

Sequelae of EVAR limb occlusion; a 6 year retrospective review

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Disclosure

Speaker name: Terri-Ann Russell

I do not have any potential conflict of interest

Background



Endovascular Repair of AAA

Background

- Evolution
 - Tube graft (1991)
 - Aorto-uni-iliac
 - Bifurcated grafts (1994) Chuter et al
 - Fenestrated/branched stent grafts(1999)

Anatomic Criteria for EVAR

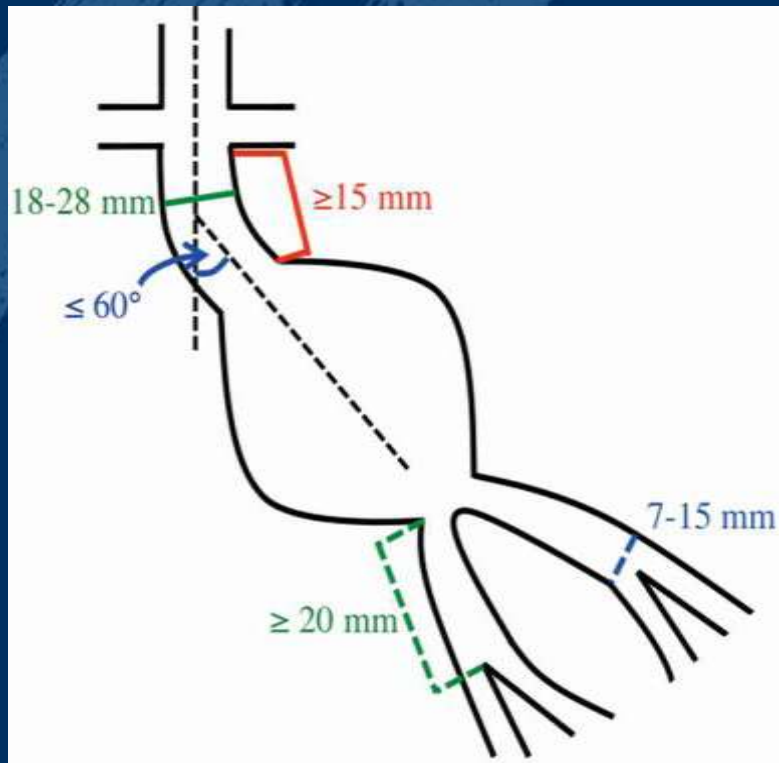


Table 1. The suitable anatomical requirements for endovascular aneurysm repair.

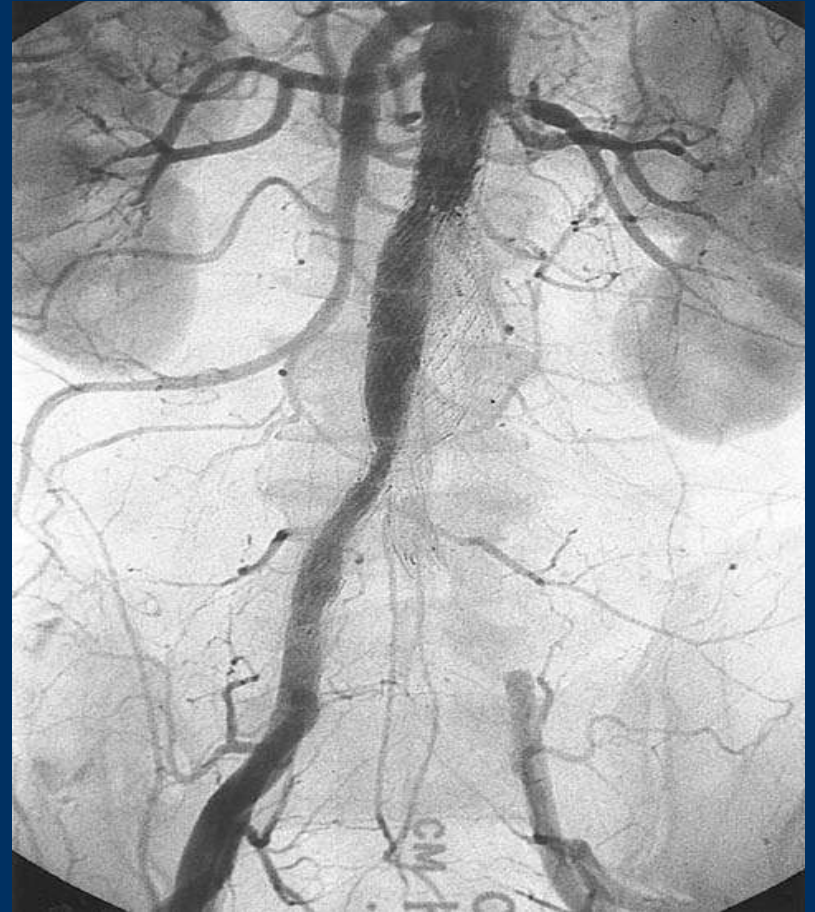
Anatomical characteristics	Size
Proximal aortic neck length	>15 mm
Proximal aortic neck diameter	<32 mm
Proximal aortic neck angulation	<60 degrees
External iliac diameter	>7 mm
Iliac bifurcation angulation	<90 degrees

