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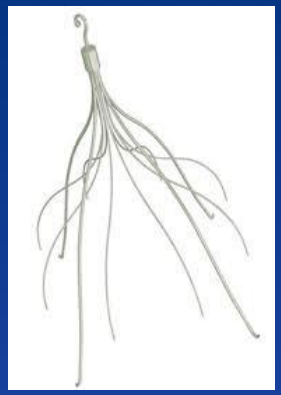

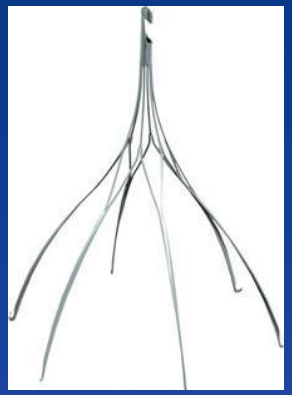

Operative Explantation of Inferior Vena Cava Filters

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Disclosures

- None.

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Thromboembolic Prophylaxis

- Exclusion of inferior vena cava (IVC).

  Trousseau 1868 / Bottini 1893.

- Ligation of the IVC.

  Homans 1944.

- Partial interruption of the IVC with external clips.

  Moretz 1959.

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Open surgical placement of a filter – 1967

Percutaneous insertion of a filter - 1973.

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Inferior Vena Cava Filters - Indications

- Protection against pulmonary embolism;
  - Patients with acute DVT where anticoagulation is contraindicated.
  - Patients with acute DVT where conventional anticoagulation has proved ineffective.
  - Patients with significant pulmonary compromise.
- Placement following a massive PE;
  - Evidence of residual thrombus in lower limbs.
  - Site of origin expected to benefit.

Inferior Vena Cava Filters - Complications

- Bleeding, pain or thrombosis.
- Recurrent DVT.
- IVC thrombosis, stenosis or occlusion.
- Filter migration / erosion.
- Mortality rate 0.3%.

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Study Objectives

- To assess our experience with open operative explantation of IVC filters.

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Methods

- IRB approval was obtained.
- Patients identified from operative case logs between 1994 and 2013.
- Collated data included patient demographics, thromboembolic risk profile, clinical history, operative indication and clinical outcomes.

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Patient Demographics

- 18 patients identified:
  - Male = 9.
  - Mean age = 49.6 years (range 23-79).

Clinical Presentation – Filter Insertion

Rationale for IVC Filter Insertion	Patient Number
Lower Extremity Deep Venous Thrombosis (DVT)	6
Pulmonary Embolus (PE)	2
Combined DVT / PE	6
Post-Trauma	4

- IVC Filter Type:
  - Permanent = 4.
  - Retrievable=8.
  - Unknown=6.

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Thromboembolic Risk Profile

Thromboembolic Risk Factor	Patient Number
Trauma	4
Major Surgery	3
Neoplastic Disease	3
Hypercoagulation Disorder	2
Anatomical Compression	2
Sepsis	1
Post-EVLT	1
Patient Debility	1
Unknown	1

- 14 patients anticoagulated.
  - Warfarin=11, Lovenox=2, Xarelto=1.

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Clinical Presentation – Filter Removal

Patient Symptomatology	Patient Number
Abdominal / Back Pain	5
Haematuria	1
Psoas Abscess	1

IVC Filter Status	Patient Number
Migration	3
Perforation	9
Fracture	1
Adherent Thrombus	1
Incidental	4

