WHEN ENDOVASCULAR INTERVENTION PREVENTS LIVER TRANSPLANTATION

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History

- 20 years old male patient with no special habits of medical importance.
- 8 years ago the patient developed bilateral progressive Lower limb edema that responded initially to diuretics.
- followed by progressive abdominal enlargement during the past 3 years.
- There is no relevant past or family history.

General examination

- The patient looked cachectic with bilateral wasting of temporalis muscle.
- There was mild pallor but no jaundice nor cyanosis.
- BP=110/70 mmHg bilaterally HR:90 BPM
- RR:16 breath per minute temp:36.5 c
- Cardiac exam. was free except for accentuated S1.
- Chest exam. was free.

General Examination

- There was marked tense ascitis.

  Dilated veins on the flanks that drains upwards by milking test.

- Mild bilateral Lower Limb edema.

Ascites preprocedure

Investigations

- **Laboratory:**

- Hematology:

CBC: showed microcyctic hypochromic anemia.

PT:22 sec INR:2.1

- Chemistry:

S.creat :1.1 mg/dl S Bilirubin: 1 mg/dl

S. Albumin:2.6 mg/dl

SGOT:55 mg/dl SGPT:66 mg/dl

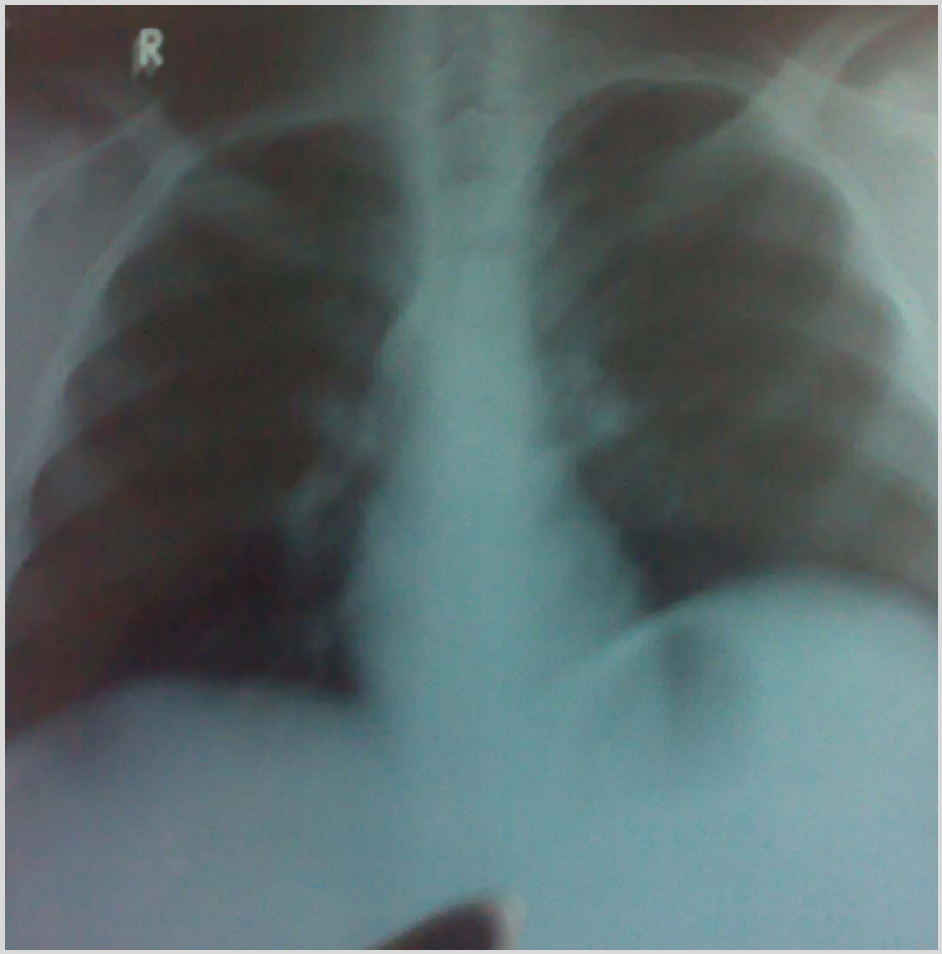
Investigations

- S . iron was low with increased TIBC.
- Ham test was negative for reactive complement mediated haemolysis.
- factor V Leiden was heterozygous (one was wild and one was mutant).
- Other thrombophlias work up was unrevealing

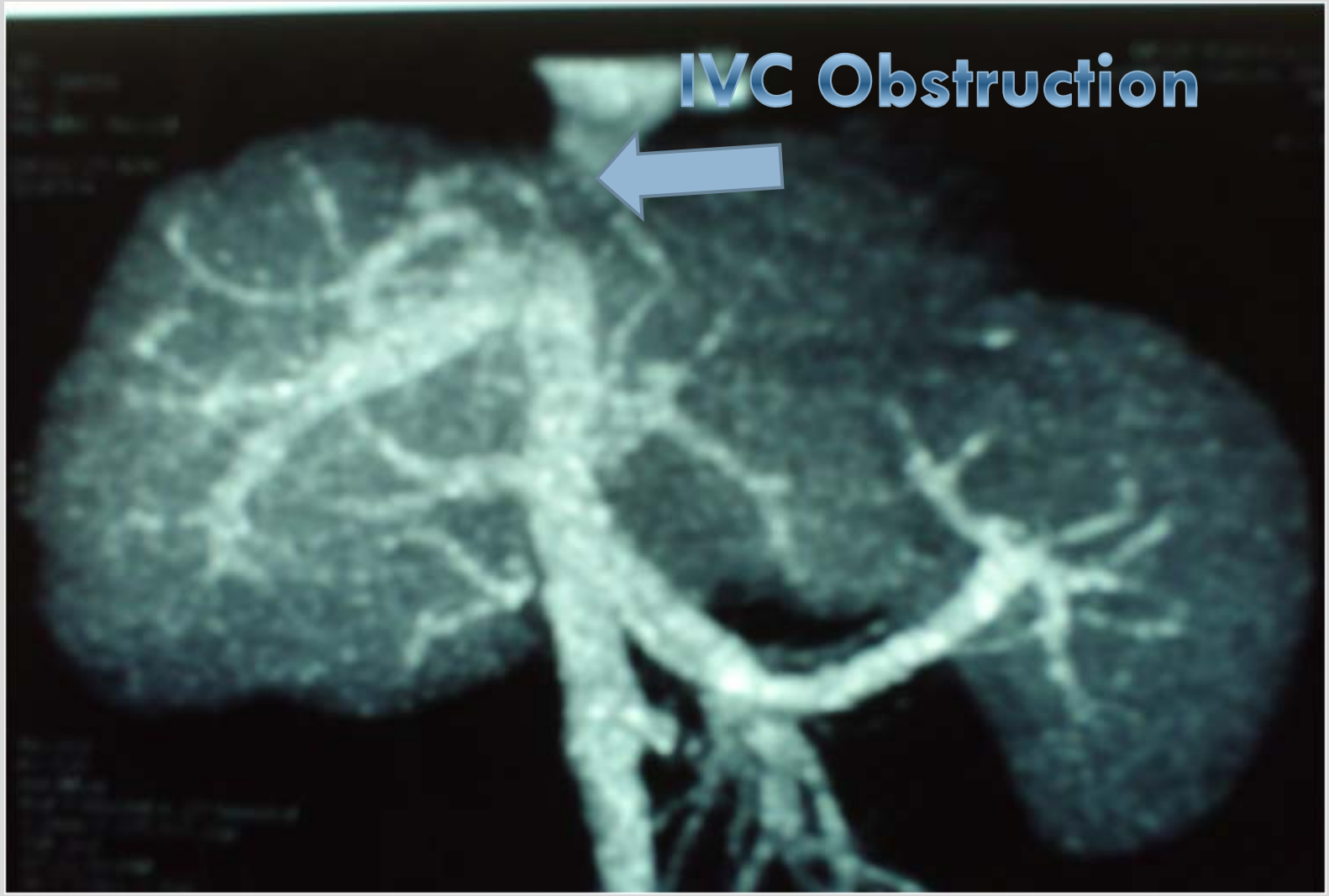
Echocardiography

- Normal apart of evidence of pericardial thickening with no constrictive physiology.

