Early Clinical Experience with the Celect Platinum IVC Filter: with Focused Pre-Retrieval Imaging Planning

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Disclosures
- Consultant to Philips
- Consultant to Cook Medical

Tilt- the downside of conical filters

Bos, JVIR Jan 2015: 10.4% tilt
Lyon, JVIR Nov 2009: 5.4% tilt

Celect Platinum Flextip

First evaluation of Cook Celect Platinum

- Technical success: 100%
- 0% malfunction of the filter deployment system
- 0% incomplete opening of the filter
- 0% maldeployment outside of the infrarenal IVC
- 0% acute prolapse of any filter component.

First evaluation of Cook Celect Platinum

- 97% venous thromboembolism
- 58% active DVT
- 29% active bleeding (contraindication to anticoagulation)

Filter implants Age Sex Permanent
98 74 yr (28-98) 47% male 58%

Indications:
- 97% venous thromboembolism
- 58% active DVT
- 29% active bleeding (contraindication to anticoagulation)

Proc time Fluoro time Mean contrast
6.6 ± 2.8 mins 1.0 ± 0.5 mins 17.5 ± 9.6 mL

Tilt influences eventual retrievability.
OptEase retrieval

Pre- and post-OptEase retrieval using Cone beam CT to assess tilt and penetration
Celect (old gen)- slight AP tilt: XperCT for retrieval planning

Use markers to assess tilt even without 3D

XperCT to assess for penetration: Celect Platinum retrieval at 224 days

Conclusions
Early evaluation of the performance of the Celect Platinum IVC Filter in 38 implants indicates the filter is associated with a 100% procedural success rate with no insertion problems.

- No filter had acute tilt > 15°.
- 88% of filters had acute tilt <5°.

Understanding tilt at the time of placement is important, as tilt is related to eventual retrievability.

3D imaging/Cone beam CT can assist with retrieval planning

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Evolution of Cook retrievable filters

Cook Celect (original): 2007

Cook Celect PT (latest gen): 2014: Added platinum markers to filter and FlexTip to delivery system

FDA- Aug 2010 & May 2014

- FDA concerned over increasing number of reported complications

- Recommendation: “The FDA recommends that implanting physicians and clinicians responsible for the ongoing care of patients with retrievable IVC filters consider removing the filter as soon as protection from pulmonary embolism is no longer needed.”

Current challenges- penetration

IVC Penetration:
- Bos JVR 2015; 1:101-106: 2007-May 2013 retrospective 595 Celect (old gen) filters 193 had follow-up mean 176 days (0-1739 days) Strut penetration >3mm = 28.5% (n=55) Mean penet = 6mm (4-9mm).
- Retrieval success 96.7% (n=150)
- "strut penetration not assoc with retrieval failure"
- Penetration rarely symptomatic:
  - Bos - 1 pt (1.8%) had compression of ureter with hydr/back pain.
  - Zhou AJR 2014; 202:643–647 - 13.2% (35/265) Celect had penetration into adjacent structure/organ but only 1 was symptomatic (1/265 = 0.4%)

Penetration rarely symptomatic...but it can be devastating

Strut penetration: duodenal perforation

Penetration rarely symptomatic

Strut penetration: retroperitoneal bleed

Filter strut

IVC

Pseudo-aneurysm

Coil placement

Hematoma

Aorta

Pseudoaneurysm with active extravasation

Thrombosed pseudoaneurysm post embolization

Dual filter removal
Dual filter removal

Dual IVC filter removal

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