BTS British Transplantation Society

The Voice of Transplantation in the UK

King's College Hospital NHS
NHS Foundation Trust

Recurrent Portal Vein Thrombosis after Liver Transplantation for Budd-Chiari Syndrome

Miriam Cortes Cerisuelo MD PhD
Consultant Liver Transplant Surgeon
Institute of Liver Studies
King's College Hospital
London

Case report

-29 years-old male

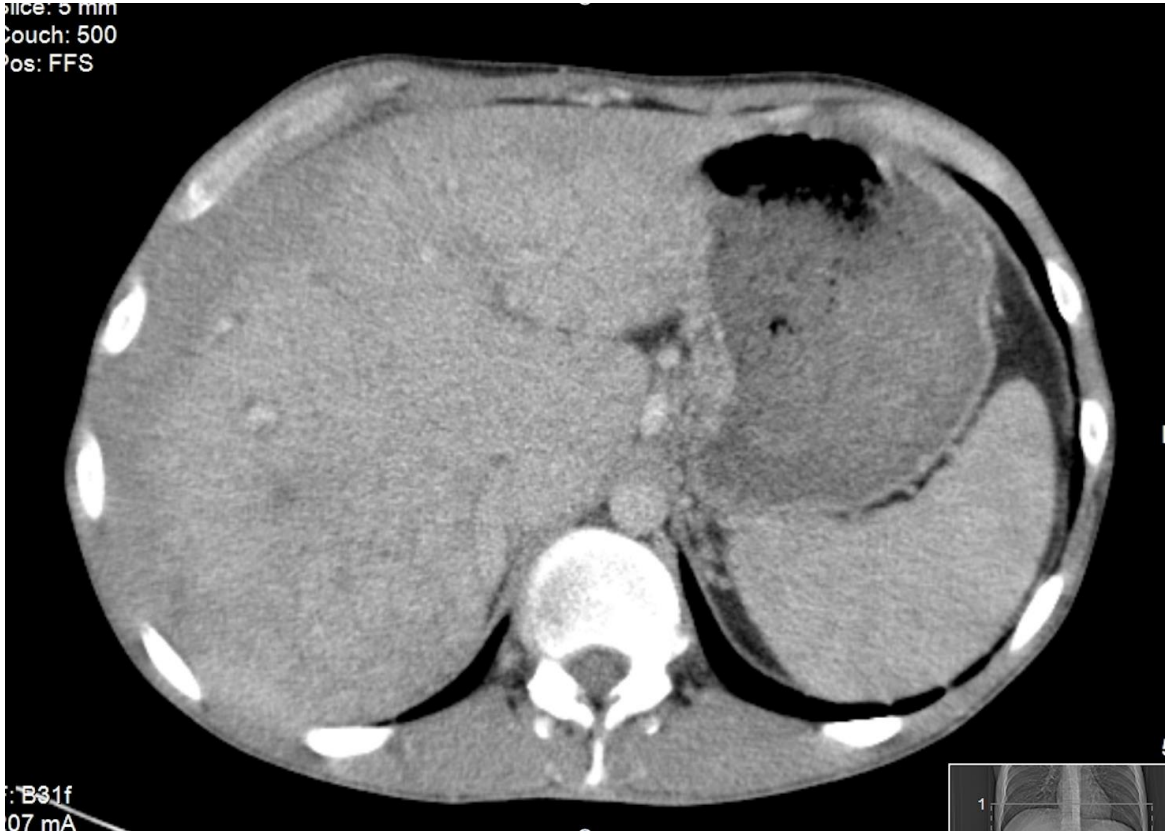
-Ulcerative colitis (poor response to steroids) in 2006

-Budd-Chiari syndrome (ascites) in 2007

Abdominal CT:

-Heterogeneous big liver

-Partial occlusion of the hepatic veins



Full prothrombotic screening:

-Negative for JAK-2 mutation

-Bone marrow normal

] Myelodysplastic syndrome

-Antiphospholipid negative, Protein S normal..

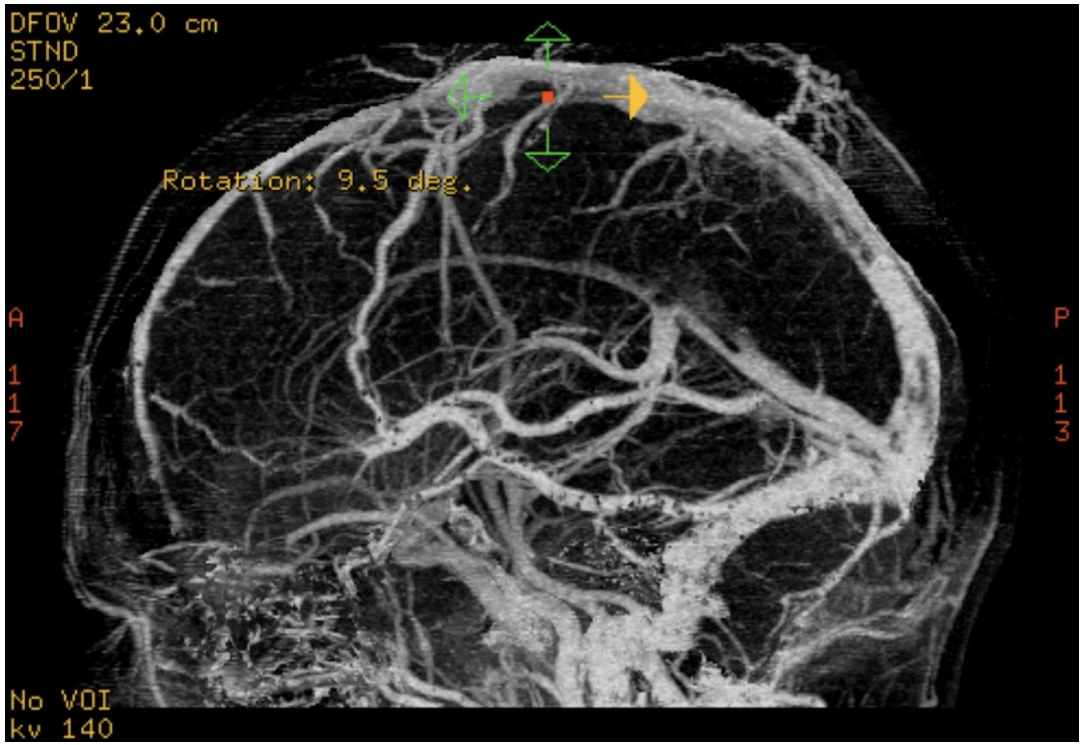
-**Protein C deficiency**

Anticoagulated with Warfarin

Cerebral venous thrombosis in 2008 and PE

Cerebral CT venogram:

Venous thrombosis in the sagittal sinus



-Initial improvement after TIPS in 2009

-Initial improvement after TIPS in 2009

-Progression of the symptoms:

