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Medical University of Lublin

Basics on EVAR

AAA - Abdominal Aortic Aneurysm

Abdominal Aortic Aneurysms

36-45 / 100 000

> 60 → 2,5%

> 70 → 6%

> 75 → 9%

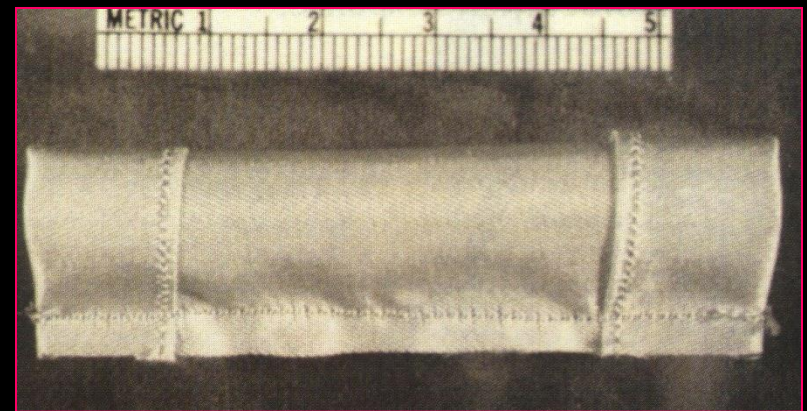
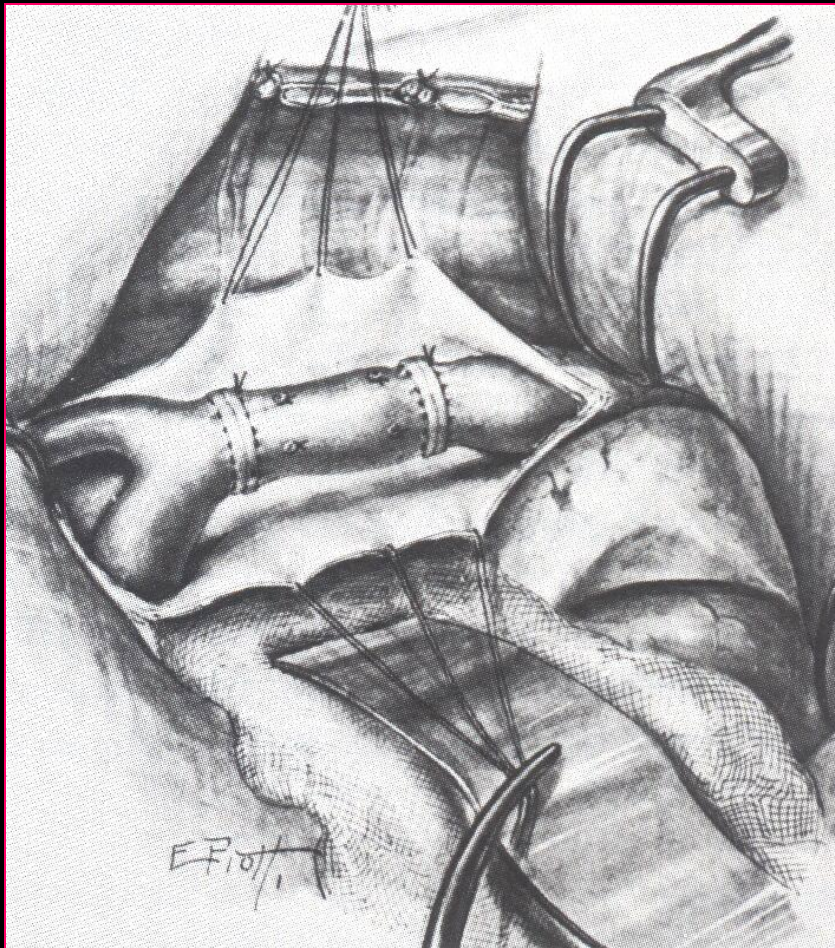
Higher morbidity rate in the last years ?

- people live longer (life span ↑)
- better diagnosis (detection rate)

59 years of surgery

Dubost C, Allary M., Oeconomos N (1952)

Resection of an aneurysm of the abdominal aorta: reestablishment of the continuity of AA by a syntetic graft, with good result after 5 months. Arch Surg 64: 405-408

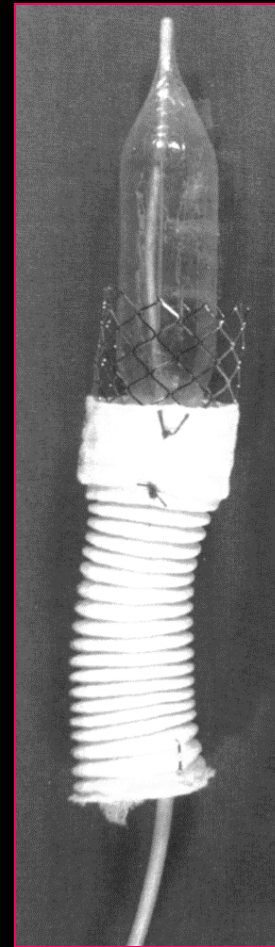
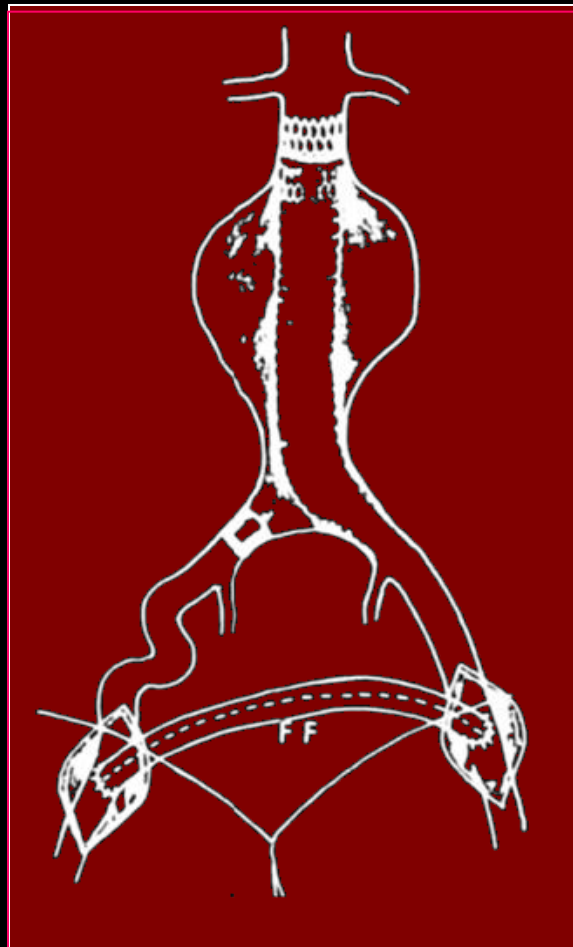


20 years of endovascular treatment

Parodi JC, Palmaz JC, Barone HD (1991)

Transfemoral intraluminal graft implantation for abdominal aortic aneurysms.

