Hepatic Hemodynamic Lab Barcelona

Trombosi Portal

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FUNDACIÓ CLÍNIC BARCELONA

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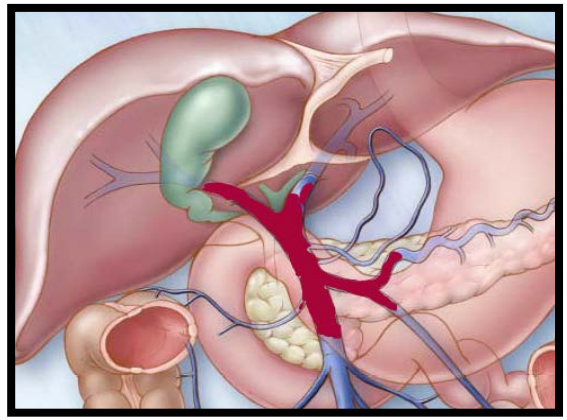
Societat Catalana d'Hematologia I Hemoteràpia.
4º Jornada día Mundiaal de la Trombosis.
Acadèmia de Ciencies Mèdiques. 16 Octubre 2018

Portal Vein Thrombosis

Extrahepatic obstruction of the portal vein or of both intrahepatic portal vein branches with or without involvement of the splenic or mesenteric vein



2018: Not enough with this definition!!!

Portal Vein Thrombosis

Healthy or Disease Liver (Cirrhosis/IPH/other)?

Current status of portal vein thrombosis in Japan: Results of a questionnaire survey by the Japan Society for Portal Hypertension

Kojima et al. Hepatology Research 2018

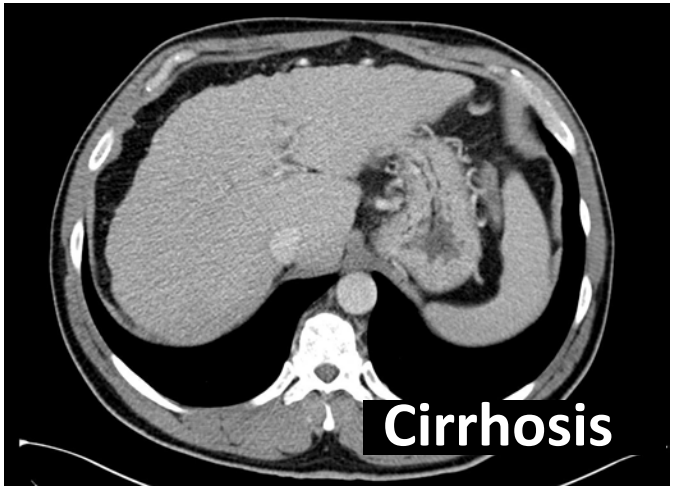
Table 2 Underlying diseases in 539 patients with portal vein thrombosis

	Number of cases (%)
Portal hypertensive disease	434 (80.5)
Liver cirrhosis	406 (75.3)
Idiopathic portal hypertension	20 (3.7)
Extrahepatic portal vein obstruction	8 (1.5)
Other	105 (19.5)
Other liver disease	7 (1.3)
Biliary disease	30 (5.6)
Pancreatic disease	22 (4.1)
Inflammatory disease	10 (1.9)
Malignancy	26 (4.8)
Blood disease	5 (0.9)
Other	5 (0.9)
Total	539 (100)

Portal Vein Thrombosis

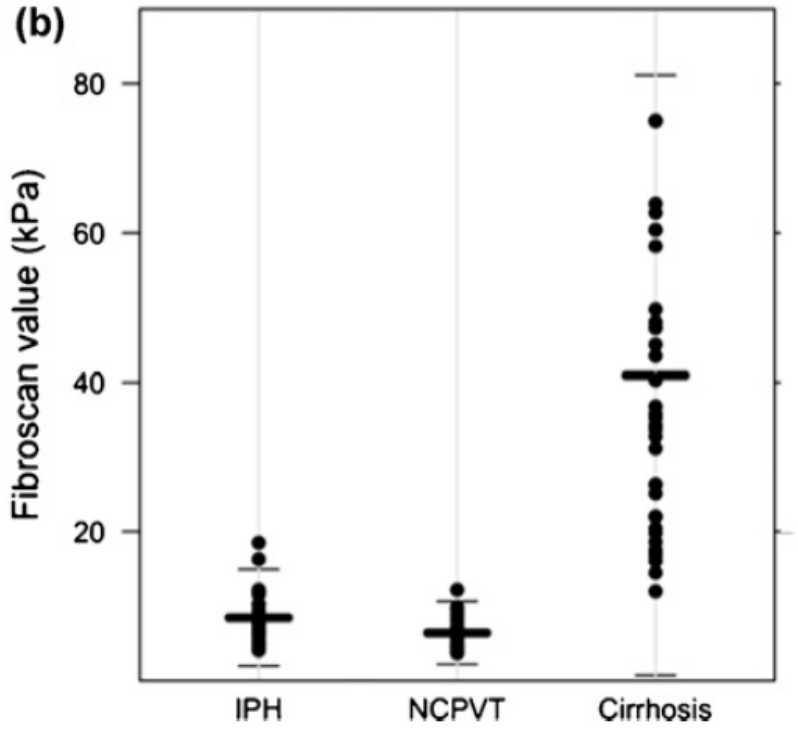
Not always easy to identify underlying liver disease

- **Long-Term PVT in healthy promote macroscopic changes (atrophy/hypertrophy…)**
- **Cirrhosis and IPH similar morphological changes**

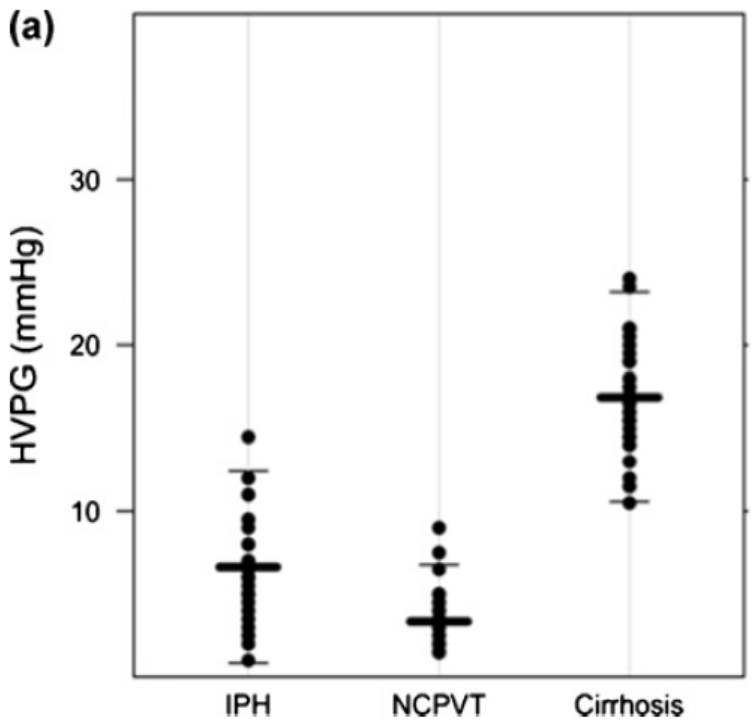


Elastography and HVPG helps discarding cirrhosis but may be similar in IPH and healthy livers