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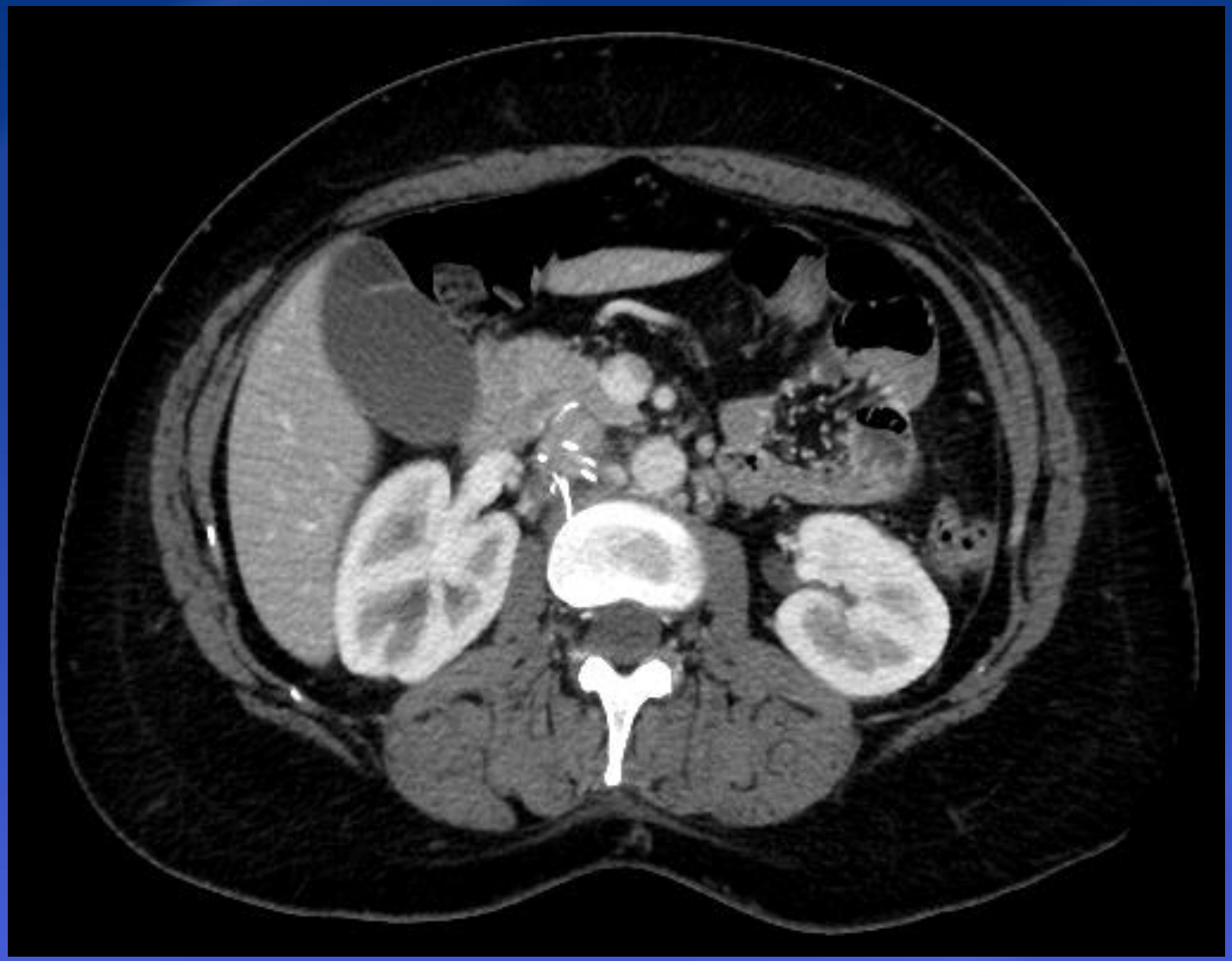