Ann Vasc Surg 5: 491-499

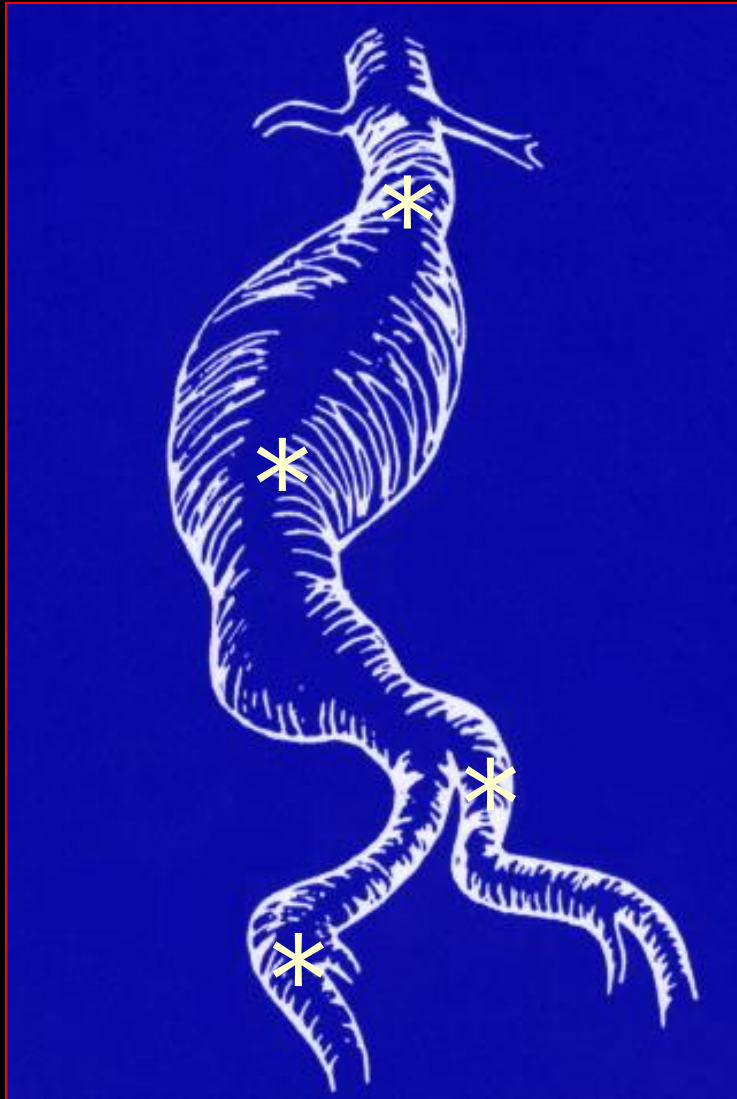


General / medical inclusion criteria

Patients with higher risk for surgery

- Cardiovascular diseases / insufficiency
- Respiratory diseases / insufficiency
- Stroke / neurological disorders
- Age > 60
- Previous abdominal surgery

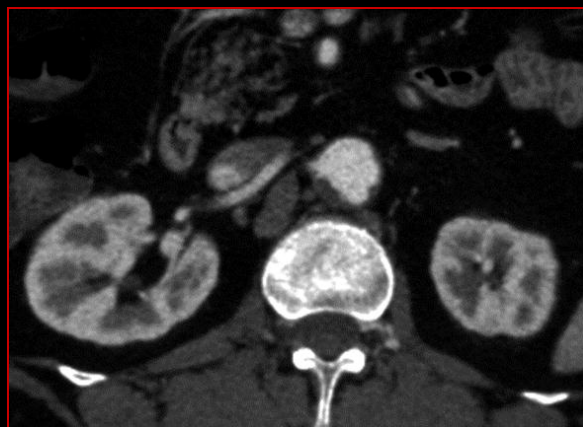
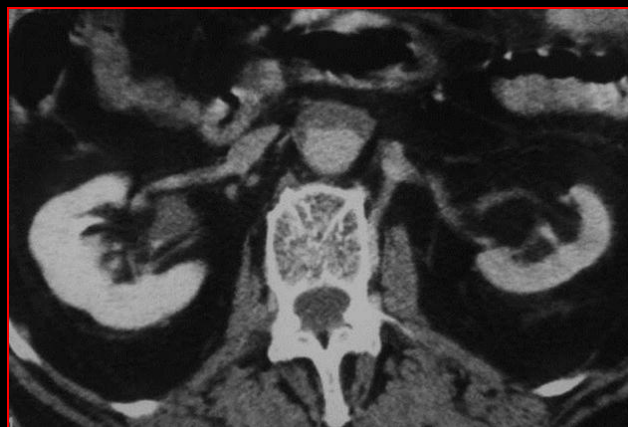
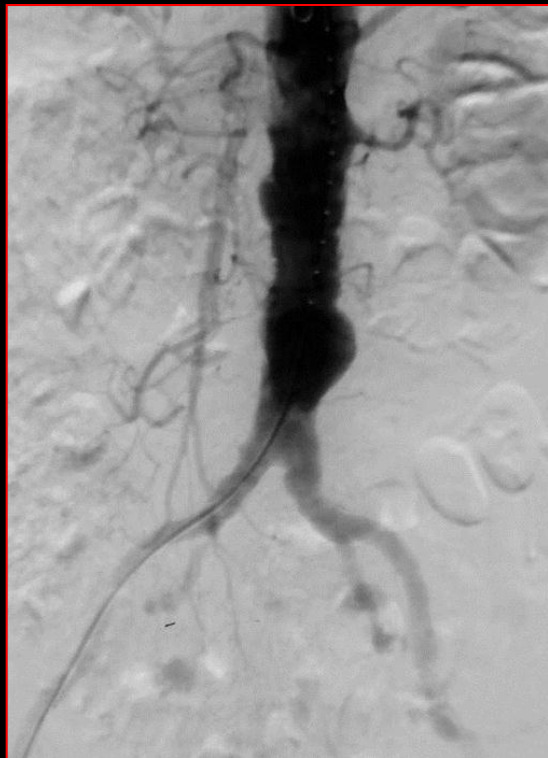
Qualification (anatomical)



- Aneurysm's neck
- Aneurysm's sack
- Iliac arteries

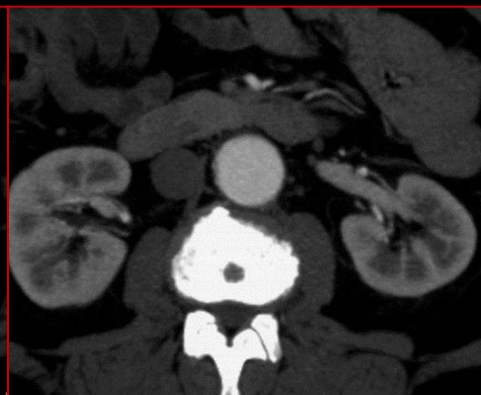
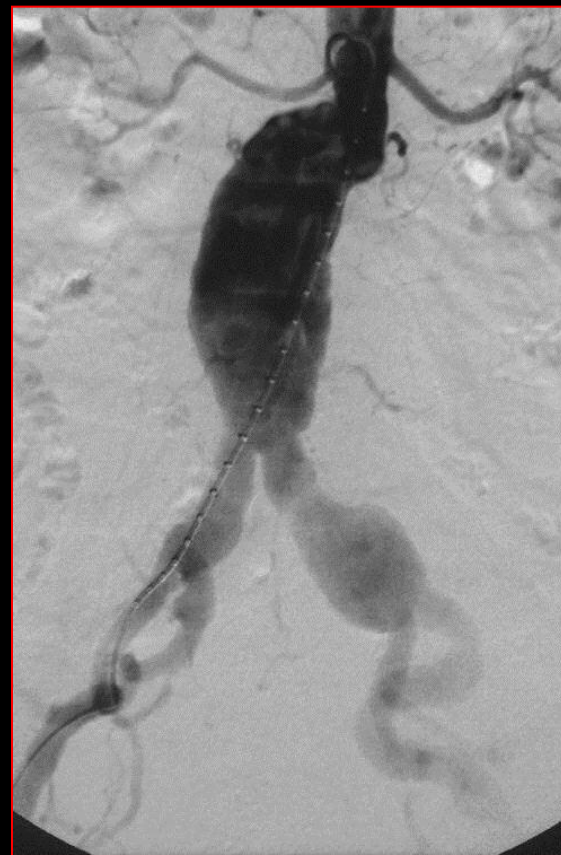
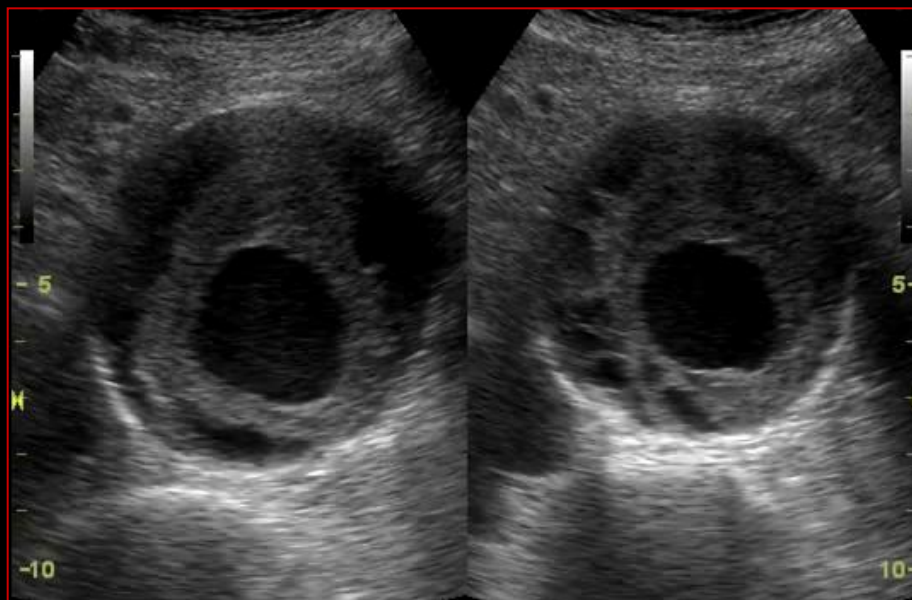
Contraindications for endovascular treatment