Chest X Ray



Abdominal CT before TIPSS



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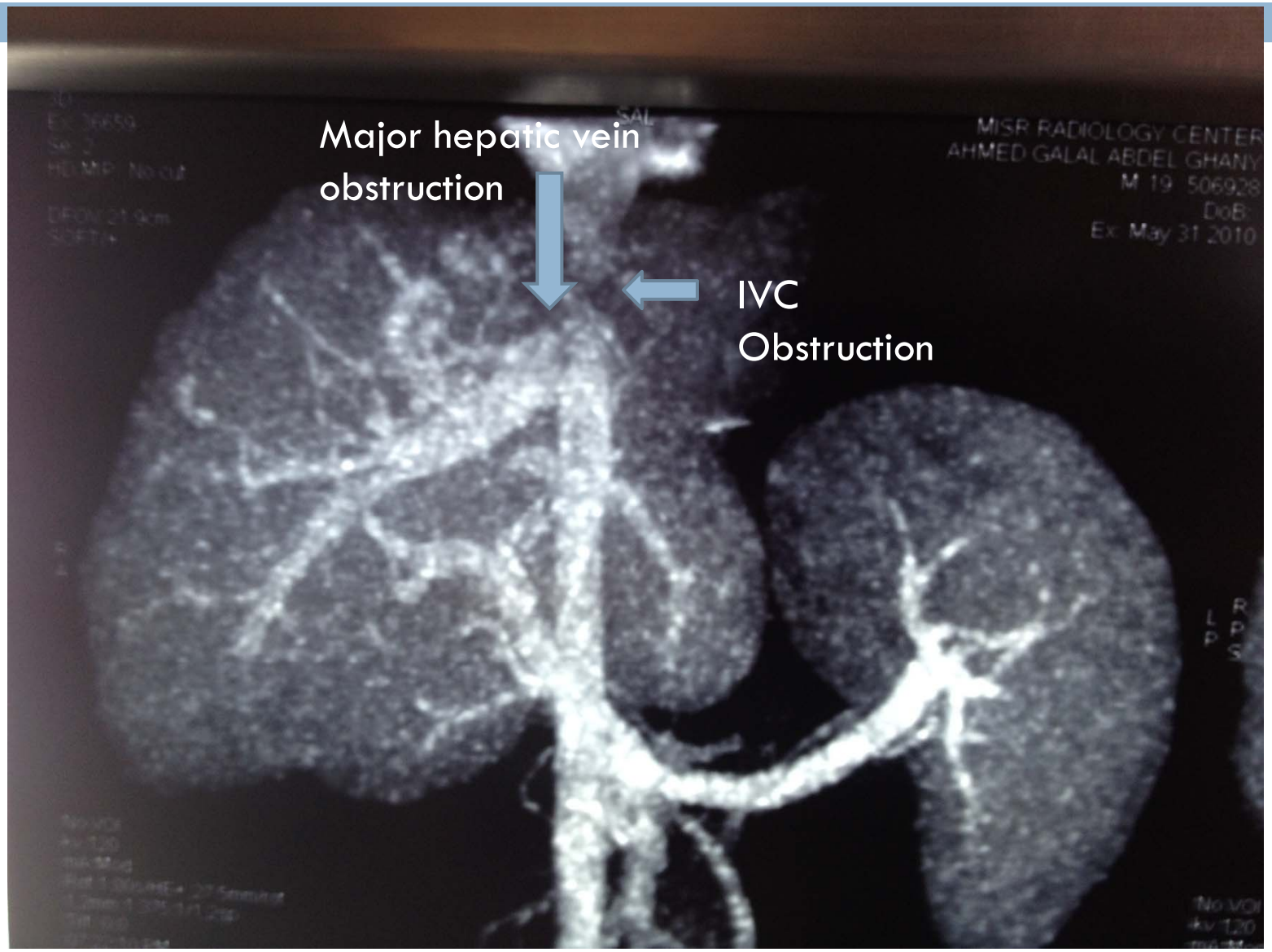
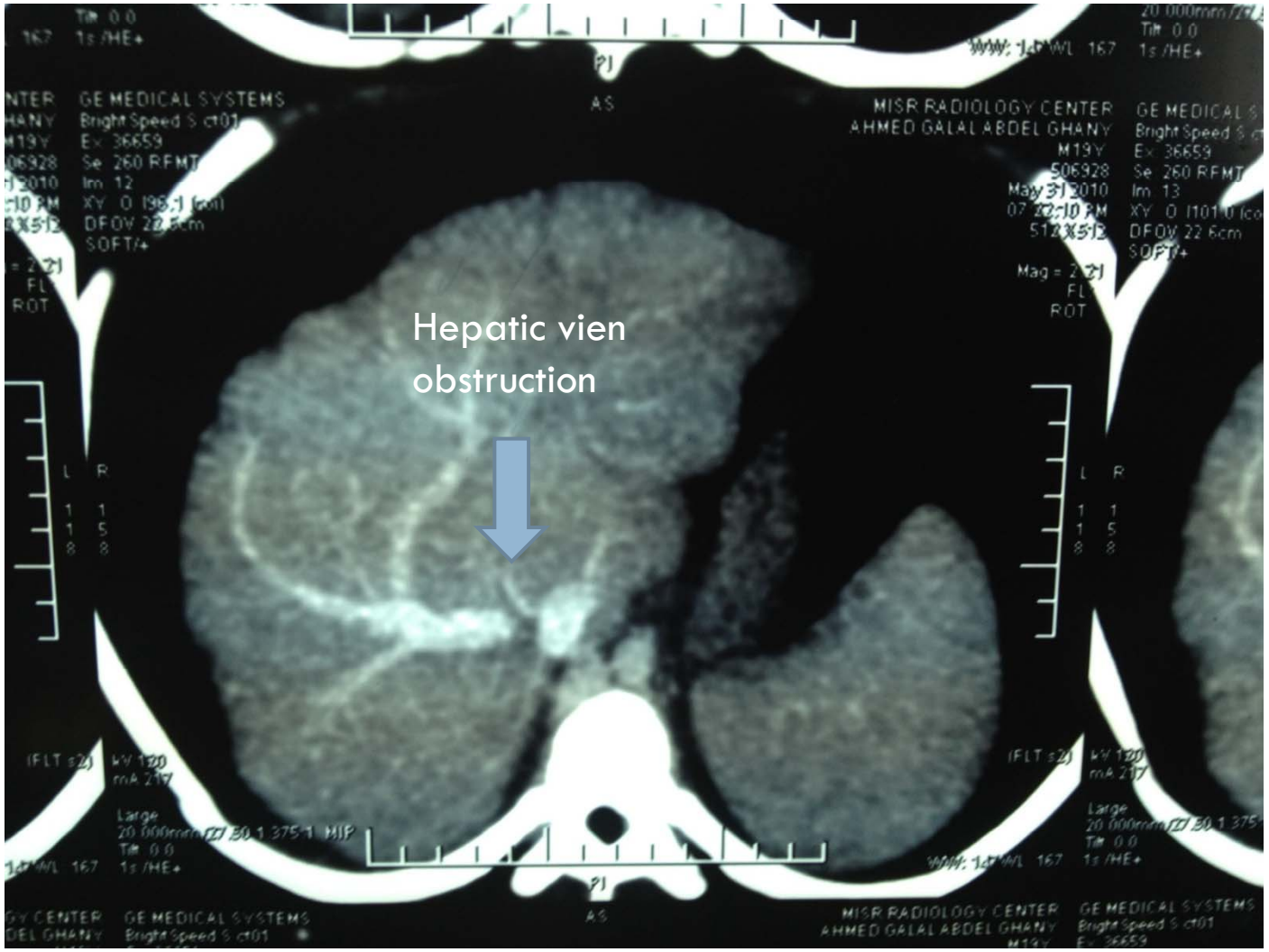
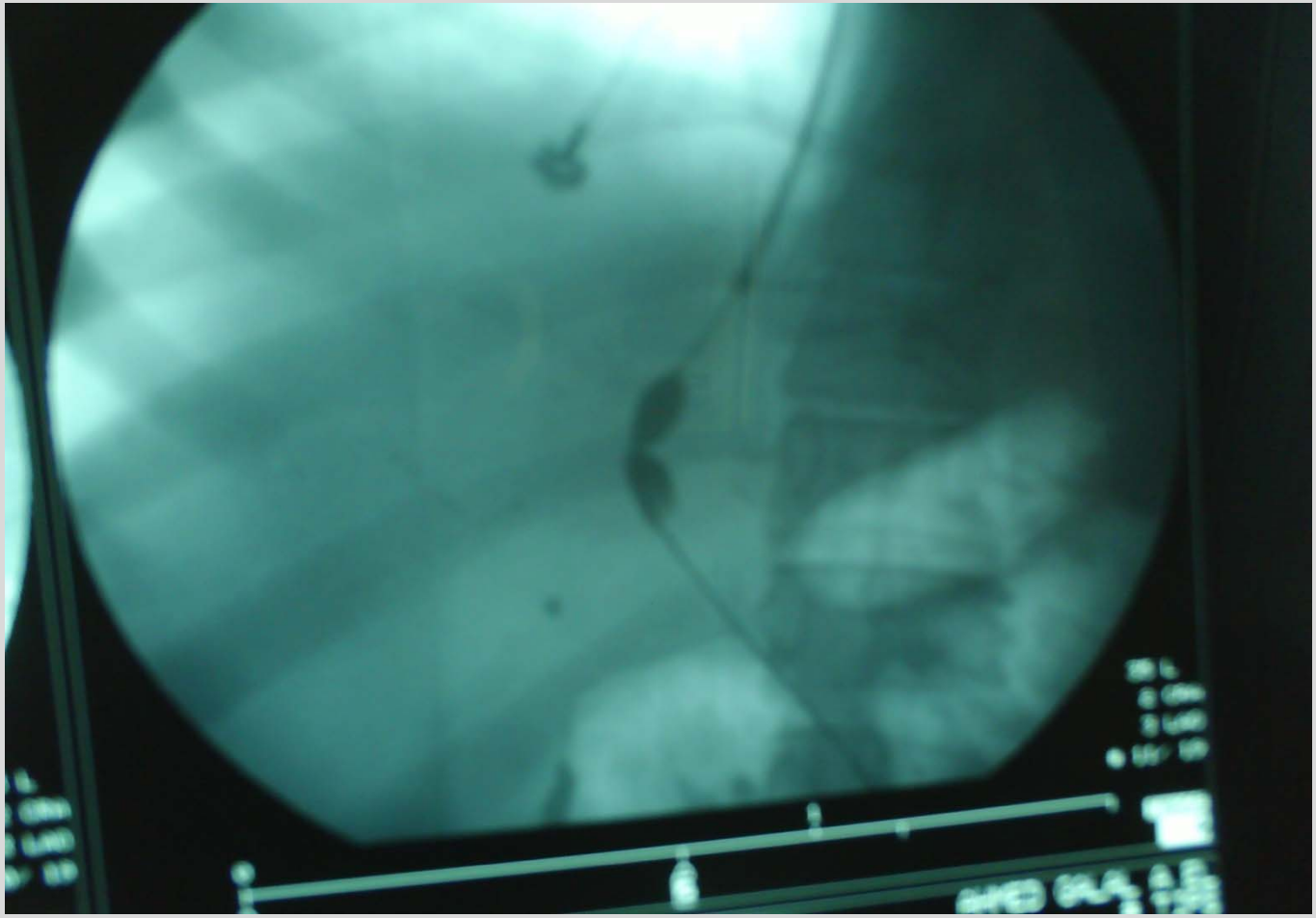