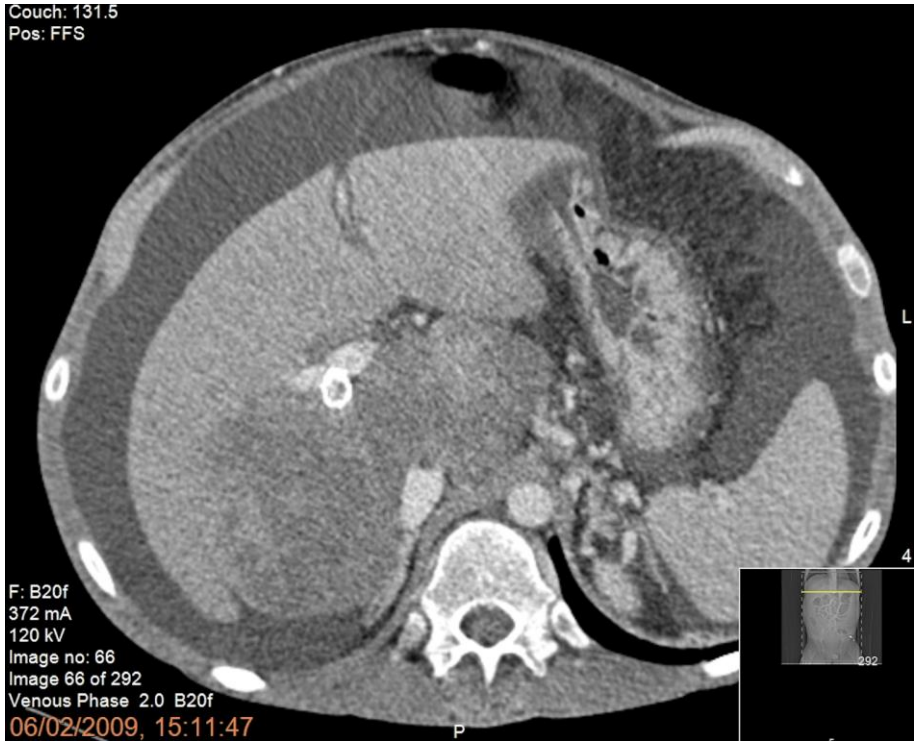
Ascites, abdominal pain, diarrhea, lethargy

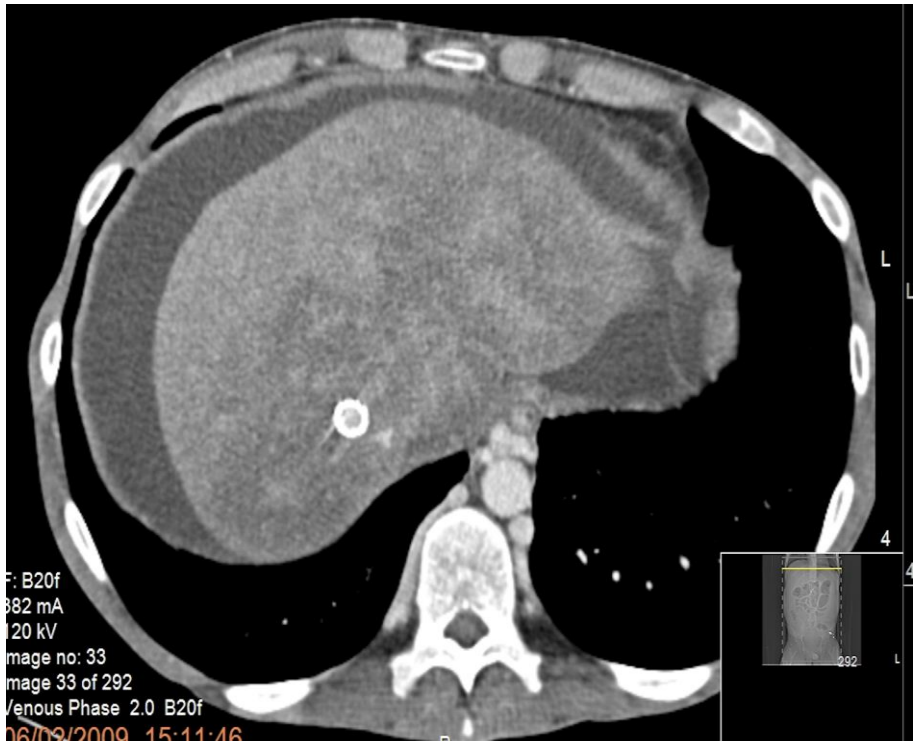
-Worsening liver function: Bb 300 µmol/L

AST 1835 IU/L

Albumin 25-35 g/L

Abdominal CT: ascites, heterogeneous liver, hypertrophy of the caudate lobe, thrombus in the TIPS and retro hepatic cava





-First liver transplant on March 2009

DBD whole graft 67 years-old

Venous-venous bypass

Caval replacement

Duct to duct

- Not fully compliant with Warfarin or Clexane
- Recurrent Budd-Chiari syndrome in 2013
- Worsening ascites, renal and synthetic dysfunction.