Factors Predisposing to Iliac Limb Occlusion

Areas of stenosis (aortic bifurcation and occlusive or tortuous iliac arteries)¹

Unsupported endograft devices or Irregularity of the endograft lumen ²

Changes in forces, such as extrinsic compression ³



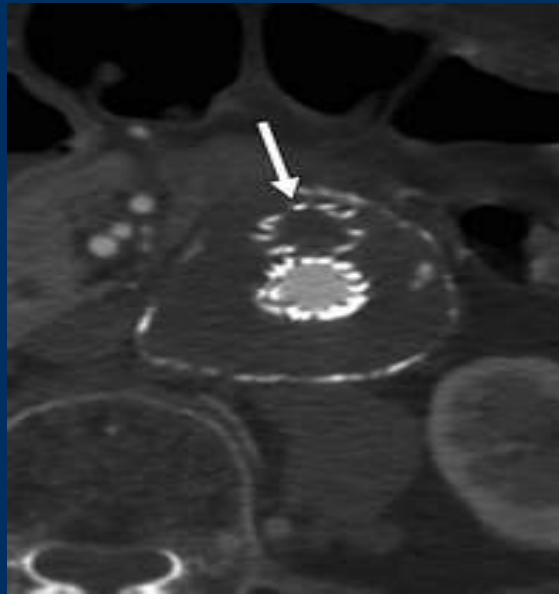
1. Carpenter JP, et al. Failure of endovascular abdominal aortic aneurysm graft limbs. *J Vasc Surg* 2001;33:296-303.

2. Baum RA, et al. Limb kinking in supported and unsupported abdominal aortic stent-grafts. *J Vasc Interv Radiol* 2000;11: 1165-71

3. Chuter TA, et al. European experience with a system for bifurcated stent-graft insertion. *J Endovasc Surg* 1997;4:13-22.

AIM

- To review the incidence and consequences of iliac limb occlusion post EVAR



Method

- Data from NVR (April 2012 to August 2018) of EVAR patients at a single institution
- Data from local protocol for EVAR surveillance
- Patients post limb occlusion assessed for ischaemic symptoms

EVAR Surveillance Protocol

Time post EVAR (months)	CT (pre and post contrast to groins)	Plain AXR (AP + lateral)	Duplex Scan (VSU)
1 (baseline)	yes	yes	yes
6			yes
12	Yes (post contrast)	yes	yes
Annual		yes	yes

