

# **KEY OPINION LEADERS (KOL) FORUM**

Uncommon malformation of right kidney and inferior vena cava

**L. Wielocha MD, 27.03.2024**

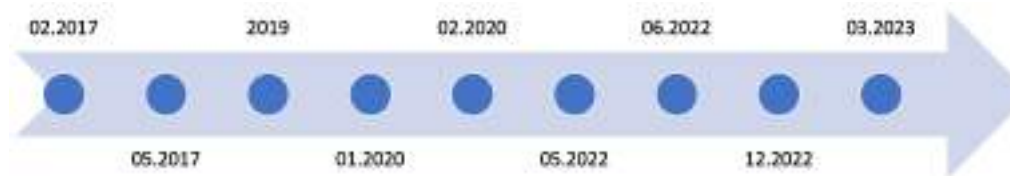
**Department of General, Vascular, Endocrine and Transplant Surgery  
University Clinical Center, Medical University of Warsaw, Poland**

# 1. ABOUT THE PATIENT

- 28 y.o. female
  - 1st hospitalization in our Department on 19 Sep 2023 due to unsuccessful prior treatment attempts – Complex malformation of right kidney and inferior vena cava
  - Presenting symptoms:
    - general fatigue,
    - night sweats,
    - susp. infectious background in right renal pelvis compression
  - Recurrent UTI, creatinine on admission 0,68
  - Hypothyroidism (Hashimoto Disease)
  - Malnutrition
  - Vit D deficiency
  - Right ovarian cyst, Uterine body polyp
  - Depression
- Medications:
    - ASA 75mg 1x1
    - rivaroxaban 20mg 1x1
    - pantoprazole 20mg 1x1
    - metoprolol 50mg 1x1
    - cholecalciferol 2000iu
    - potassium 2x1
    - mianserine 30mg 1x1
    - sertraline 50mg 1x1
  - Status post congenital duodenal obstruction repair (Ladda syndrome, 12 d.o.)
  - Status post 2x CC (severe pre-eclampsia, 2018, 2021)
  - Status post massive pulmonary embolism (Dec 2022) with subsequent VCI filter implantation