Abdominal CT before TIPSS

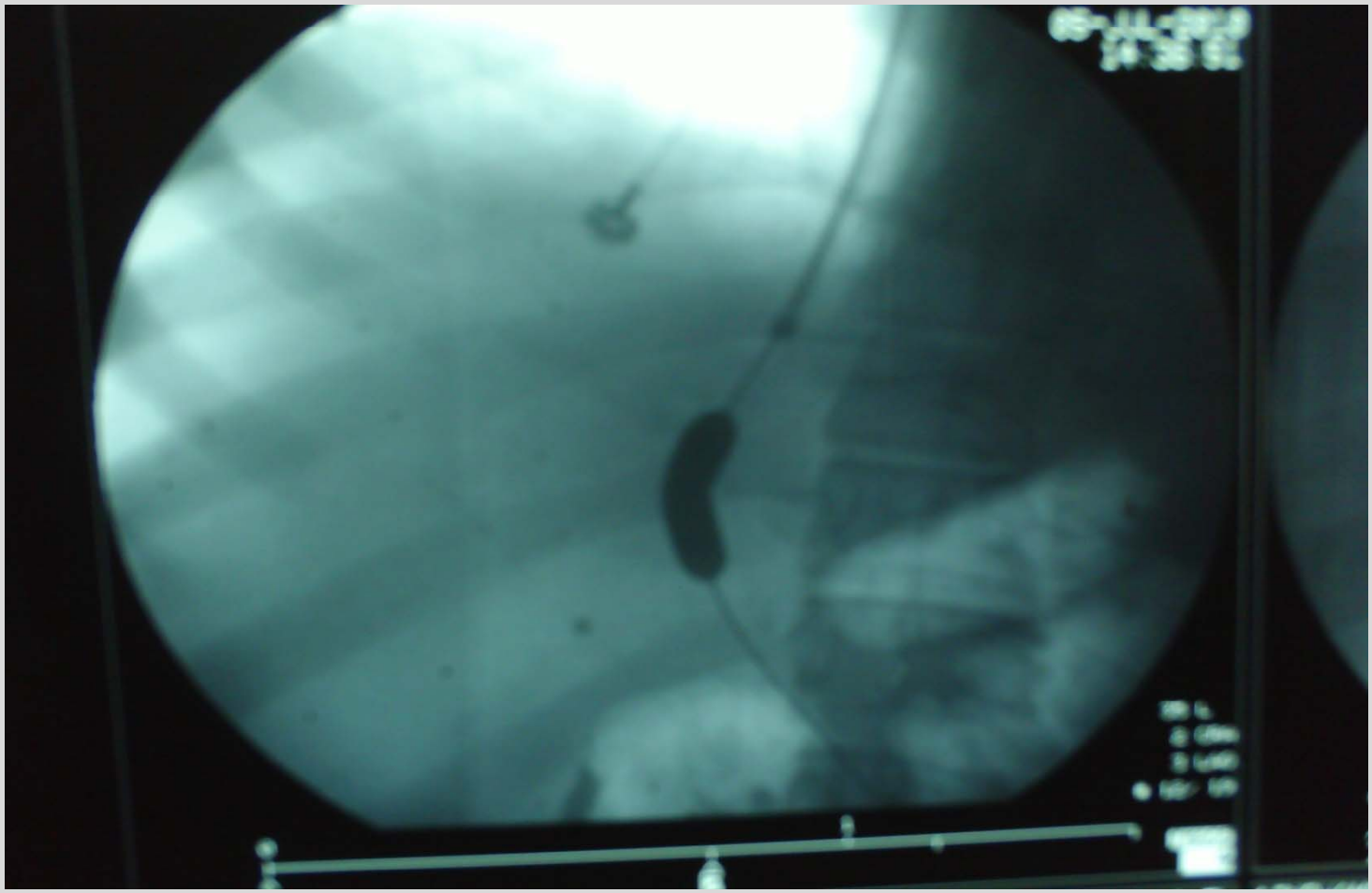


TIPSS Procedure JULY 2010

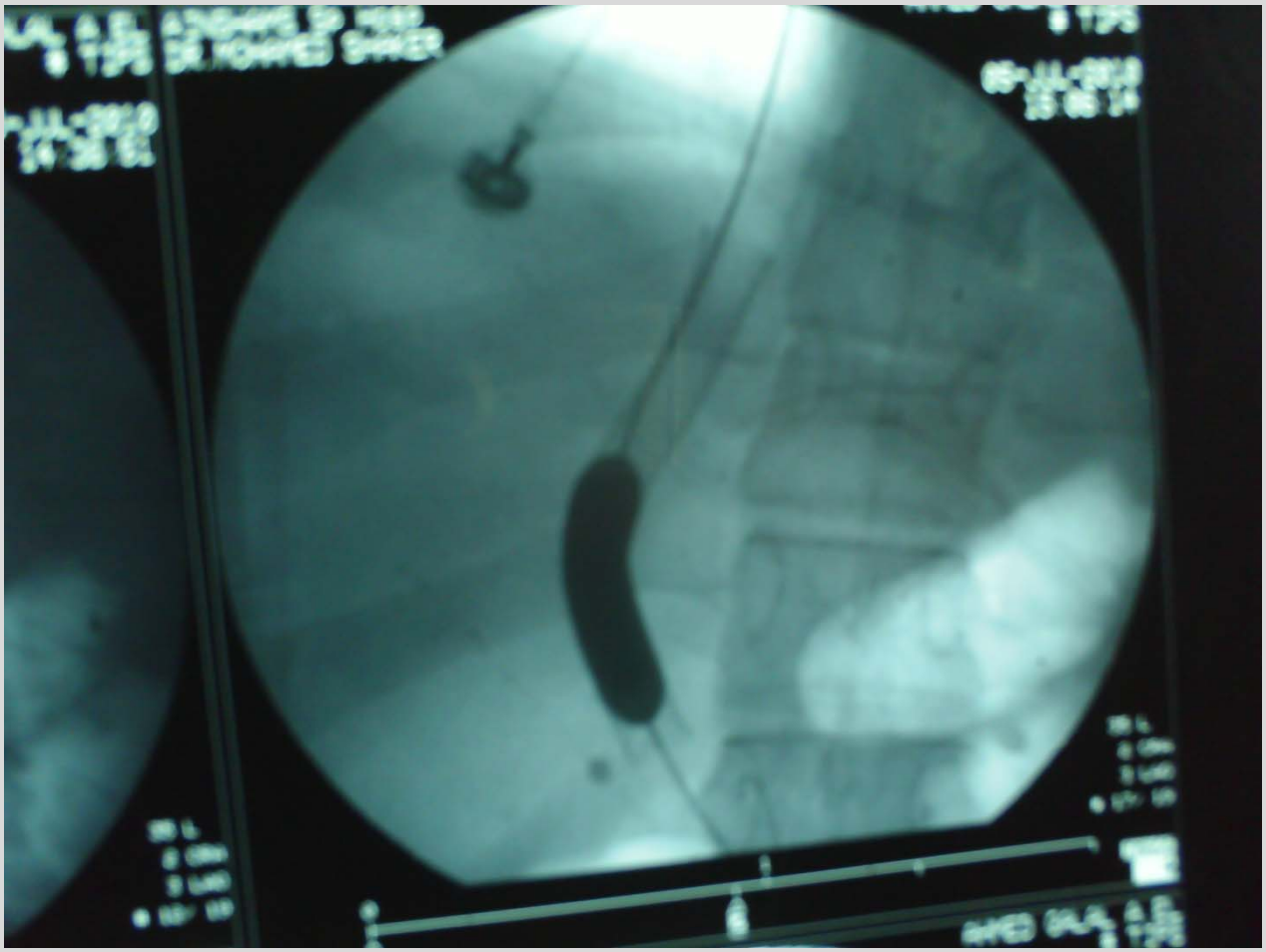
TIPSS Procedure



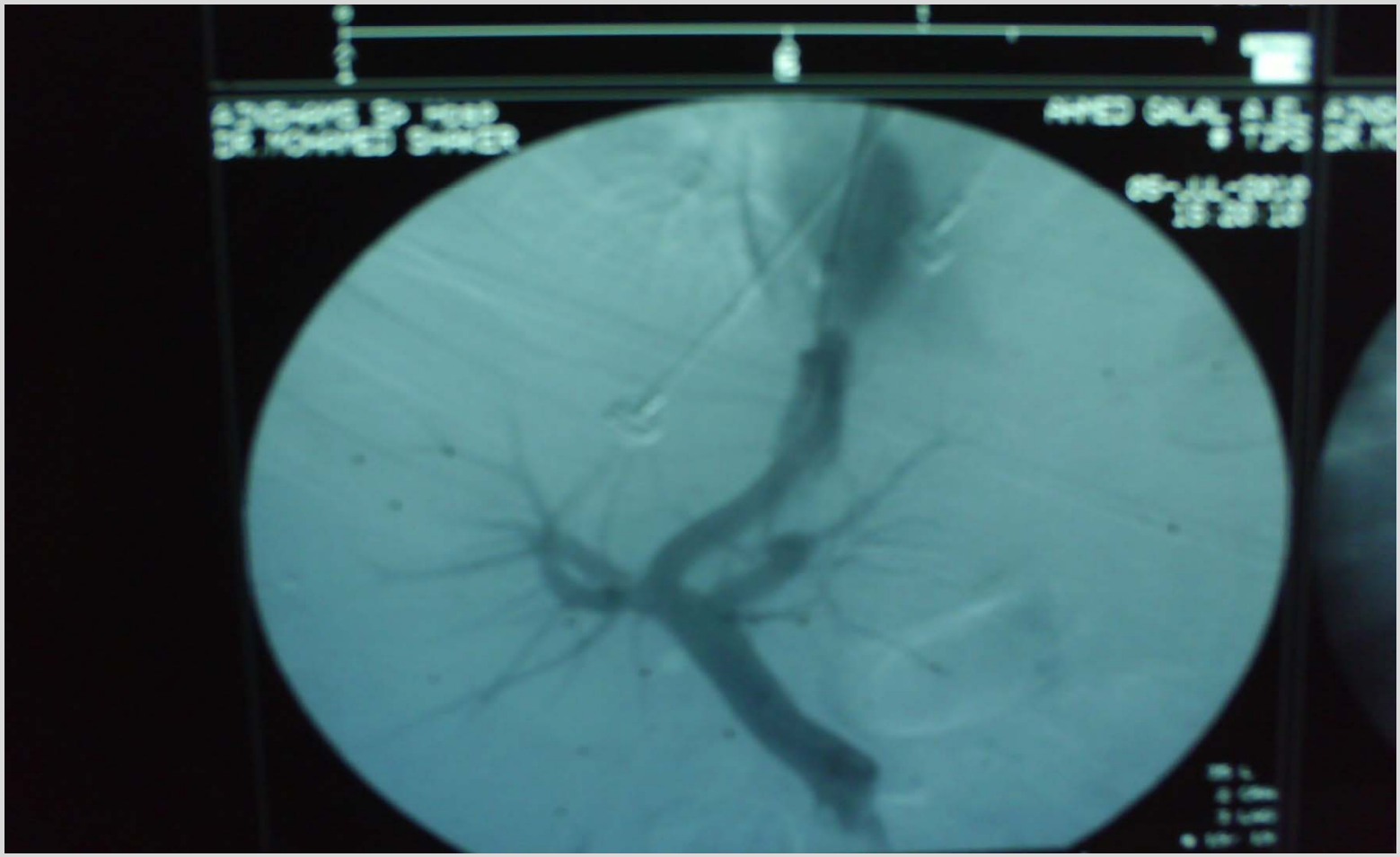
TIPSS Procedure

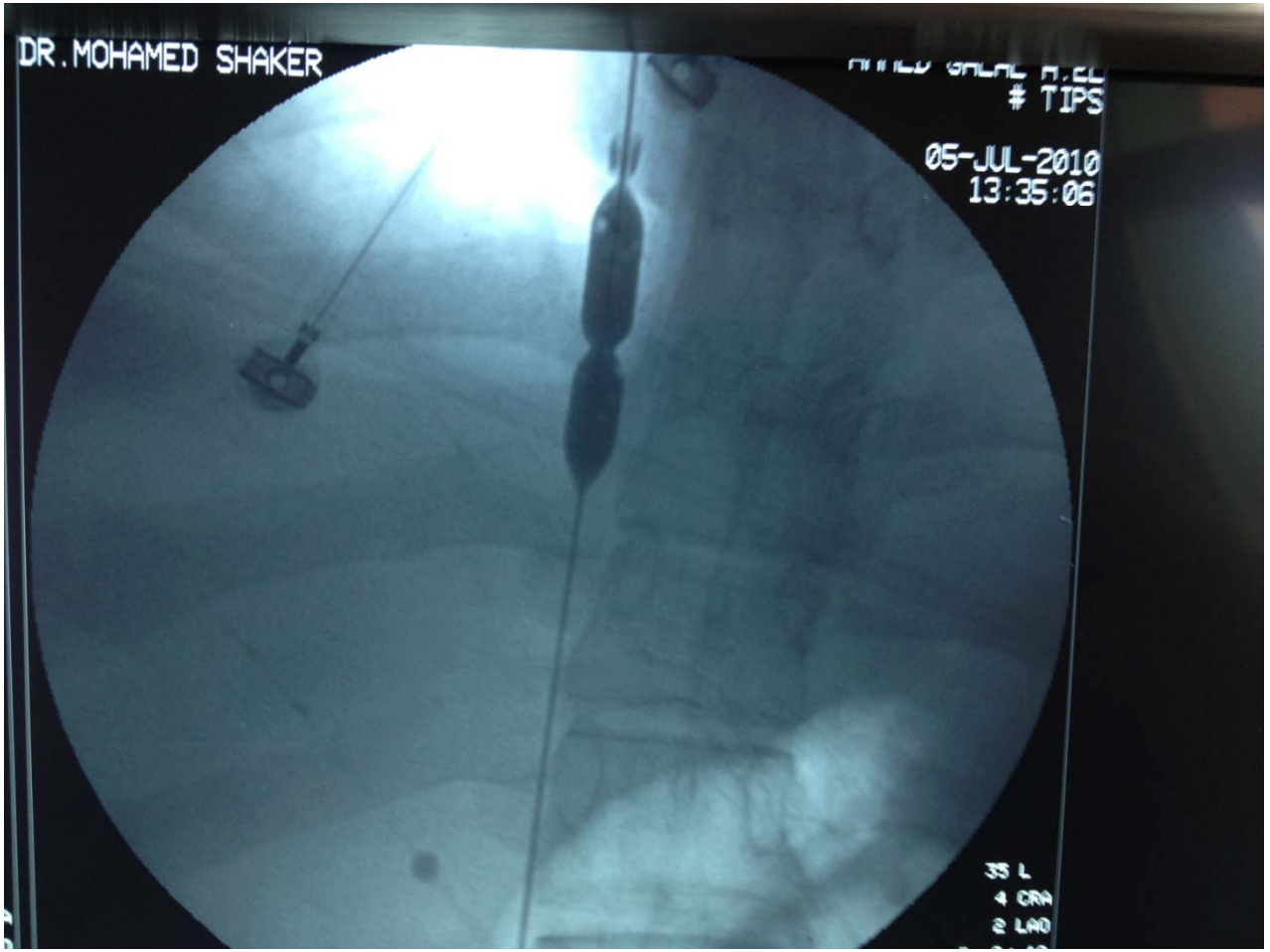


TIPSS Procedure



TIPSS Procedure

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TIPS
05-JUL-2010
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4 CRA
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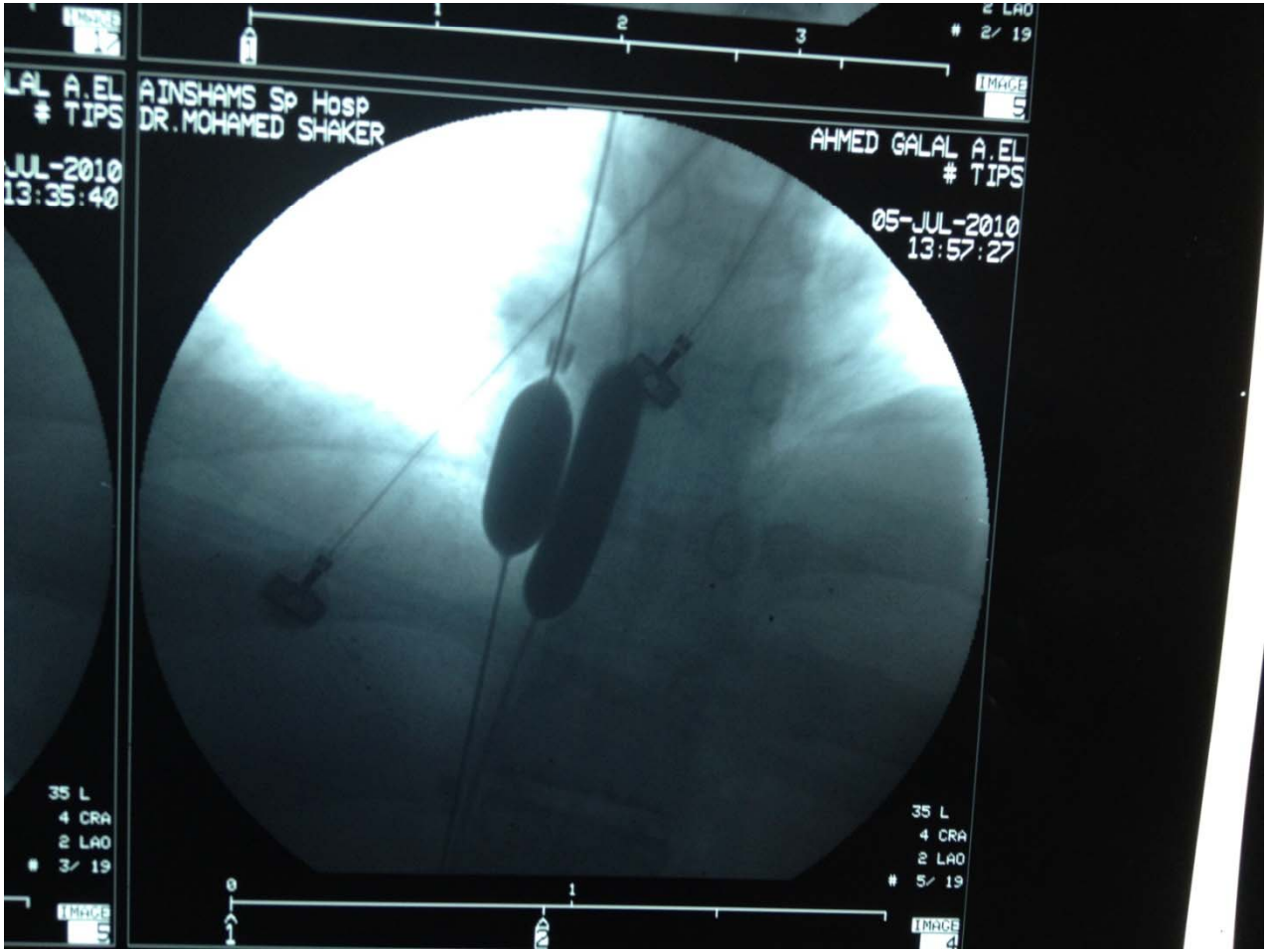
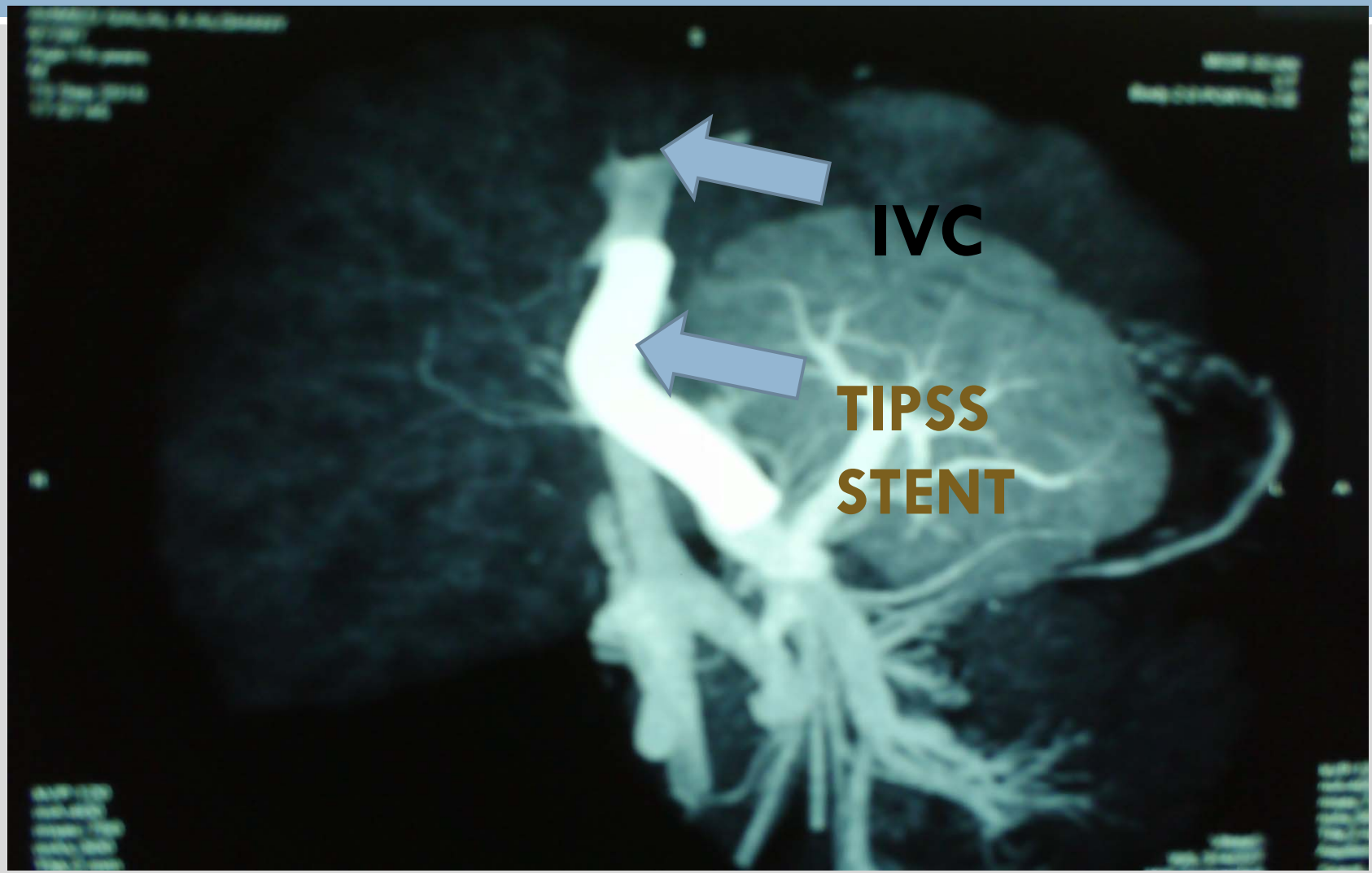
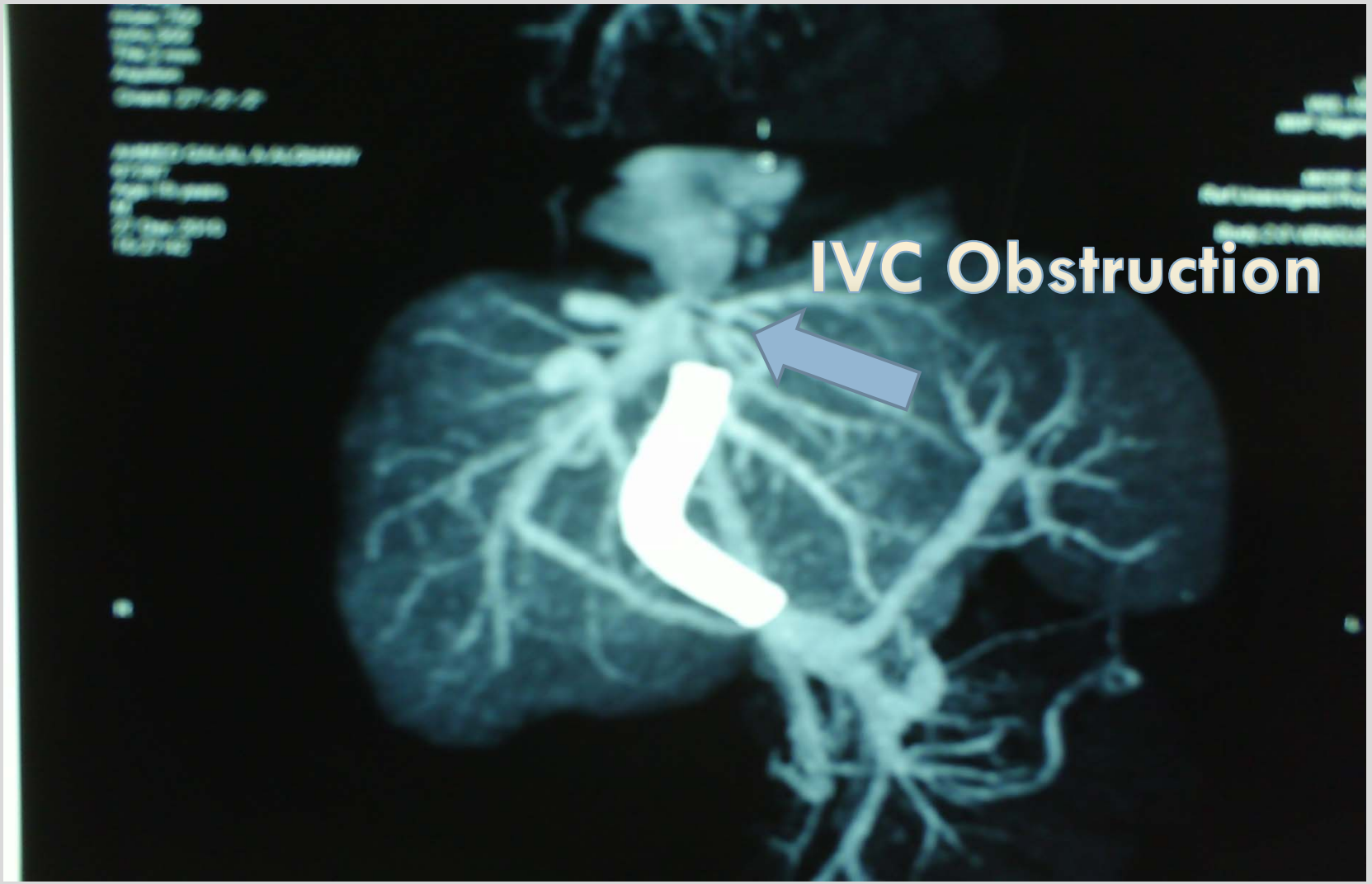