Warfarin/Clexane switched to Rivaroxaban

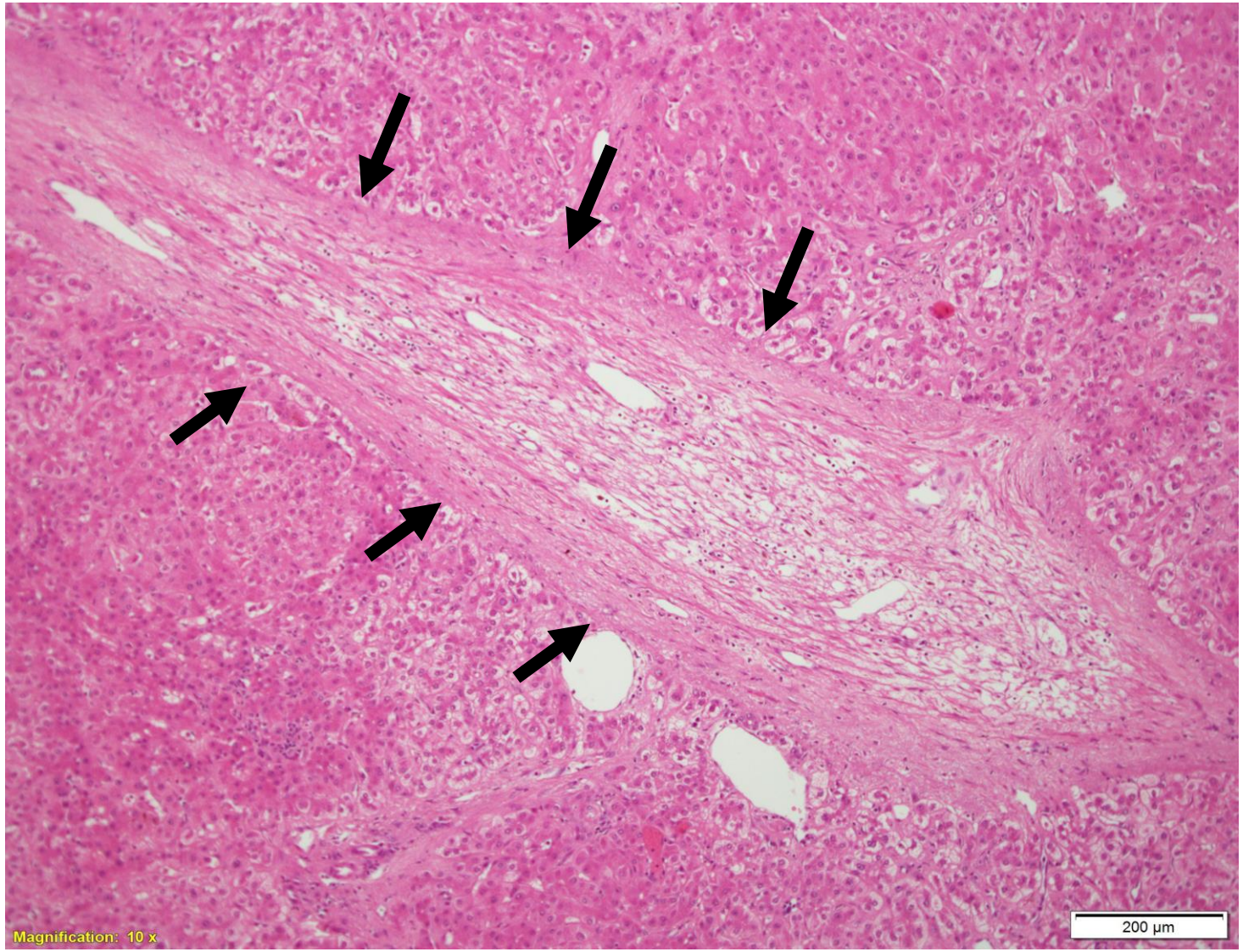
- Second LT on September 2014

DBD 54 years-old

Whole graft

Piggy-back 3 veins

Duct to duct



Hepatic vein thrombosis

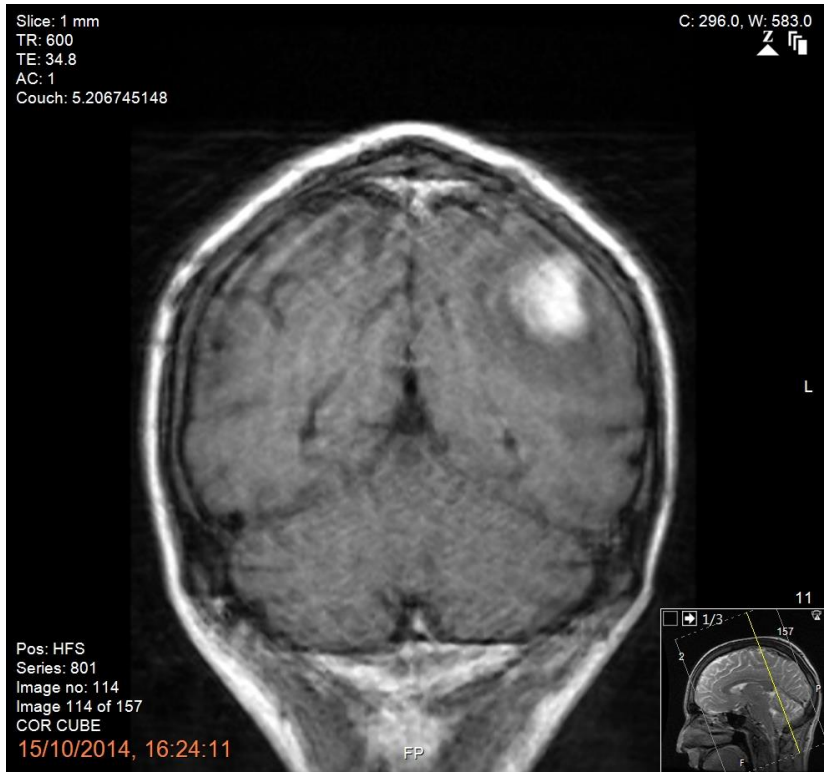
*Courtesy of Dr Alberto Quaglia, Consultant Histopathologist. Institute of Liver Studies

One month later, presented with tonic-clonic seizures.

Head CT

Intracranial fungal abscess

Voriconazol 6 months



-After stopping the antifungal, the dose of Tacrolimus was not increased resulting in severe ductopenic rejection

-Bilirubin 426 umol/L and no response to medical treatment

-Third re-transplantation 4 months later: January 2015

DBD whole graft 68 years-old

Venous-venous bypass

Caval replacement

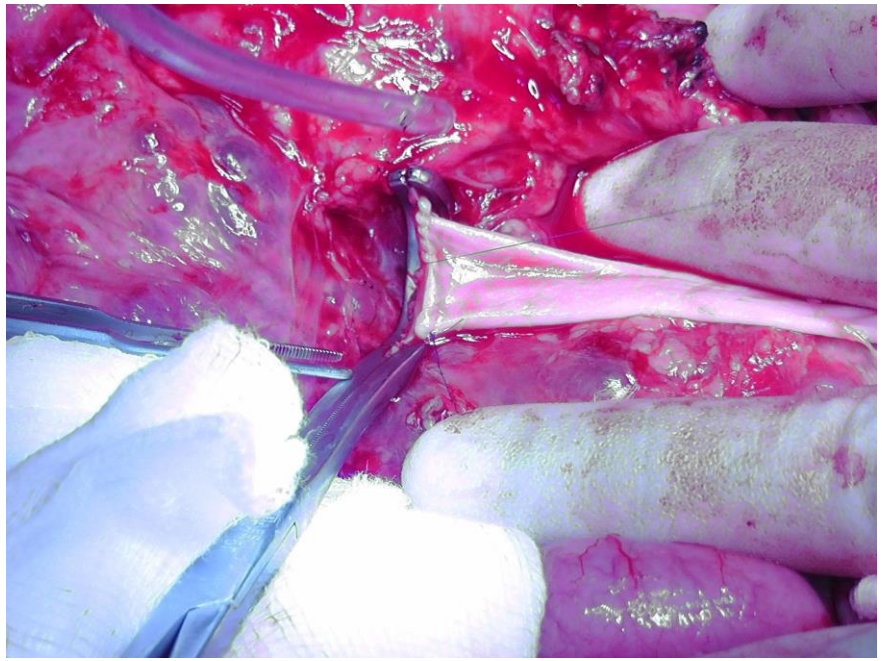
Jump graft to restore portal flow from SMV to donor PV

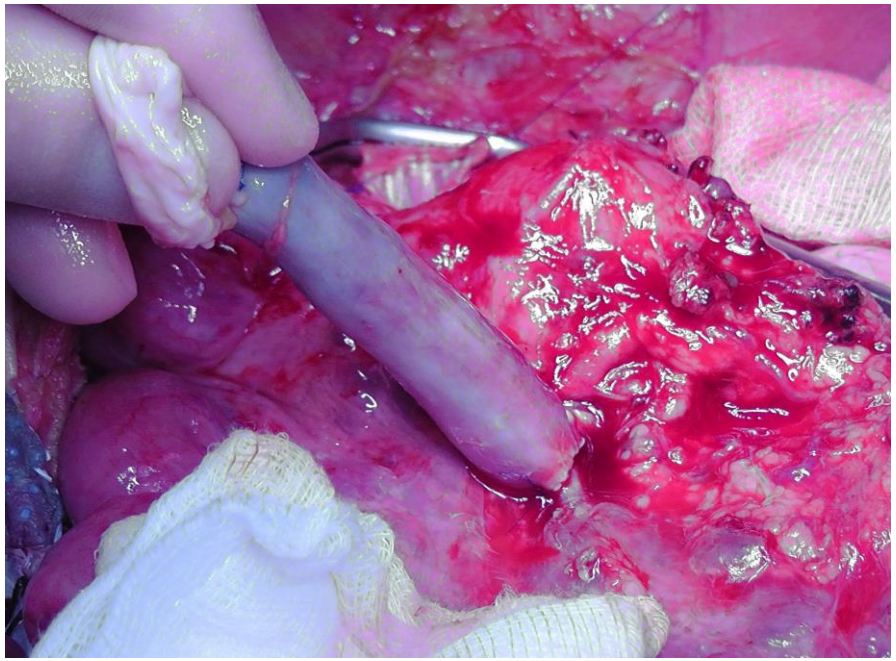
Duct to duct

Skin closure only

-Third re-transplantation 4 months later: January 2015

Jump graft between the SMV and donor portal vein with iliac vein from a deceased donor.