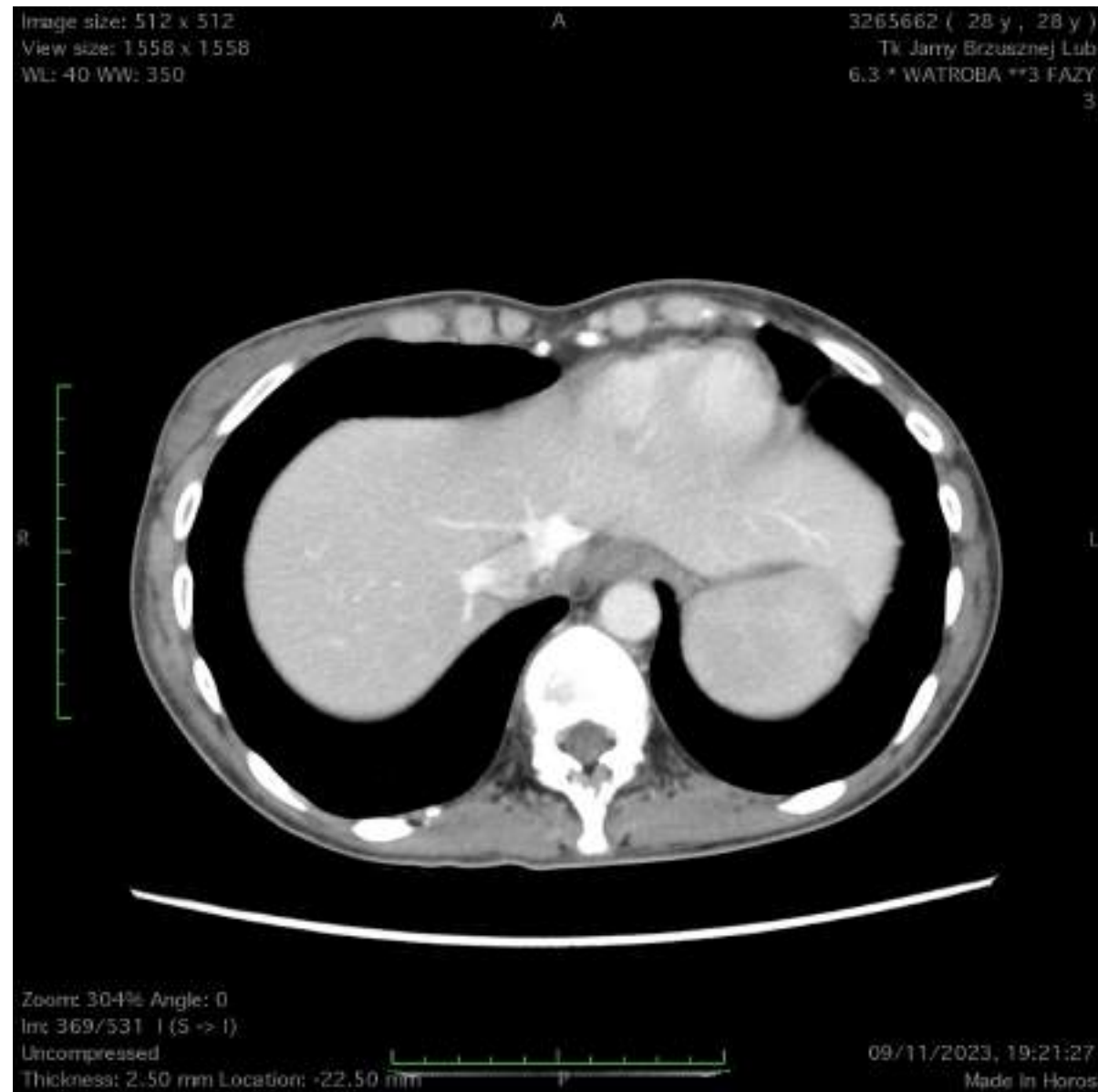
## 2. DIAGNOSIS (1)

- Complex high-flow arteriovenous malformation of right kidney and inferior vena cava
- Multiple fistulas
- Status post right renal artery aneurysm resection, post right renal vein aneurysm resection (2016)
- Status post multiple embolization attempts – 9x outside our Department (02.2017, 05.2017, 2019, 01.2020, 02.2020, 05.2022, 06.2022, 12.2022, 03.2023)