Liver Stiffness



Hepatic Vein Catheterization



Seijo S et al, Dig Liver Dis 2012

Sometimes, liver biopsy needed…

PVT Staging and Characterization

- Healthy or Disease Liver (Cirrhosis/IPH/other)
- **Partial/Occlusive (% of lumen occluded/or of patency?)**
- **Segments of the Portal Venous Axis affected (branches/trunk/splenic/mesenteric?)**
- **Acute/Chronic?**

Impact in diagnostic strategy, in prognosis and in treatment decisions

US-Doppler first choice for thrombosis detection. Angio-CT/MRI mandatory for extension/characterization

PVT on a Healthy Liver

Etiology

Acquired or Inherited Prothrombotic Dis. **40-50%**

- *Myeloproliferative Neoplasms*
- *Prothrombin gen mutation*
- *Others*

Local Factor: Surgery, abd. inflamation… **20-30%**

Idiopathic **20-30%**

- **>50% more than one prothrombotic disorder**
- **36% of pts with local factor, also had a systemic prothrombotic disorder**

Plessier for the Envie Group. Hepatology 2010

PVT on a Healthy Liver. Etiology

PH: Splenomegaly with Hypersplenism and Plasma Volume Expansion with Hemodilution

Mask increases in blood cells. MNP underdiagnosed

JAK2; Exon 12 JAK2; MPL; Calreticulin!

140 PVT

30 JAK2+ (21.4%)

2 CALR+ /110 JAK2- (1.8%)

Turon et al. J Hepatol 2015

Still MNP that are negative for JAK2, Exon 12, Calr and MPL. Could NGS be able to help to characterize these patients?

PVT in Healthy Liver

Acute PVT → **Chronic PVT/ Portal Cavernoma**

- ***Abdominal Pain***
- **Intestinal Ischemia**

- ***Variceal Bleeding***
- ***Portal Colangiopathy***
- ***Recurrent Thrombosis***
- **Others**

Aim of Rx in Acute PVT:

- Prevent Ischemic Complications

- Prevent Progression to Chronic PVT

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Envie Study. Anticoagulation in 95 Acute PVT

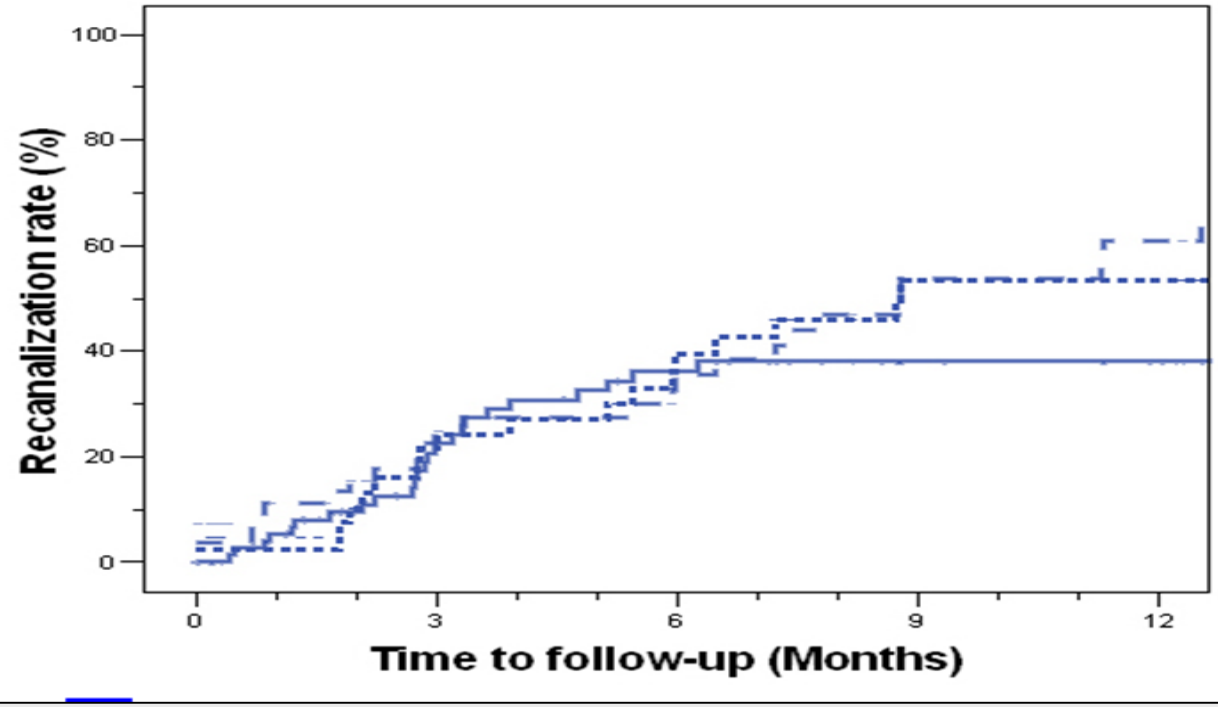
- **2 Intestinal Infarction, limited intestinal resection, both pts survived**

Low number of adverse events

- **9 bleeding (5 GI; 3 Severe: No mortality)**
- **2 death (1 Late malignancy and 1 sepsis)**

Plessier for the Envie Group. Hepatology 2009

Recanalization rate in 95 pts with ACUTE Splanchnic Vein Thrombosis anticoagulated



