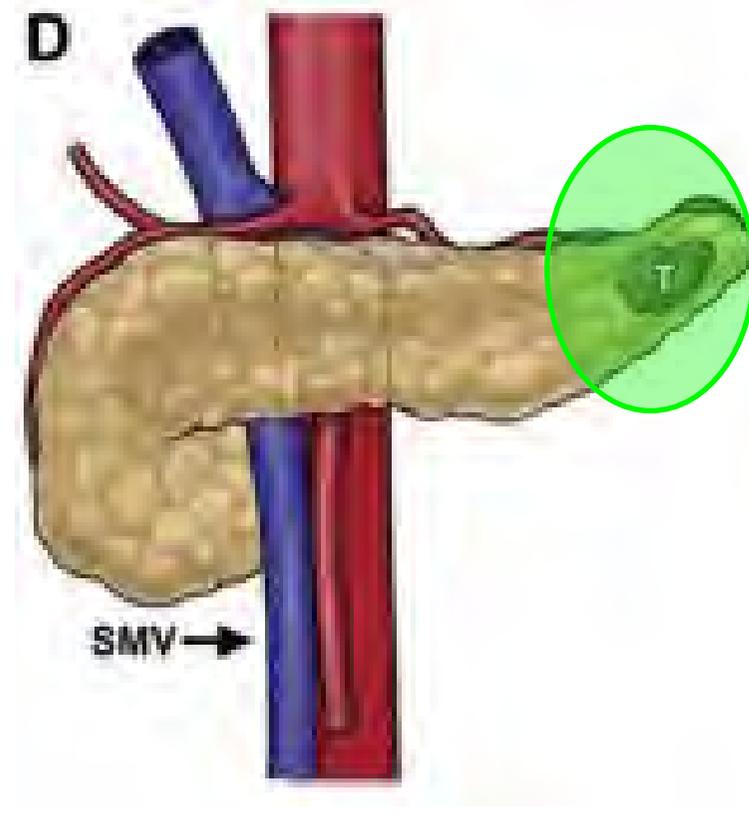
Tumeur Tête du pancréas

Tumeur Uncus

Résécabilité: artère et/ou veine

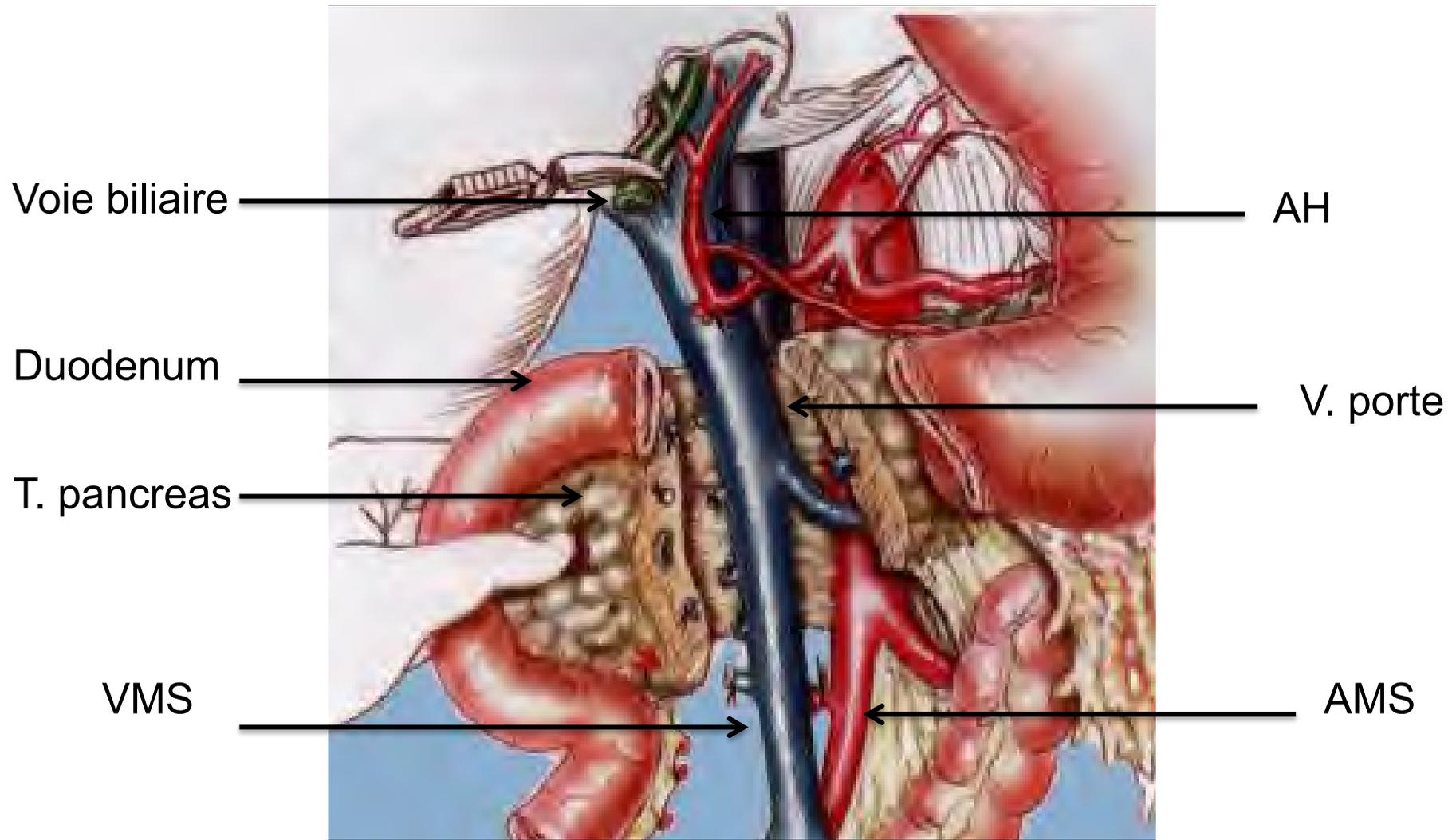


Tumeur Corps du pancréas

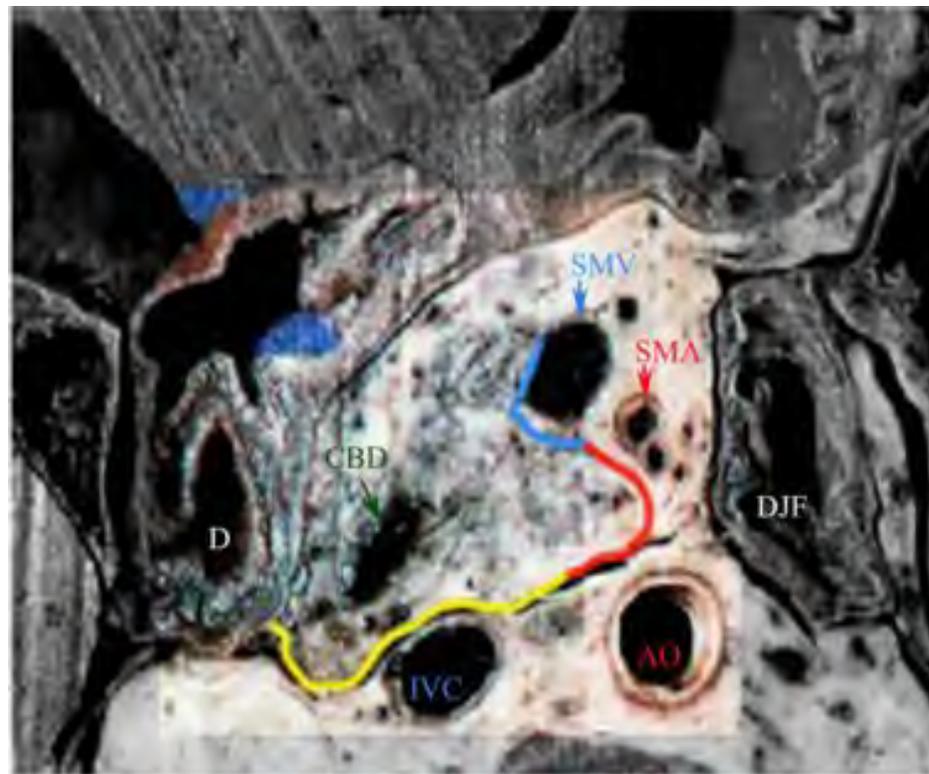


Tumeur Queue du pancréas

Résécabilité: artère et/ou veine



Marge rétropéritonéale



Cross-section de la tête du pancréas

Résécabilité: R0 / R1

ORIGINAL ARTICLE

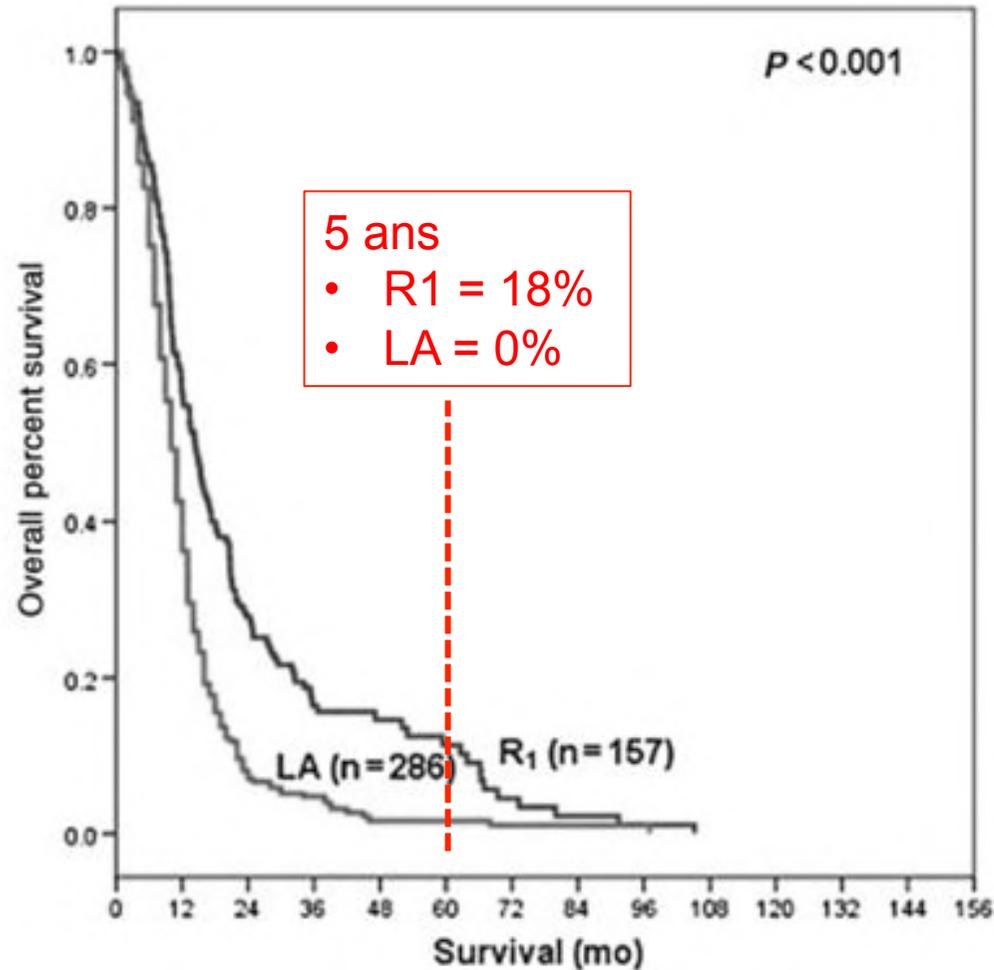
Pancreatic Ductal Adenocarcinoma

Is There a Survival Difference for R1 Resections Versus Locally Advanced Unresectable Tumors? What Is a "True" R0 Resection?

Ioannis T. Konstantinidis, MD, Andrew L. Warshaw, MD,* Jill N. Allen, MD,† Lawrence S. Blaszczewski, MD,† Carlos Fernandez-del Castillo, MD,* Vikram Deshpande, MD,§ Theodore S. Hong, MD,‡ Eunice L. Kwak, MD,† Gregory Y. Lauwers, MD,§ David P. Ryan, MD,† Jennifer A. Wargo, MD,* Keith D. Lillemoe, MD,* and Cristina R. Ferrone, MD**

