Onyx\textsuperscript{TM} Liquid Embolic System – for advanced treatment approaches and daily challenges:

First experience with Onyx\textsuperscript{TM} 34 liquid embolic system with less tantalum
Disclosure

Speaker name:

**Marcus Treitl**

I have the following potential conflicts of interest to report:

✔ Consulting: **Covidien, Biotronik, Endoscout, C4 biomedical**

Employment in industry

Stockholder of a healthcare company

Owner of a healthcare company

Other(s)

I do not have any potential conflict of interest
Agenda

• Drawbacks of the current Onyx formula
• Introducing Onyx 34 L
• First experiences with Onyx 34 L
• Summary and conclusion, tips and tricks
Drawback of the standard formula

- Tantalum for radiopacification
  - strong CT beam hardening artifacts
  - Metallic foreign body in radiography
    - Can impact diagnostic imaging in the long term
    - Hinders CT follow up of Endoleak
      - Recanalization yes / no?
      - Origin of blood support? Localization of leakage?
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Onyx™ 34L Liquid Embolic System

• The new Onyx™ liquid embolic agent allows for:
  – Less tantalum compared to the current version of Onyx™ 34 liquid embolic system
  – Less streak artifacts on CT with a good visibility

• 6 ml vial

CT VALIDATION
New generation Onyx™ 34L liquid embolic system, 10 mm vessel

New formulation of Onyx™ 34L liquid embolic system
Current formulation of Onyx™ 34 liquid embolic system

CT artifact phantom synthetic 2013-08-21

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Case: Treatment of bronchial artery bleeding in cystic fibrosis (male, 21 yrs.)
Case: Treatment of bronchial artery bleeding in cystic fibrosis (male, 21 yrs.), ctd.
Comparison of Onyx 34 and Onyx 34L in low-volume application: bronchial artery bleeding: 1.: Onyx 34
Comparison of Onyx 34 and Onyx 34L in low-volume application: bronchial artery bleeding: 2.: Onyx 34L
Comparison of Onyx 34 and Onyx 34L in low-volume application, bronchial artery bleeding: direct comparison of CT scans
Case: Treatment of a large AV-malformation at the right neck (male, 70 yrs.)

Proctored case @ Radiologie, SLK-Kliniken Heilbronn GmbH (Prof. Pereira / Dr. Hohenstein)
Case: Treatment of type 1c endoleak with Onyx 34 L (male, 70 yrs.)

Dr. O. Greil
@ Radiologie, Klinikum Traunstein
Case: Treatment of type 1c endoleak with Onyx 34L
(male, 70 yrs.)

Dr. O. Greil
@ Radiologie,
Klinikum Traunstein
Comparison of Onyx 34 and Onyx 34L in high-volume application, endoleak treatment: direct comparison of CT scans
Case: Treatment of thoracic type 1a endoleak with Onyx 34L / Onyx 34 (female, 80 yrs.)
Agenda

• Drawbacks of the current Onyx formula
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Conclusions Onyx 34 L

• Peripheral use of increasing importance
  – Endoleaks, aortic pathologies
  – AVMs
  – Bleeding control
  – Portal vein embolisation
• Standard formulation causes severe CT beam hardening artifacts
• Onyx 34 L
  – Artifacts could be strongly reduced
  – Still good fluoroscopic visualization during embolization process
  – Little more attention should be paid in high-flow conditions
Onyx 34 L: when to use?

• Good:
  – High target volume
  – easy control situation
    • Low flow, good visualization
  – Sensible structures nearby
    • E.g. bleeding control with multiple focus

• Be careful
  – High flow, bad visualization
Pitfalls / tips and tricks

• Visualization might be critical in high-flow situations
  – Start with Onyx 34 standard
  – Consider balloon occlusion
  – Safety-coil

• Visibility of Onyx-Cast
  – Vortex for at least 20 min! Use immediately after vortexing!

• Keep syringe upward to slow down separation!

• Inject as slow as possible
  – avoids cast displacement
  – improves control of growing cast
  – avoids vasospasm / angionecrosis: do not exceed 0.5ml / min
Thank you very much for your attention!

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