61% Mesenteric

54% Splenic

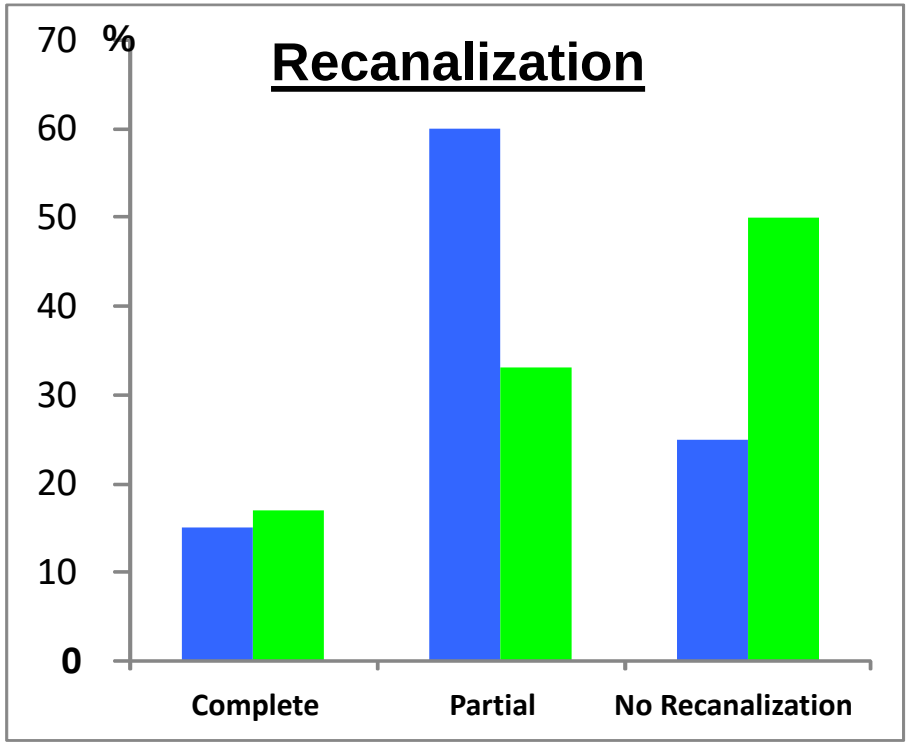
38% Portal trunk or both branches

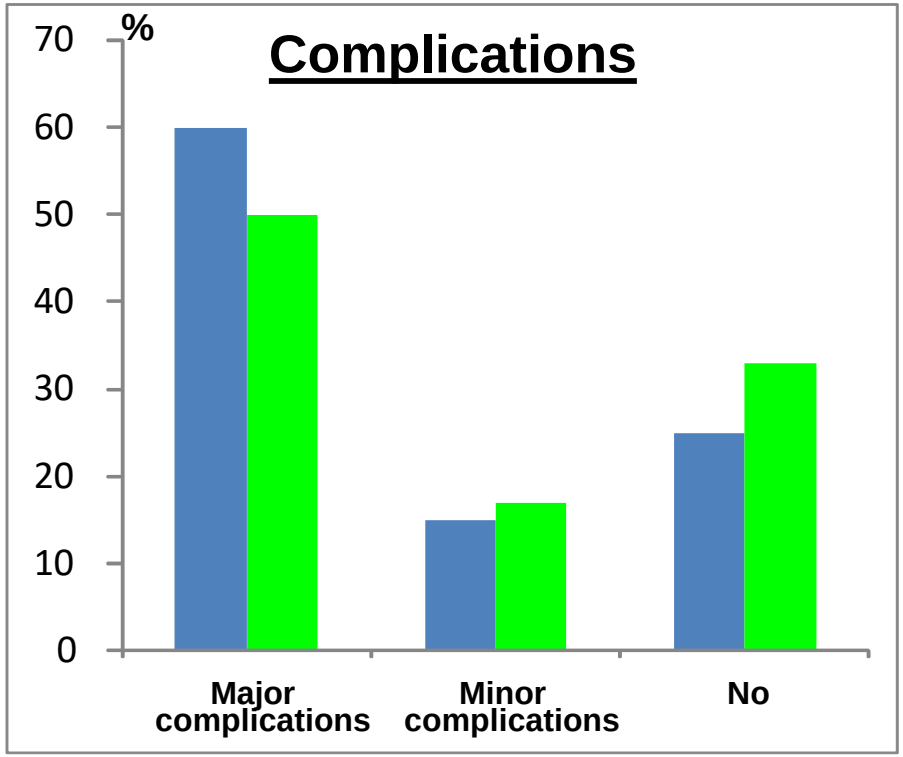
Although, PV System completely patent in only 20% of pts, not all "non-completely patent pts" developed PH related complications.

Plessier for the Envie Group. Hepatology 2009

Thrombolytic Therapy in Acute PVT. Recanalization and complications

- **Almost 100% success of thrombolytic Rx with few complications. Potential publication bias.**





Hollingshead et al. JVIR 2005 (n=20)

Smalberg et al. Thromb Haemost 2008 (n=12)

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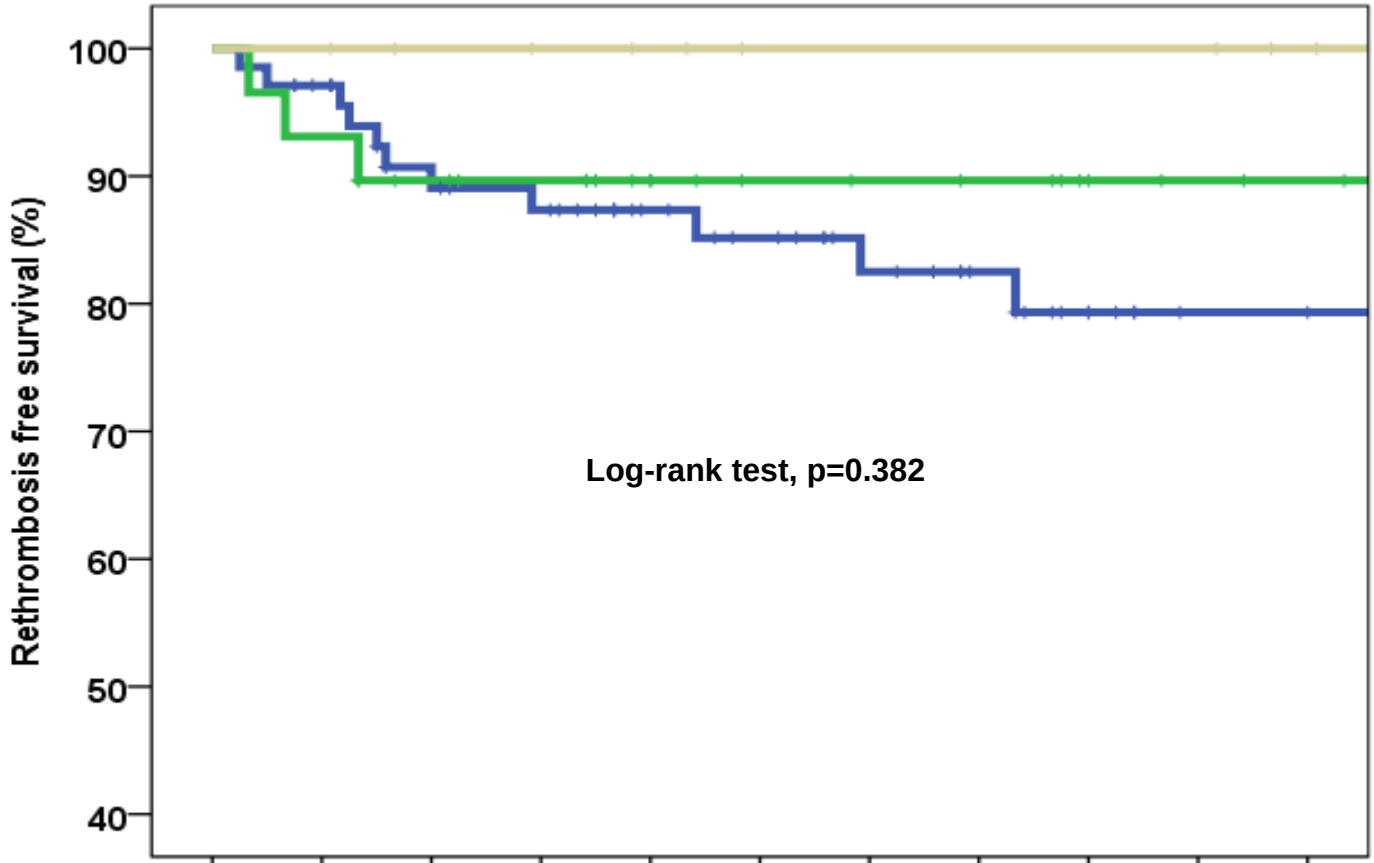
Recurrent Thrombosis

- More common than suspected, but frequently asymptomatic and only recognized if intentionally investigated
- Rethrombosis may deteriorate outcome (EV, Colangiopathy)
- Different risk according with underlying etiology.