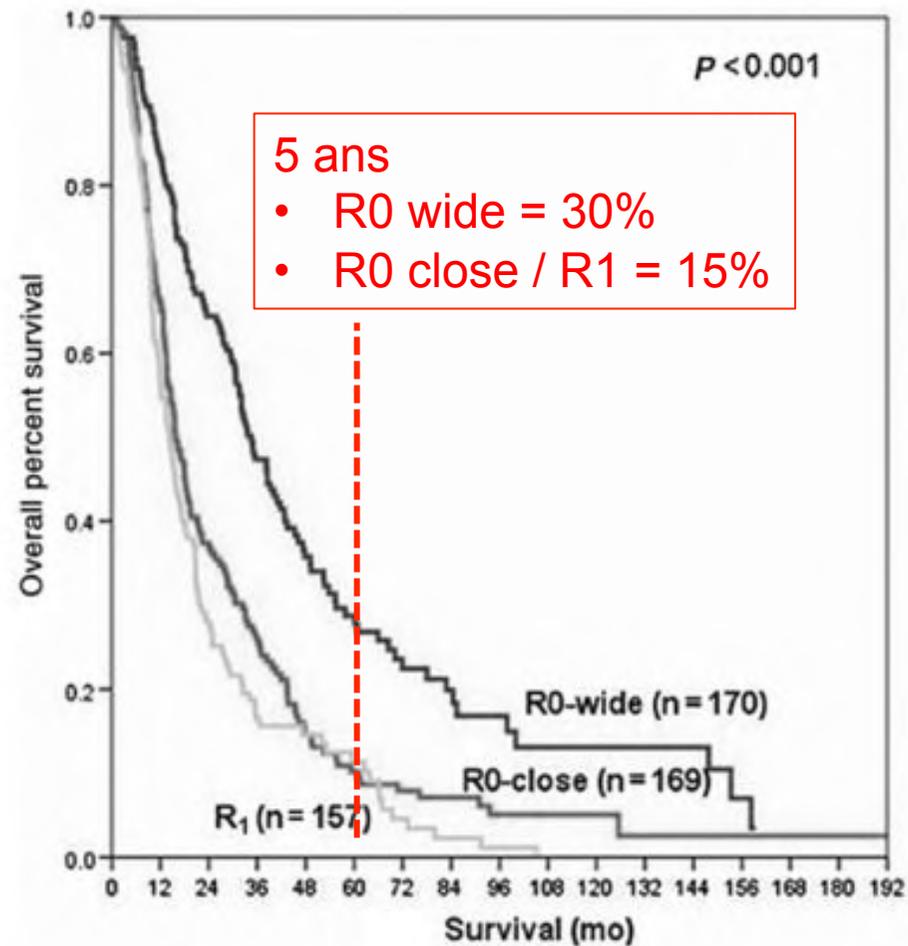
Annals of Surgery • Volume 257, Number 4, April 2013

Résécabilité: R0 / R1



Survie: R1 / Locally Advanced (LA)

Résécabilité: R0 / R1



Survie:

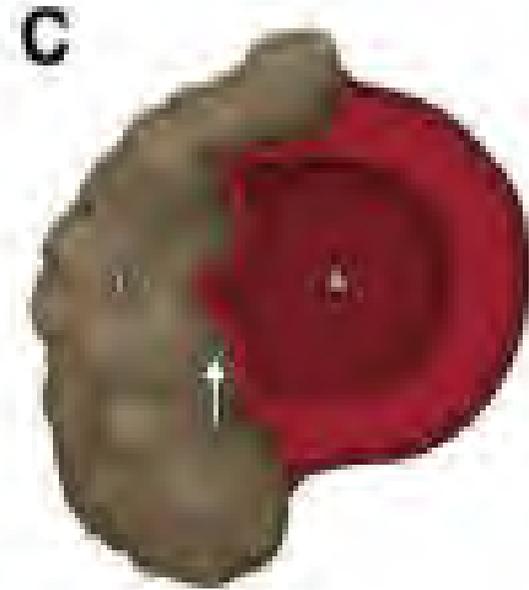
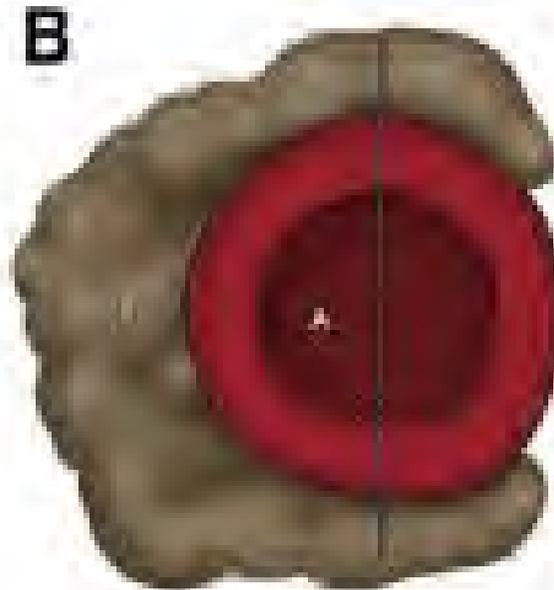
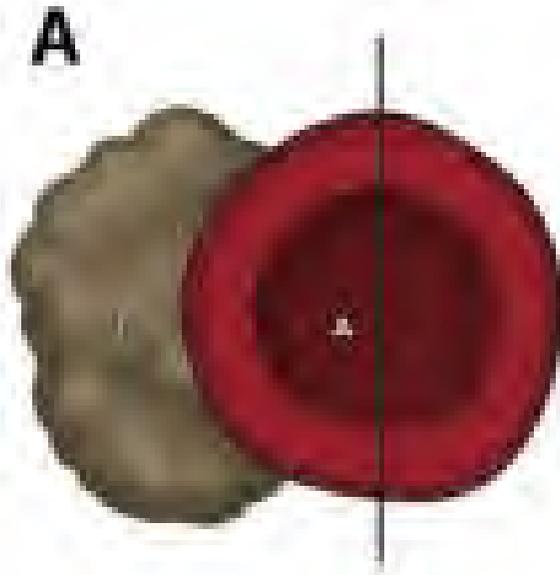
- R0 wide ($> 1\text{mm}$)
- R0 close ($\leq 1\text{mm}$)
- R1

Résécabilité: artère et/ou veine

Staging tumoral

Staging tumoral	Critères Artériels	Critères Veineux
Résécable	Marge saine TC, AMS, AH	Pas d'atteinte VP / VMS
Borderline	<ul style="list-style-type: none">• Atteinte AGD jusqu'à l'AH sans extension au TC• Contact AMS $\leq 180^\circ$	Envahissement VP ou VMS avec vaisseaux proximal et distal permettant une reconstruction
Irrésécable	<ul style="list-style-type: none">• Envahissement Ao• Tumeur de la tête: envahissement AMS, contact TC, VCI• Tumeur isthme/queue: atteinte AMS ou TC $> 180^\circ$	VP et VMS non reconstructible