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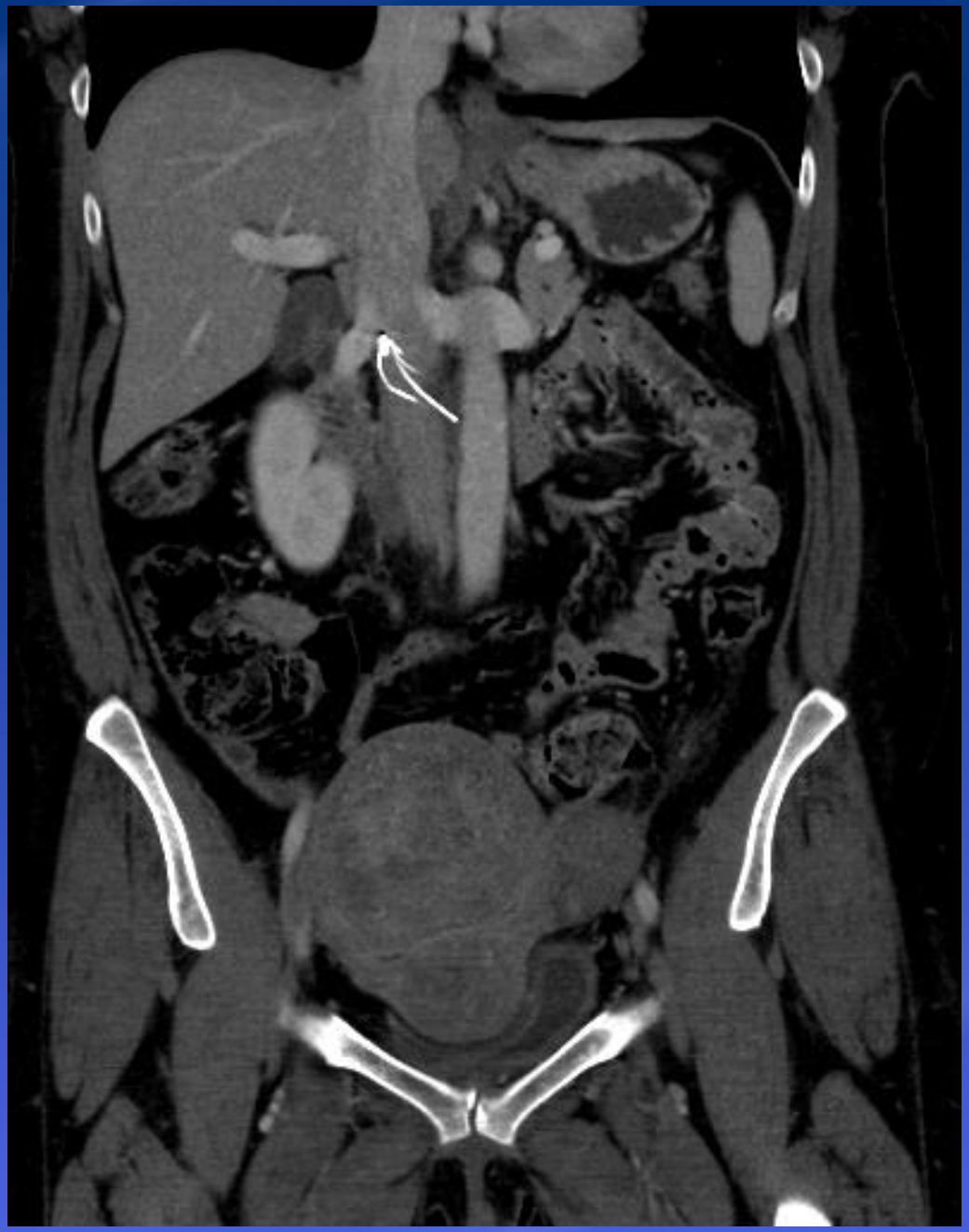

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Removal Strategy

- Percutaneous:
  - Unsuccessful in 10 patients.

- Open Operative Approach:
  - Transabdominal Laparotomy = 11.
  - Transabdominal Subcostal = 5.
  - Transjugular = 1.
  - Robotic = 1.