Currently to prevent rethrombosis, ACO is recommended when:

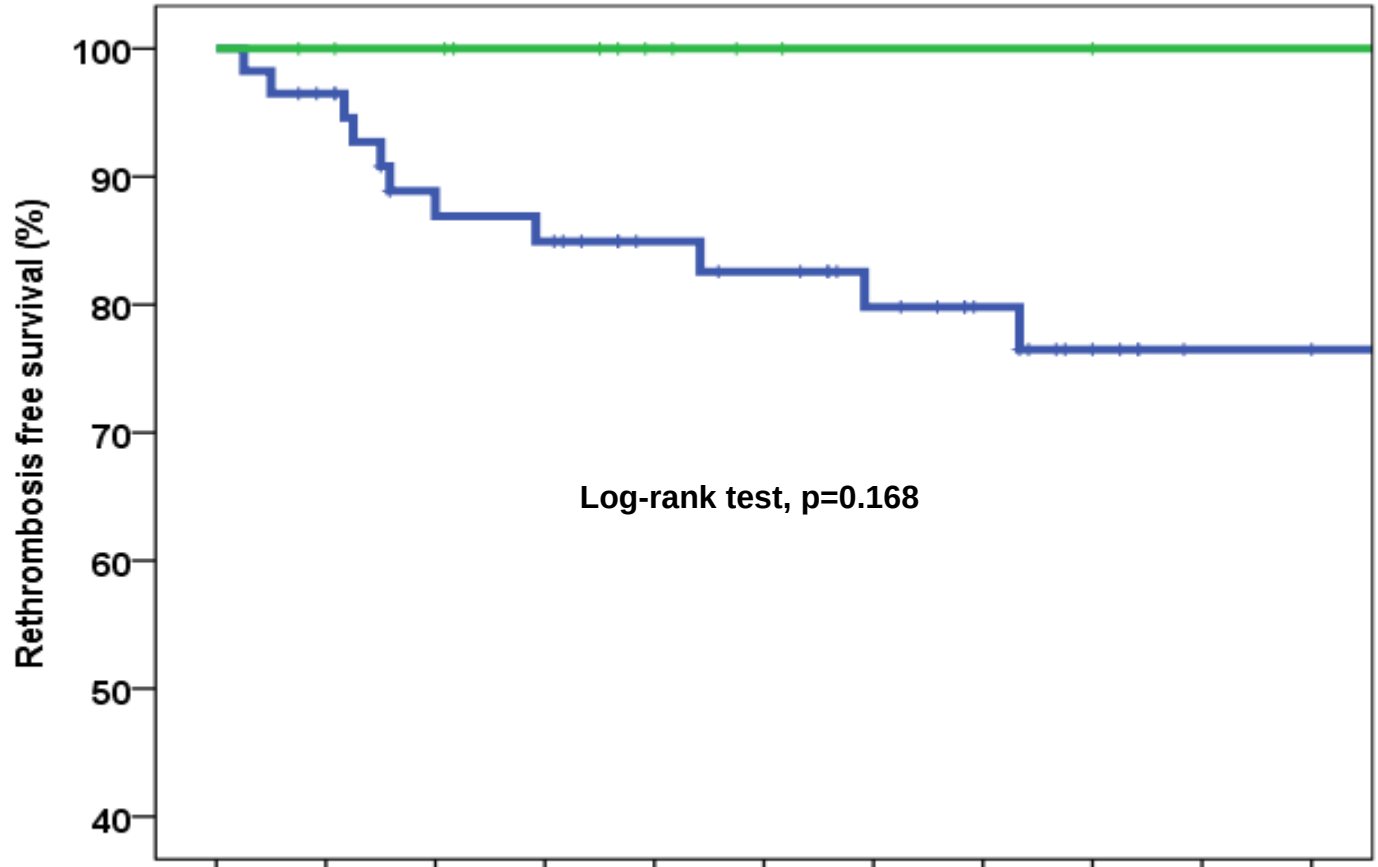
- Existence of an underlying prothrombotic disordes
- Previous thrombosis of other vascular territories
- Rethrombosis/thrombosis progression

Recurrent Thrombosis on the PV system according to etiology in a cohort of 108 Pts with Chronic PVT



Number at risk											
Prothrombotic	10	10	8	7	6	4	4	4	4	4	2
Mieloproliferative	29	27	23	21	15	13	12	11	7	6	5
Idiop. or Local factor	69	64	54	51	41	37	31	26	19	15	14

Recurrent Thrombosis in patients with Idiopathic or Underlying Local Factors receiving or not ACO



Number at risk											
Anticoagulation	12	11	10	8	5	3	2	2	1	1	1
No anticoagulation	57	53	44	43	36	34	29	24	18	14	13

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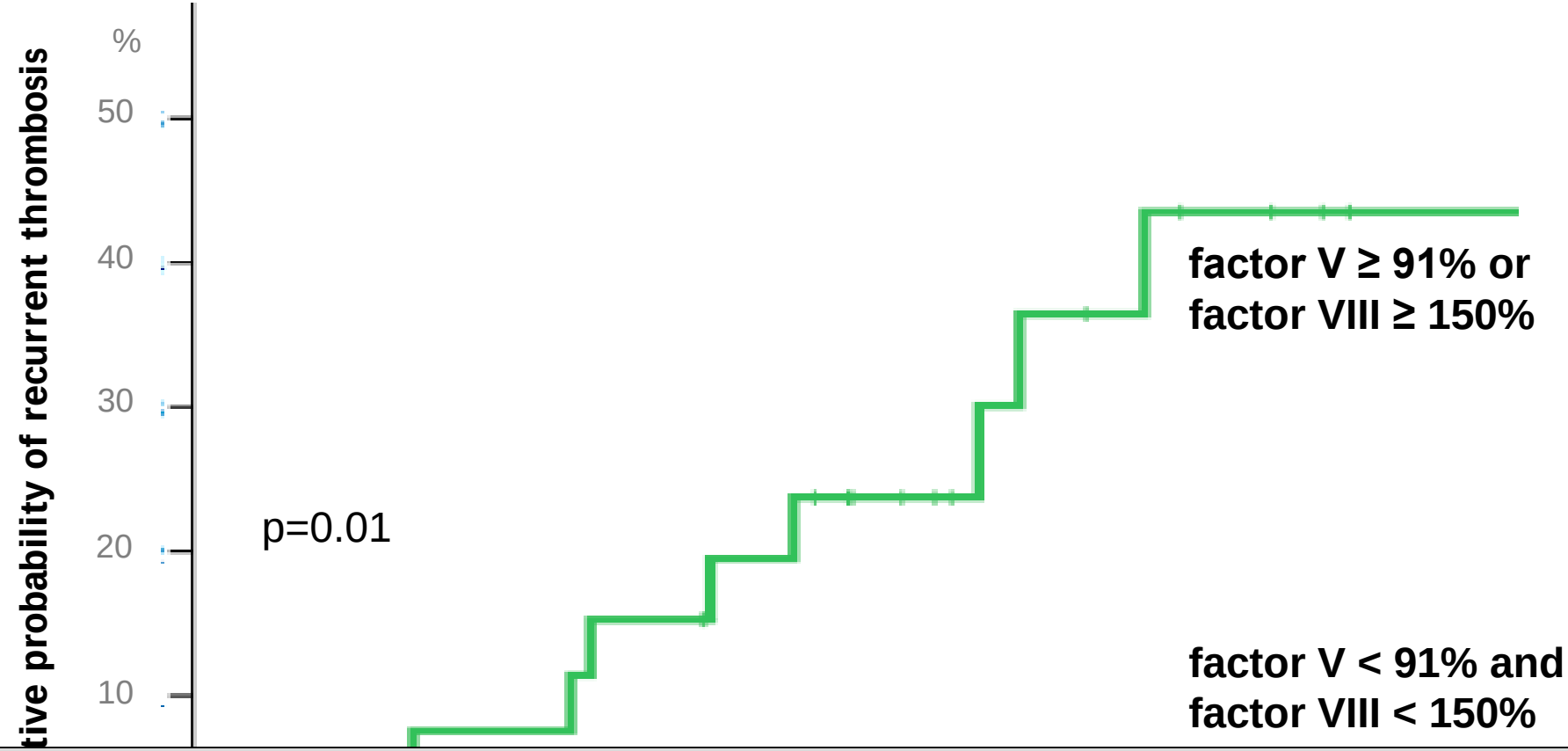
In 48 of the 57 patients with Idiopathic/local PVT not receiving anticoagulation a complete Thrombophilic study was done at admission.