Artère mésentérique sup



Contact tumoral $\leq 180^\circ$
Sans déformation

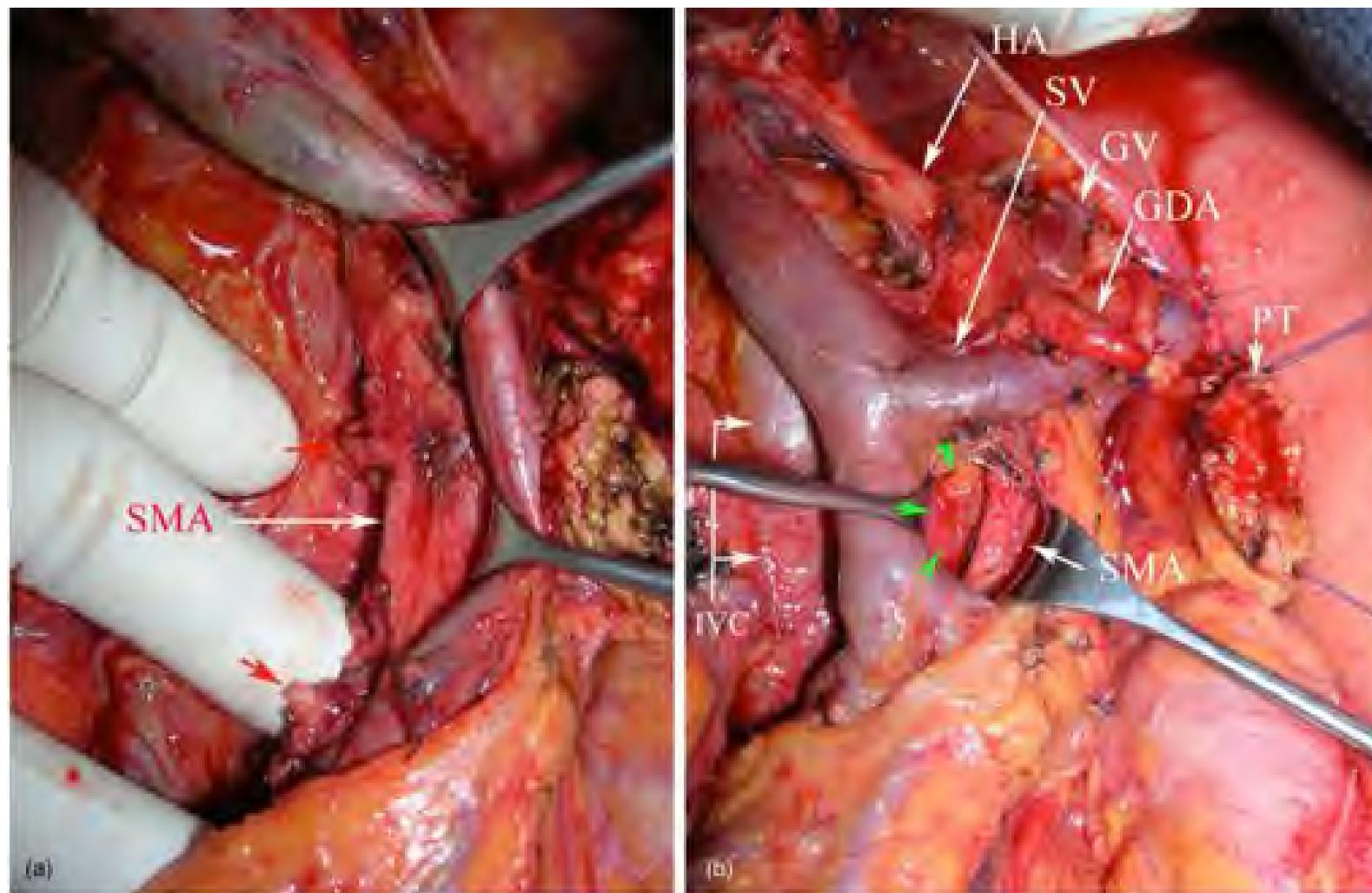
Contact tumoral $> 180^\circ$
Sans déformation

Contact avec
déformation

Discussion Traitement
Néoadjuvant

Irrésécable

Artère mésentérique sup



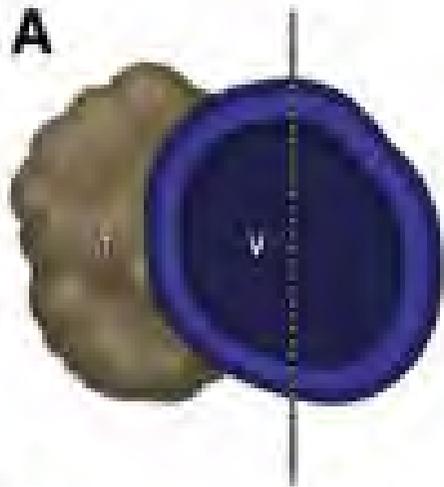
Artère mésentérique sup

- Evaluation Artérielle

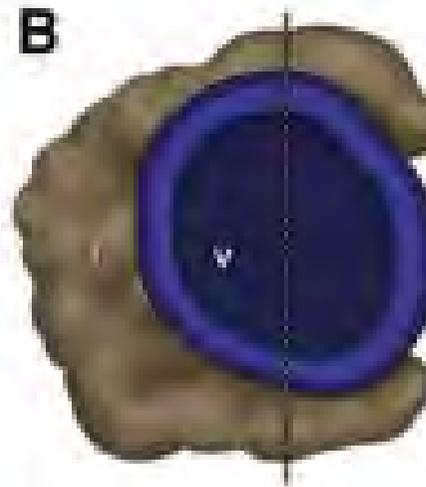
Parameter	Finding
SMA	Present or absent
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $>180^\circ$
Degree of increased lumen attenuation/stranding contact	$\leq 180^\circ$ or $>180^\circ$
Focal vessel narrowing or contour irregularity	Present or absent
Extension to first SMA branch	Present or absent
Celiac axis	Present or absent
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $>180^\circ$
Degree of increased lumen attenuation/stranding contact	$\leq 180^\circ$ or $>180^\circ$
Focal vessel narrowing or contour irregularity	Present or absent
CHA	Present or absent
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $>180^\circ$
Degree of increased lumen attenuation/stranding contact	$\leq 180^\circ$ or $>180^\circ$
Focal vessel narrowing or contour irregularity	Present or absent
Extension to celiac axis	Present or absent
Extension to bifurcation of right/left hepatic artery	Present or absent
Arterial variant	Present or absent
Variant anatomy	Accessory right hepatic artery, replaced right hepatic artery, replaced CHA, other origin of replaced or accessory artery
Variant vessel contact	Present or absent
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $>180^\circ$
Degree of increased lumen attenuation/stranding contact	$\leq 180^\circ$ or $>180^\circ$
Focal vessel narrowing or contour irregularity	Present or absent