AINSHAMS Sp Hosp
DR.MOHAMED SHAKER
AHMED GALAL A.EL
TIPS
05-JUL-2010
13:57:27
35 L
4 CRA
2 LAO
5/ 19
IMAGE
4

- The patient didn’t improve after the TIPSS Procedure

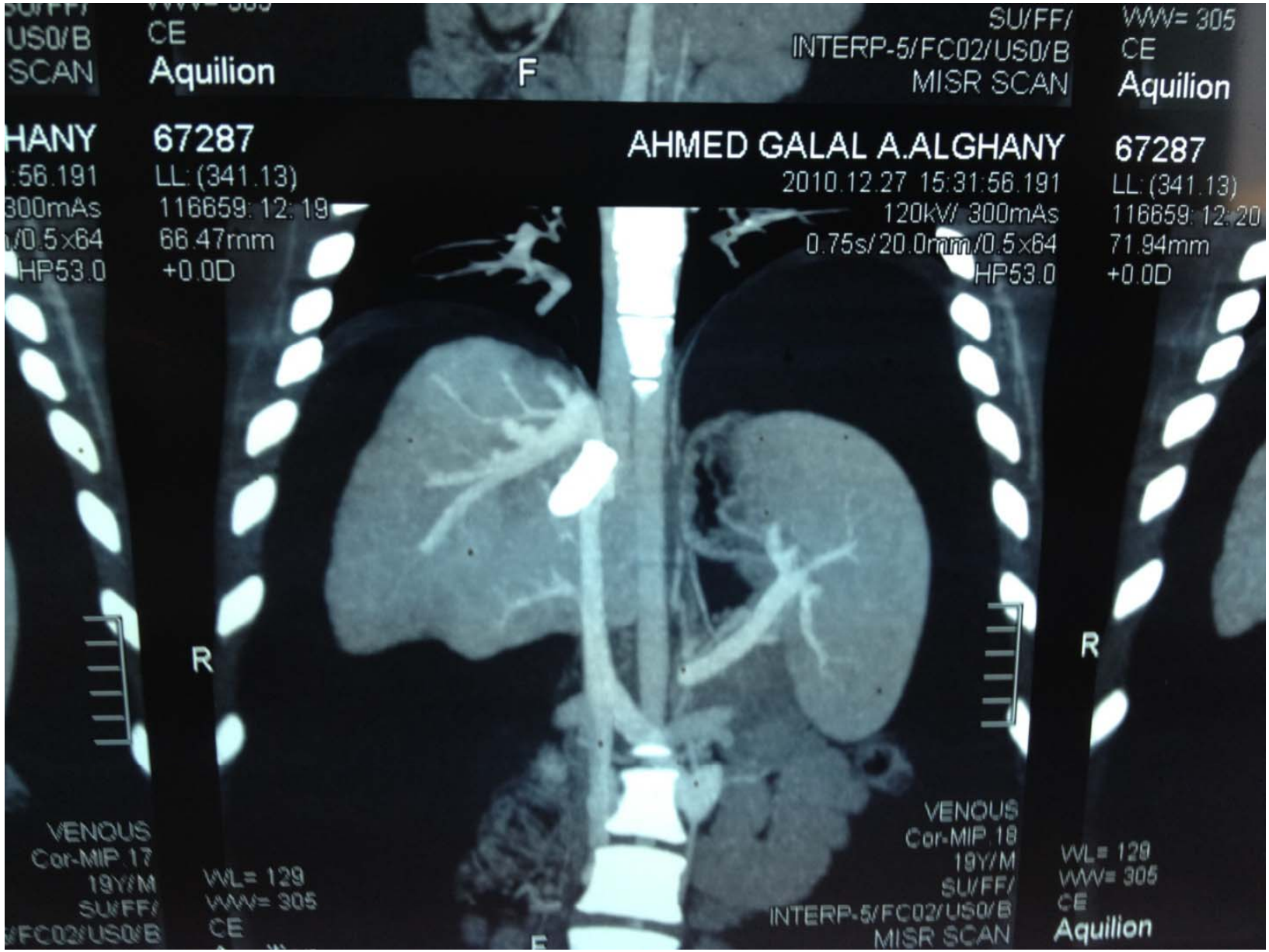
CT immediately after TIPSS showing Patent stent and flow in IVC



CT after TIPSS in December 2010




Orient: 1°,-4°,0°
AHMED GALAL A.ALGHANY
67287
Age:19 years
M
27 Dec 2010
15:27:42
I
S
R


CE
Aquilion
F
SU/FF/
INTERP-5/FC02/US0/B
MISR SCAN
WW= 305
CE
Aquilion
67287
LL: (341.13)
116659: 12: 19
66.47mm
+0.0D
AHMED GALAL A.ALGHANY
2010.12.27 15:31:56.191
120kV/ 300mAs
0.75s/ 20.0mm/0.5x64
HP53.0
67287
LL: (341.13)
116659: 12: 20
71.94mm
+0.0D
R
R
VENOUS
Cor-MIP 17
19Y/M
WL= 129
WW= 305
CE
VENOUS
Cor-MIP 18
19Y/M
SU/FF/
INTERP-5/FC02/US0/B
MISR SCAN
WL= 129
WW= 305
CE
Aquilion

- The hepatology team referred him for liver transplantation
- However , after discussion with the cardiologist and interventionist he was given a second chance of percutaneous intervention.

Procedure

- **Aim of The procedure:**
- To relieve IVC obstruction and restore normal venous return from the liver relieving hepatic congestion to preserve hepatic function preventing further fibrosis and cirrhosis.

Procedure

- **Initial plan:**
- Passing a wire (e.g. zip wires) through the obstruction and through the TIPSS stent then to dilate at the site of the stent and at the site of proximal obstruction before entering the right atrium , then putting a balloon expandable stents at both sites .

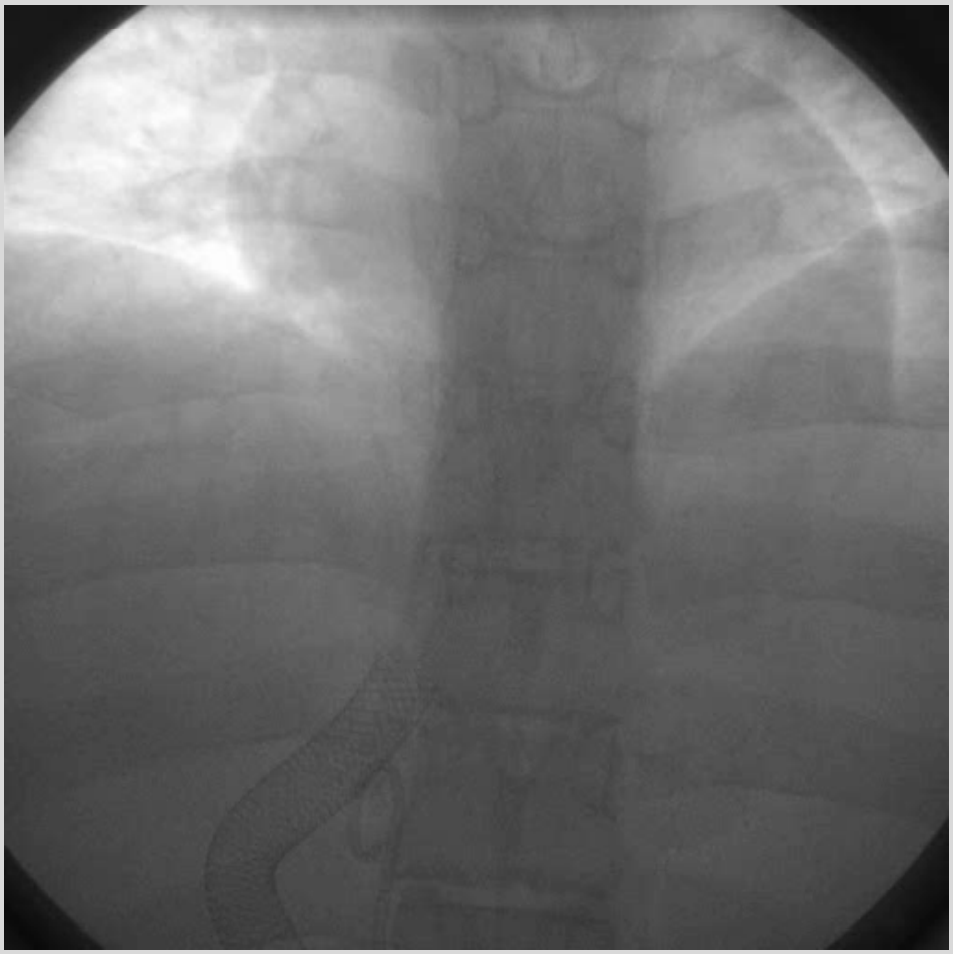
Procedure

- A wire crossed IVC obstruction through the TIPSS stent to RA after many trials as well as a PTCA wire .
- The main difficulties : - tributaries