Factor V and Factor VIII independent predictors of Recurrent Thrombosis



Is there a group of patients with Idiopathic thrombosis or secondary to local factors that need to be also treated with long-term anticoagulation?

factor V < 91% and
factor VIII < 150%

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Anticoagulation and EBL. What to do?

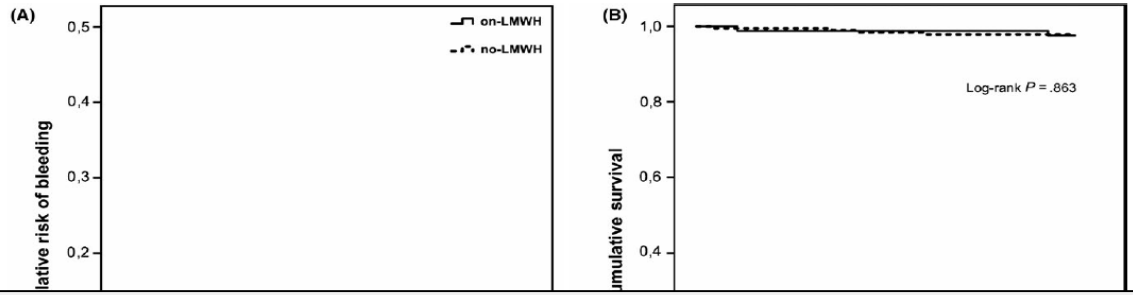
Bleeding risk of variceal band ligation in extrahepatic portal vein obstruction is not increased by oral anticoagulation

Guillaume et al. European J of Gastro & Hepatol 2018

	EHPVO patients with OAT (group A) ($n=30$)	EHPVO patients without OAT (group B) ($n=13$)	Cirrhotic patients (group C) ($n=43$)
Patients with UGB episodes	5/30 (16.7)	4/13 (30.8)	1/43 (2.3)
UGB episodes/VBL sessions			
During the entire follow-up	9/121 (7.4)	6/130 (4.6)	2/220 (0.9)
Within 15 days following a VBL session	4/9 (44.4)	2/6 (33.3)	0/2 (0)
Causes of UGB episodes			
Esophageal variceal	5	4	2

No need to Stop Oral ACO?. More bleeding in Non-LC PVT?. More data needed!

Low molecular weight heparin does not increase bleeding and mortality post-endoscopic variceal band ligation in cirrhotic patients



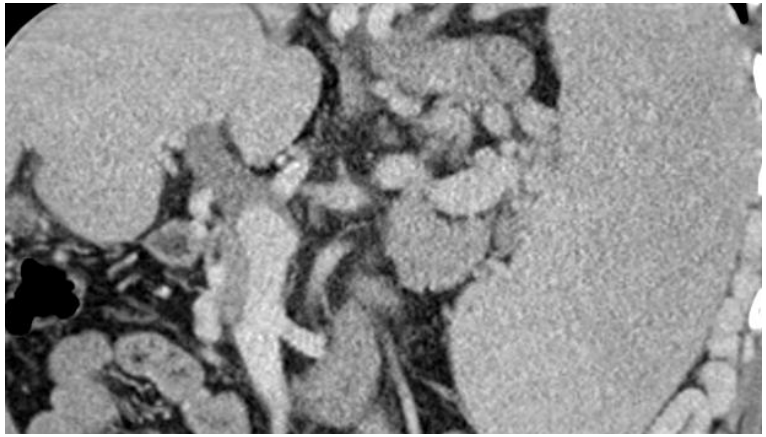
80 pts on LMWH (169 EBLs)
185 pts no-LMWH (384 EBLs)

Just stop the previous LMWH day dose, restart same day at night?

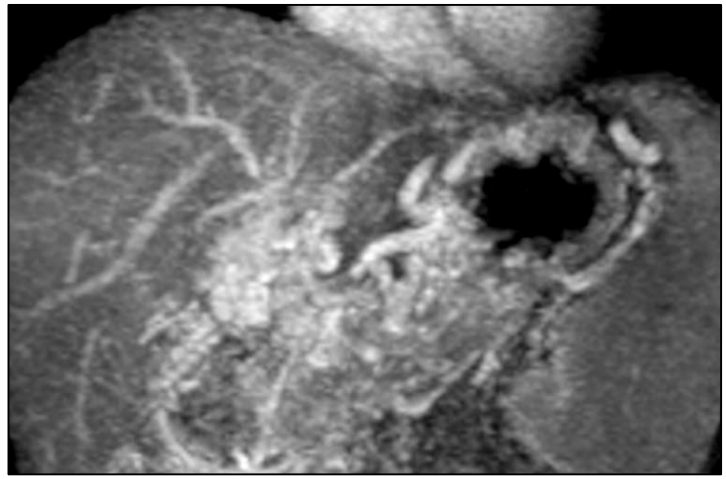
No need to delay ACO initiation?