- Aneurysm's neck wider than 32 mm
periwall thrombus, extensive calcifications, kinking
- Aneurysm's neck shorter than 10 mm
- Bilateral iliac obstruction / stenosis /kinking
no access
- Age below 60
unless patient does not fit for surgery



Imaging (before EVAR)

- **Ultrasound (duplex Doppler)**
initial diagnosis and measurements
- **Computed tomography**
aneurysm's neck (diameter, calcifications, thrombus)
aneurysm's sack (diameter, thrombus)
iliac arteries (diameter, calcifications, thrombus)
- **Angiography - calibrated**
stentgraft length, vascular access



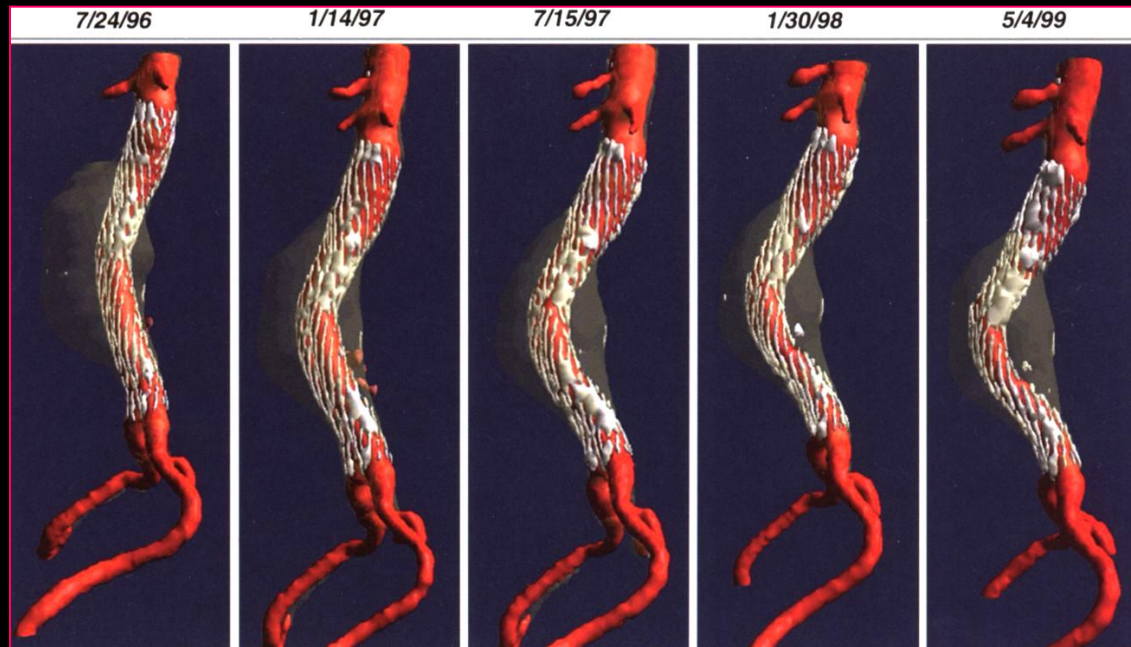
An easy case

long neck / normal common iliacs

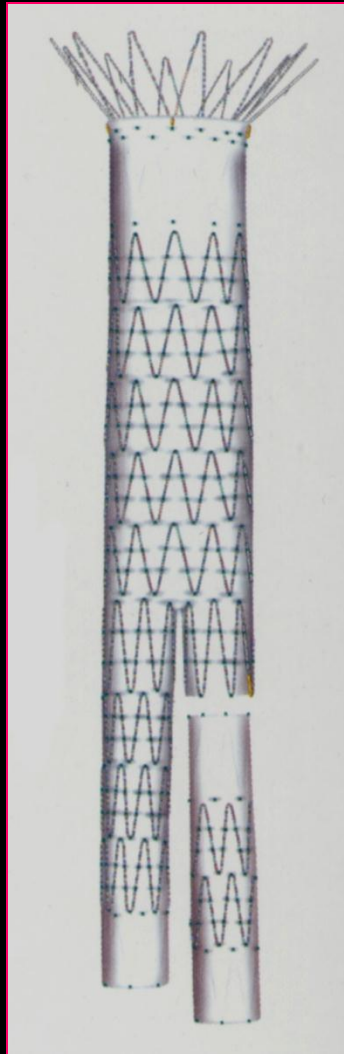
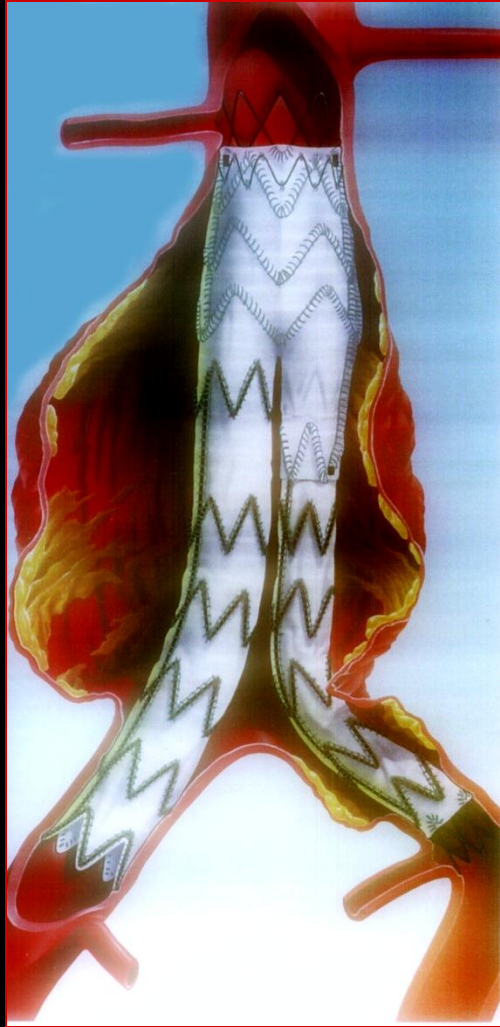