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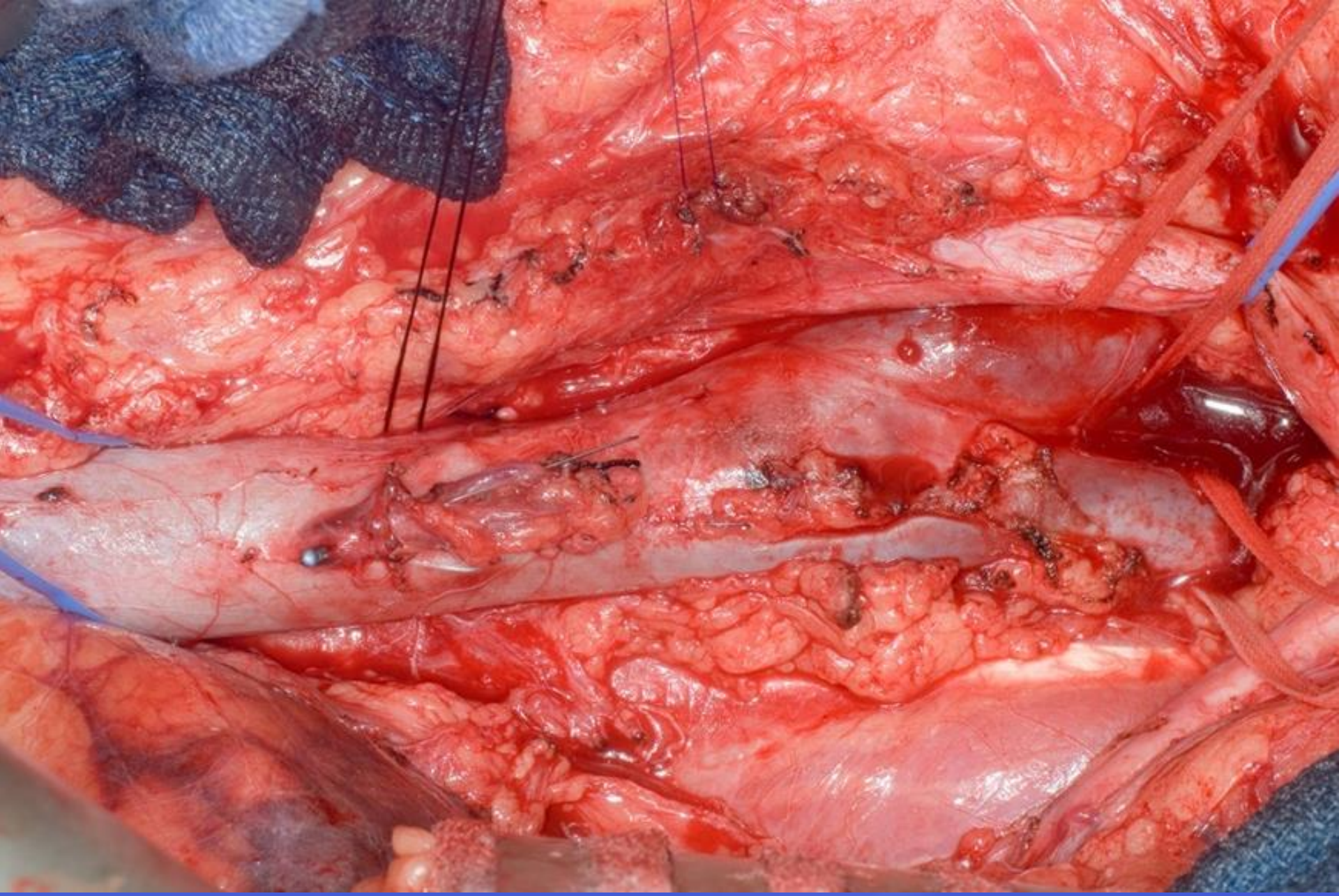