Blanchini et al. Liv Intern 2018

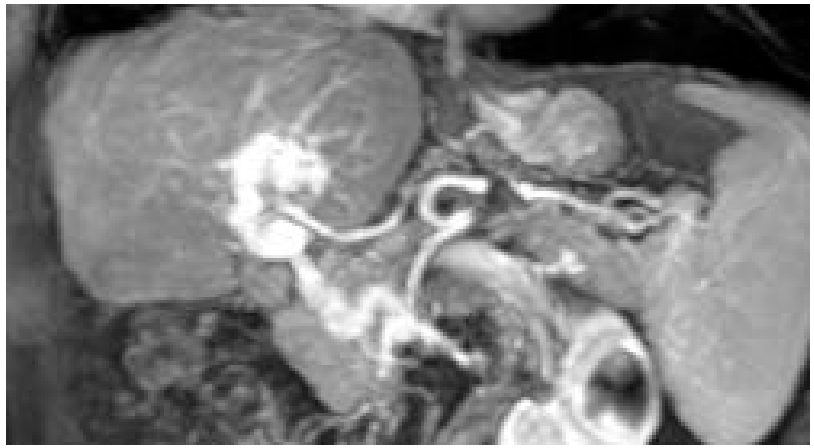
Chronic Portal Vein Thrombosis



Complete Occlusion, but recognized PV



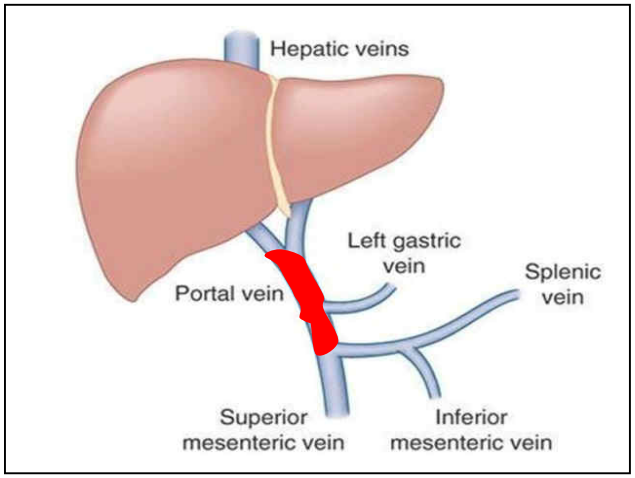
Not recognized PV



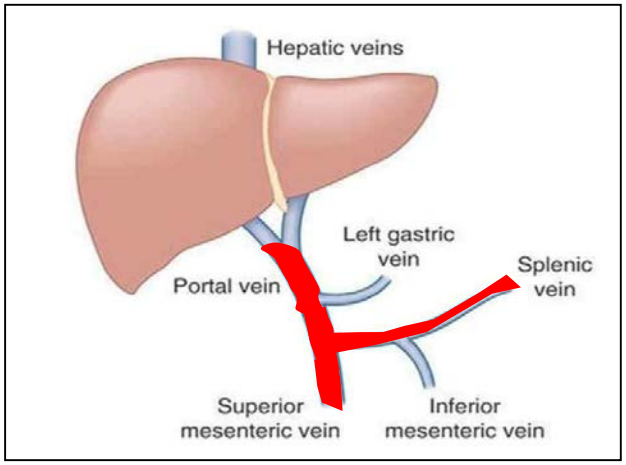
Portal Cavernoma

Factors influencing Feasibility of TIPS in Chronic Portal Vein Thrombosis

- **Patent Intrahepatic Portal Vein Branches? Or at least recognizable? Or completely unrecognizable?**
- **Is there a patent "landing" zone or all the portal venous axis is thrombosed?**

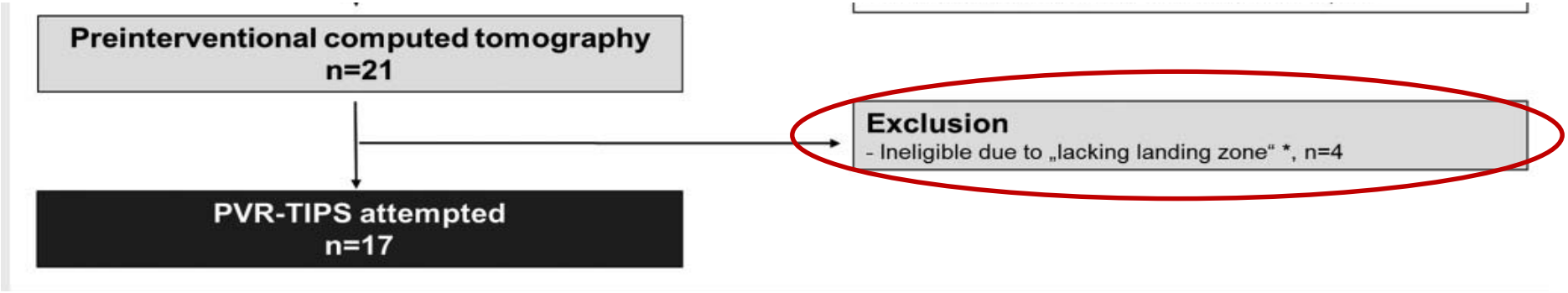


TIPS + Recannalization Likely



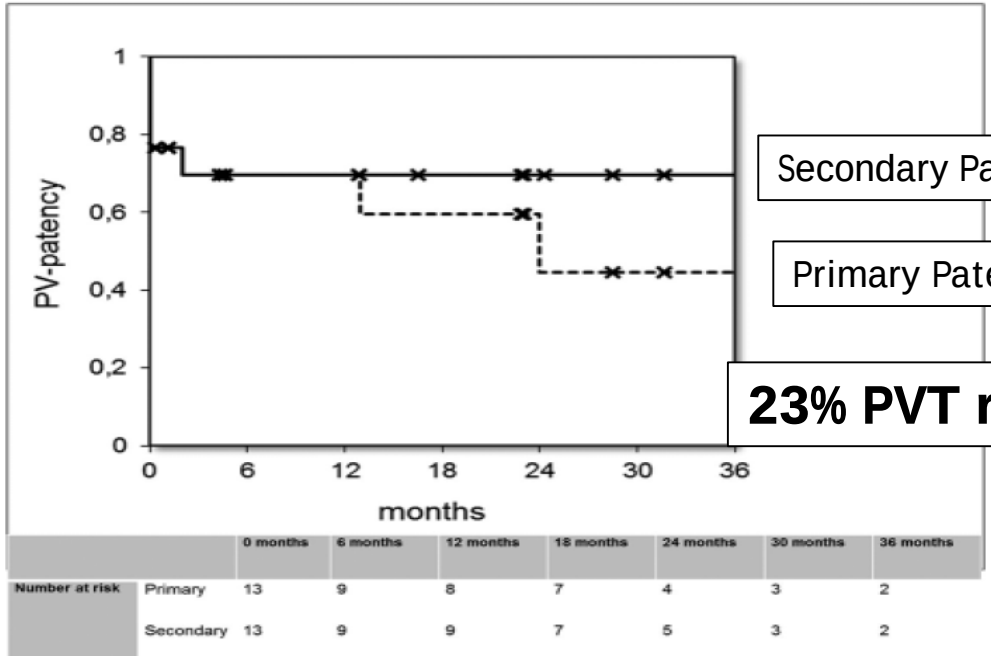
TIPS + Recannalization Extremely Difficult

