Challenging AAA Anatomy and Management

Patient Evaluation for Endograft

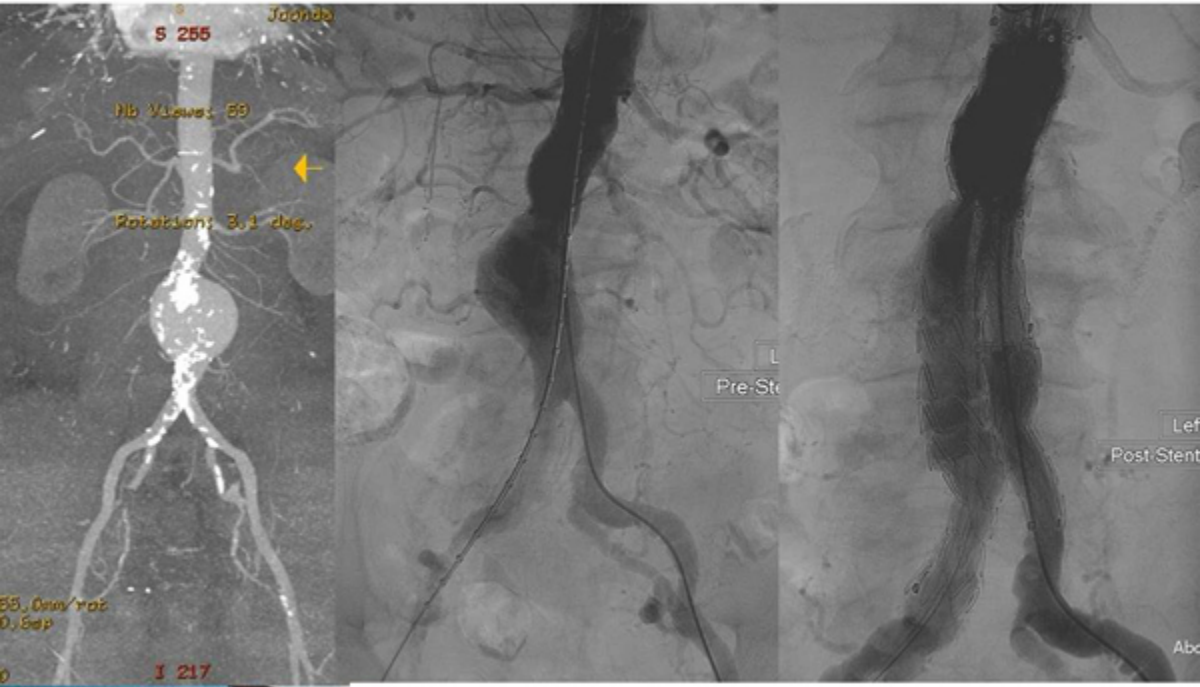
Indication for treatment is met
Characteristics of available devices
Team experience

Critical assessment of morphology

Aorta	abdominal and thoracic
Aneurysm	Neck, Body,bifurcation
Branches	Visceral
Iliac	Common and External
Femoral	

Combination of problems often occur

Ideal Anatomy



Aortic neck

Size	along the length of the neck
Angulation	60deg
Length	15mm
Shape of neck	Cone shaped, Reverse cone,Saccule