V. mésentérique sup / V. porte

Contact tumoral
 $\leq 180^\circ$
Sans déformation



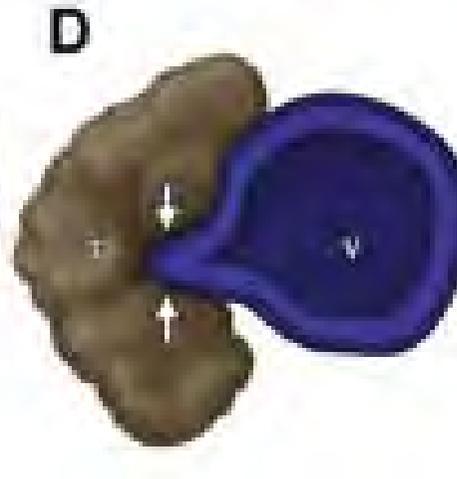
Contact tumoral
 $> 180^\circ$
Sans déformation



Contact tumoral
 $\leq 180^\circ$
Avec déformation



Déformation
Tumorale



V. mésentérique sup / V. porte

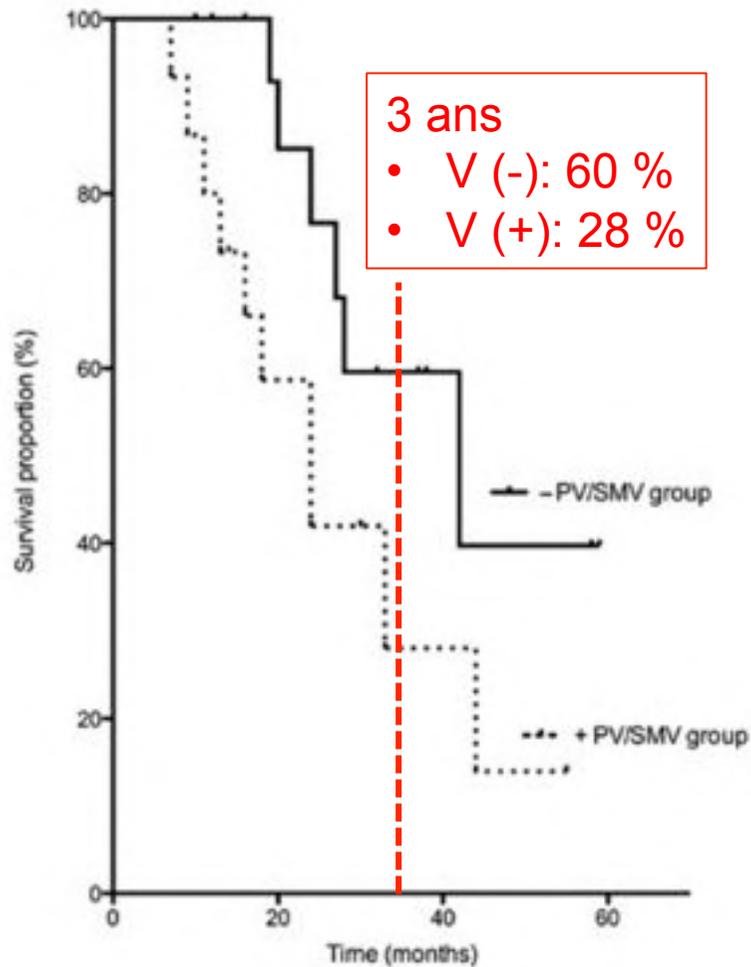
ORIGINAL ARTICLE

Should the Portal Vein Be Routinely Resected During Pancreaticoduodenectomy For Adenocarcinoma?

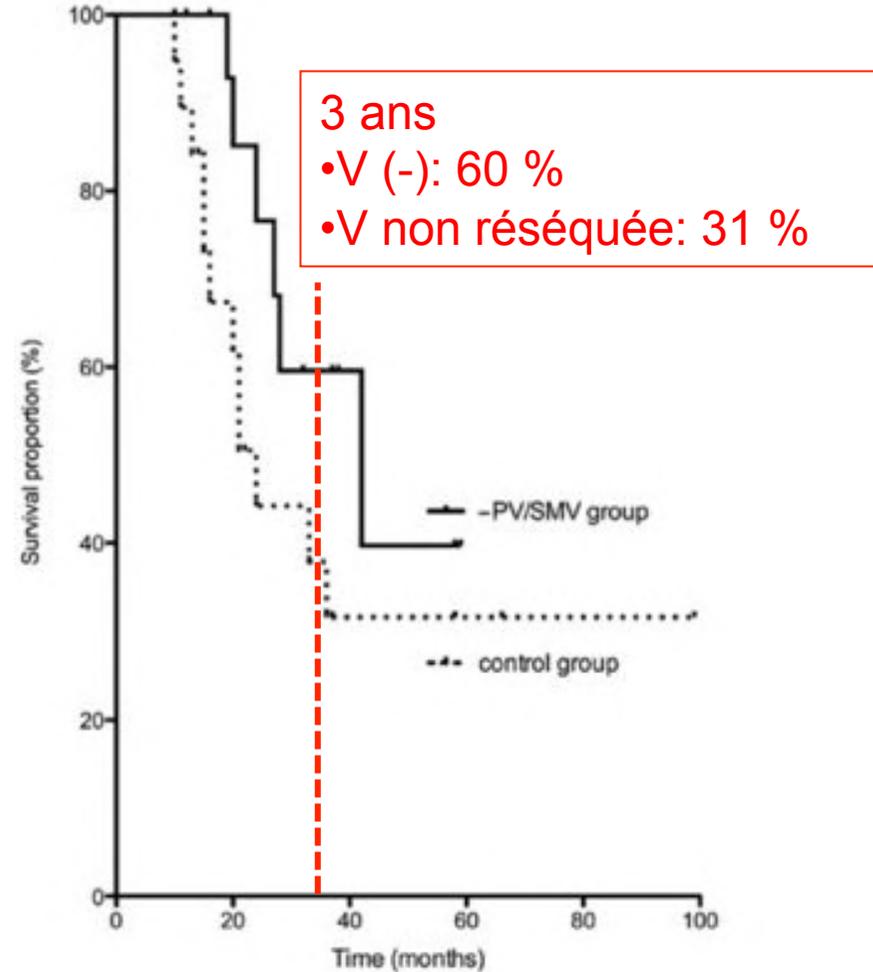
Olivier Turrini, MD, Jacques Ewald, MD,* Louise Barbier, MD,* Djamel Mokart, MD,† Jean Louis Blache, MD,† and Jean Robert Delpero, MD**

