Is there a safe time for IVC filter retrieval?

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Disclosure

Speaker name:

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
The IVC filters placement related benefits

Remains a very contentious issue.

The indications for usage of these devices are very stringent in the UK and also early removal is mandatory when the indications for the same have expired.

The rule of thumb says the earlier IVC filter retrieval the better; or is this so?
Materials and methods

Three cases of Günther Tulip® Vena Cava Filters (Cook Medical) retrieval were analysed.

All filters were placed in the infra-renal IVC segment using a routine right common femoral vein approach.

The retrieval was performed using the dedicated Cook Medical Günther Tulip® Vena Cava Filter retrieval set for jugular vein approach.
Case 1

- 31 year old women presented with shortness of breath, left sided chest pain, high D-Dimer
- History of large uterine fibroids, overweight and no other medical history
- CTPA was administered urgently
Case 1

• Two days after the administration of the full anticoagulation she developed severe vaginal bleed
• Given the massive fibroids in the uterus the embolisation was not an option
• IVC filter was administered urgently
USS of the pelvis
USS of the pelvis
MR of the pelvis
MR of the pelvis
IVC filter insertion
The time passed

• The patient went to Belgium for the treatment of her fibroids

• The same was successful and she recovered well

• She did not call in for a year
Day 375 since the procedure
Day 375 since the procedure
Day 375 since the procedure
Day 375 since the procedure
Day 393 since the insertion
Day 393 since the insertion
Day 393 since the insertion
Day 393 since the insertion
Day 393 since the insertion
Day 393 since the insertion and you are a hero if all OK!

~ DR. VICTOR S. ~
Best Doctor Ever, Thanks For All Your Help ~ From

Dartford and Gravesham NHS Trust
Case 2

- 76 year old men presented with weight loss, more than 4 stone in a year
- Non-smoker, no history of substance abuse and otherwise healthy
- No systemic signs
- CTCAP was administered urgently
CTCAP
Catheter delivered 20 mg/10 hours Altiplase
CTPA after
CTPA after
CTPA after
IVC filtering
Right hemicolecctomy 24 days later
CTCAP F/U 3/12 post surgery
CTCAP F/U 3/12 post surgery
All looks good and the IVC removal happened on the day 186 since the placement.
Voila ! All fine!
Behind the scene:
Behind the scene:
Behind the scene:
Behind the scene:
In spite all the patient remained unaware of the problem!

- No pain
- No iatrogenic damage on Ultrasound of the IVC and right jugular vein; normal Doppler flow on completion and at discharge 90 minutes later
- All vital parameters remained unchanged
- Completely uneventful recovery, discharge 90 minutes upon haemostasis
Case 3

- 58 year old men presented with 6 weeks history of low back pain, weakness in both legs.
- Some hesitancy and poor flow of urine
- Smoker
- Known peripheral vascular disease
MR of the L/S spine showed compression of the conus medullaris at D12
Further management

• Urgent CTCAP did not show other malignancy;
• Urgent transfer to Kings College Hospital for spinal cord decompression
• The spinal surgery performed
• Poorly differentiated carcinoma
• CT/PET did not show other lesions
CTCAP showed no further lesions
Recovery continues

- Full thromboprophilaxis post surgery
- Intensive physiotherapy
- 2/52 post surgery developed extensive PE
- Ultrasound venous lower limbs Doppler was negative
- Routine IVC filter insertion was performed at KCH
- Developed peripheral vascular crisis; CT angiogram of the lower limbs showed chronic changes not dissimilar to previous
CT/PET and CT lower limbs angiogram
Recovery continues

• Doing well
• Intensive physiotherapy continues
• Good recovery
• Transferred to our hospital for further management
• Removal of the IVC filter was recommended by the MDT at KCH London
Day 33 since the insertion
Day 33 since the insertion
Day 33 since the insertion
Day 33 since the insertion
IVC thrombosis

- Aspiration performed through the widest available Fr 10 Cook Medical Flexor® Check-Flo® Introducers with High-Flex Dilators for 45 minutes
- As shown on the previous slide there was only minor improvement
- The patient complained before the procedure of some lower limb and abdominal swelling which was explained by fluid overload
- The venous Doppler of the lower limbs performed next day showed extensive DVT down into the calves, both DFV were patent though
IVC filters

- Routine procedure since 1995
- According to incomplete record over 250 procedures were carried out
- Since 2012 41 filters were inserted
- 23 Filters were removed; 4 filters were removed on the patients transferred in our hospital from elsewhere and/or moved into the area recently.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Filters Inserted</th>
<th>Retrieval Attempts</th>
<th>Successful Retrievals</th>
<th>Range (Days)</th>
<th>Mean (Days)</th>
<th>Adverse Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kachura JR, “Inferior Vena Cava Filter Removal After 475-day Implantation”. JVR 2005 16: 1156-1158.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>475</td>
<td>475</td>
<td>None</td>
</tr>
<tr>
<td>Binkert CA, Bansal A, Gates JD, “Inferior Vena Cava Filter Removal After 317 day Implantation.” JVR 2005; 16:1395-1398.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>317</td>
<td>317</td>
<td>Mild caval stenosis following 317-day retrieval; follow-up OK</td>
</tr>
<tr>
<td>Piano G, et al. “Safety, Feasibility, and Outcome of retrievable Vena Cava Filters in High-risk Surgical Patients.” J Vasc Surg 2007: 45:784-788.</td>
<td>60</td>
<td>54</td>
<td>52</td>
<td>32-162</td>
<td>63</td>
<td>One patient had non-fatal PE with filter in place. Three patients required second retrieval attempt. All three were successful.</td>
</tr>
<tr>
<td>Morris CS, Rogers FB, Najarian KE, Bhave AD, Schachford SR. “Current Trends In Vena Cava Filtration with the Introduction of a Retrievable Filter at a Level 1 Trauma Center.” J Trauma, 2004; 57(1):32-36.</td>
<td>58</td>
<td>14</td>
<td>13</td>
<td>11-41</td>
<td>19</td>
<td>One patient had a non-fatal PE after filter retrieval.</td>
</tr>
</tbody>
</table>
CONCLUSION

• The filters may develop problems irrespective of the time of placement
• Retrieval systems are fairly robust although not 100% shock proof.
• There was only one problem with a retrieval since 1995
• If perceived feasible no failure of retrieval was experienced thus far
THANK YOU
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