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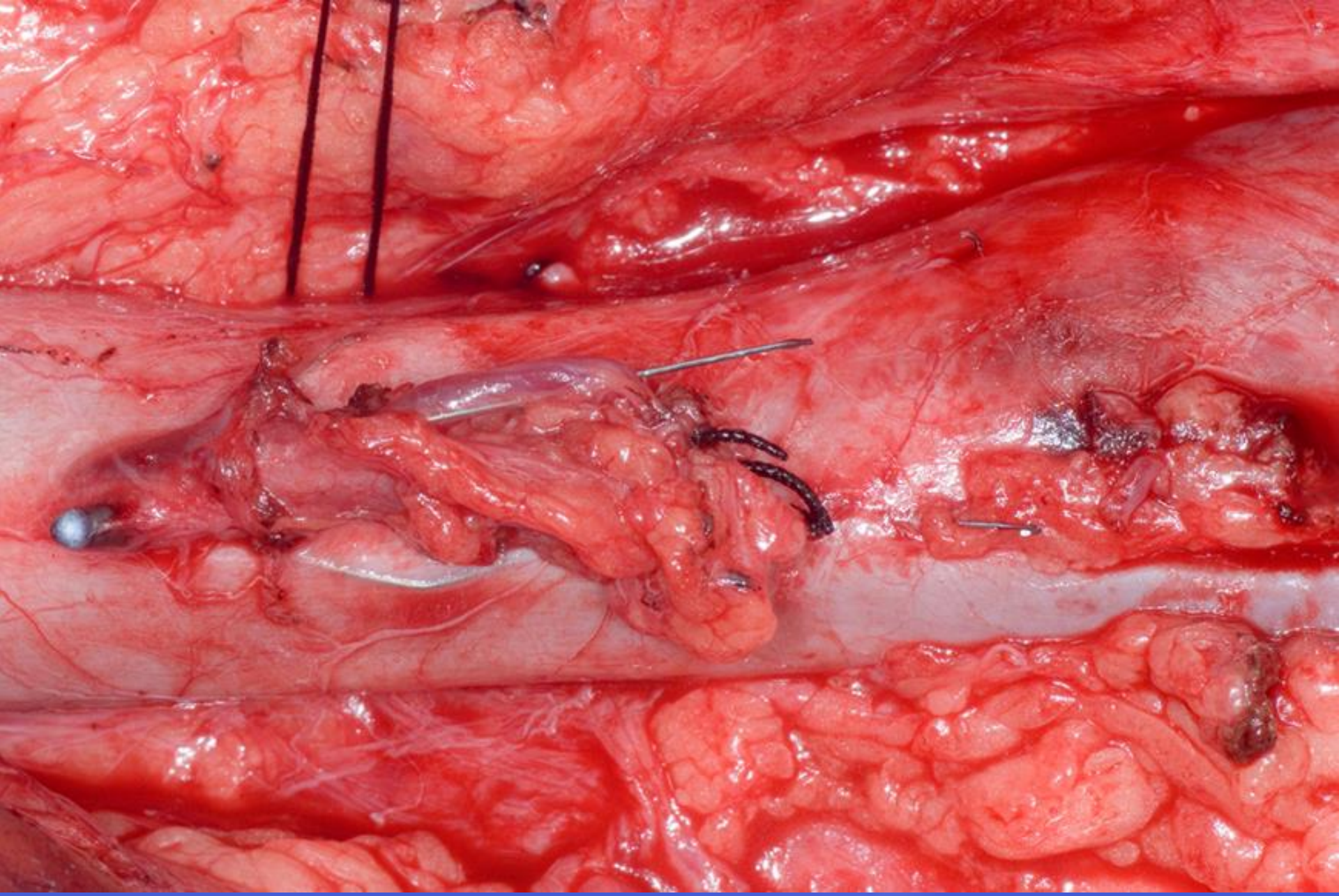

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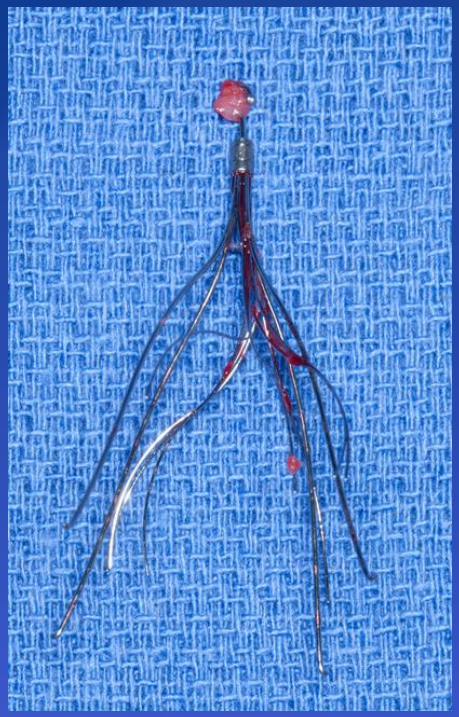

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Patient Outcome

- No procedural complications relating to filter removal.
- Mean length of stay 6.2 days (range 1 – 17).
- 17 patients remain well at mean follow-up of 618 days (range 2 – 4680).
- One patient died 464 days post-operatively from advanced malignancy.

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Conclusions

- Filter insertion increasingly prevalent and not without risk.
- Percutaneous removal unsuccessful in nearly 20% of cases.
- Subcostal approach appropriate if primary goal of surgery is filter removal alone.
- Filter removal sequelae minimal.

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Questions

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