Results

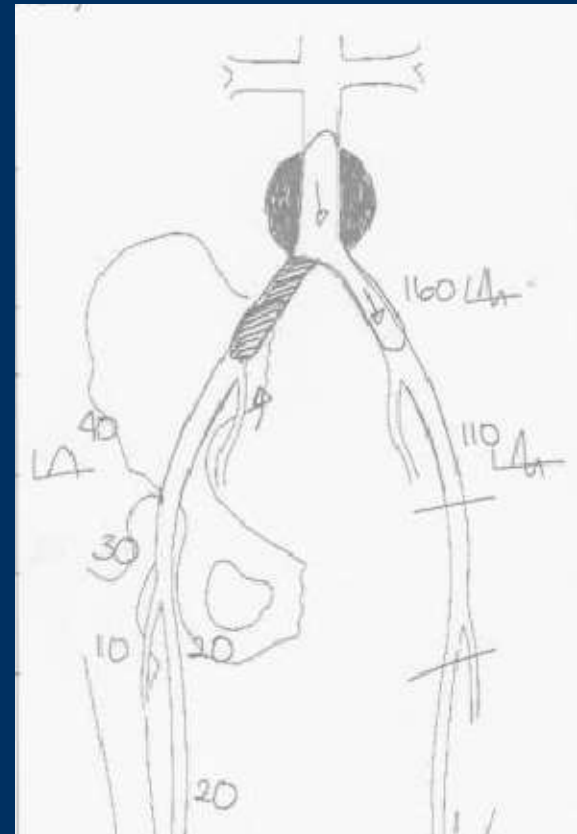
- Total of 411 limbs assessed (17 AUI and 197 bifurcated grafts limbs) *Cook : 90% Gore & Lombard 10%*
- 214 patients had EVAR
- 5 limb occlusion (4 patients)
 - 2.3% patients
 - 1.2%limbs