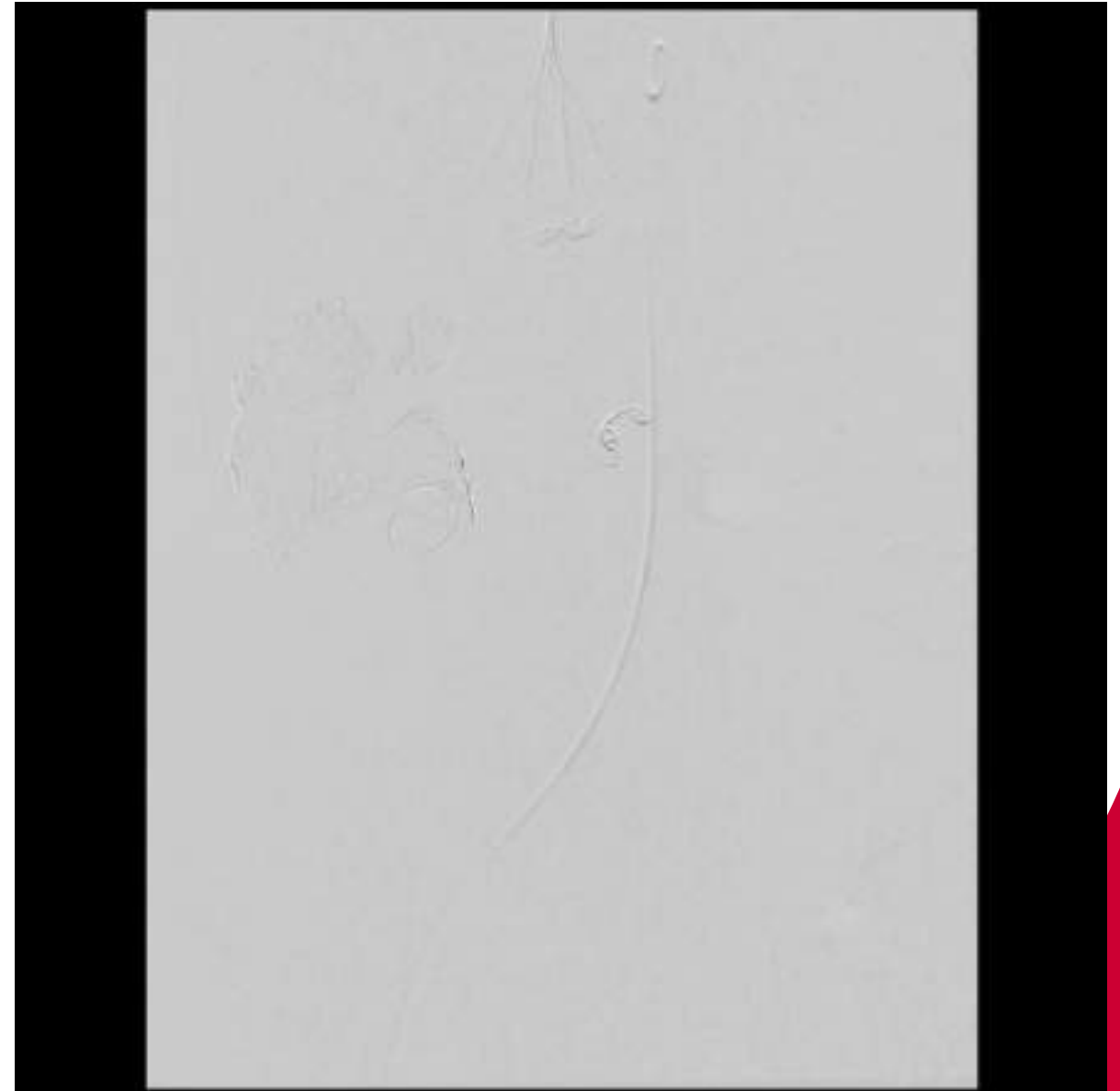
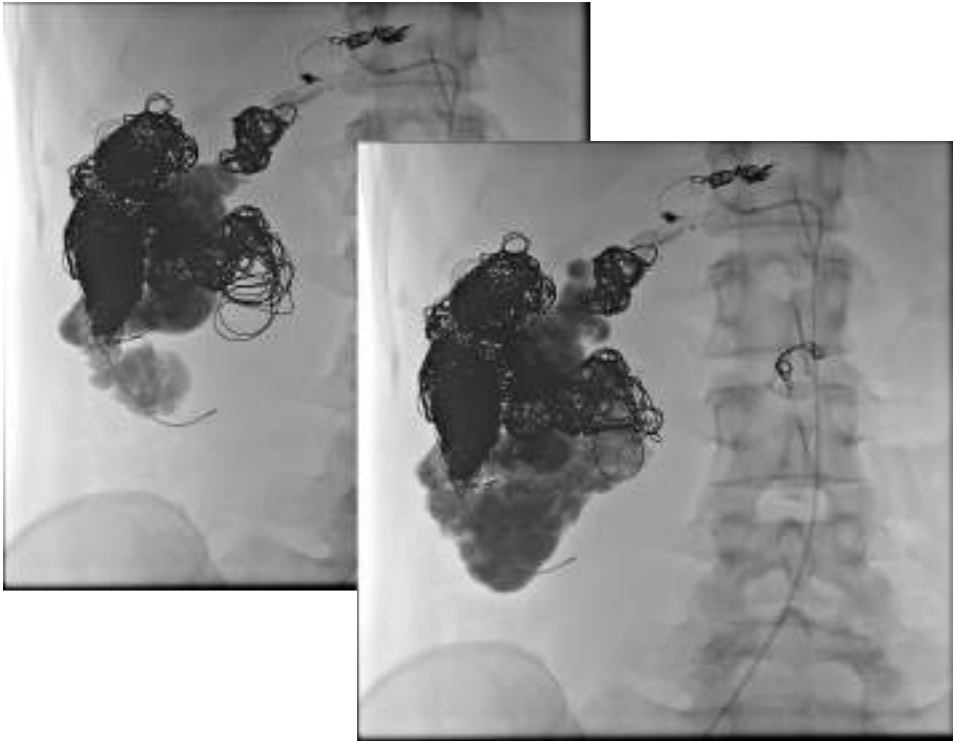
- Status post inferior vena cava aneurysm operation (plication, aneurysmorrhaphy, 2016)
- Control CT (09st Oct 2023) post 1st embolization (02nd Oct 2023) revealed:
  - Aneurysmal dilation of IVC (88mmx60mm) and distal iliac veins
  - Noticeable volume of thrombus in IVC filter
  - Significant part of malformation excluded with Easyx liquid embolic agent + coils
  - Arterial inflow mostly obliterated
  - Remaining two ostial aneurysms of Rx lumbar arteries (19 and 12 mm diameter)
  - Pelvic part of malformation was not embolized – inflow from R IIA branches, nidus likely in uterine wall on Rx side
- Due to all above Pt was qualified for extracorporeal circulation operation (another center, no consent)