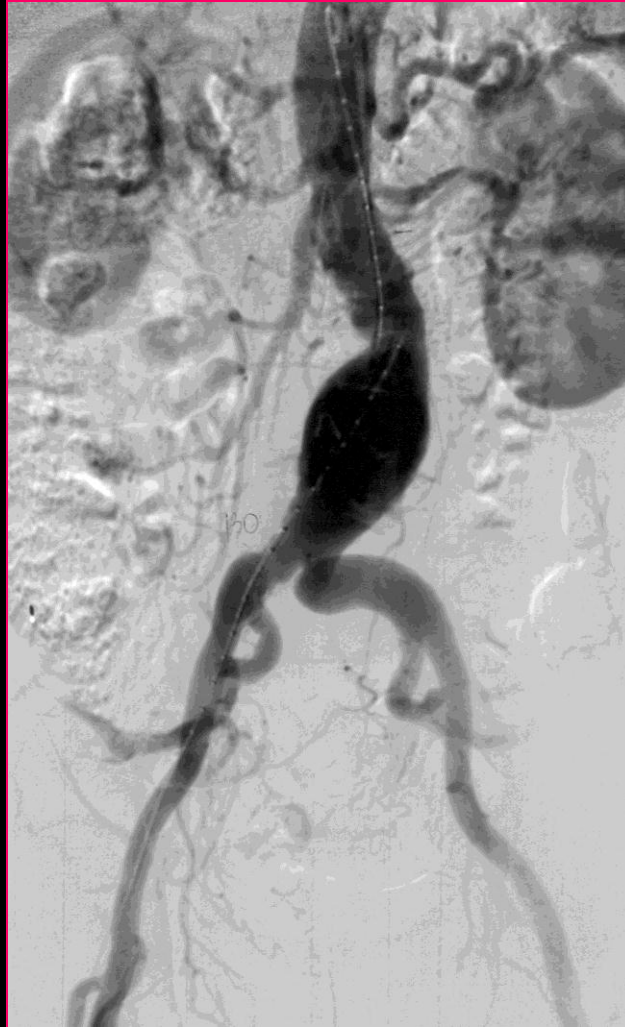
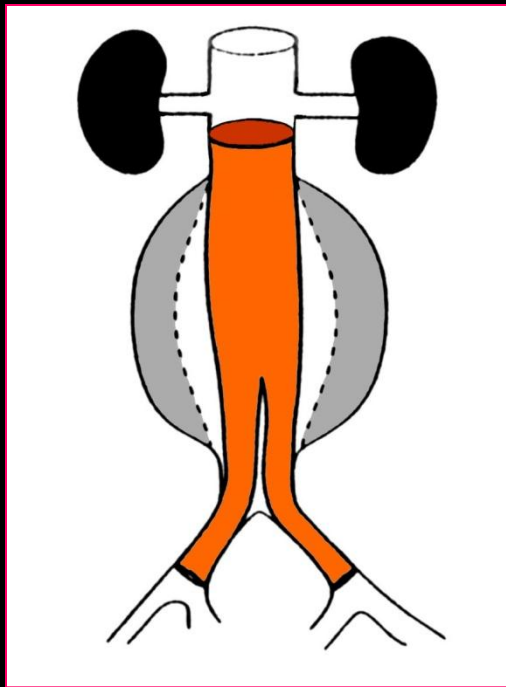
Possible stentgraft migration

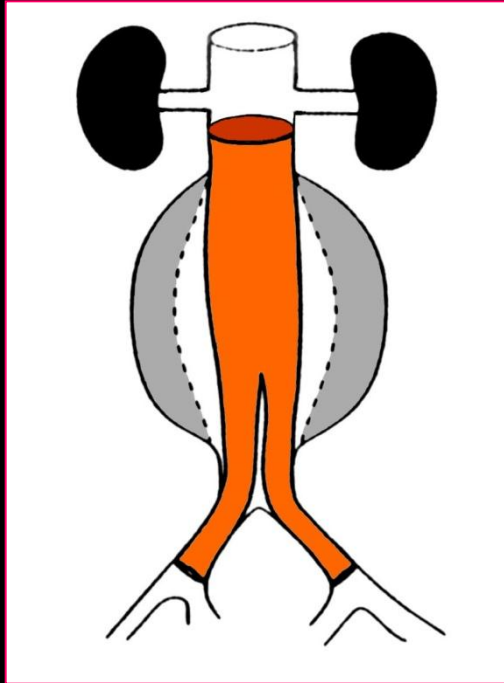


Different types of AAA stentgrafts



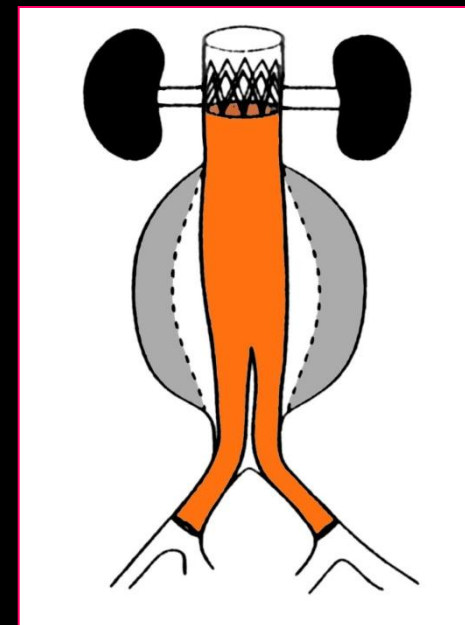
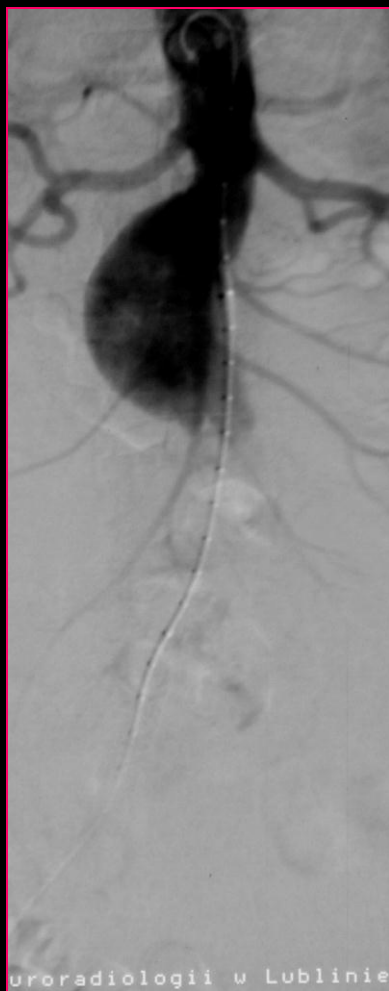
Easy aneurysm – stentgraft with infra-renal fixation