Case 1

1/12

- CTA patent limbs
- Duplex patent limbs

4/12



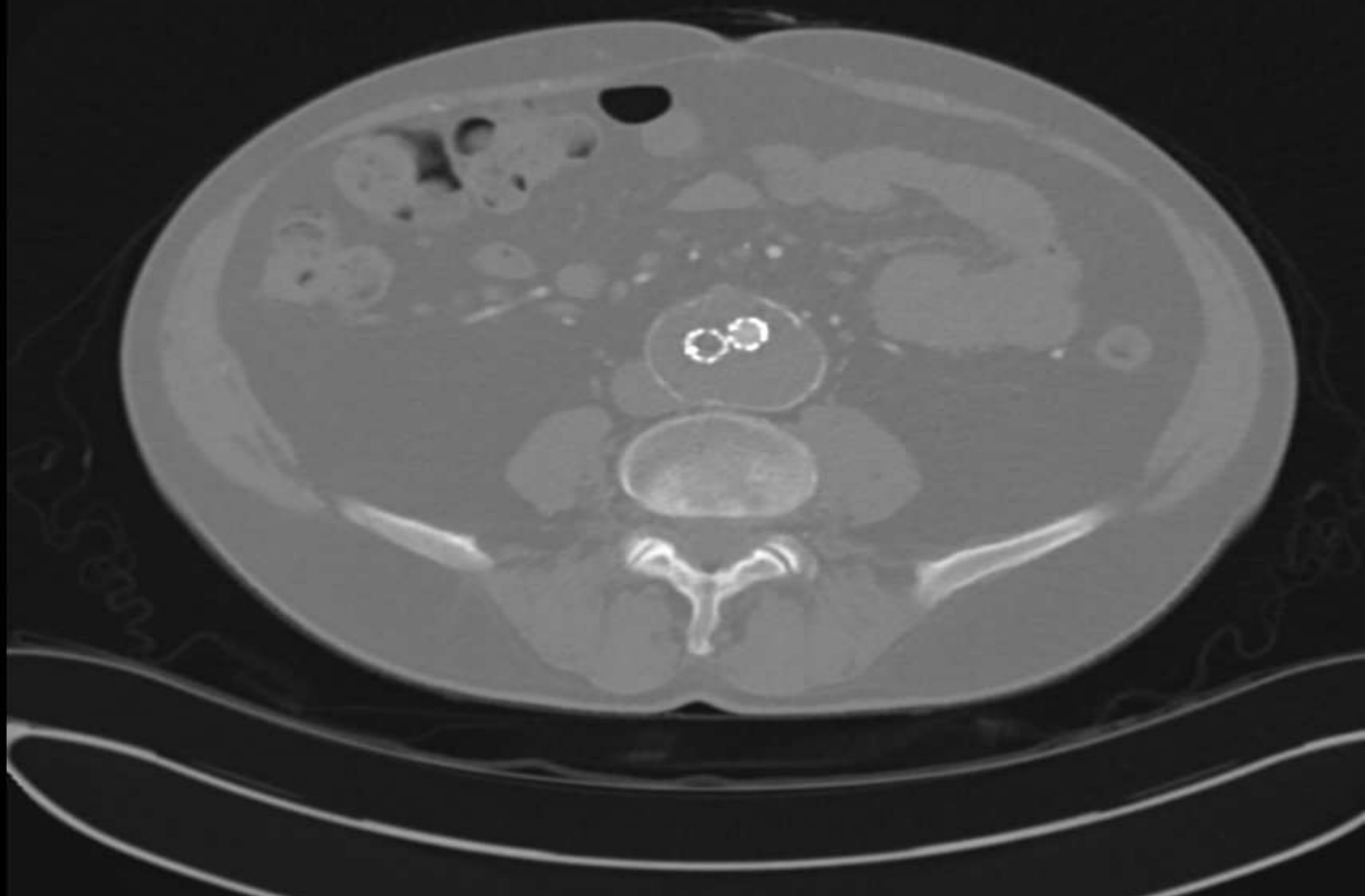
CT Angio

CT Angiogram Aorta
Abdo Aorta 5.0 I30f 3
Se: 6
Im: 44/92

A

Primary
Northampton General Hospital
Study Date: 04-10-2018
Study Time: 14:44:44

R



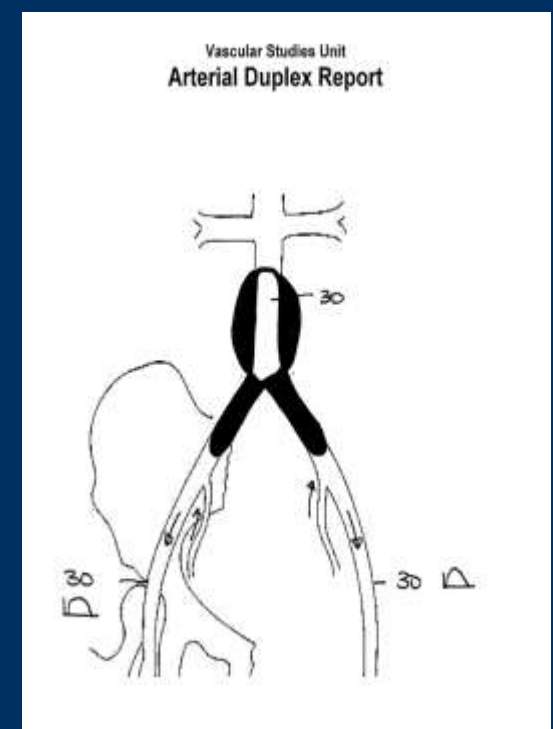
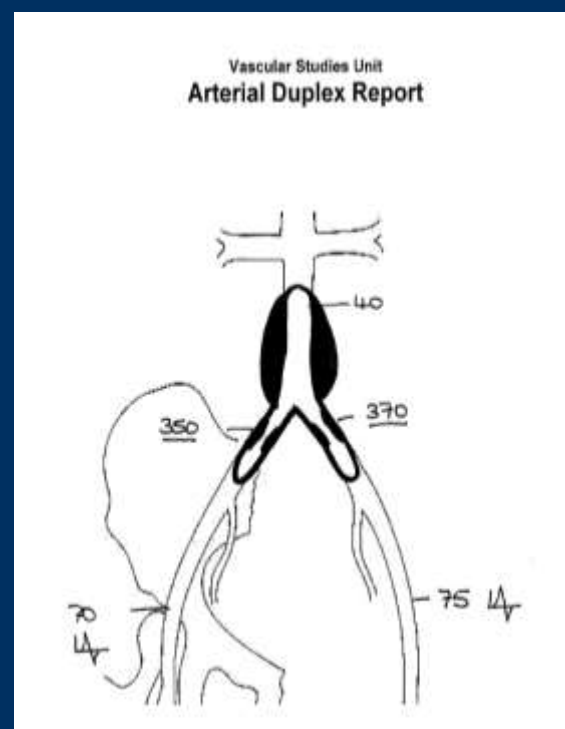