Fourth abdominal surgery:

Biliary reconstruction with a hepatico-jejunostomy for anastomotic stricture for failed endoscopic treatment on October 2015

+ full muscle closure

One year later presented with abdominal pain, renal dysfunction and ascites.

-CT showed narrowing of the venous jump graft

-PTLD? Lymph node compressing the jump graft

-Dilatation declined by radiologist "High risk"

Few months later re-admitted in hospital with:

-Gastro-intestinal bleeding

-Persistent abdominal pain, distension

-Blood transfusion requirements.

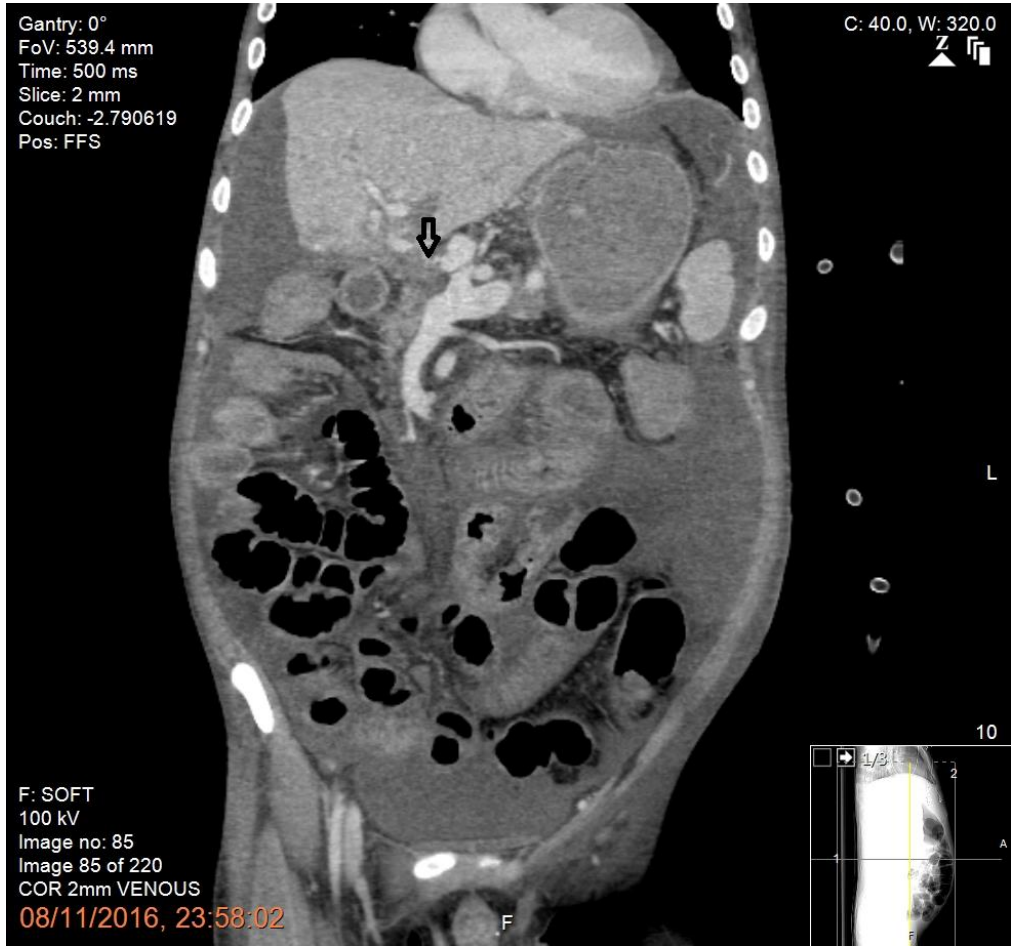
BTS British Transplantation Society

The Voice of Transplantation in the UK

King's College Hospital NHS
NHS Foundation Trust

Abdominal CT

Complete thrombosis of the previous jump graft



Fifth laparotomy for meso-Rex shunt on November 2016

Findings:

Multiple varices and moderate portal hypertension

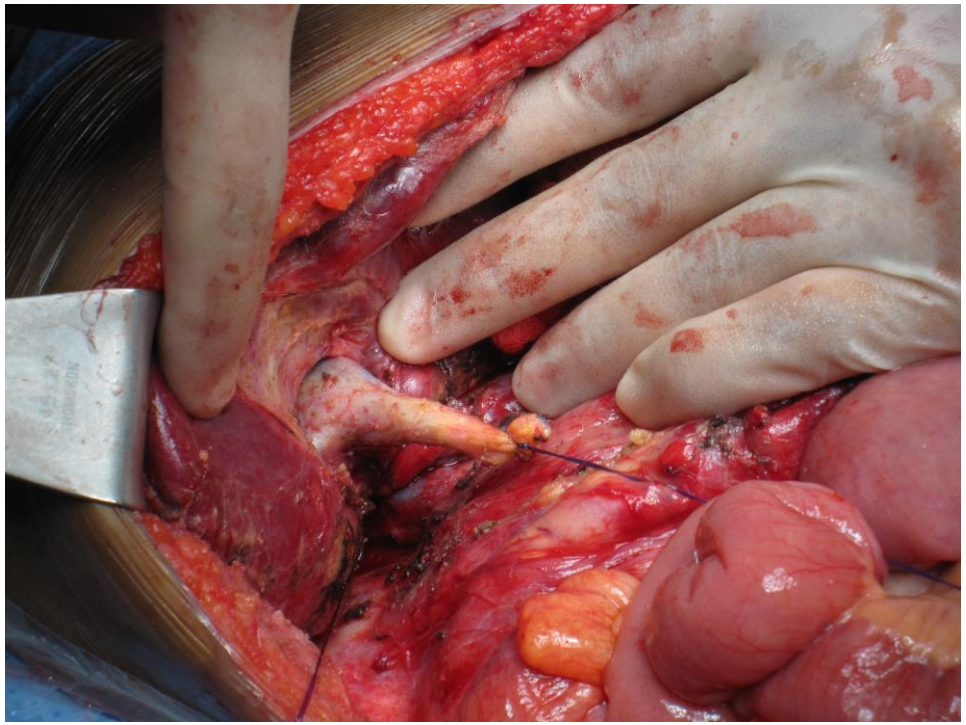
1.6L ascites

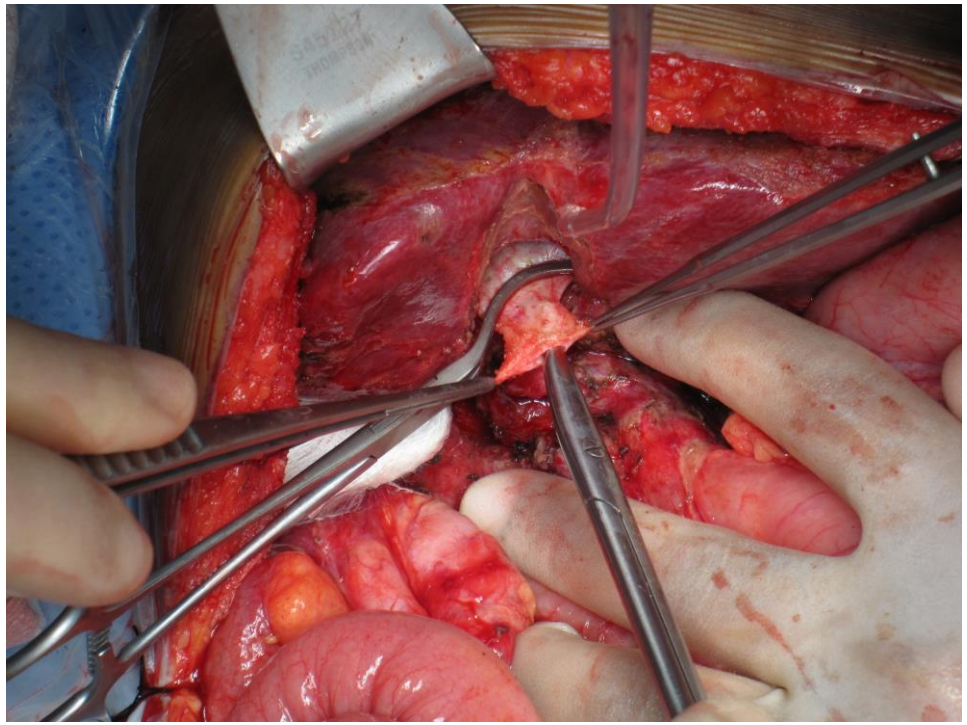
Complex surgery:

7 L blood loss

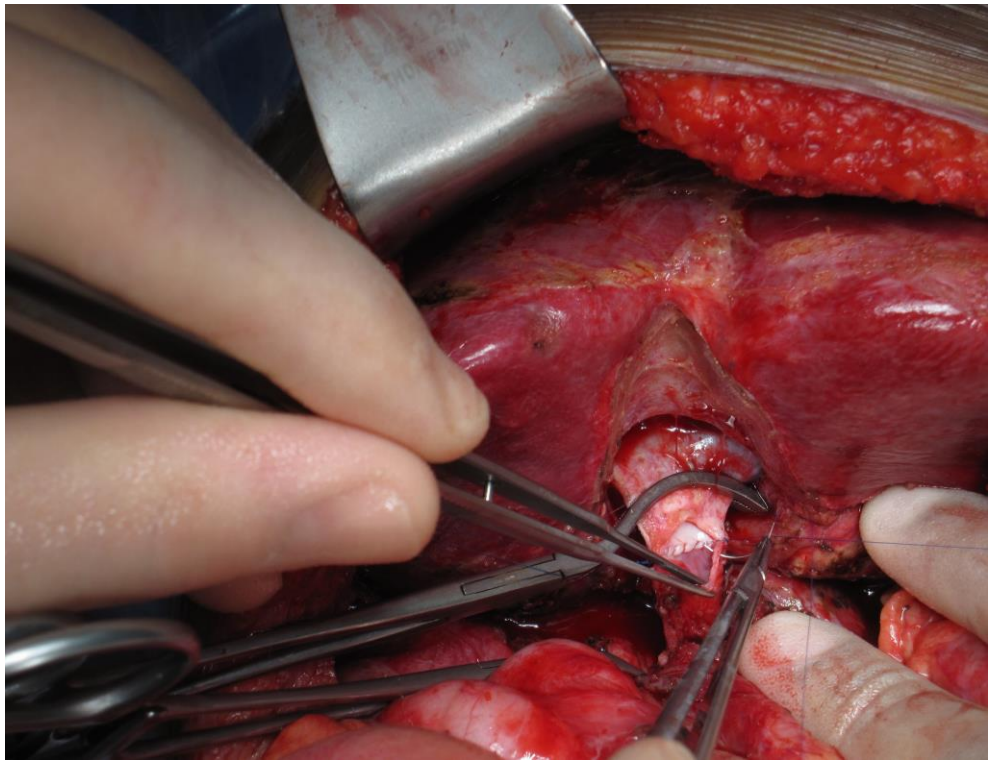
Pericardium opened during the surgery

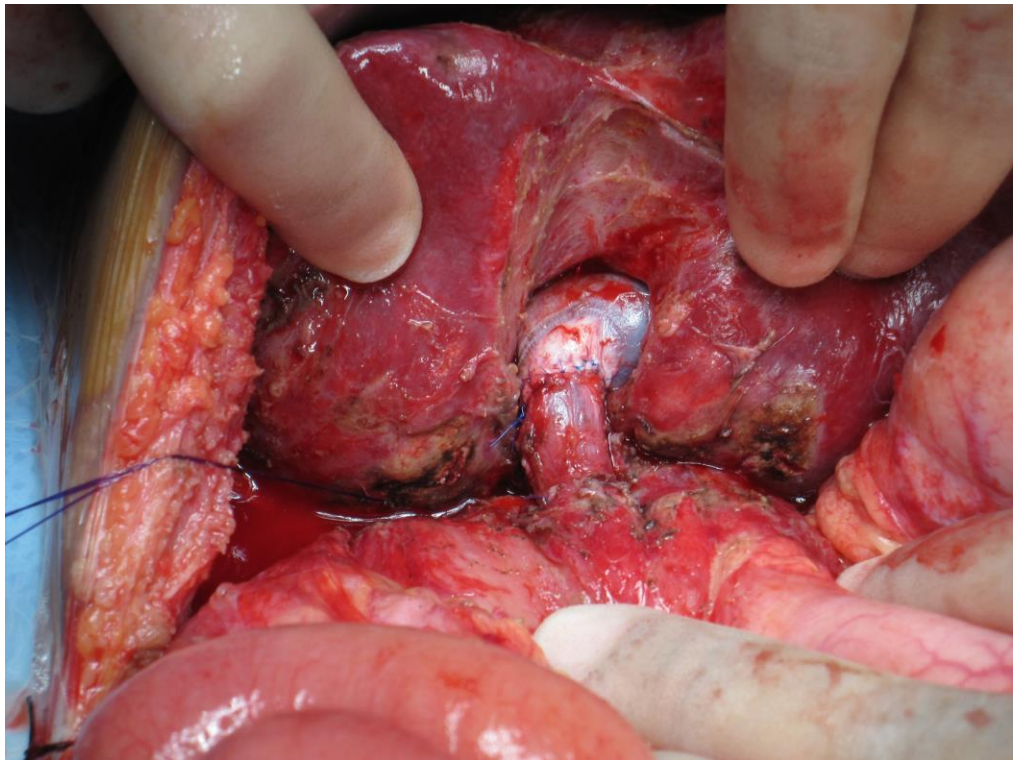
Fifth laparotomy for meso-Rex shunt on Novemeber 2016