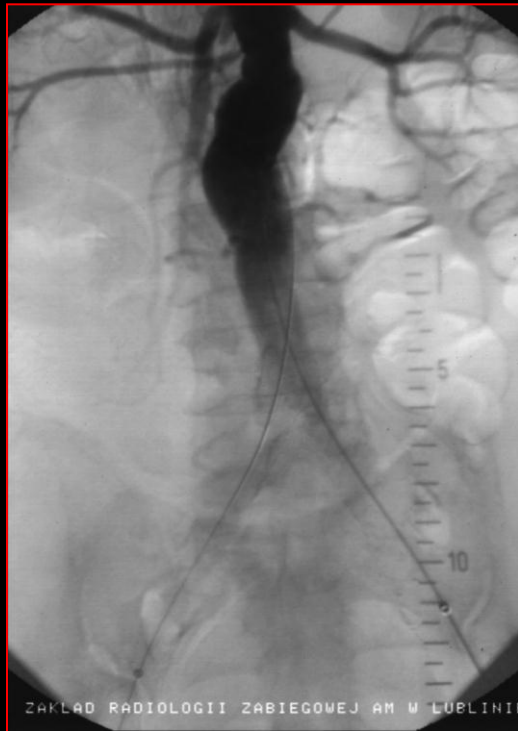


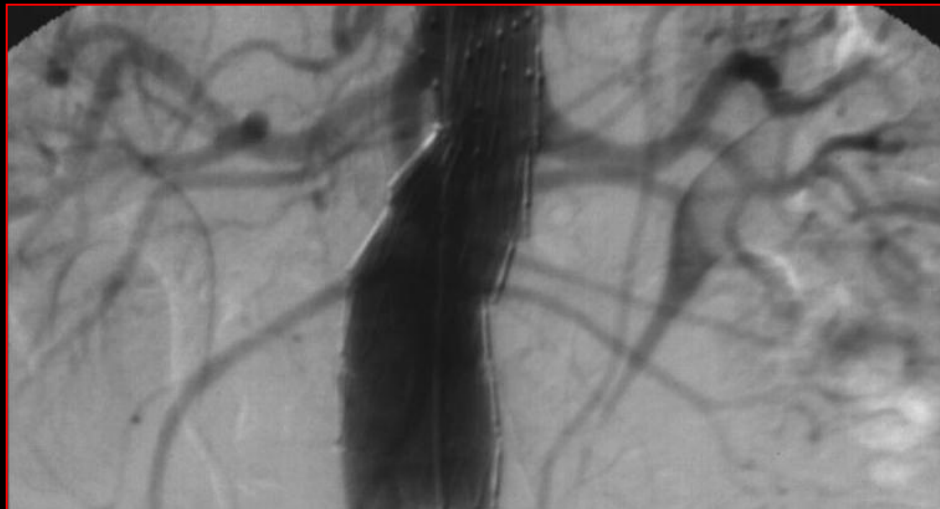
Aneurysm's neck - about 10 mm

stentgraft with supra-renal fixation

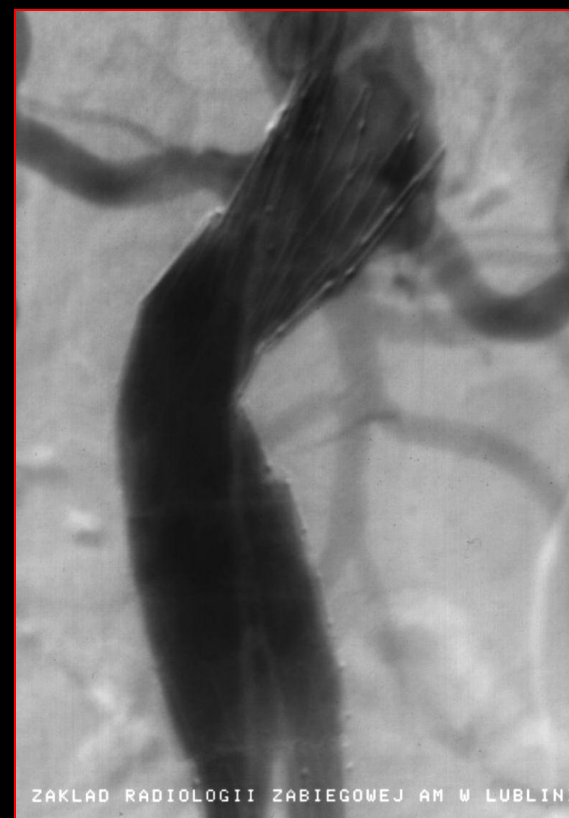


Short aneurysm's neck & additional renal artery





Short and angulated neurysm's neck

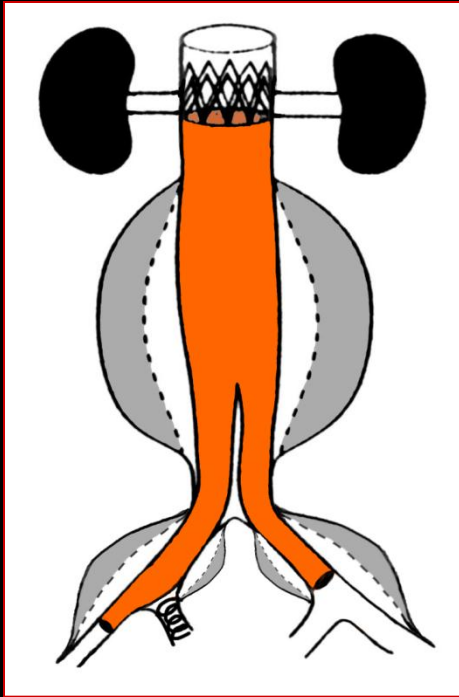


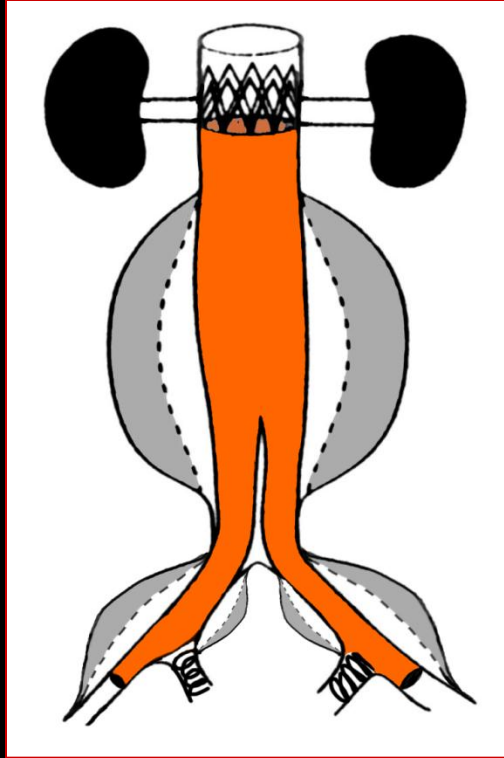
Kink – resistant stentgraft for angulated neck



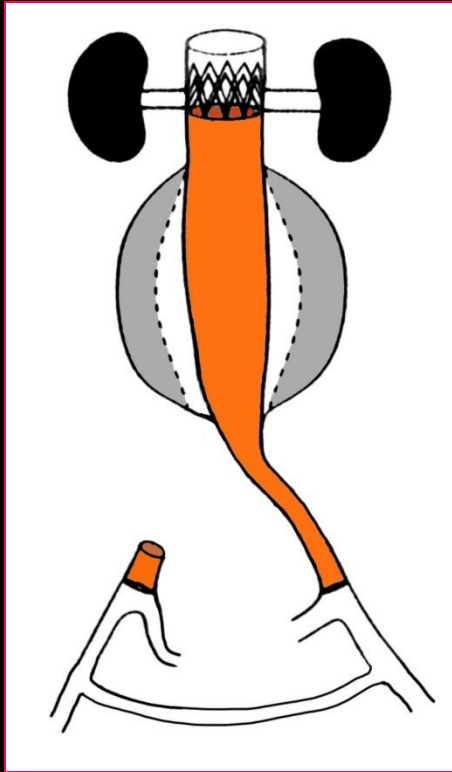


AAA + iliac aneurysms





Aorto-uni-iliac stentgraft & fem-fem by-pass



Weak points of EVAR

- **Endoleaks**

Type I - proximal or distal sealing defect

Type II - via collaterals

Type III - fabric or wire damage

- **Stentgraft obstruction**

thrombosis or kinking

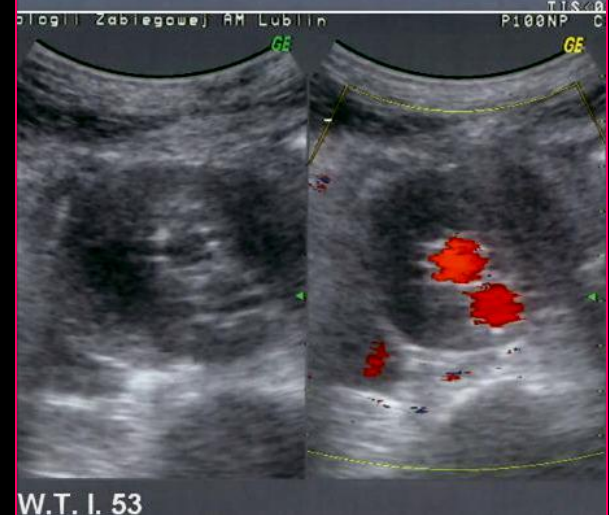
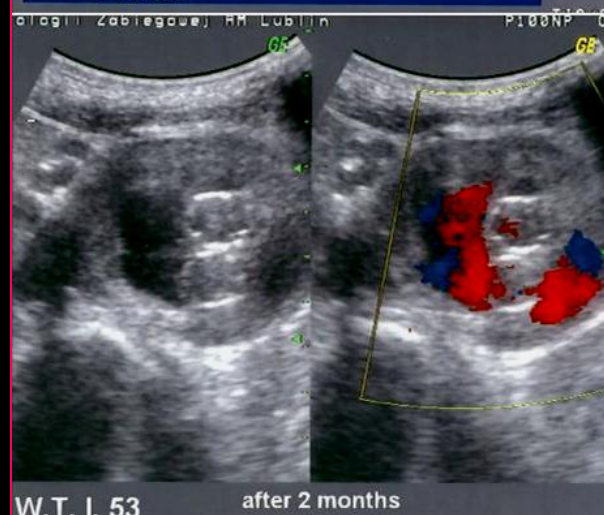
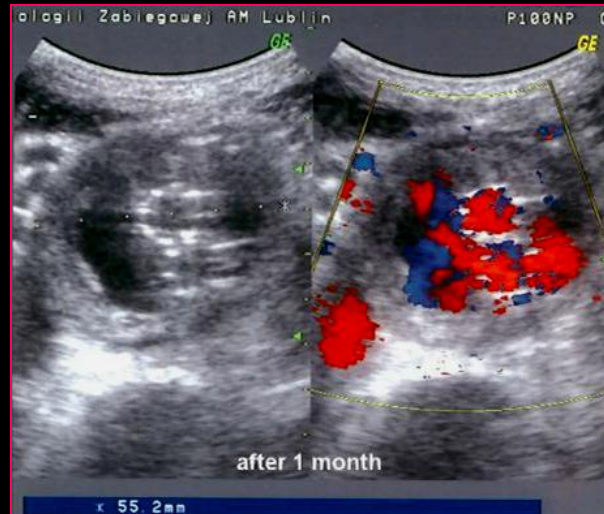
Stentgraft
wrong size or type