Annals of Surgery • Volume 257, Number 4, April 2013

V. mésentérique sup / V. porte

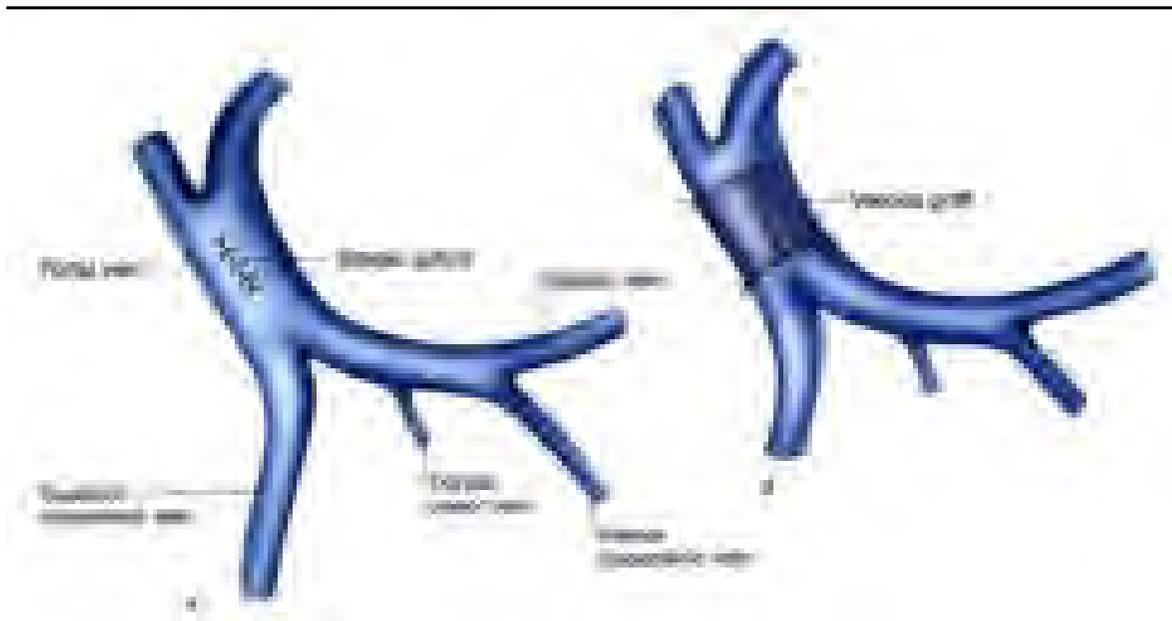


Résection veine: (+) / (-)