Fifth laparotomy for meso-Rex shunt on Novemeber 2016



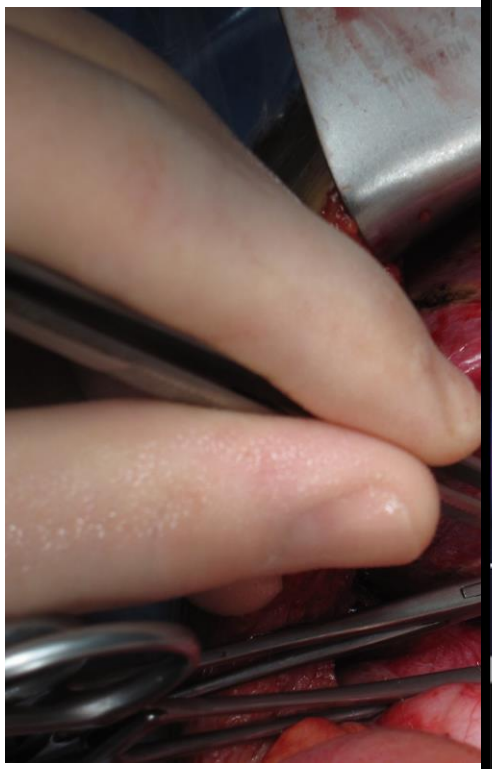


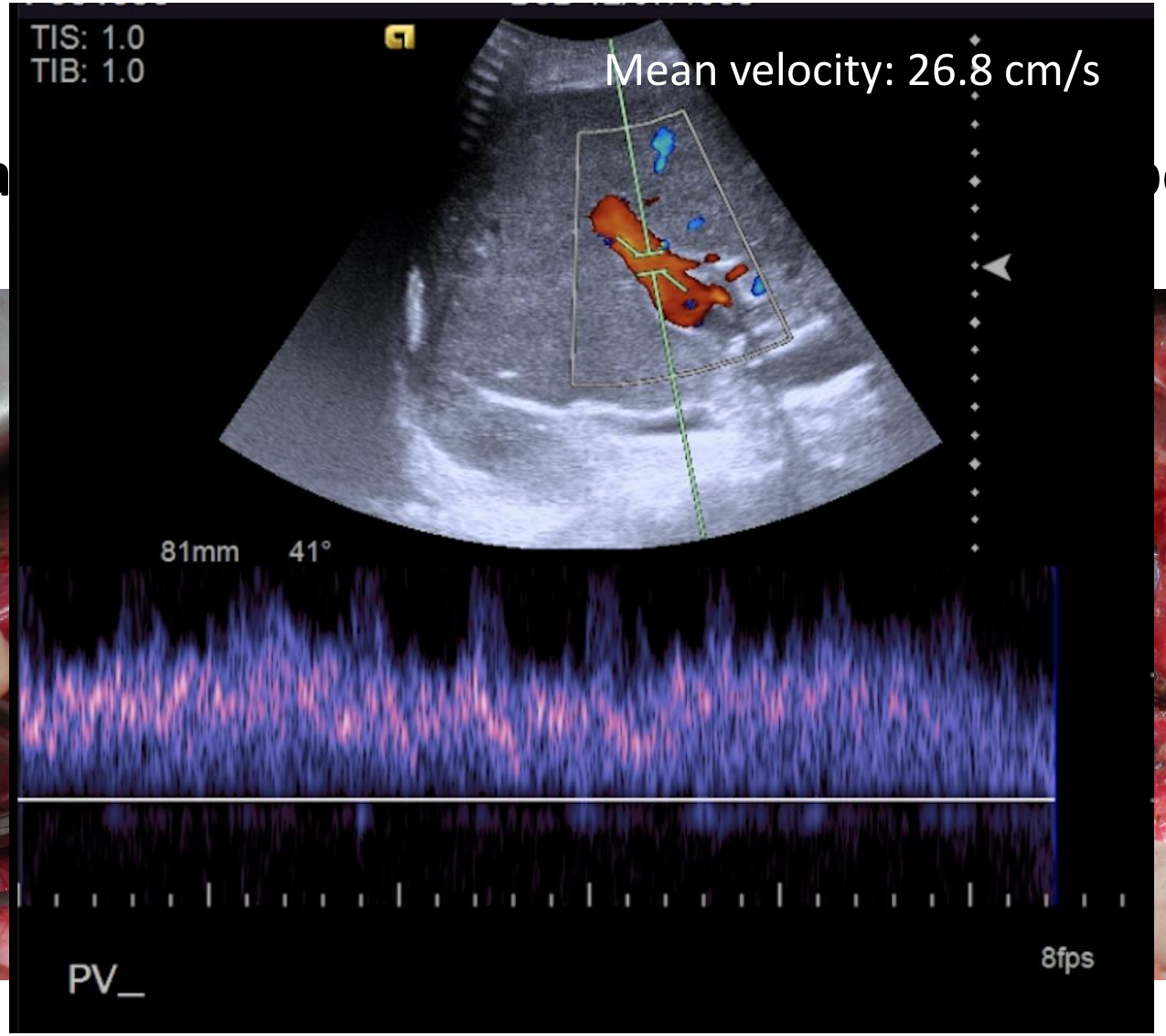
BTS British Transplantation Society

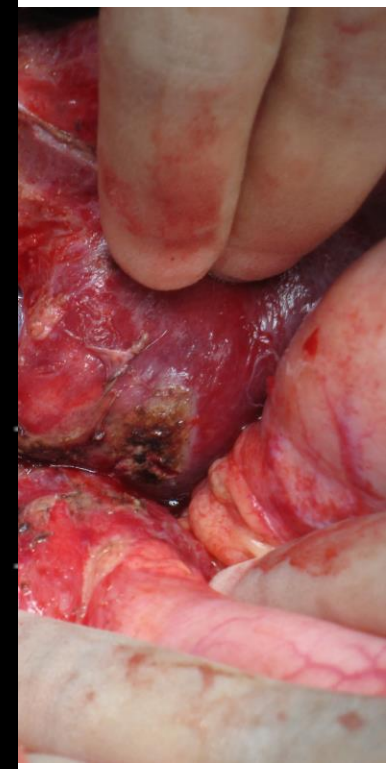
The Voice of Transplantation in the UK

King's College Hospital NHS
NHS Foundation Trust

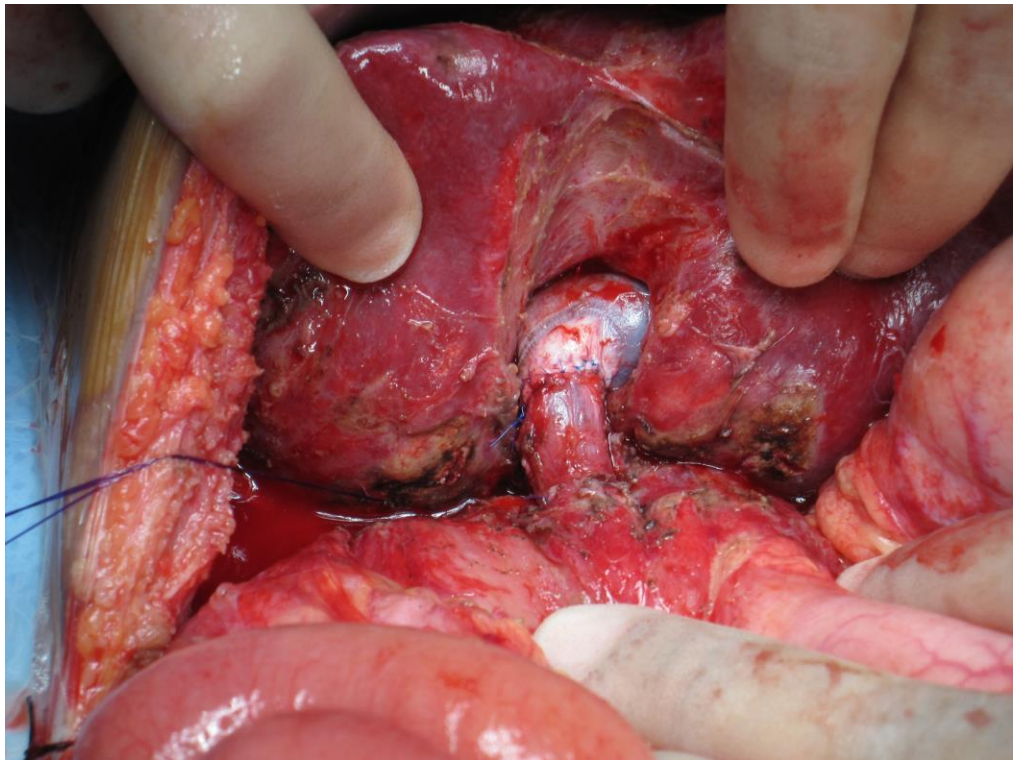
Fifth lapa…er 2016







Fifth laparotomy for meso-Rex shunt on November 2016



Pulp pressure
Before: 40 mmHg
After:23 mmHg

Pressure in the SMV
Before: 23 mmHg
After: 5 mmHg

Complications:

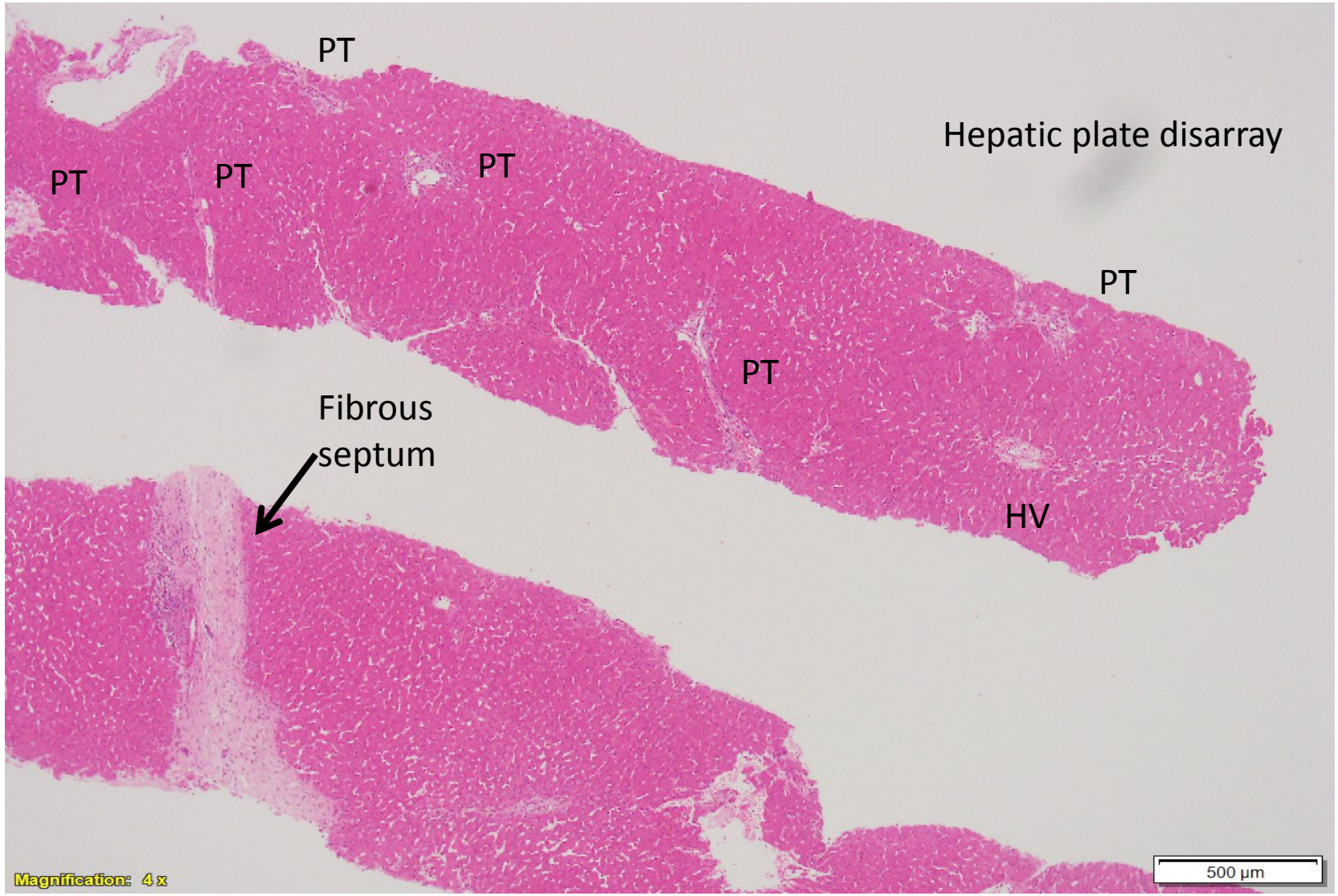
-re-laparotomy for bleeding 2 days later.

-Pericardiocentesis by cardiologist 25/11/2016, 900mls aspirated

-Chyle leak

-CMV viremia

-Pulmonary emboli



Courtesy of Dr Alberto Quaglia, Consultant Histopathologist, Institute of Liver Studies

Discharged home 6 weeks later but…

-After 8 months, admitted in his local hospital with:

abdominal pain and distension

-Abdominal CT

Thrombosis of the new jump graft

-Normal LFT:

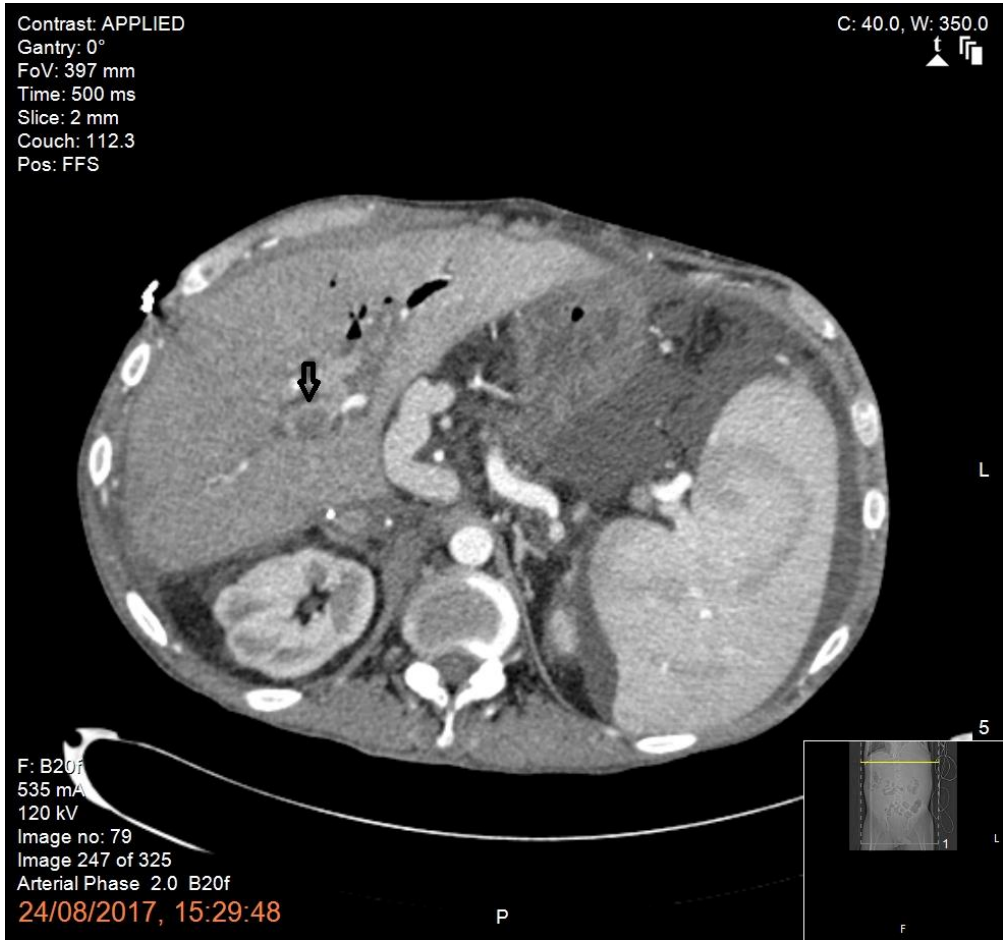
Bilirubin	3 µmol/L
ALP	197 IU/L
AST	27 IU/L
GGT	87 IU/L