Stentgraft
migration

Mistaken
implantation

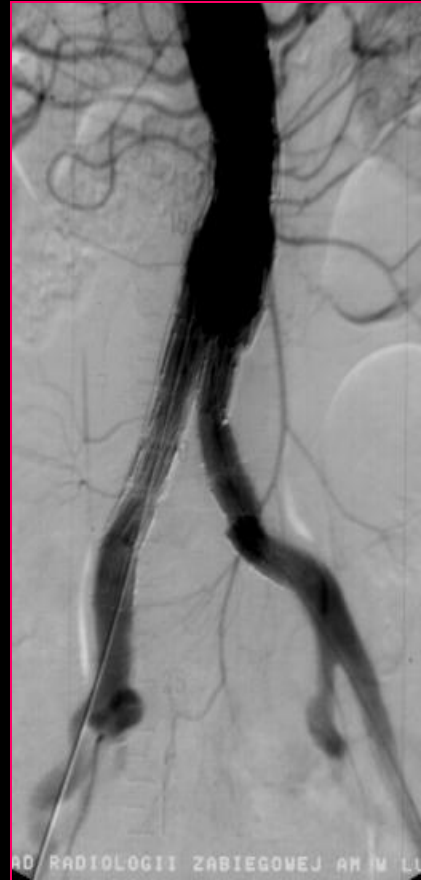
Aneurysm
enlargement

Type I proximal endoleak because of neck broadening



Type I proximal endoleak treated with additional ballooning





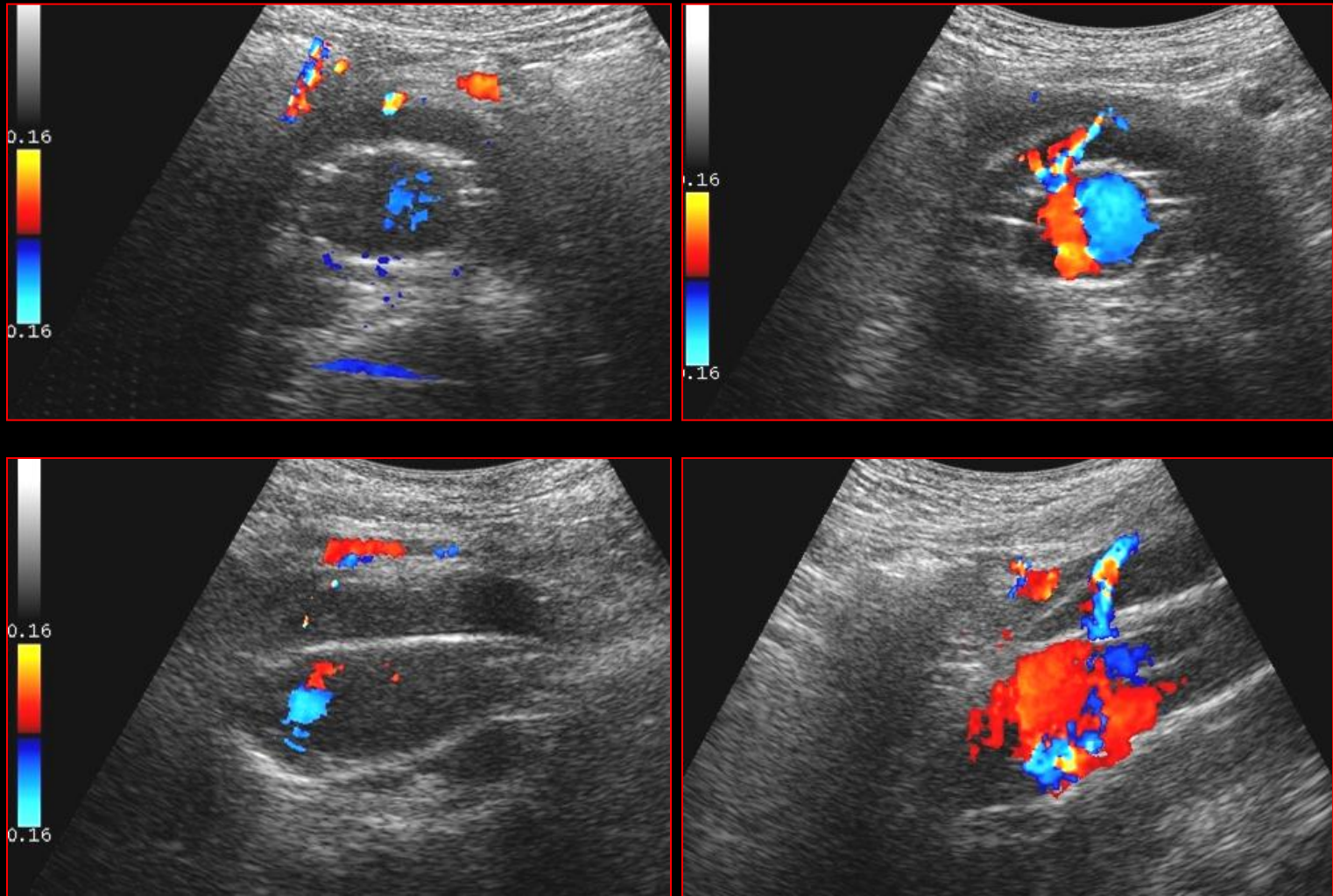
Type II endoleak
via lumbar arteries



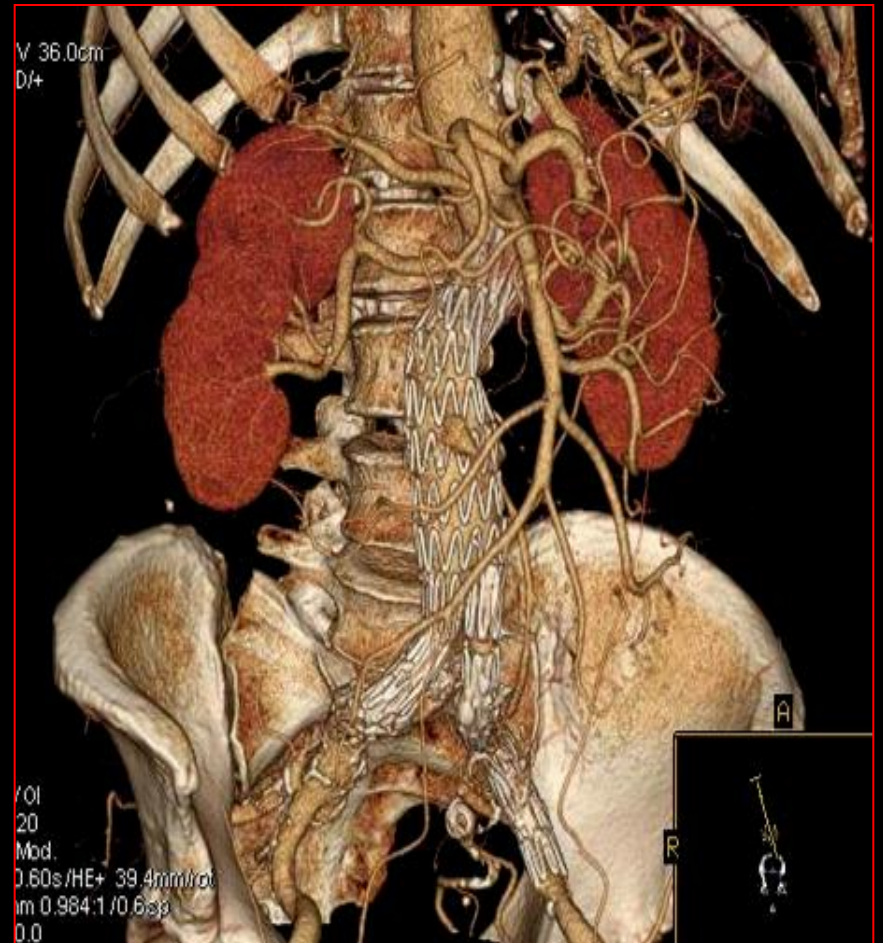
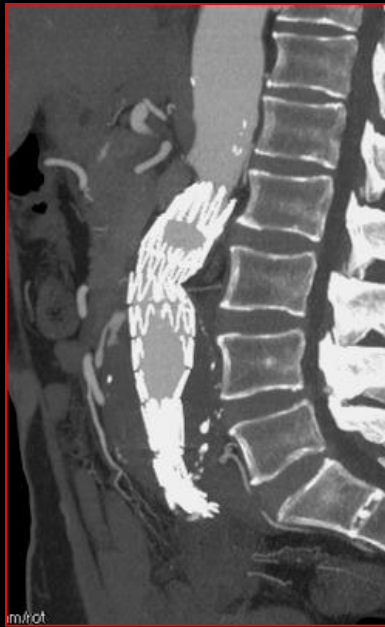
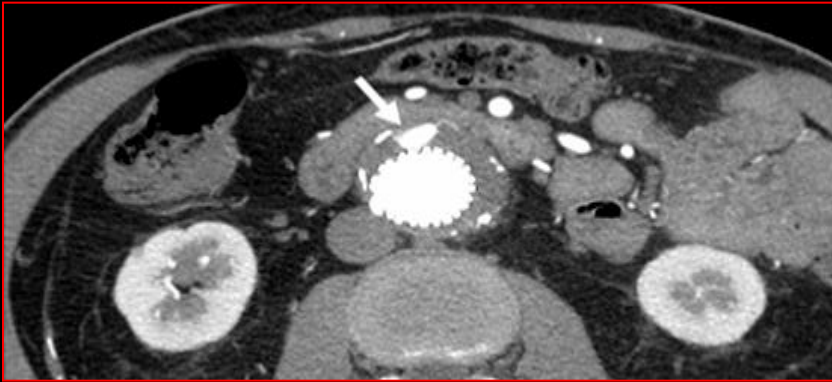