Significant luminal filling defect typical of thrombus
Calcification

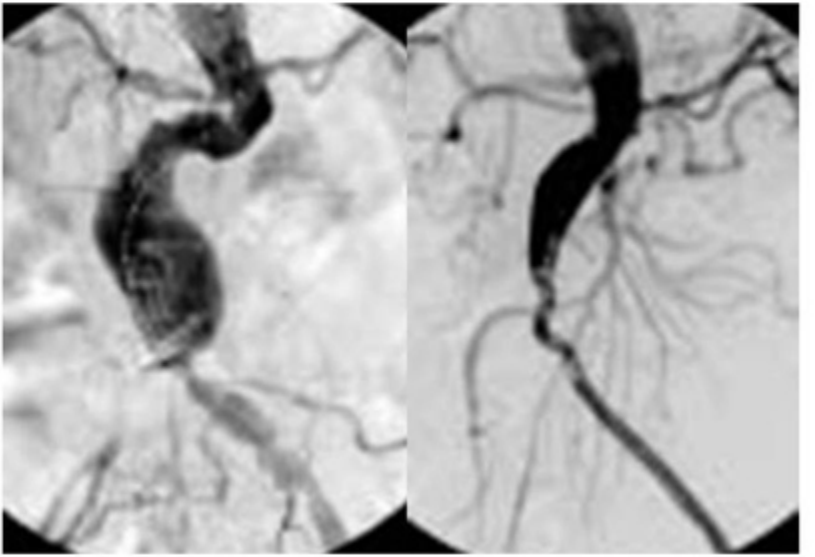
Generally when multiple adverse factors in infrarenal aortic attachment zone the potential trouble is greater than the sum of the adverse parts

Aortic Angulation

Management of Difficult Aortic Neck

- Open Repair of AAA
- Aorto uniliac graft
- Fenestrated EVAR
- Branched EVAR Single or Multiple
- Debranching of Visceral arteries with EVAR(Hybrid)
- EVAR with Chimney Technique

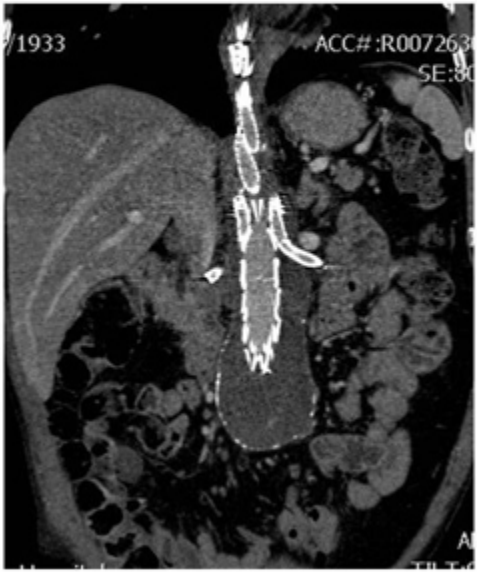
Angulated neck
Aorto uniliac graft



Fenestrated graft

Hybrid Graft: Debranch and EVAR

Branched EVAR
Coeliac, SMA, Both Renal



Branch Abnormalities

Accessory renal artery

- Deploy below if neck long
- If Small — Occlude with graft
- If Large — Bypass
  - Fenestrated graft
  - Single branch EVAR

Occluded SMA

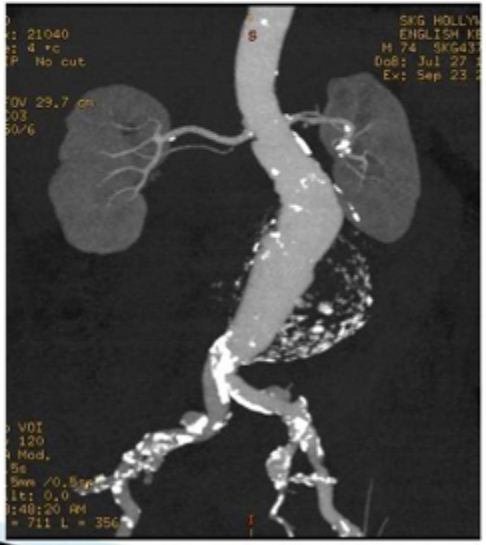
- Revise the anatomy and EVAR
- Bypass to IMA
- Bypass to SMA