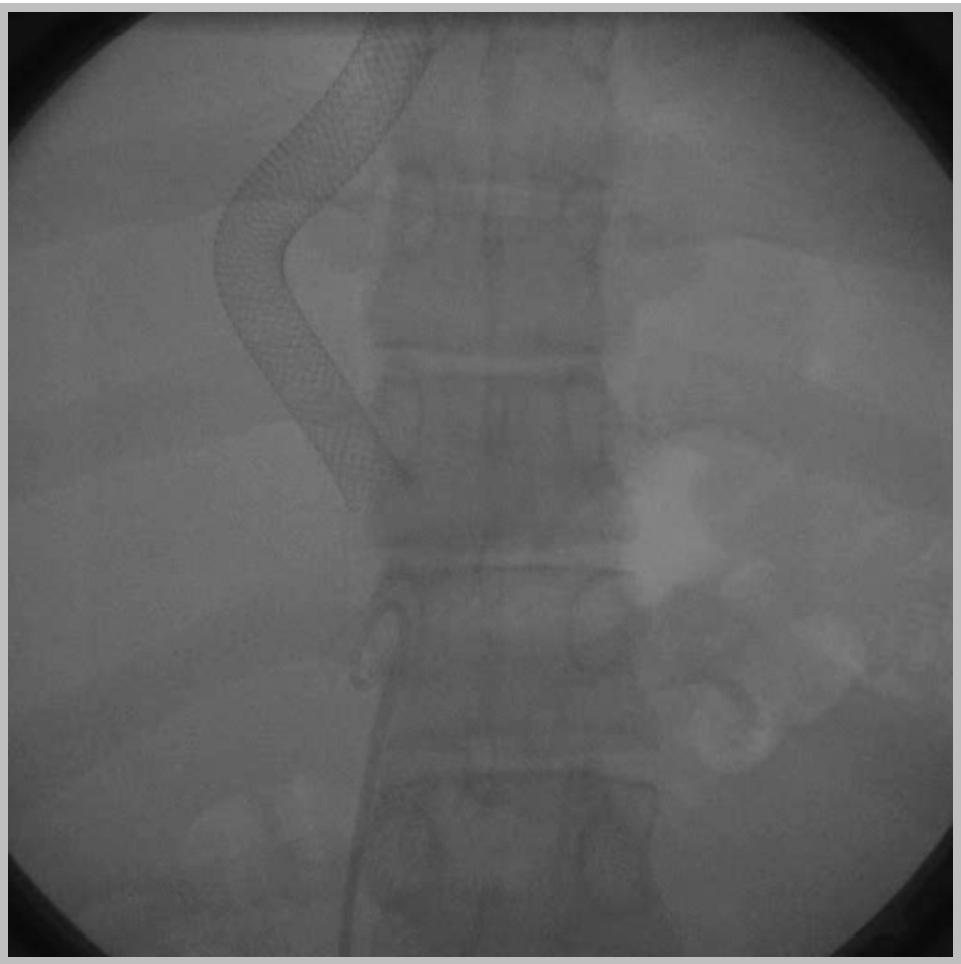
  - TIPSS stent that crosses the IVC.

- There was a very mild improvement in the flow , so we decided to insert a 11 F long sheath . Through it we dilated with a larger balloon 10x30mm once more and then with a 20x30 mm balloon several times , both at level of proximal obstruction and at the level of the TIPSS stent.
- Final result was : full dilatation of the original proximal stenosis and to a less extent at the level of the TIPSS stent so we decided to stop at this stage and follow up the patient without stenting