Type II endoleak via inferior mesenteric artery



Type II endoleak – US study

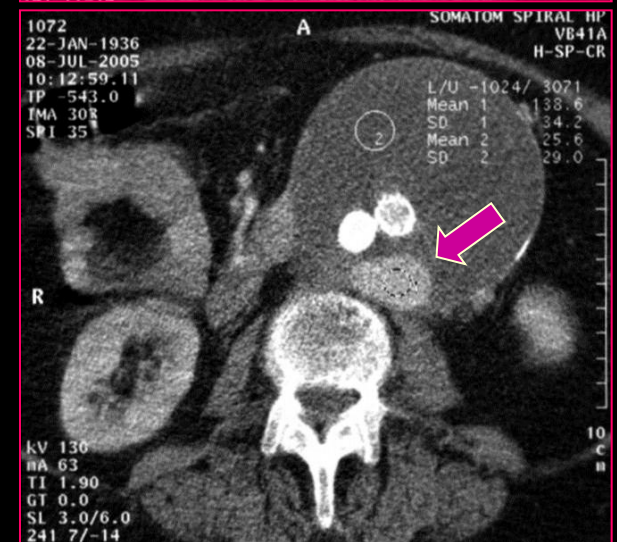
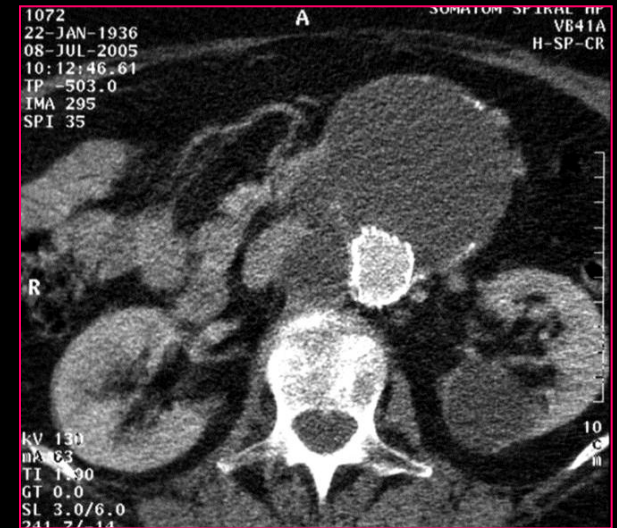


Type II endoleak – CT images



S-graft implantation

78 y.o. female



aneurysms' sack enlargement
Type II endoleak



Arteriography

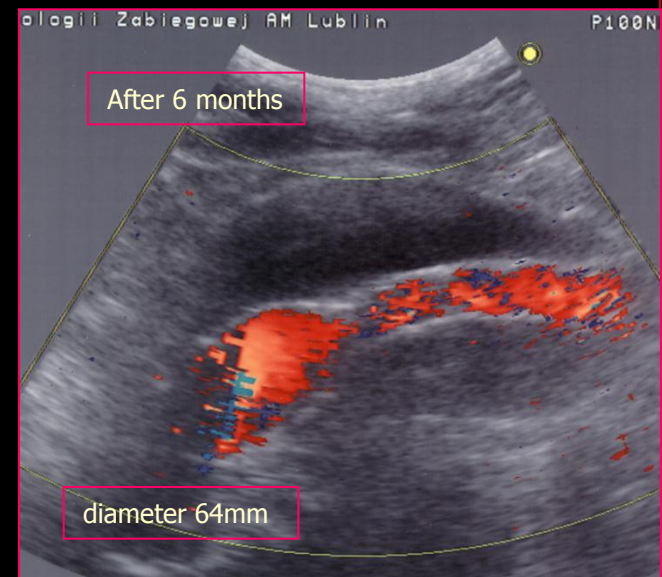
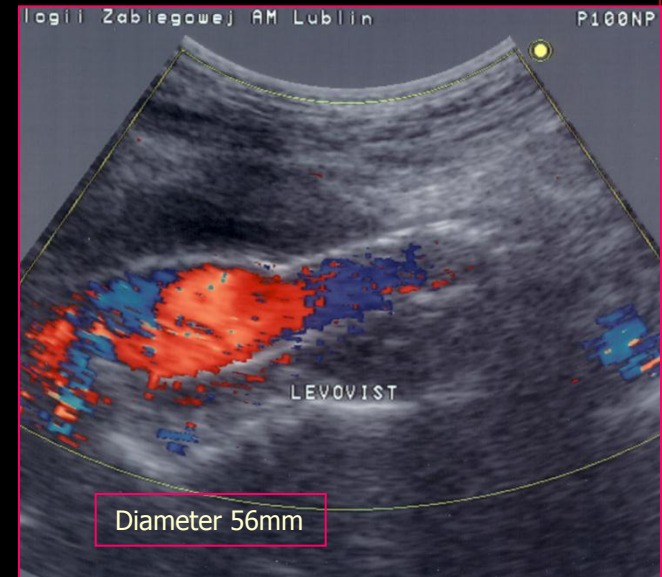
type II endoleak from internal iliac artery