Aortic bifurcation Size

Calcification

Dilate before Device passage

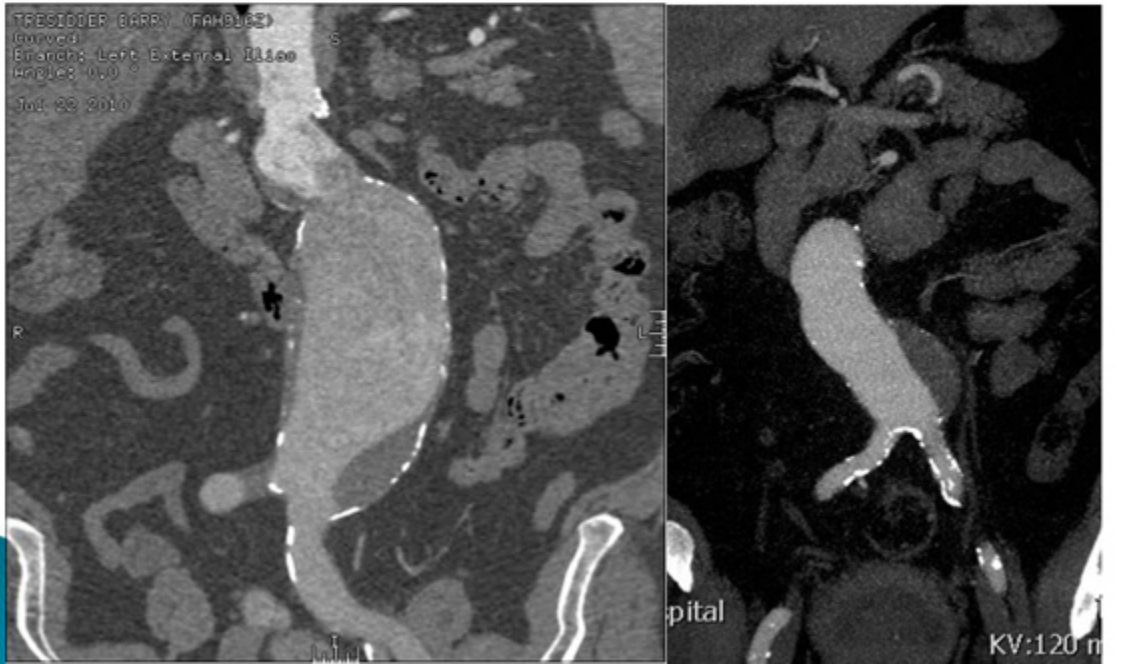
Consider Stents to keep lumen open: Occlusion



Aortic Aneurysm Lumen

Difficult Cannulation of contra limb

Choose Main body side carefully



Iliac arteries

Size Small non diseased
Ectatic or aneurysm
Length
Tortuosity Common and / or external
Calcification of common and/or external

Iliac tortuosity and calcification

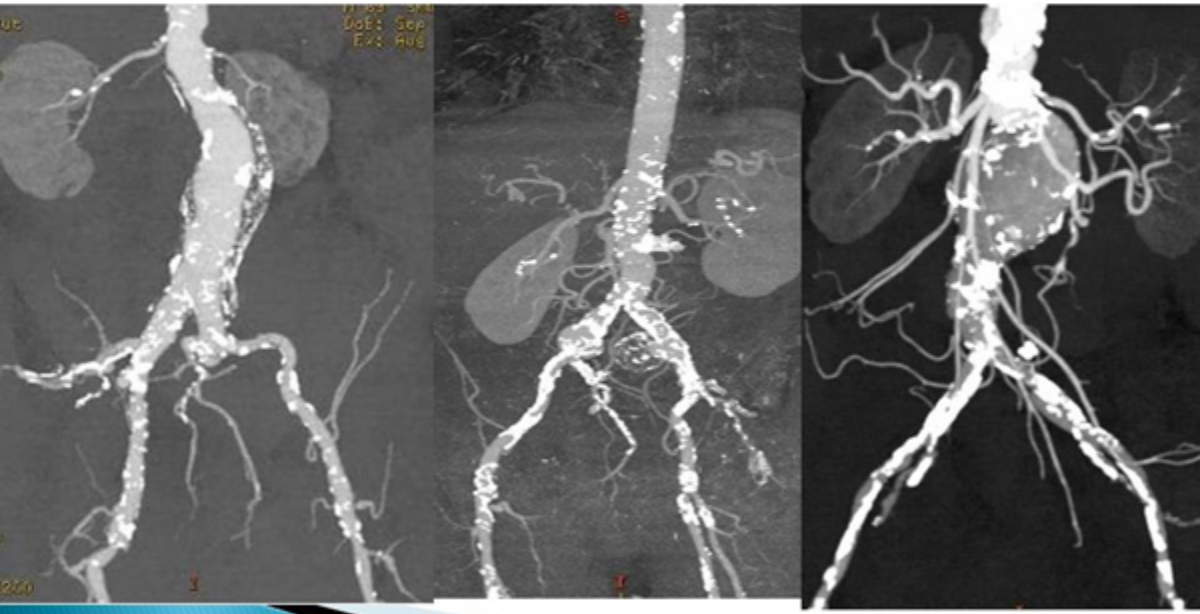
Tortuosity
Assess iliac arteries very carefully
Choose Small delivery system graft
Choose Flexible graft or combine grafts
Through and through wires to straighten iliac
Mobilise External iliac artery into groin
Transpose the internal if short common iliac artery