Abdominal CT:

Thrombosis of the new jump graft

Several non-occlusive thrombi

within the portal vein branches



BTS British Transplantation Society

The Voice of Transplantation in the UK

King's College Hospital NHS
NHS Foundation Trust

What to do next?

What to do next?

-Wait and see…

-Refashioning of the Rex shunt +tying all possible spontaneous shunts?

-Liver re-transplantation + tying all possible shunts (left gastric…)

-Combined liver and small bowel transplant+/- colon

+/- colectomy

What to do next?

Why is he still procoagulant?

Why is he still procoagulant despite Liver transplantation?

-Protein C polymorphism in the donor liver:

development of antibodies by the recipient

-Is Rivaroxaban enough?

-Thrombotic tendency related to UC +/- episodes of dehydration?

-Donor acquired pro-thrombotic status

Thrombotic tendency in UC

Table 1 Acquired risks factors for thrombosis in IBD

1	Fluid depletion
2	Surgery
3	Central venous catheters
4	Immobilization
5	Steriod therapy
6	Oral contractive/hormone replacement theraphy
7	Vitamine defiency
8	Hyperomocystenemia
9	Cigarette smoking

Table 2 Abnormalities in coagulation, anticoagulation and fibrinolytic system in IBD

Coagulation factors	Fibrinolytic factors	Plasma coagulation inhibotors
↑ Fibrinogen	↓ tPA	↓ AT III
↑ Prothrombin	↑ PAI-1	↓ TFPI
↑ Factors: Va, VIIa, VIIIa, Xa,XIa, XIIa	↑ TAFI	Conflicting data about PS and PC
↑ Prothrombin factors 1+2		
↑ Thrombin-antithrombin III complex (TAT)		
↑ Fibrinopeptide A and B		
↑ Microparticles		
↓ Factor XIII		

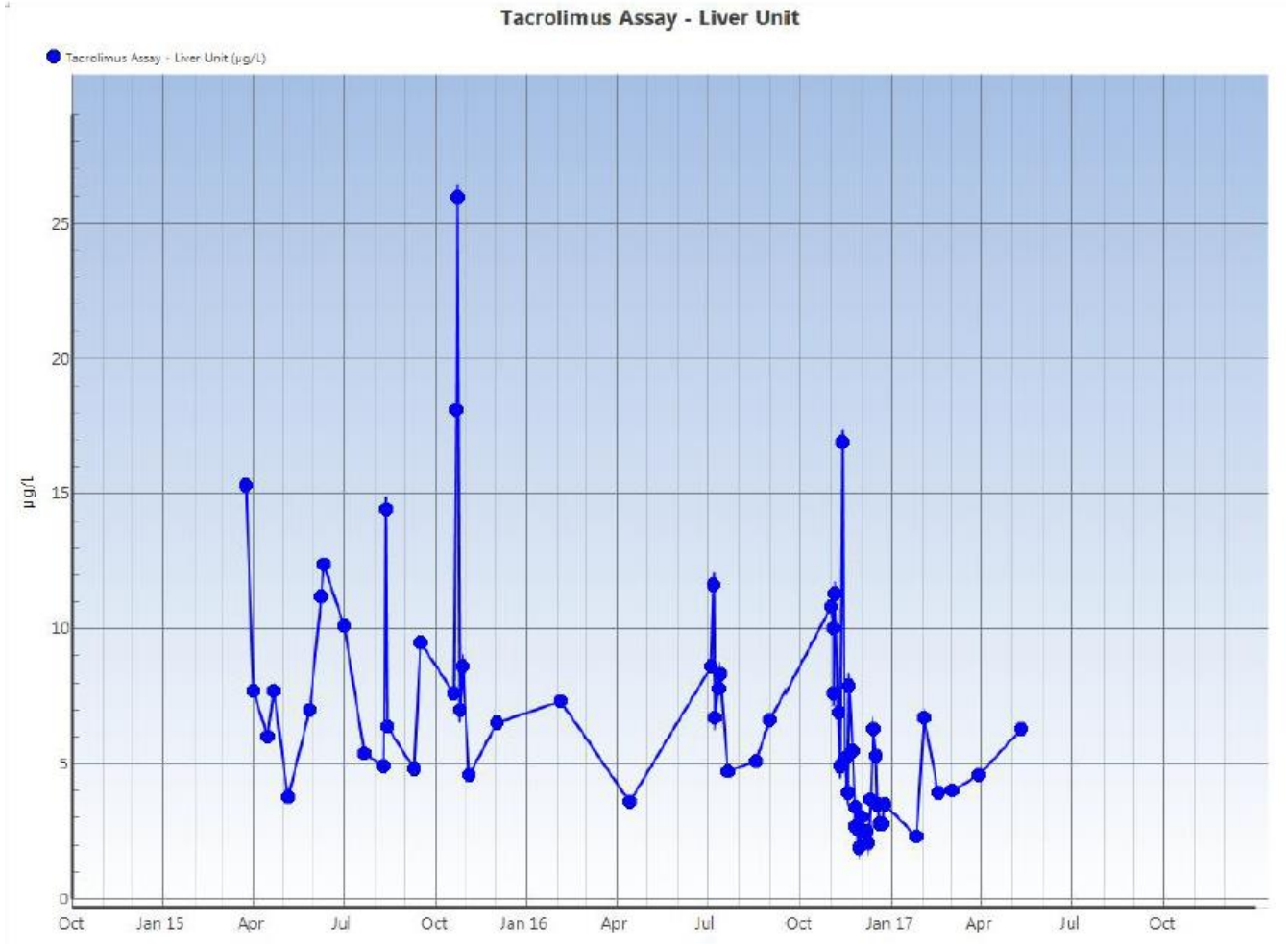
*Gianotta et al. Thrombosis Journal 2015

BTS British Transplantation Society

The Voice of Transplantation in the UK

King's College Hospital NHS
NHS Foundation Trust

Thank you


Tacrolimus Assay - Liver Unit
Tacrolimus Assay - Liver Unit (µg/L)
µg/L
0
5
10
15
20
25
Oct
Jan 15
Apr
Jul
Oct
Jan 16
Apr
Jul
Oct
Jan 17
Apr
Jul
Oct