## 2. DIAGNOSIS (2)



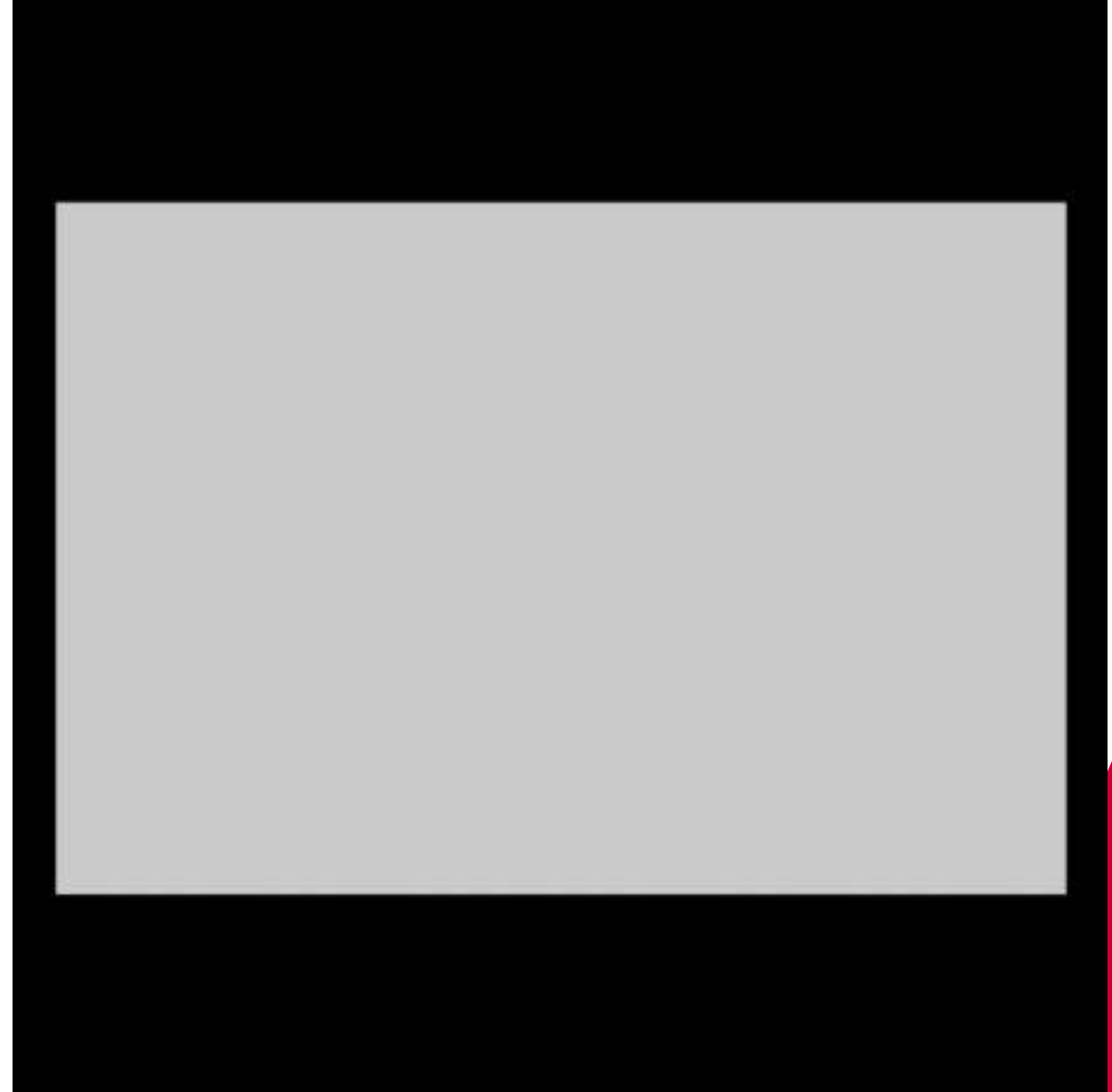
# 3. TREATMENT (1)