Calcification
Test Iliac Artery first with Dilator then open graft
Balloon Dilation
Stenting Balloon Expandable stent
Endarterectomy
Higher access
Conduit
Be Prepared for problems on insertion and removal

Iliac calcification

External worse than Common

Circumferential is the danger



Calcified Iliac

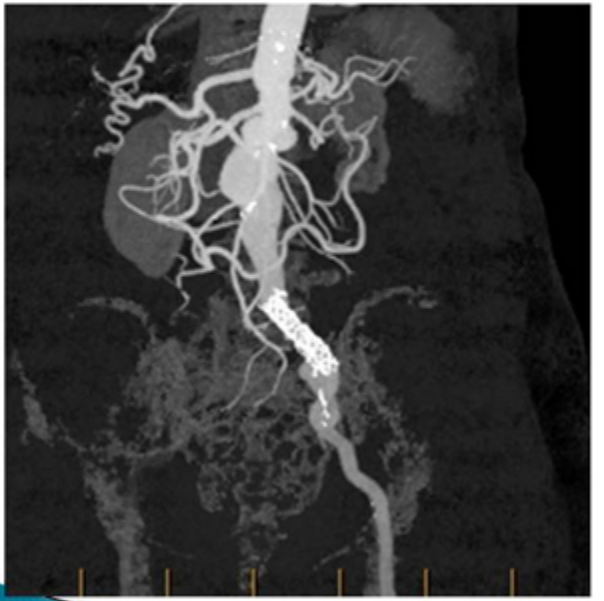
Danger on insertion or removal
Arterial injury

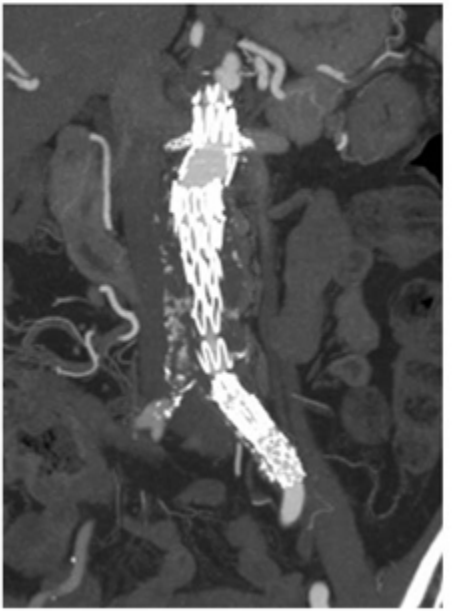
Tortuous Iliac
Primary or associated aneurysm

Tortuous iliac
Length Measurement can be an issue

Calcified and Tortuous iliac

Aortic neck dilation, Iliac Occln and stent
Fenestrated graft via one iliac





Iliac Calcification

Most dangerous abnormality

Essential Accurate Assessment of the vessels on imaging

Consider Calibrated angiogram before procedure

Appropriately caution and the judgment of how much is too much is best done by the operator on their experience