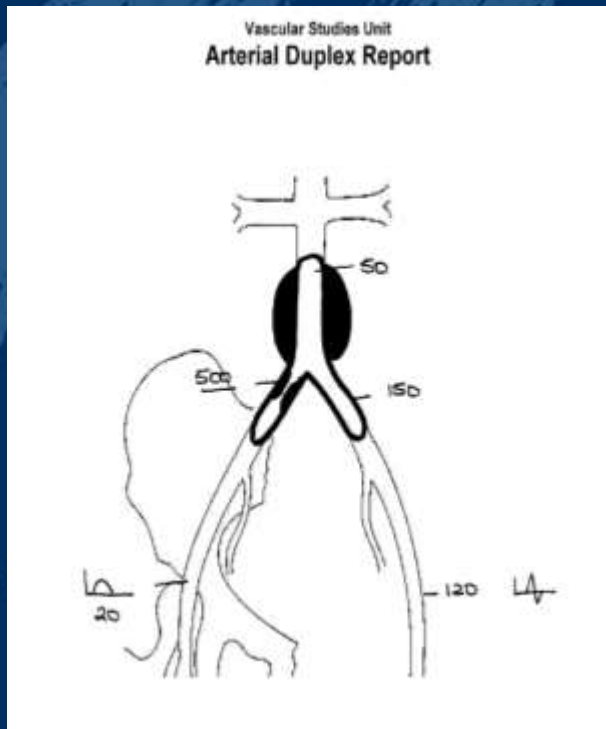
L

Case 2

1/12

6/12

10/12



CT Angio

CT Angiogram Lower Limbs
Angio 5.0 (26f 3)
Se: 4
Im: 62/290

COMPARISON
Northampton General Hospital
Study Date: 23-11-2018
Study Time: 13:08:35

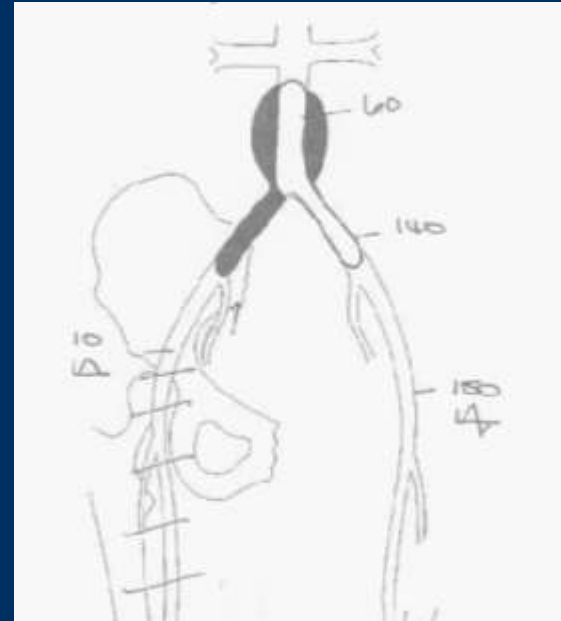


Case 3

1/12

- CTA patent limbs
- Duplex patent limbs

2/12 (claudication)