- 26 Sep 2023 0.7 [Gy]
  - Right renal artery occlusion with AMPLATZER IV
  - Malformation outflow embolization with liquid agent EASYX (54 amp.)



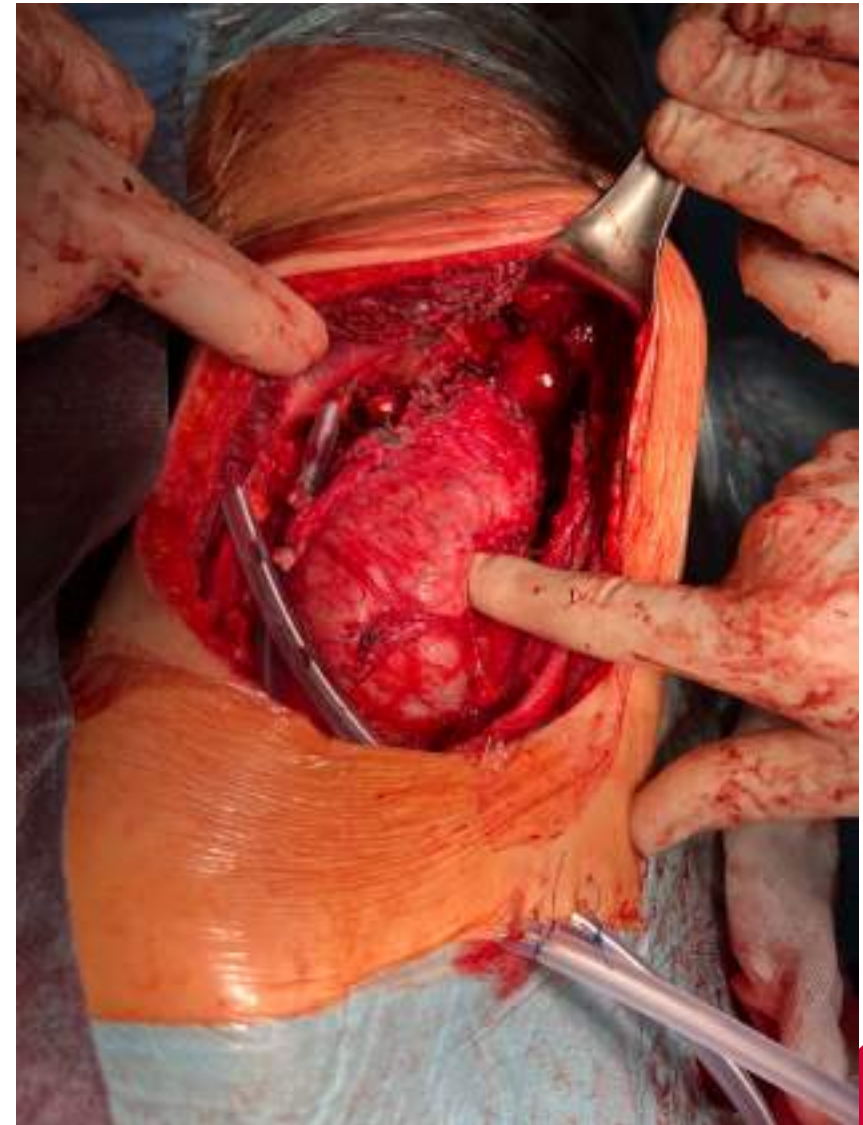
## 3. TREATMENT (2)