PVR + TIPS in Chronic PVT



9/17 real Fibrotic cord instead of Main portal vein (Failure in 4/9)

Transjugular approach



Secondary Patency

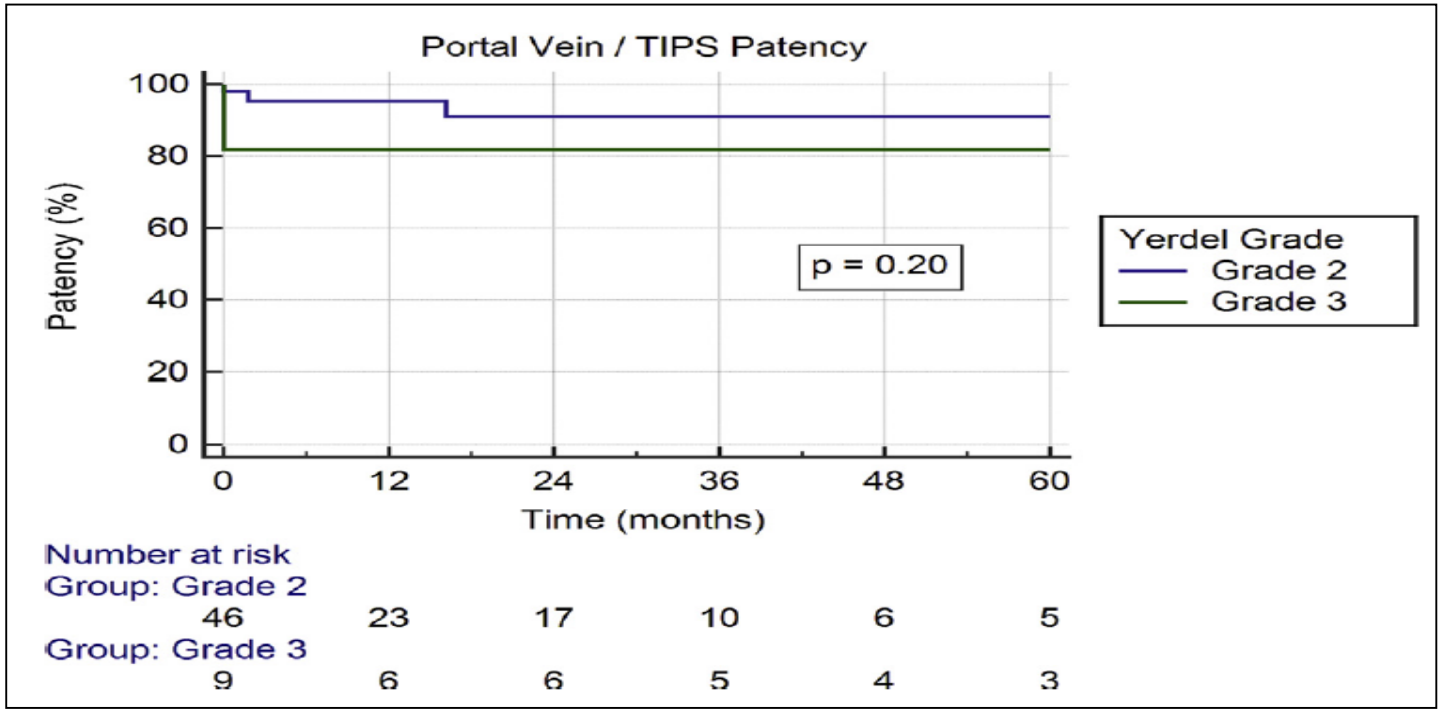
Primary Patency

23% PVT recurrence

Klinger C et al. Transjugular portal vein… Z Gastroenterol 2018

PV Recanalization-TIPS in Chronic PVT

- **Pts with cirrhosis discarded OLT for Chronic PVT**
- **Initially Transhepatic approach, then transplenic. Faster, less complications**



Hemoperitoneum no requiring surgery 8%

Salem et al. Transplantation 2015 Thornburg et al. JVIR 2017

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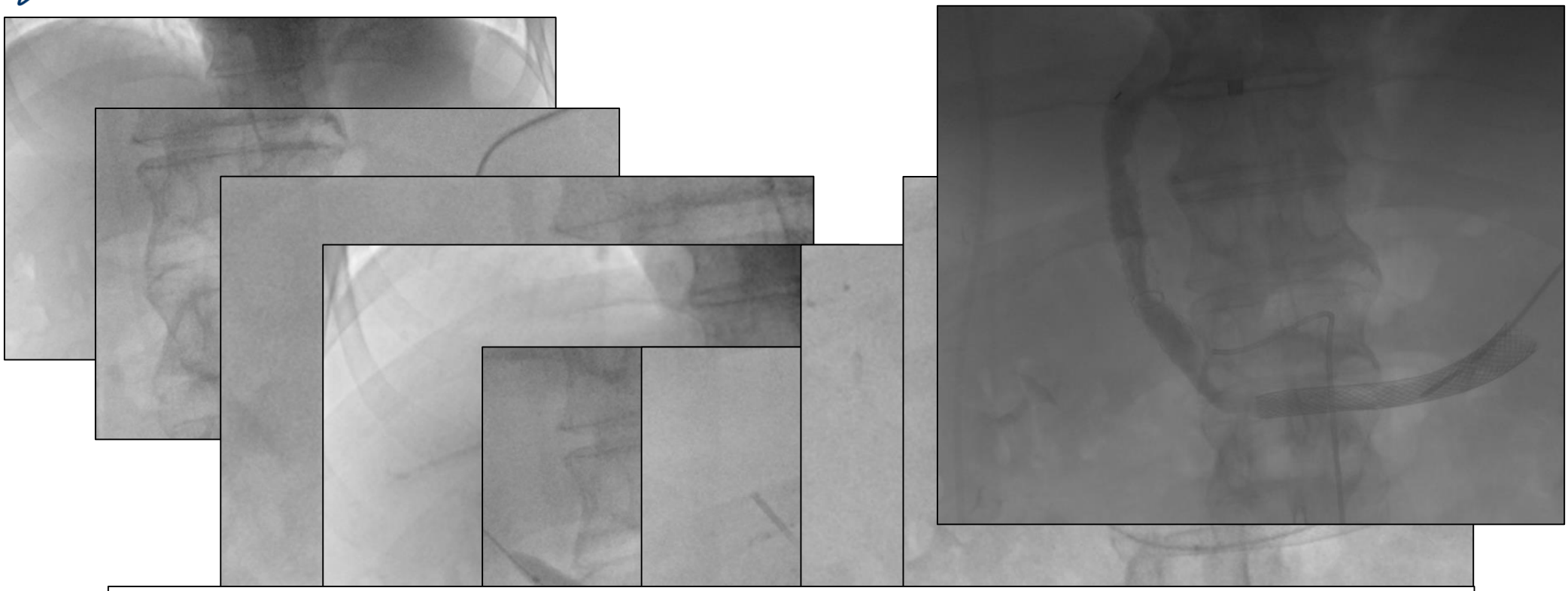