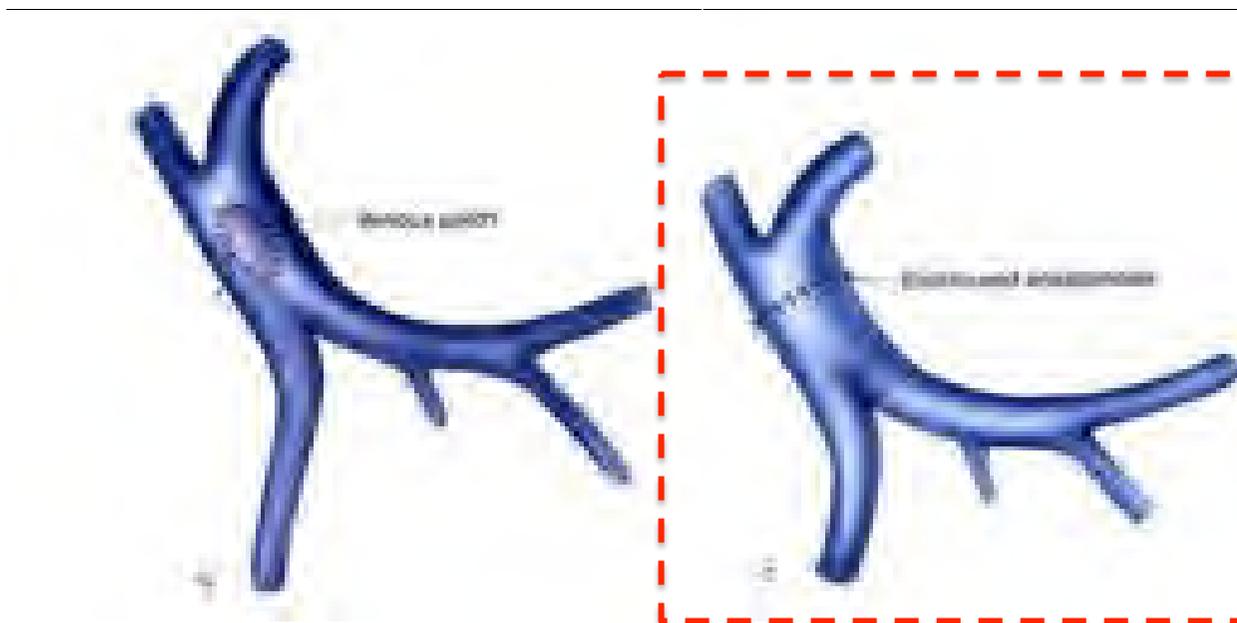


Résection veine (-)
/ Pas de résection

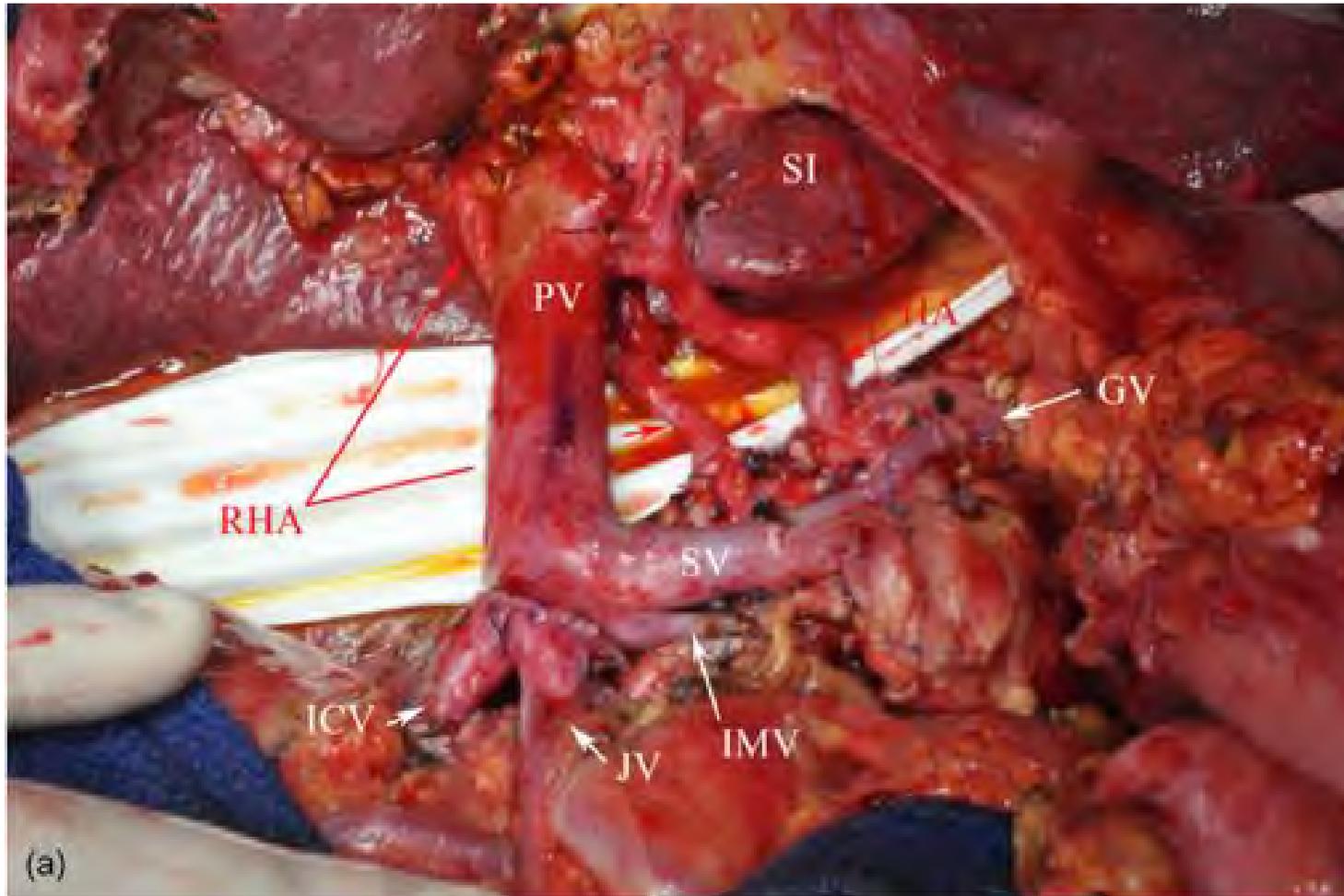
V. mésentérique sup / V. porte



Reconstruction
veineuse

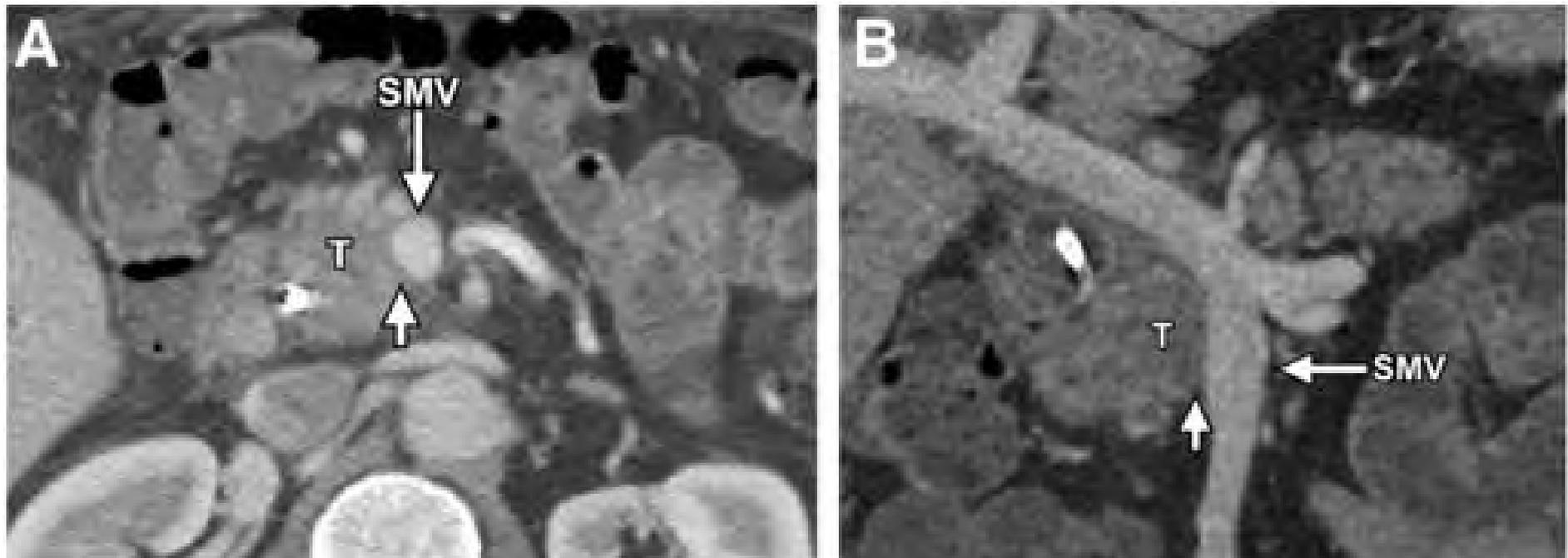


V. mésentérique sup / V. porte



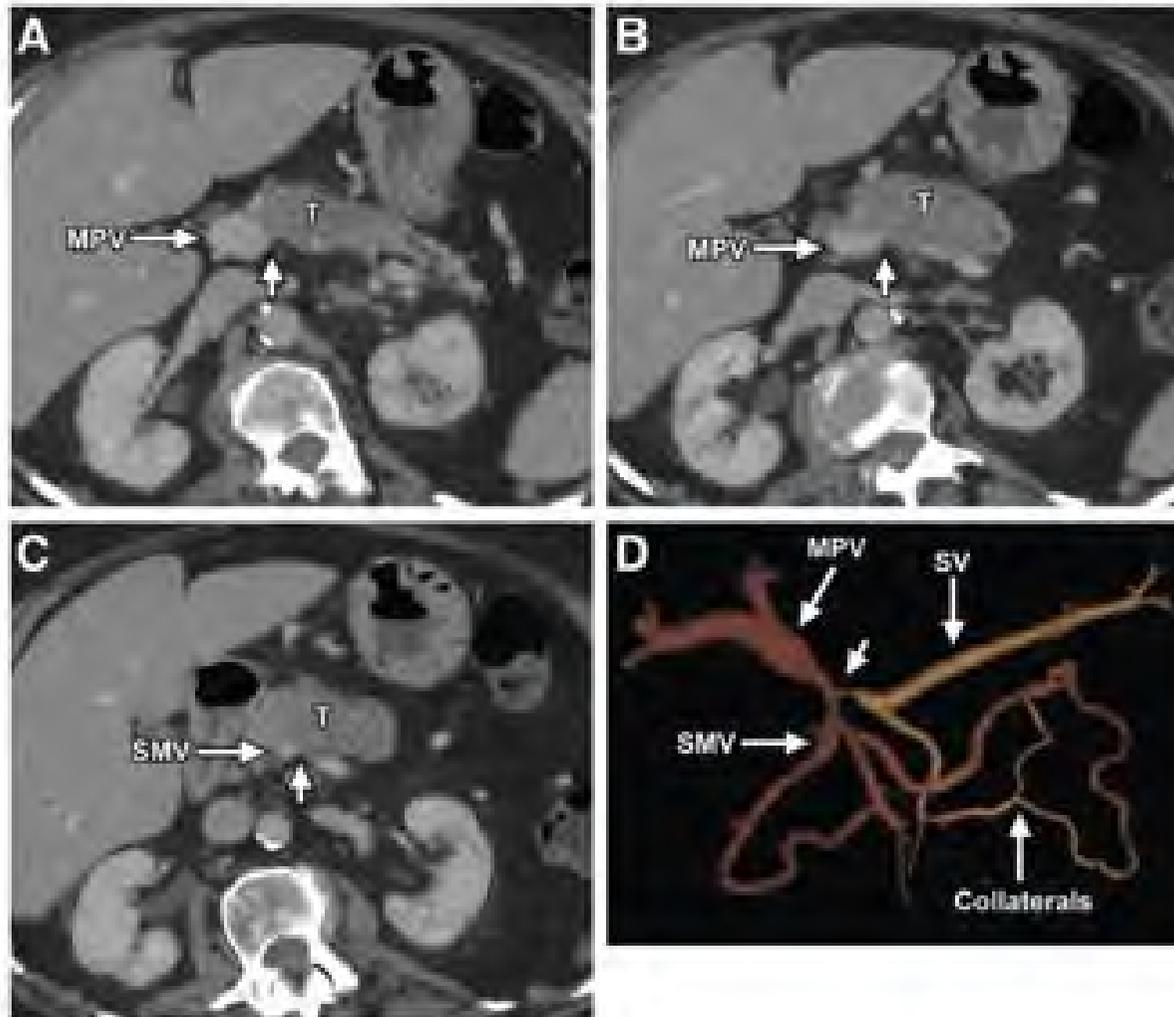
- Résection anastomose veine mésentérique supérieure

V. mésentérique sup / V. porte



- Reconstruction difficile → Planification

V. mésentérique sup / V. porte



- Reconstruction déraisonnable

V. mésentérique sup / V. porte

- Evaluation Veineuse

Paraméter	Finding
MPV	Present, absent, or complete occlusion
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $> 180^\circ$
Degree of increased fatty attenuation/stranding contact	$\leq 180^\circ$ or $> 180^\circ$
Focal vessel narrowing or contour irregularity (fuzziness or tear drop)	Present or absent
SMV	Present, absent, or complete occlusion
Degree of solid soft-tissue contact	$\leq 180^\circ$ or $> 180^\circ$
Degree of increased fatty attenuation/stranding contact	$\leq 180^\circ$ or $> 180^\circ$
Focal vessel narrowing or contour irregularity (fuzziness or tear drop)	Present or absent
Extension to first draining vein	Present or absent
Thrombus within vein	Present or absent (MPV, SMV, or splenic vein; tumor, bland)
Venous collaterals	Present or absent (around pancreatic head, porta hepatis, root of the mesentery, or left upper quadrant)

Standardisation de l'évaluation

Compte rendu standardisé

Appendix E1 Pancreatic Cancer Staging Template	
Morphologic Evaluation	
Appearance (in the pancreatic parenchymal phase): hypo-, iso-, or hyperattenuating	Variant vessel contact: present or absent
Size (maximal axial dimension in centimeters): measurable or nonmeasurable (isoattenuating tumors)	Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$
Location (head right of SMV, body left of SMV): head/uncinate or body/tail	Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$
Pancreatic duct narrowing/abrupt cutoff with or without upstream dilatation: present or absent	Focal vessel narrowing or contour irregularity: present or absent
Biliary tree abrupt cutoff with or without upstream dilatation: present or absent	Venous evaluation, MPV: Present, absent, or complete occlusion
Arterial evaluation	Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$