CT Angio Aorta

CT Angiogram Aorta
1mm Arterial, iDose (4)
Se: 501
Im: 245/465

COMPARISON
Northampton General Hospital
Study Date: 14-12-2018
Study Time: 12:49:54



Visipaque
ST: 1 mm

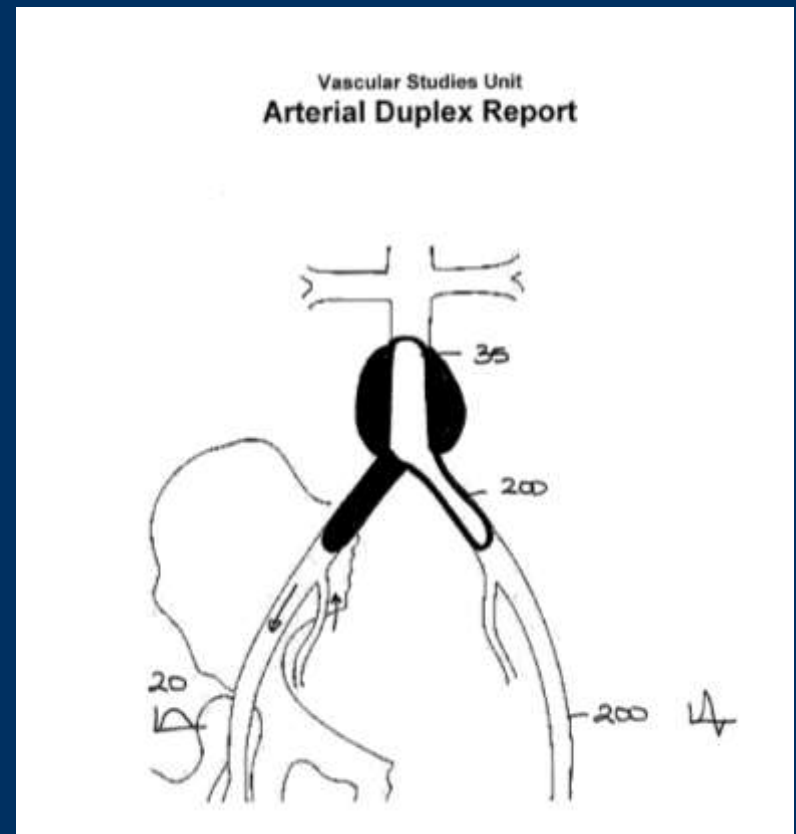
Q 1.67
WL: -4 - WW: 1043

Case 4

1/12

- CTA patent limbs
- Duplex patent limbs

6/12



Iliac Limb Occlusion Patient Data

Case no.	Age	Sex	Graft Company	Graft type	Time of Occlusion after EVAR (months)
1	71	M	Cook	Bifurcated	4
2	73	M	Cook	bifurcated	9 &10
3	84	M	Cook	Bifurcated	2
4	70	M	Cook	Bifurcated (extended Lt.limb)	6

Management of Occlusion

Case no	Symptom	Treatment	Patency of outflow vessels	Outcome
1	claudication	Fem-fem X-over	patent	good
2	claudication	conservative	patent	satisfactory
3	claudication	Fem-fem X-over	patent	good
4	claudication	Fem-fem X-over	patent	good

Conclusion

- 2.3% incidence of limb occlusion
-
- No acute limb ischaemia or amputation
- All limb occlusion occurred within 12 months of EVAR
- There were no predisposing factors to iliac limb occlusion in any of the cases

Conclusion

- 3 of 4 (75%) patient occluded at the interval between surveillance scans

Recommendations

- Patients with significant stenosis should have urgent intervention to prevent occlusion instead of more frequent surveillance

Acknowledgement

- I would like to acknowledge:
 - Interventional Radiologists at NGH
 - Vascular studies Unit at NGH

The logo for LINC, featuring a stylized graphic of three curved lines in red, orange, and yellow, resembling a flame or a ribbon, positioned above the text "LINC".

LINC

Thank You

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