- 02 Oct 2023 2.7 [Gy]
  - Malformation outflow embolization with liquid agent EASYX (54 amp.)
  - Embolic agent migration stabilized with
    - in LCIA: ZILVER 518 7x40 mm implantation
    - in RCIA/REIA: ZILVER 518 7x30 mm implantation

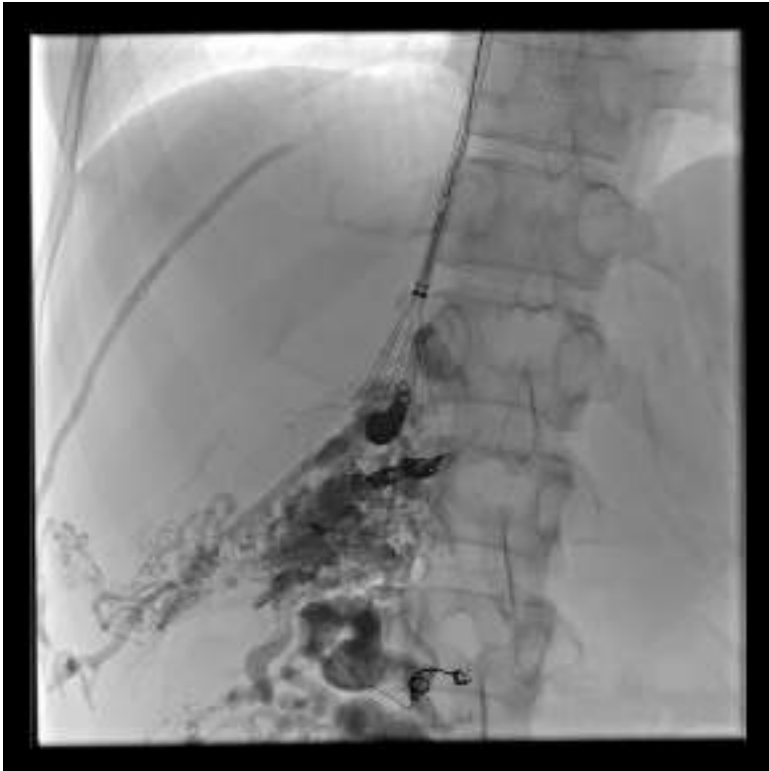


# 3. TREATMENT (3)

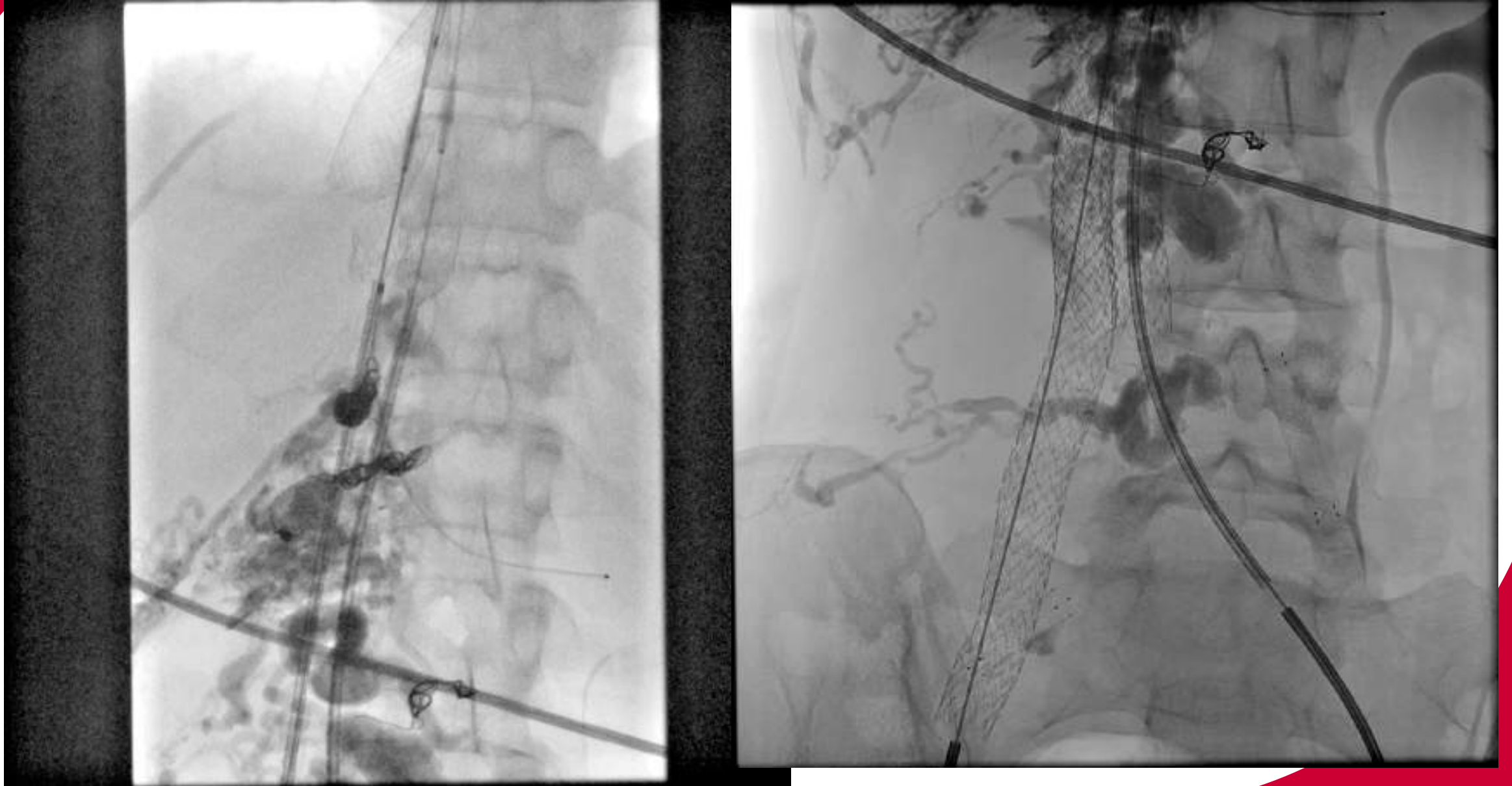
- 12 Oct 2023 Laparotomy. Nephrectomy of malformed kidney
- 12 Oct 2023 Retroperitoneal space revision due to bleeding
  - Extreme technical difficulty!
  - Impossible VCI mobilization and suturing – thick, rigid wall
  - Massive transfusion 10 units RBC and 5 units FFP
  - Creatinine on discharge 0,49
- 03 Nov 2023 Relaparotomy. Retroperitoneal hematoma drainage (next hospitalization)



- Patient doing well, but  
High risk for recurrent pulmonary embolism, VCI filter with thrombus, very large thrombus in VCI
- What next?
- 9 Jan 2024 – VCI filter removal



## 6. TREATMENT (4)



# 7. CONCLUSIONS & QUESTIONS

- Complex VCI malformation most likely based on both genetic / development factors as well as malformed kidney pressure
- LADD Syndrome role unestablished
  
- End-stage malformed kidney failure – in histopathological assessment lack of preserved renal parenchyma – fully compensated by left kidney
  
- Presented case required multimodal / complex treatment
- Malformation embolization was necessary to consider surgical treatment
  
- Uncommon Vena cava flow diverter concept
  
- Would You consider other treatment options?