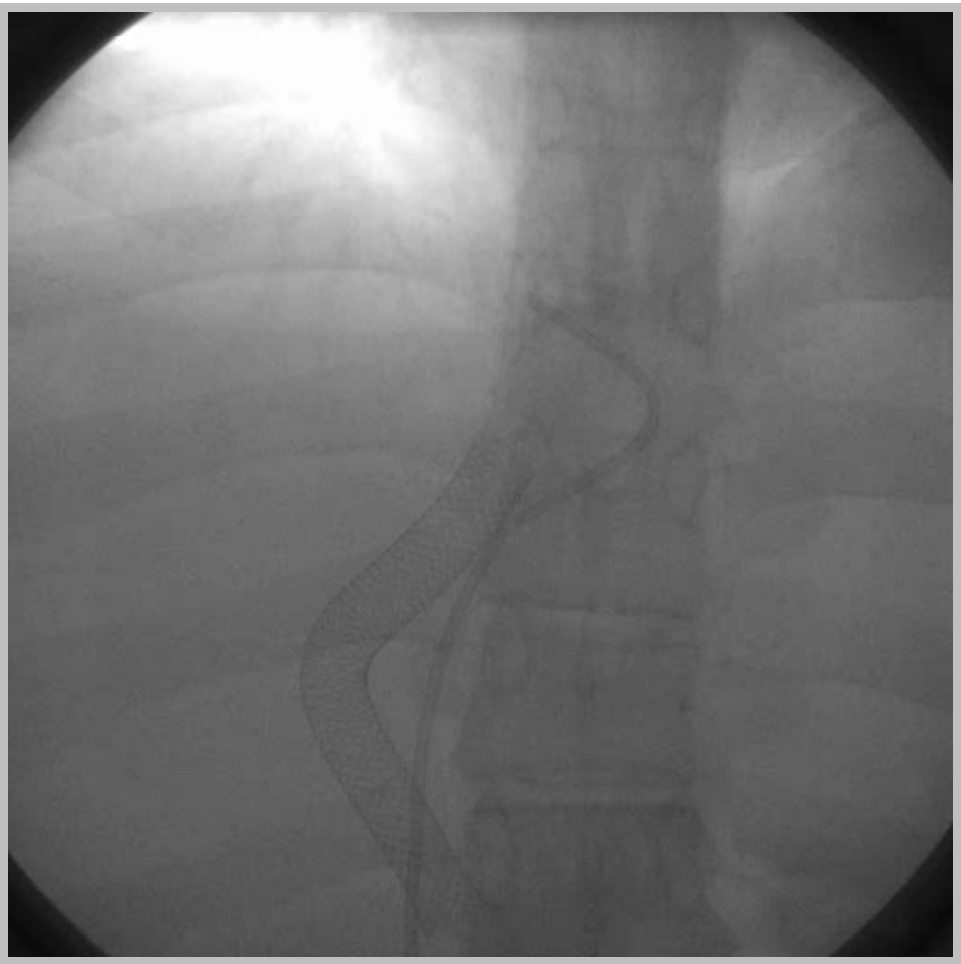
Angiogram



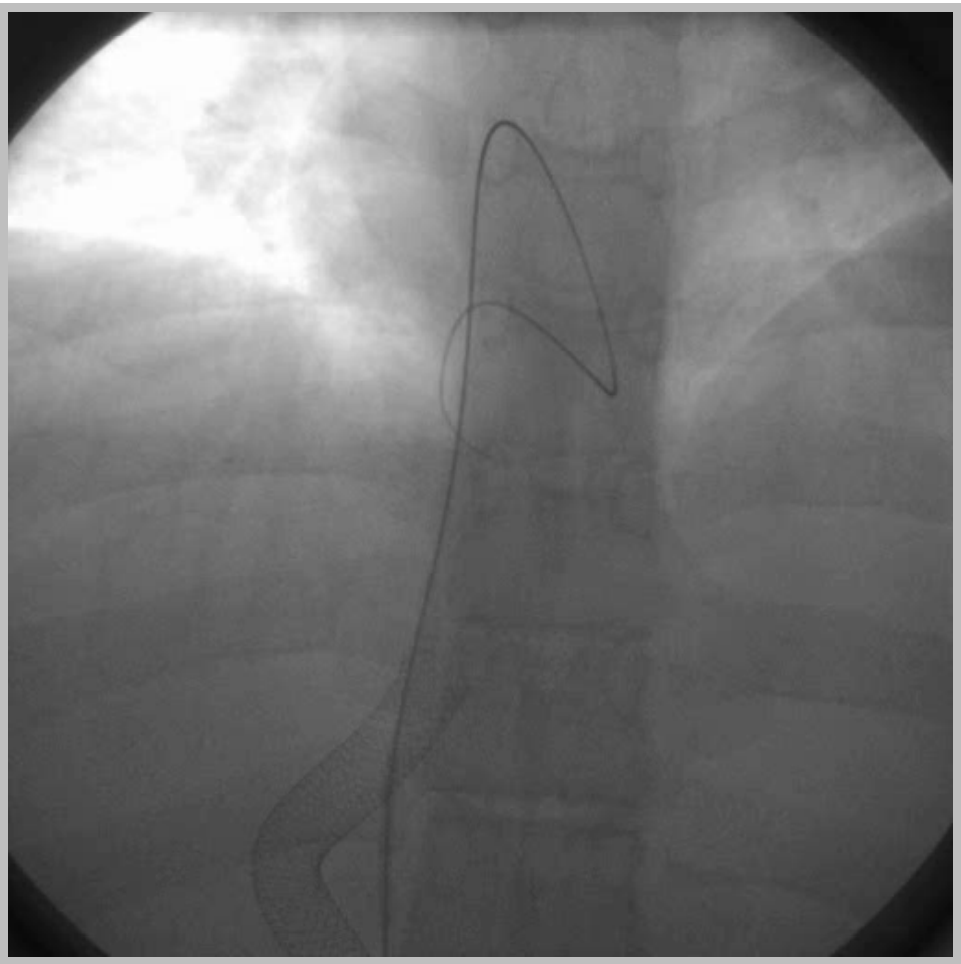
IVC obstruction after renal vein



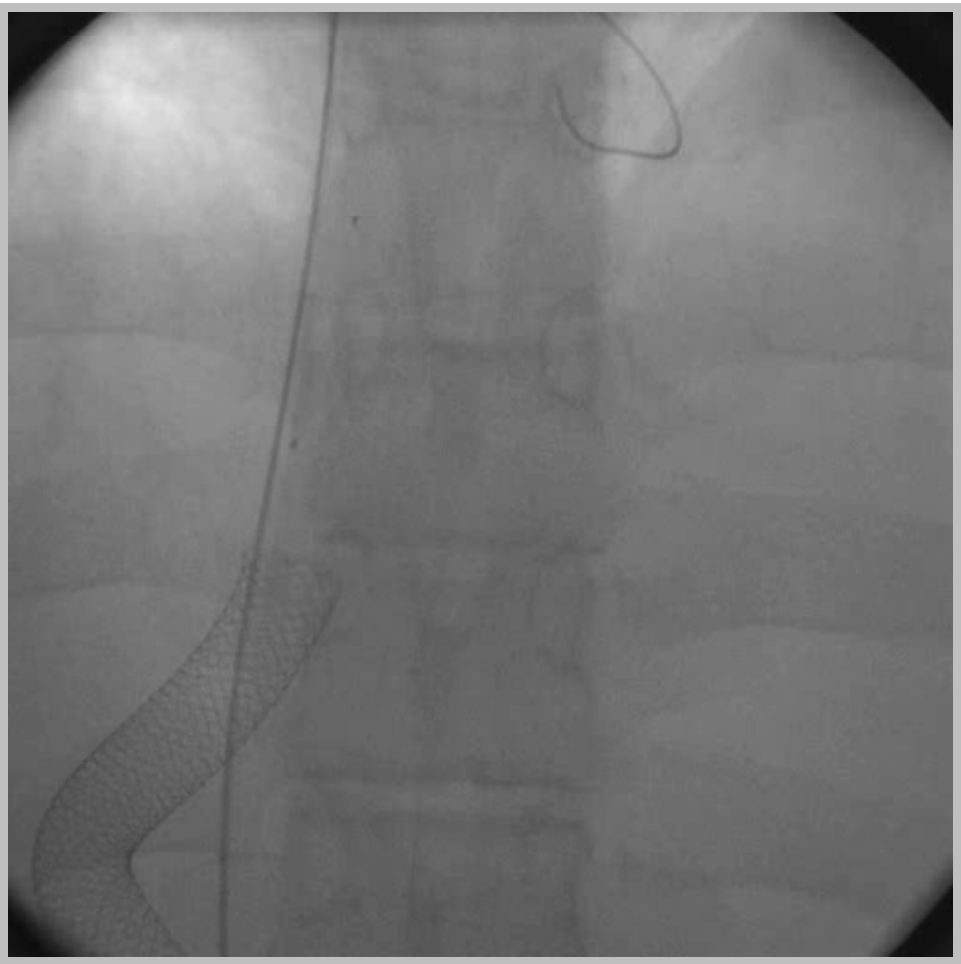
Injection in Tributaries



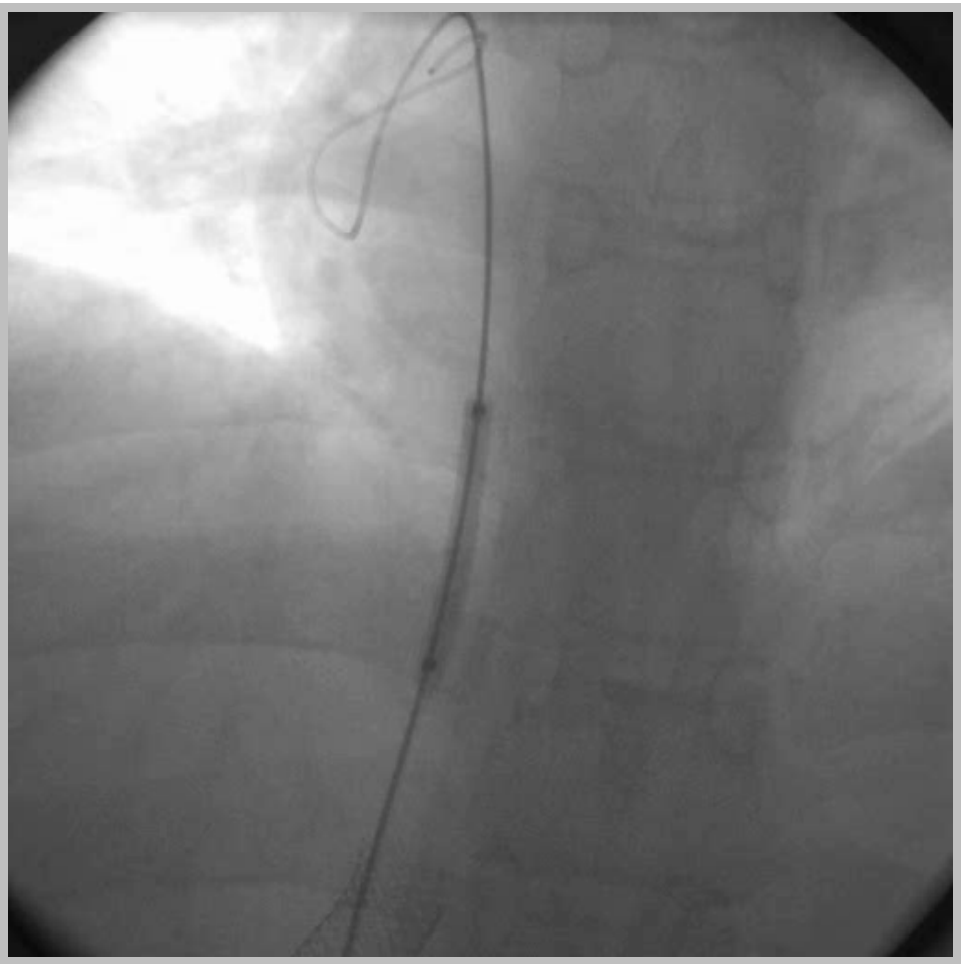
ZIP wire passing to RA



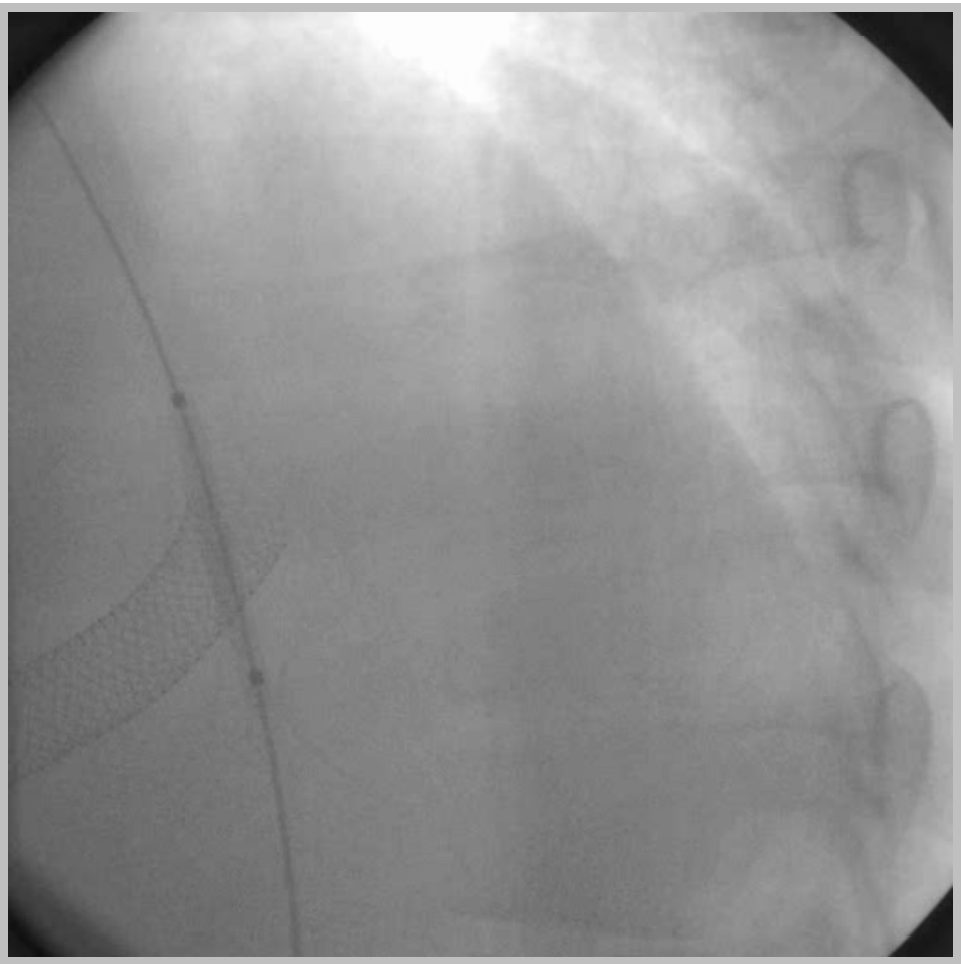
Coronary balloon 3.5x20 on PTCA wire inflated to 20 ATM