Iliac dilation and Aneurysm

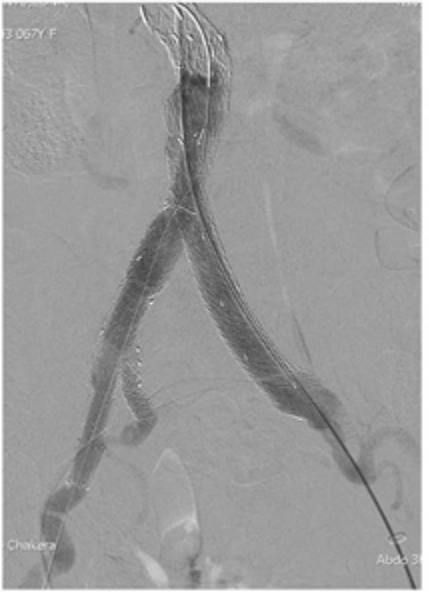
Flared or bell bottom ends of limbs

Extend to external iliac for sealing zone

Occluded internal	Embolise
	Ligate
Preserve internal	Iliac Bifurcate Device(IBD)
	Bypass or transposition

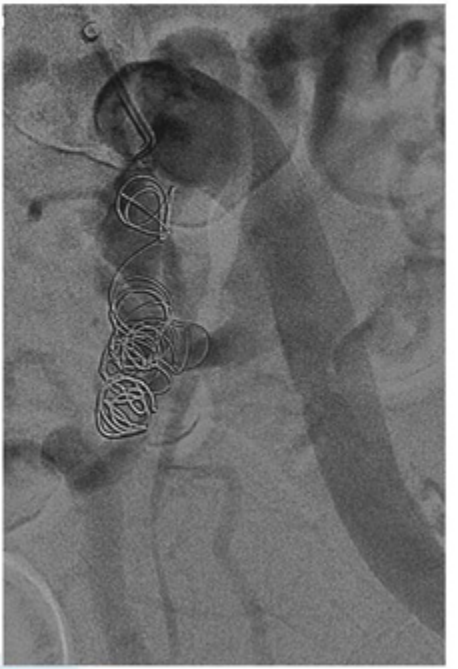
Iliac Aneurysm

Ligate internal : Open , Laparoscopic

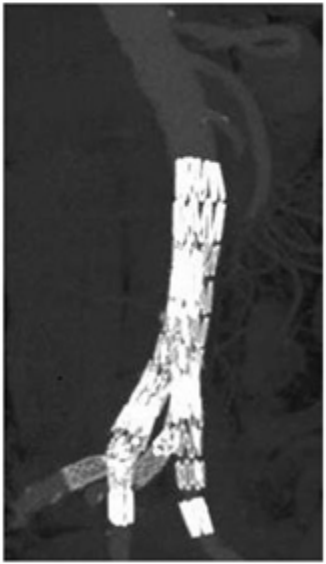


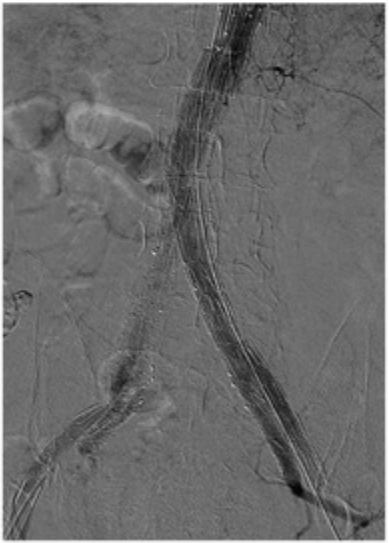
Common iliac aneurysm

Embolise



Bilateral Common iliac aneurysm
Bilateral IBD





Femoral artery anatomy
Percutaneous vs open

High Bifurcation
Calcification
Aneurysm
Previous surgery

Fem pop
Endarterectomy

Puncture High
Surgical treatment

Femoral arteries: Calcified

Cutdown

High puncture

Be Prepared to fix at end of procedure

High Femoral bifurcation

Seen on Imaging study

High puncture, Cutdown

Conclusion

Successful procedure and avoid problems

Excellent Imaging to provide thorough and quantitative familiar with a patient's vascular anatomy

Careful **preprocedure planning**

Choose appropriate type, configuration and size of graft

Side of entry

Difficulty expected and optional techniques

Have adjunctive equipment available

Matching case difficulty to endovascular team skills