SMA: Present or absent	Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$
Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$	Focal vessel narrowing or contour irregularity (tethering or tear drop): present or absent
Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$	SMV: Present, absent, or complete occlusion
Focal vessel narrowing or contour irregularity: present or absent	Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$
Extension in first SMA branch: present or absent	Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$
Celiac Axis: Present or absent	Focal vessel narrowing or contour irregularity (tethering or tear drop): present or absent
Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$	Extension to first draining vein: present or absent
Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$	Thrombus within vein: present or absent (MPV, SMV, or splenic vein) (tumor, bland)
Focal vessel narrowing or contour irregularity: present or absent	Venous collaterals: present or absent (around pancreatic head, porta hepatis, root of the mesentery, or left upper quadrant)
CHA: Present or absent	Extrapancreatic evaluation
Degree of solid soft-tissue contact: $\leq 180^\circ$ or $>180^\circ$	Liver lesions: present or absent; suspicious/indeterminate or likely benign
Degree of increased hazy attenuation/stranding contact: $\leq 180^\circ$ or $>180^\circ$	Peritoneal or omental nodules: present or absent
Focal vessel narrowing or contour irregularity: present or absent	Ascites: present or absent
Extension to celiac axis: present or absent	Suspicious lymph nodes: present or absent (porta hepatis, celiac, splenic hilum, paraaortic, aortocaval)
Extension to bifurcation of right/left hepatic artery: present or absent	Other extrapancreatic disease (invasion of adjacent structures): present or absent
Arterial Variant: Present or absent	Impression: Tumor: size and location
Variant anatomy: Accessory right hepatic artery, replaced right hepatic artery, replaced common hepatic artery, others (origin of replaced or accessory artery)	Vascular contact: absent or present (vessel involved and extent)
	Metastasis: absent or present (location)

Conclusion

- Standardisation du compte rendu de TDM
- Déterminant pour la stratégie thérapeutique
 - Chirurgical: planification du geste
 - Indication de Traitement néo-adjuvant
- Résection R0