4x30 mm peripheral balloon

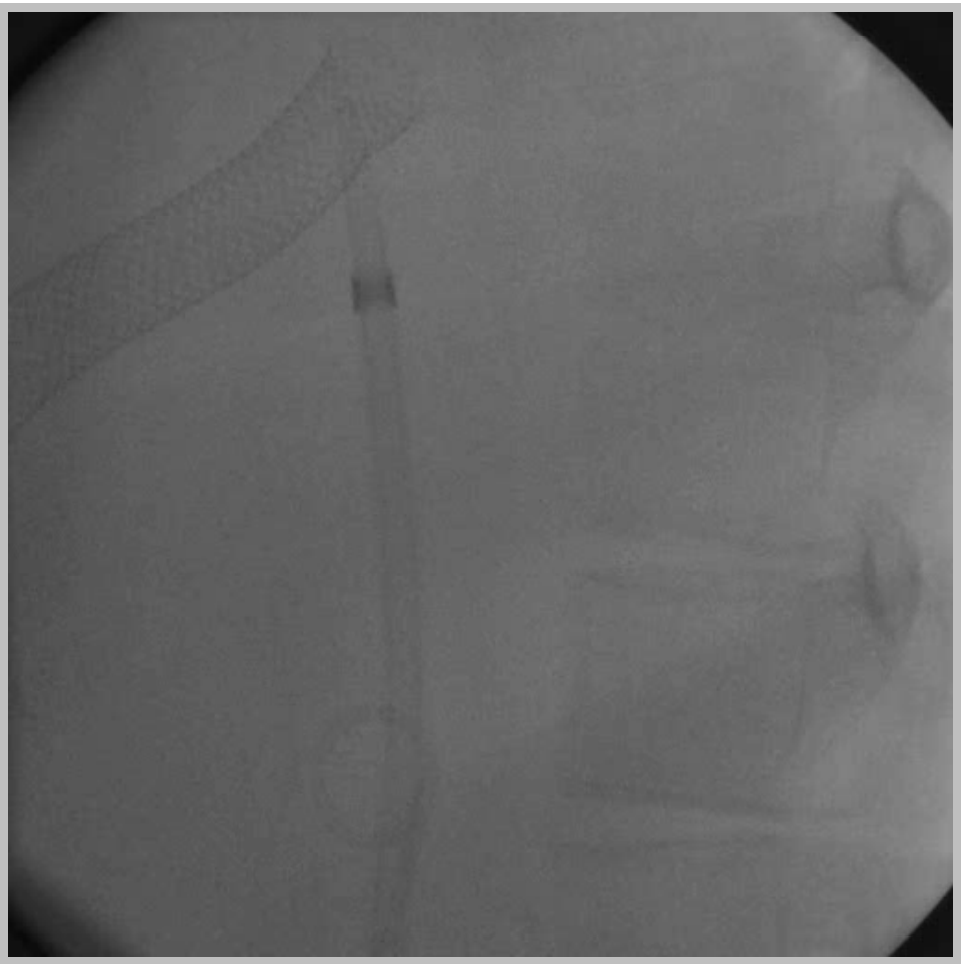


A 4x30 mm peripheral balloon

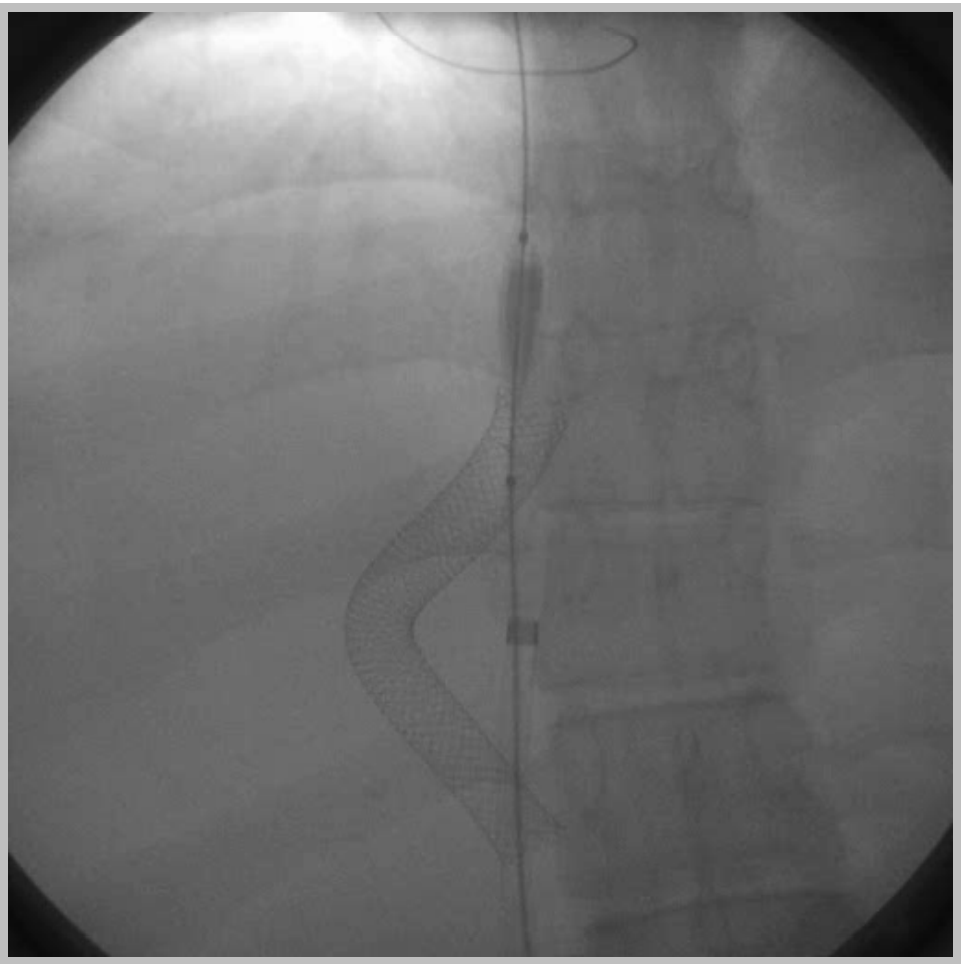


Still no satisfactory result

Long sheath stopped at the stratus of the TIPSS stent

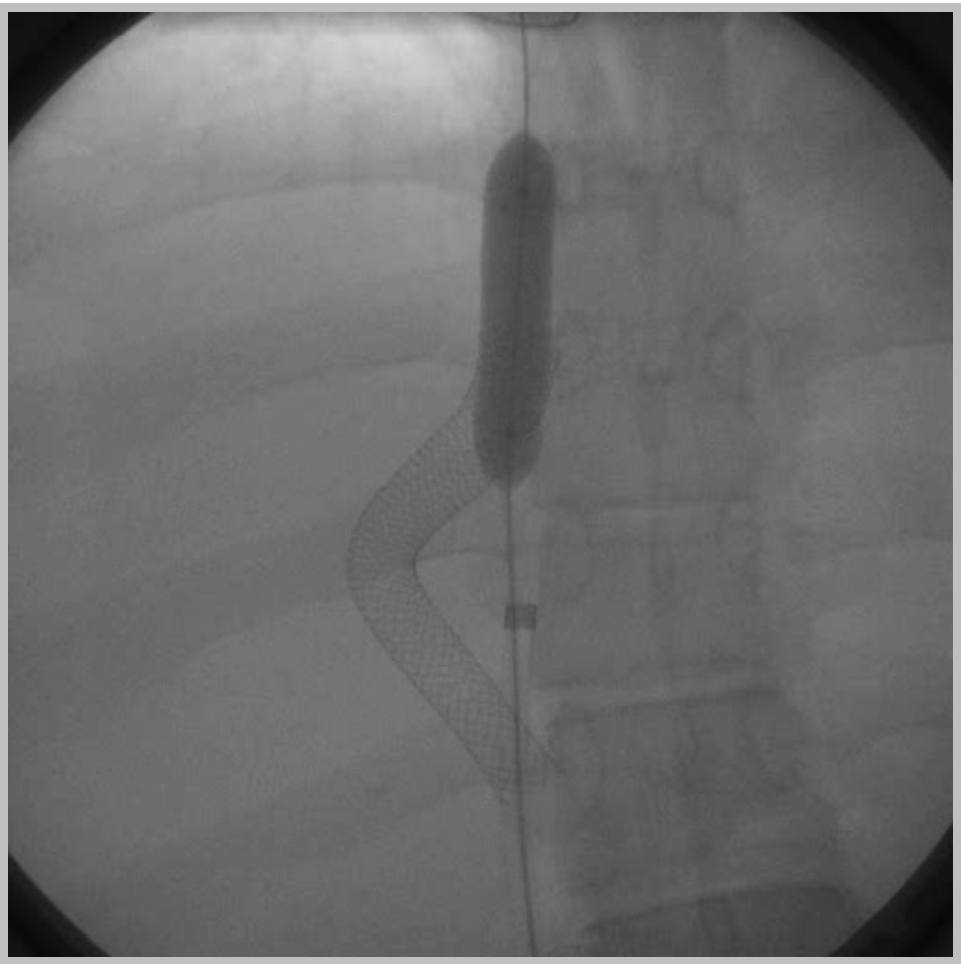


Further dilatation with 8x30 mm balloon

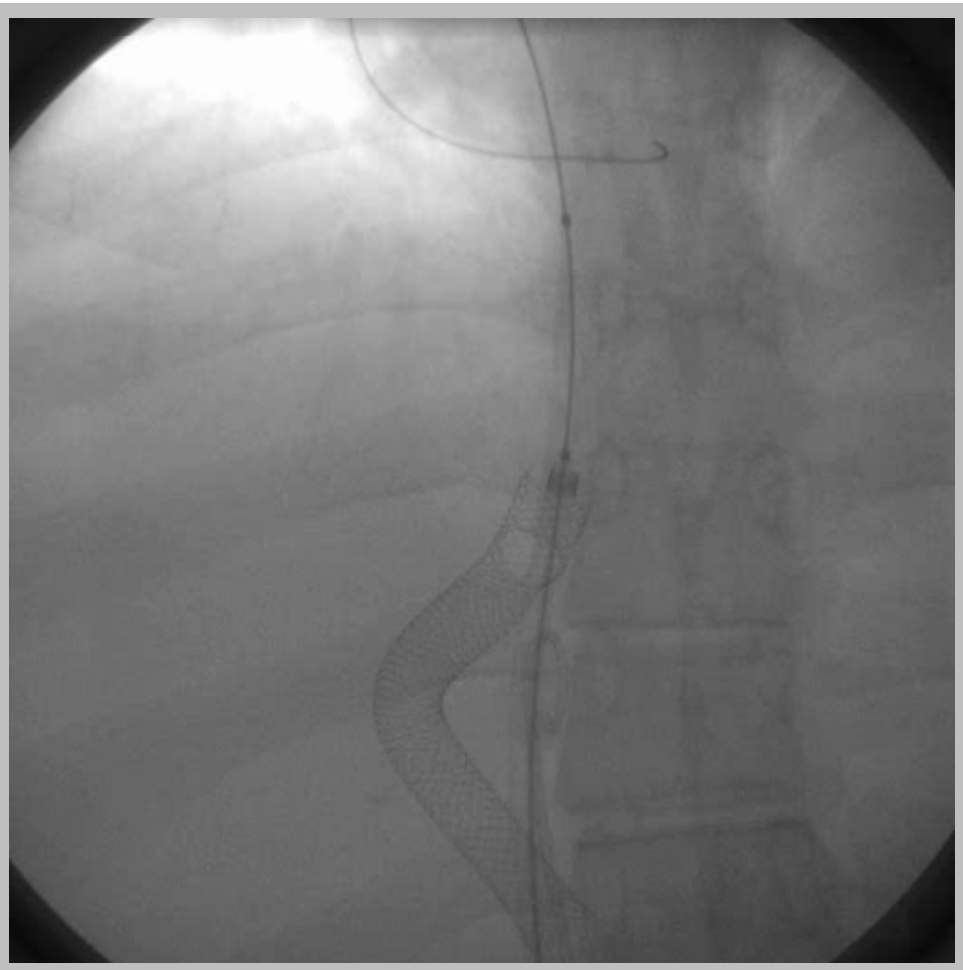


Faint flow across the stent

Full dilatation using10x30mm balloon

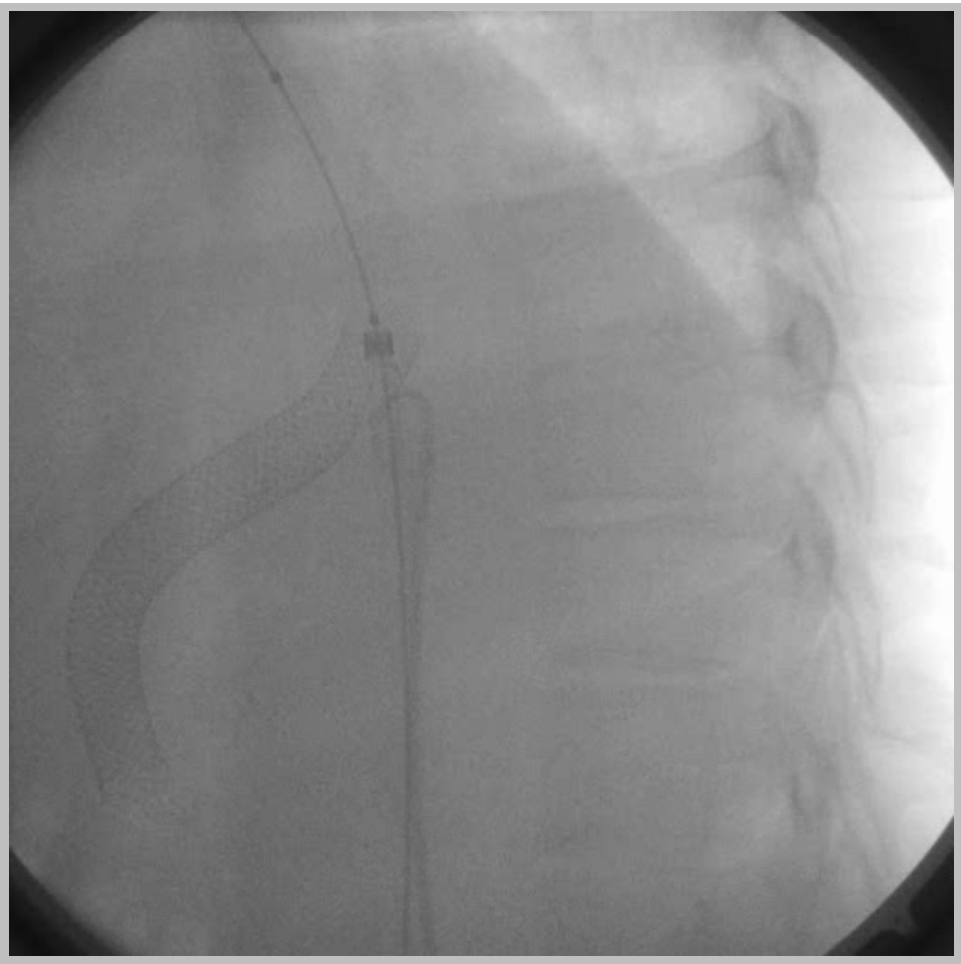


Sheath is advanced more through opened stratus of TIPSS and flow is markedly improved



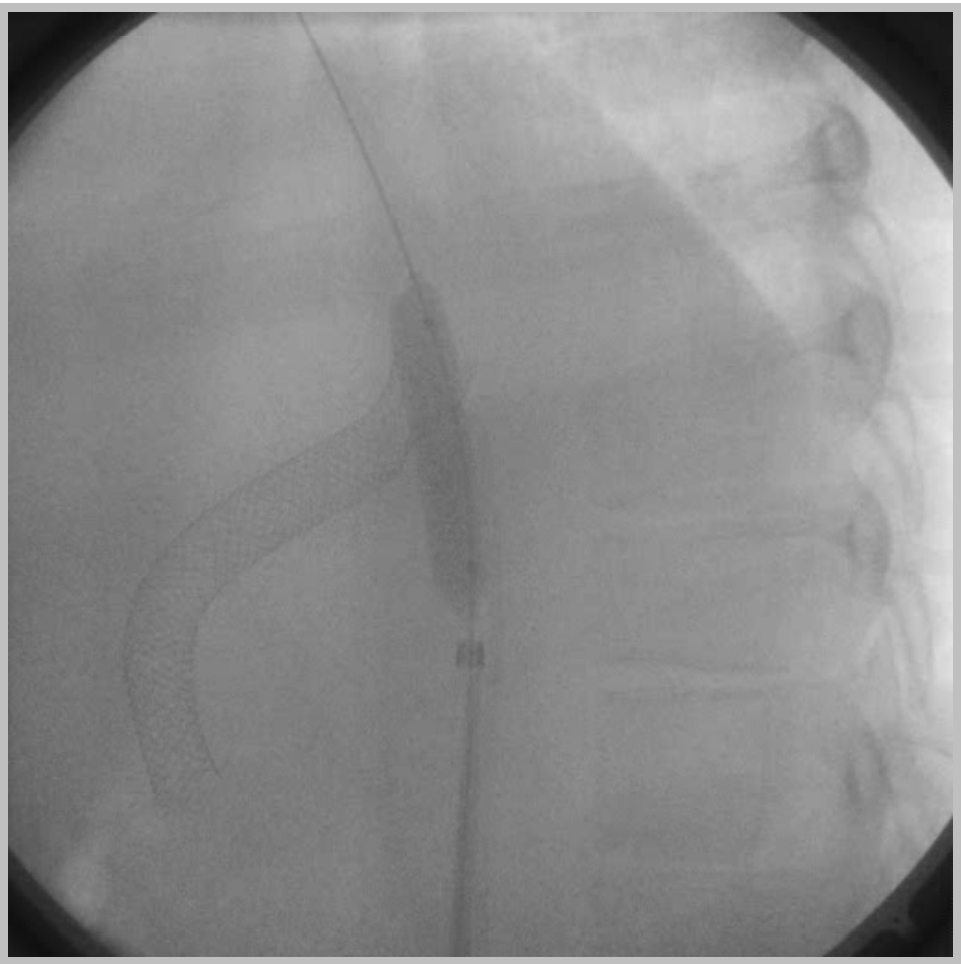
PA view

Sheath is advanced more through opened stratus of the TIPSS and the flow is markedly improved