PVR +/-TIPS as a new therapeutic strategy for selected cases with Chronic PVT

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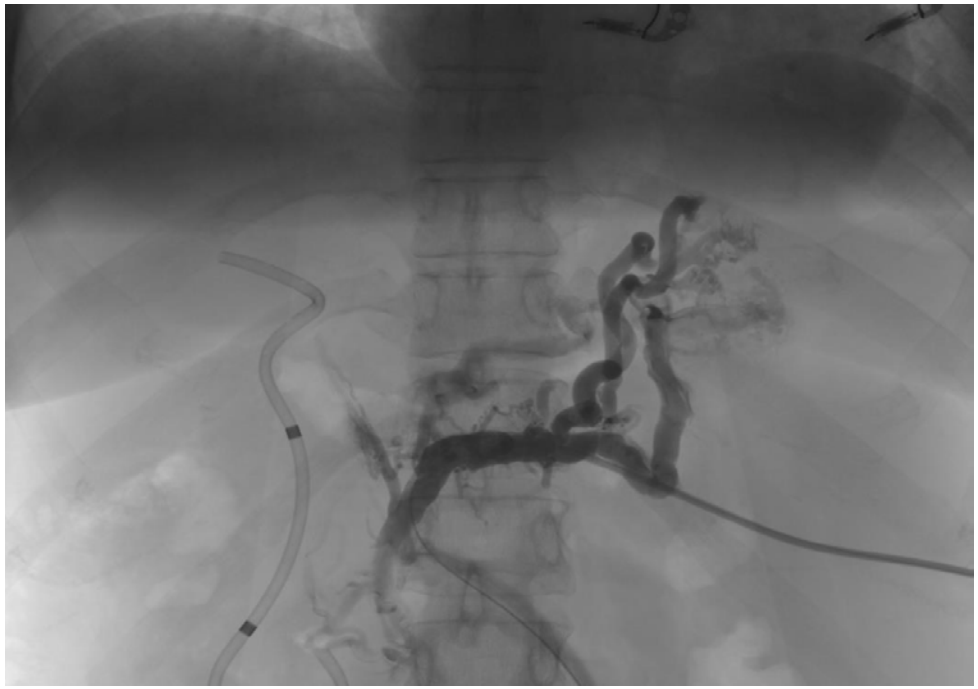
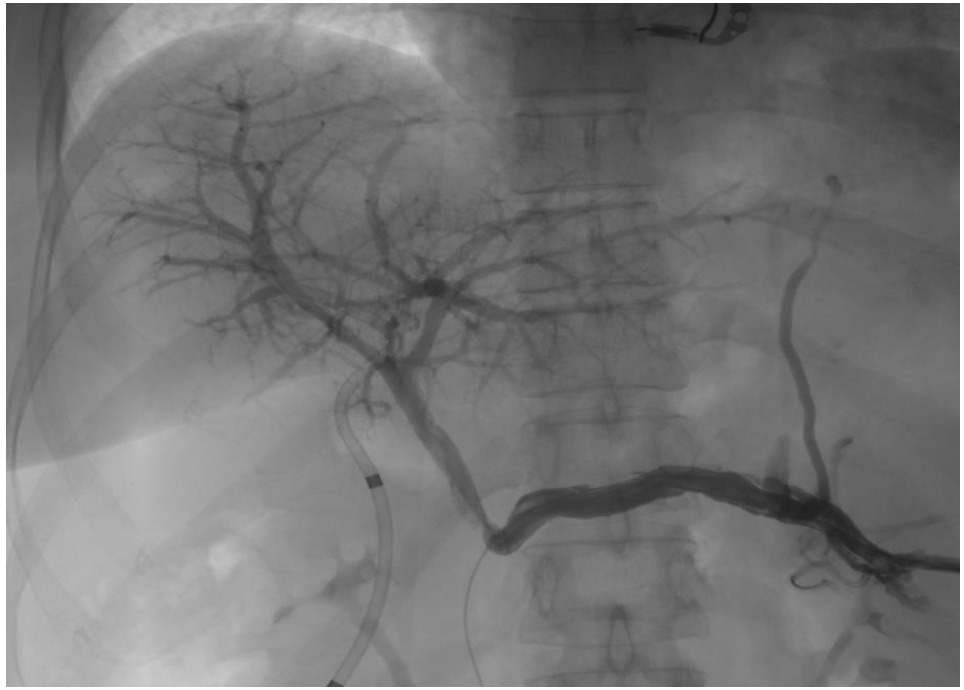
In Primary PVT without Liver Disease TIPS is not always necessary





Physiological restauration of Sinusoidal Blood Flow

Acknowledgements

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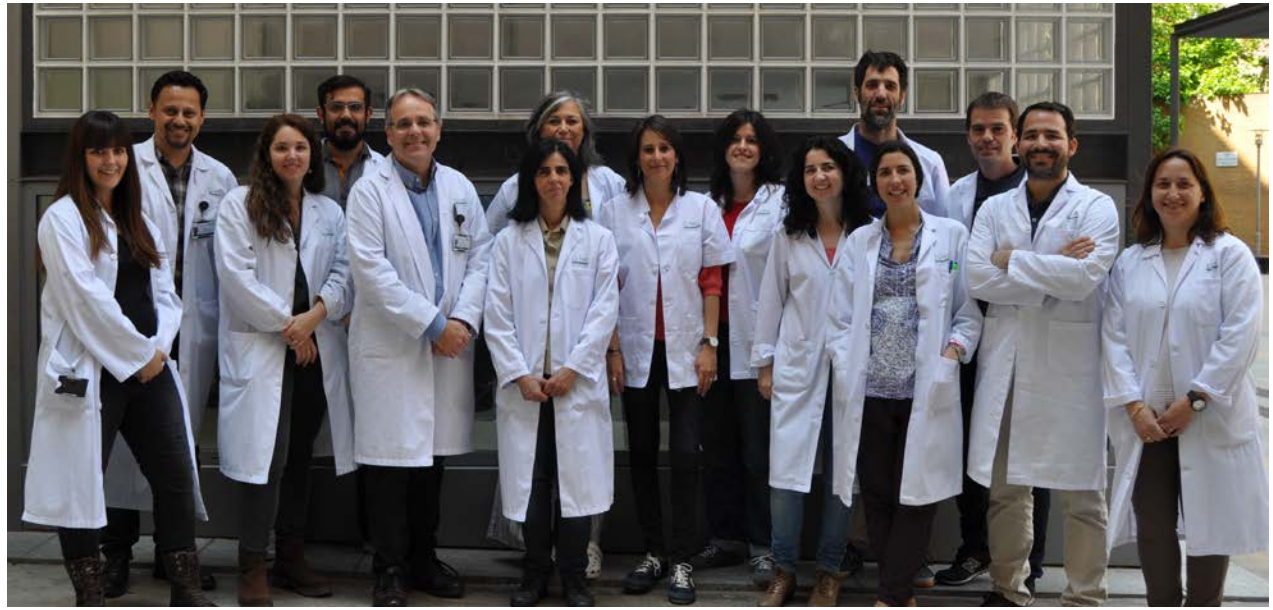

CDI. HCP

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JC Reverter
D Tassies

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