Upward Displacement of Talent
Endograft presented with
Ruptured Aneurysm

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Disclosure

Speaker name:

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I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☒ I do not have any potential conflict of interest
Endoleaks
Persistent perfusion of the aneurysmal sac after (EVAR).

- Leaks are related to:
  - Anatomic factors and patient selection.
  - Device related.
  - Intrinsic to the endovascular procedure (Type II).
Prevalence

The most common complication following EVAR

- The most common reason for readmission following EVAR

Incidence: 10% to 50%.


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Types of Endoleak
Diagnosis of Endoleak

- CT scan (IV contrast)
- Colour Duplex Ultrasonography
- MR Angiography
- Selective Angiography
- Plain X-rays
- Sac Pressure Measurement

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Diagnosis of endoleak

**CT scan (IV contrast)**

* Technique of choice

- Type II endoleak can be missed
- Radiation Exposure (?)
- Contrast infusion (?)

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Diagnosis of Endoleak

**Colour Duplex Ultrasonography**

Dynamic Picture

Operator dependency (?)
Diagnosis of endoleak

**MR Angiography**

More sensitive in **slow flow type II** endoleak

In expanding aneurysm sac with no identified endoleak on CT

Diagnosis of endoleak

**Selective Angiography**

Digital subtraction angiography

Suspected to the branch leak

Diagnostic & Therapeutic (simultaneously)

Invasive procedure (?)
Diagnosis of endoleak

**Plain X-rays**

- Graft migration
- Limb disconnection
- Wire breakage
- Kinks

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Sac Pressure Measurement

- Wireless implantable pressure-sensing device is placed in the aneurysm sac at the time of EVAR.
- Transmits pressure readings and pulse pressure waveforms to recording devices.
- Sensitivity: 0.94 & specificity of 0.80 for detecting type I or III endoleaks.

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Case presentation

History

• 60 year old hypertensive male patient

• 6.7 cm AAA was treated 24 month ago using Endurant Medtronic device (outside our center).

• The patient didn’t have any follow-up (He is a surgeon)

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Presentation

• Abdominal distension, Colicky abdominal pain, Vomiting, Constipation and Back Pain

• X-ray erect abdomen: multiple air fluid level
Case presentation

• Exploratory laparotomy: constricting band released.
• Patient improved during the first 24 hours post laparotomy
• 2nd day there was sudden drop in the haemoglobin (7.5 gm/dl) and haematocrit level (30%) with drop in the blood pressure (90/50).

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CT: upward displacement of graft into the aneurysmal sac

The right iliac endograft limb ends within the aneurysmal sac

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CT: upward displacement of graft into the aneurysmal sac

Both iliac endograft limbs end within the aneurysmal sac before the aortic bifurcation
CT: Huge Retro/intra-peritoneal Haematoma
Management Options

• Conversion to open surgery

• Endovascular treatment
Endoleak Type Ib

• What to do?
  ➢ Extension +/- embolization of IIA
  ➢ Branched Iliac Graft.
  ➢ Chimney technique

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Treatment of endoleak

Type Ib: Attachment Site Leaks

A to C: Iliac Branched Device (IBD) with extension into internal iliac artery. D to F: the Sandwich technique with separated external iliac artery limb and internal iliac artery limb

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Pre-procedure Angiography??
Bilateral iliac extensions
Ballooning the overlapping zones
Post deployment angiography
Post extension CT scan
The Reconstruction Image
Upward displacement

# This phenomenon does occur

# Anatomy consisting of SHORT, TOROUS iliac arteries with a LARGE SAC tends to have the highest predisposition for this

# There are no specific stent graft designs for alleviating this situation, gaining adequate purchase into the iliac arteries is the best solution, recognizing that tortuosity mandates more purchase

# Endoanchors may be useful in this setting.

# Nellix endovascular sealing system (Endologix, Inc., Irvine, CA) may obviate this, as obliteration of the sac may prevent any upward (as well as downward) migration

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Take home message

Endoleak is not uncommon and should be carefully detected and managed.

Various imaging modalities are available and should be utilized to detect even slow flow endoleak.

Good preoperative planning (CT)

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Take home message

Strict follow up protocols is a must

Endovascular management is the preferred choice for treating endoleaks (Open repair in fit patient)

Cover the whole CIA esp. if originally dilated, tortuous & short

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Thank You

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