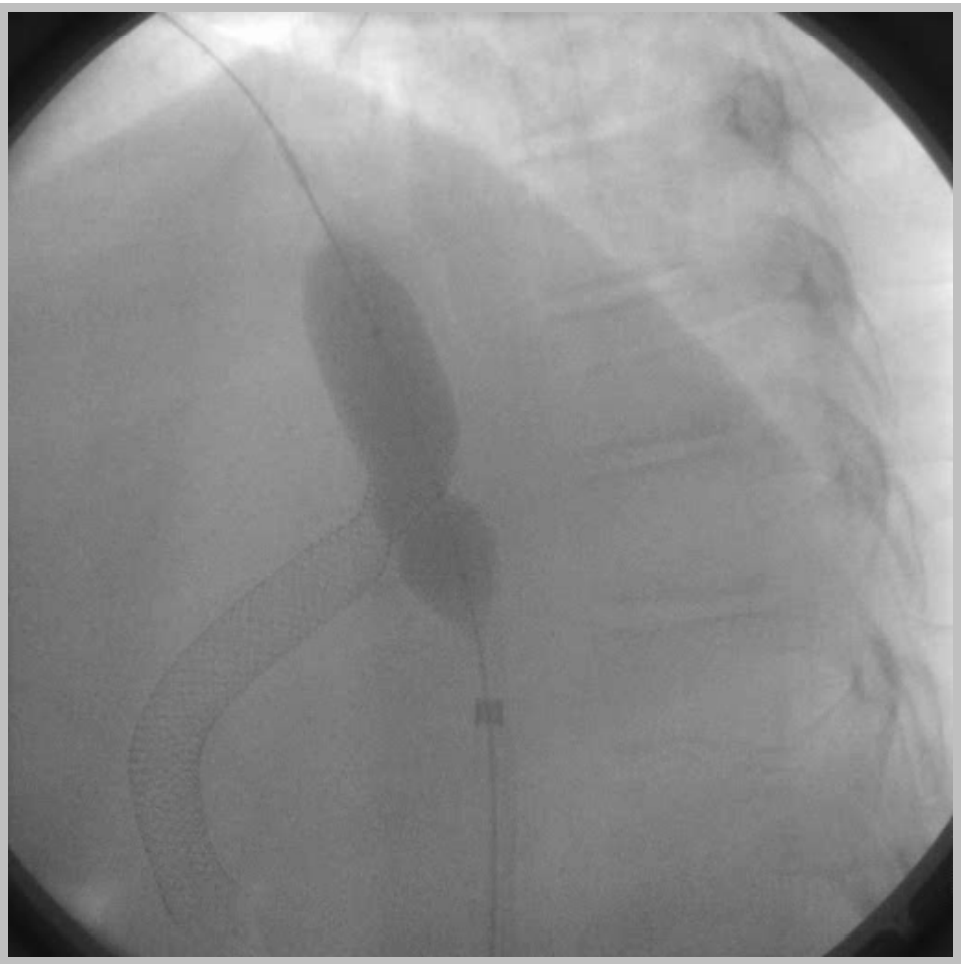
LAO view

Dilatation with 16x30 mm balloon

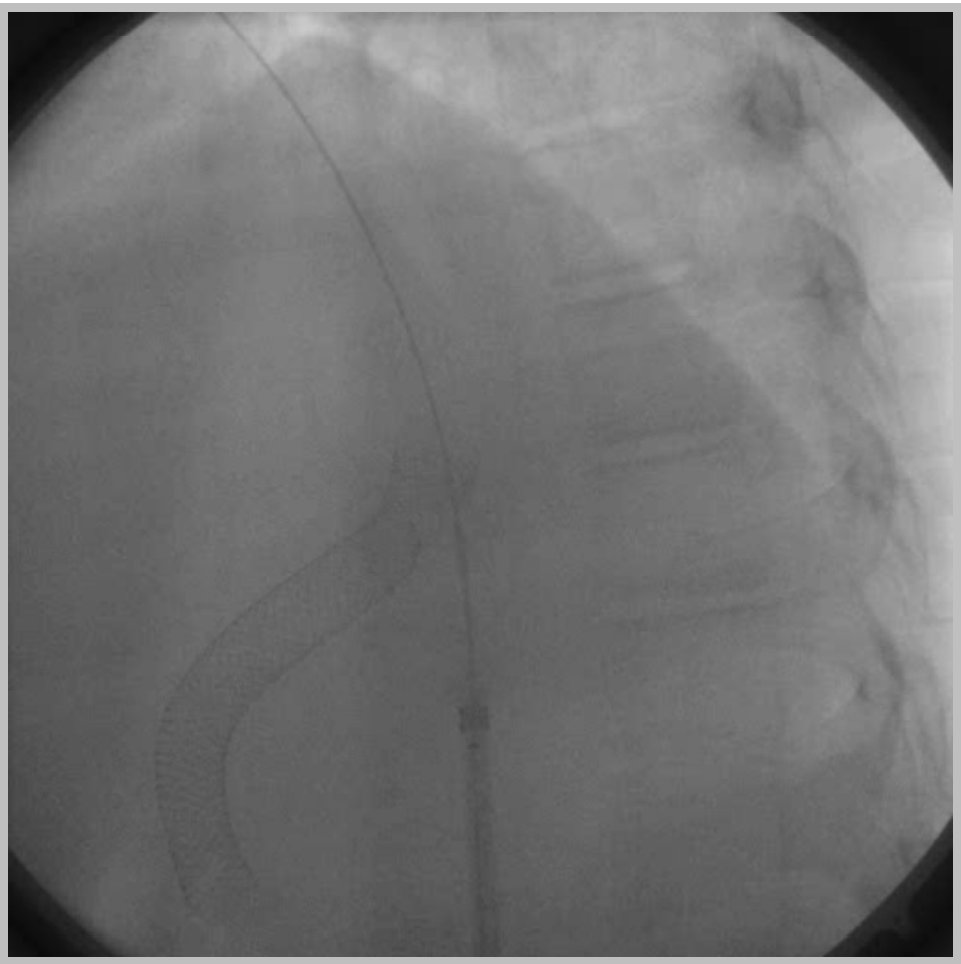


Dilatation with 20 x 30 mm balloon across the stent

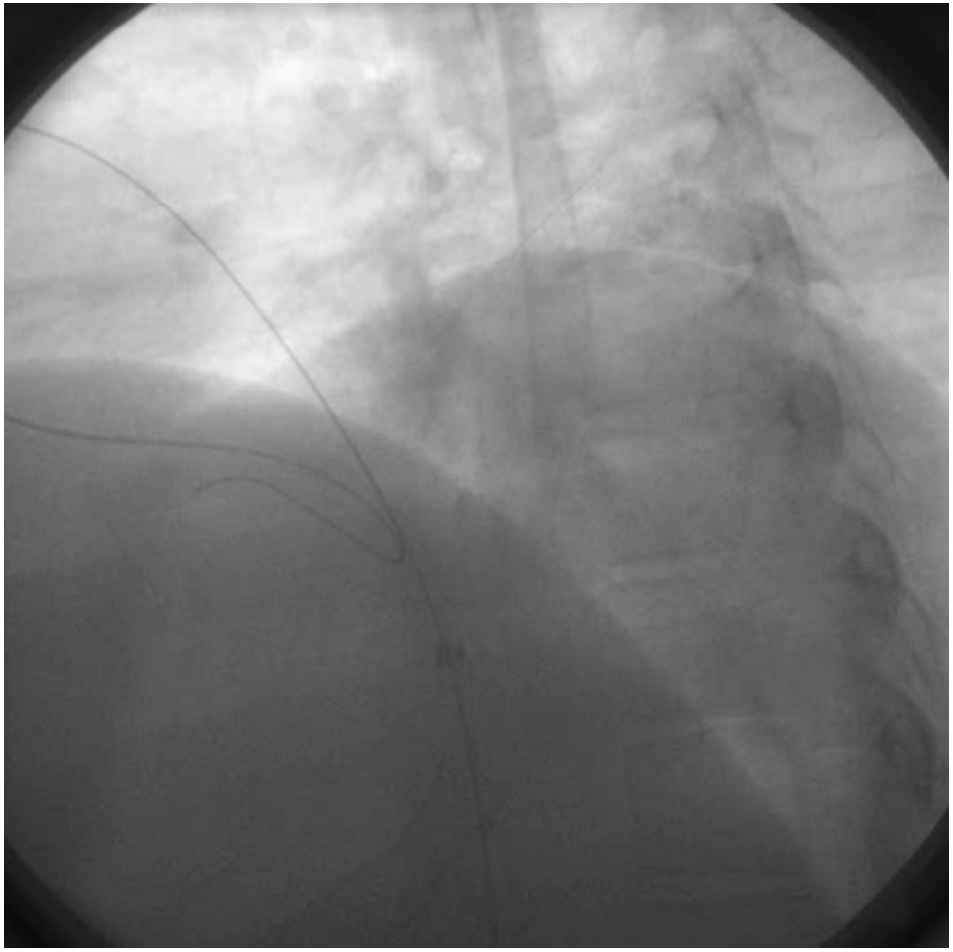
Full dilation with 20x30 balloon Constriction at level of TIPSS stent.



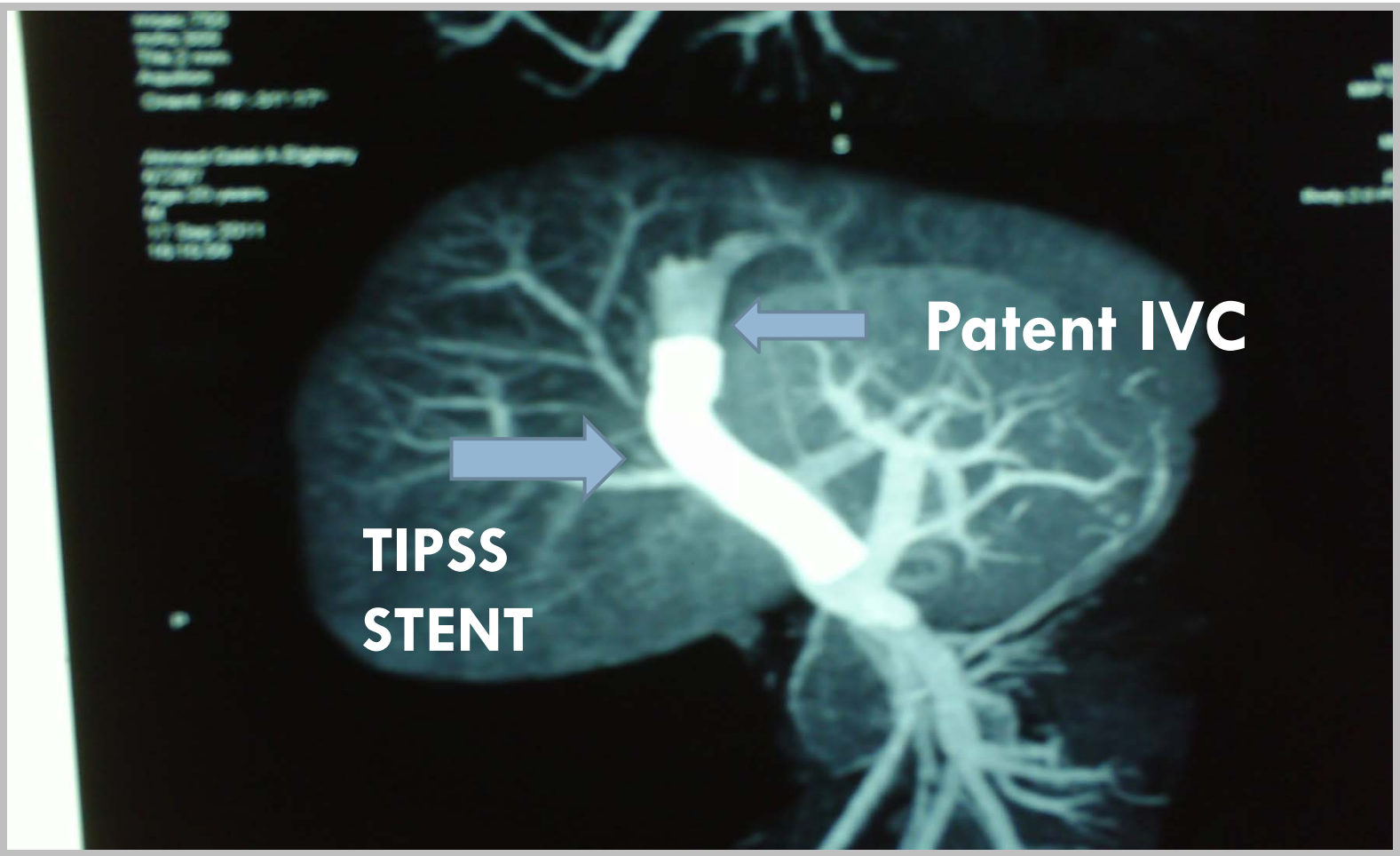
Finally venous flow to RA was restored without significant obstruction.



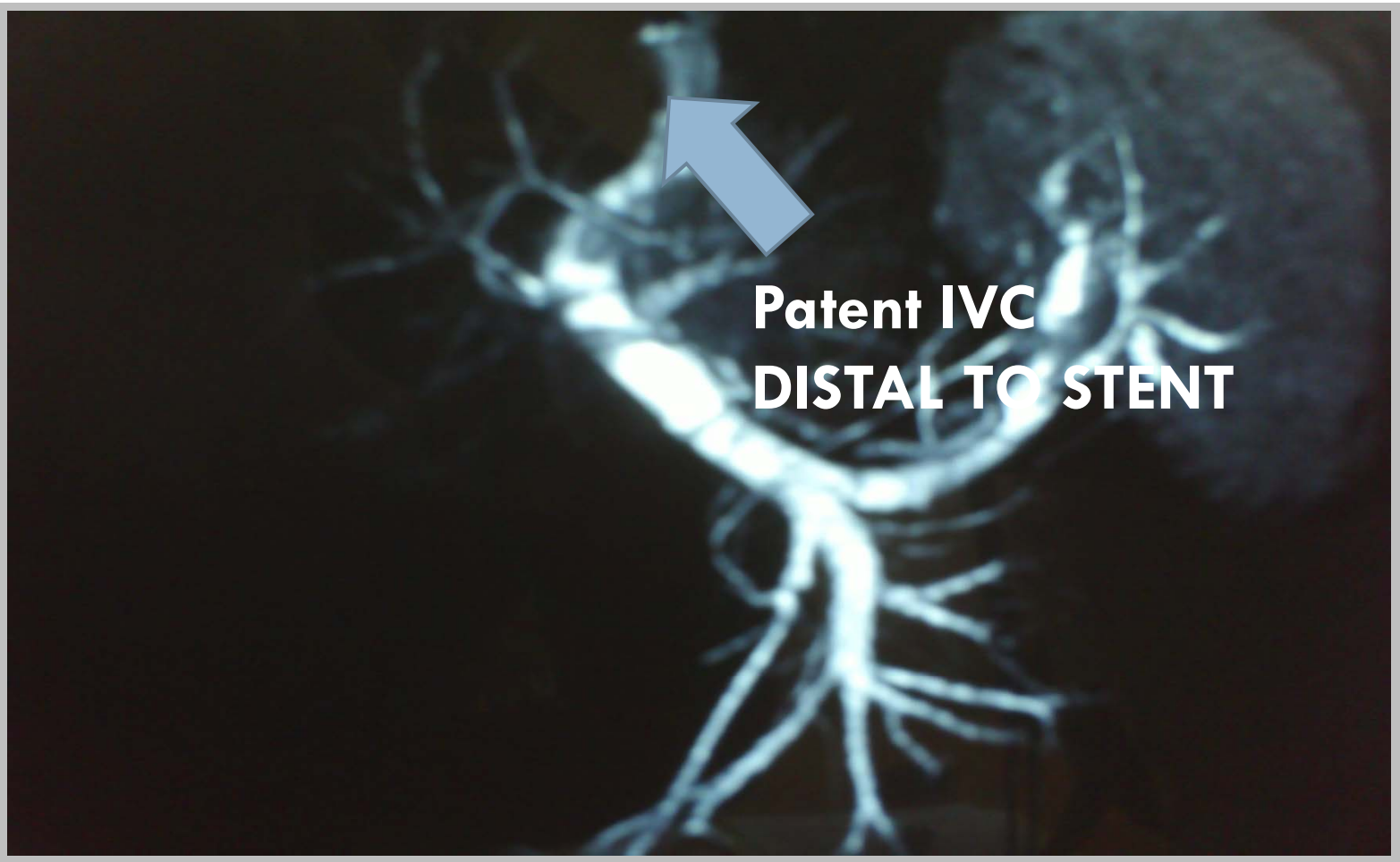
Free flow across the IVC into the RA



CT after procedure



Digital subtraction of previous image



Hemodynamics during the revision procedure

- **Before the PTA :**
- Pressure gradient across the whole obstructed segment was 24 mm Hg
- **Immediately after the PTA :**
- The gradient was 5 mm Hg along the whole obstructed segment .
- These 5 mm Hg were across the site of the fibrous web

Ascitis Regression after the procedure at follow up after one month

After ONE month without diuretics

Ascitis Regression after the procedure at follow up after one month

Take home message

- Budd Chiari Syndrome frequently result from a combination of IVC as well as hepatic vein obstruction and or stenosis .
- Percutaneous relief of either entails a spectrum of procedures.
- These procedures can save the liver .
- Follow up both clinically as well as by imaging modalities are mandatory for early detection of restenosis .