coil
embolization



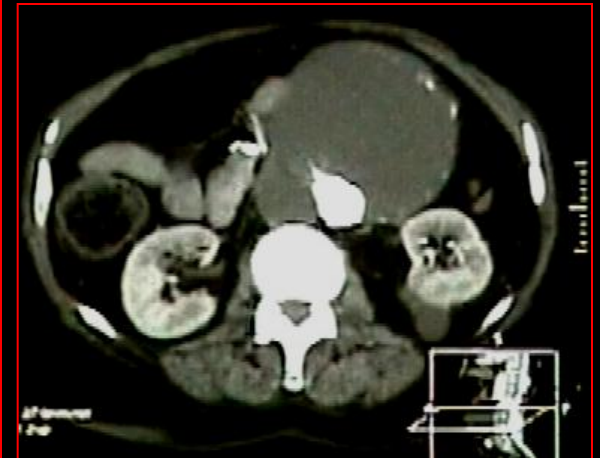
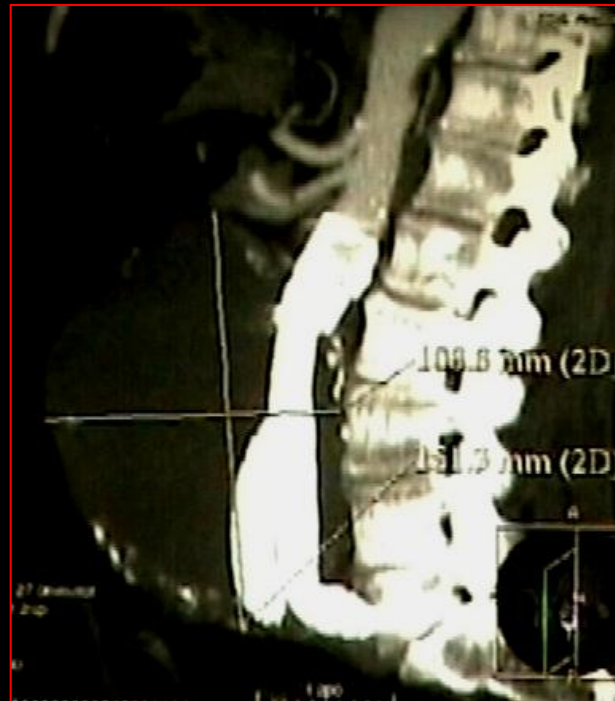
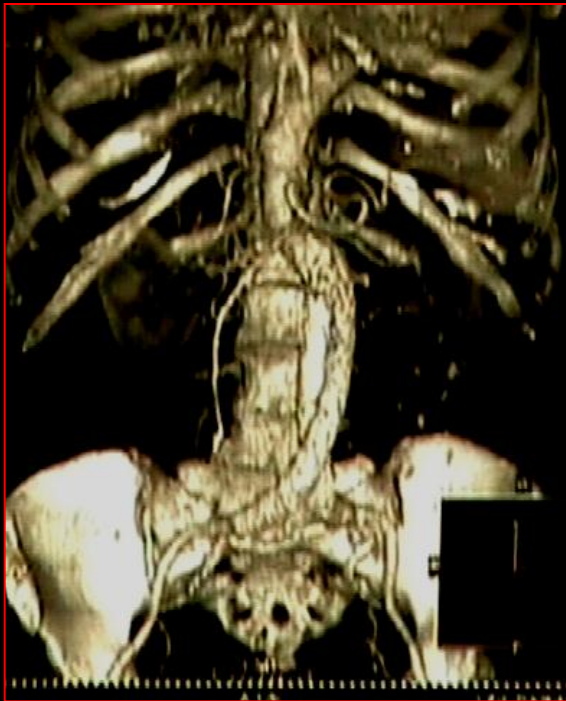
Endotension



AAA sack enlargement without endoleaks



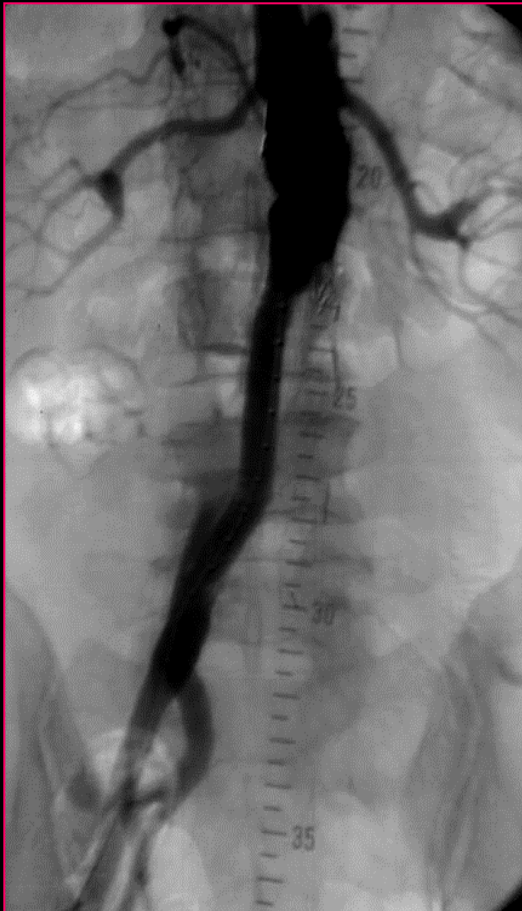
endotension

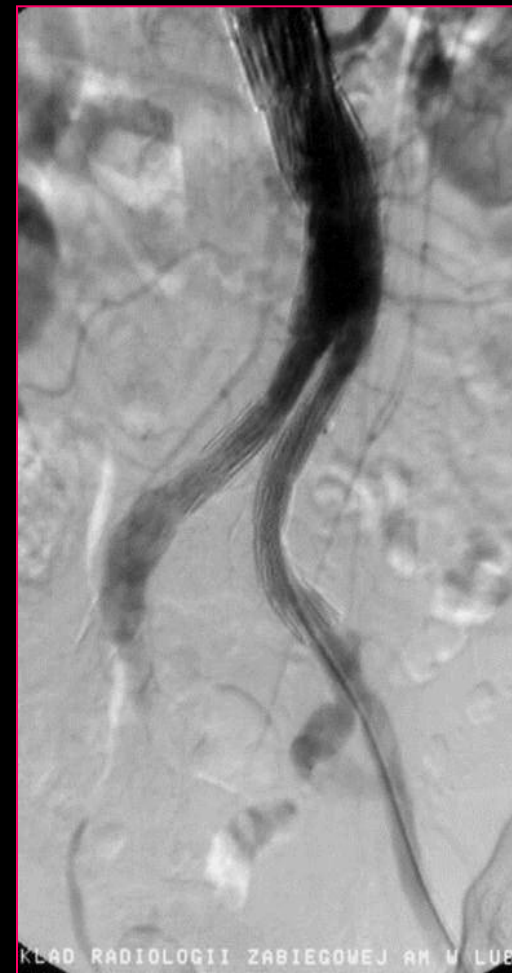
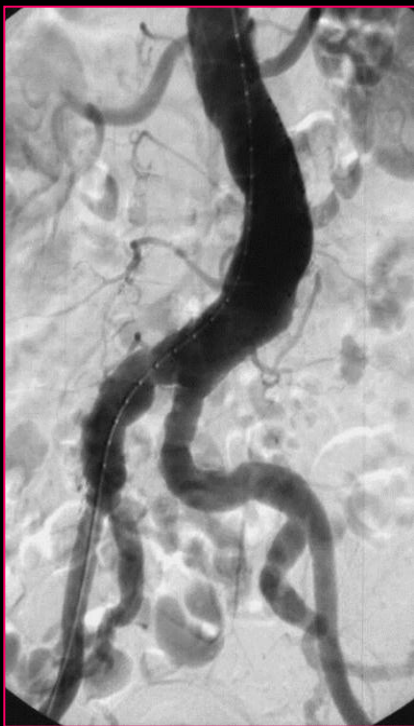


Surgical intervention

Left iliac leg occlusion (thrombosis)

type I b endoleak – treated with extension





Iliac leg kinking



recanalization &
additional stent implantation

Broken straight-tube stentgraft



graft into graft

