Visible • Repeatable • Optimal • Disposable

The E-APP™ is a first of its kind, disposable brachytherapy applicator designed specifically for the treatment of upper GI cancers.

Unique Device Properties

- Central source catheter surrounded by 5 equally spaced, 2cm (individually inflated) balloons.
- Balloons center the source in straight or curved anatomy.
- Greater than 10 cm effective treatment zone allows treatment of entire tumor.
Clinical Use of a Novel Balloon Based Esophageal Brachytherapy Applicator

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Purpose
We report on the clinical implementation of a newly designed balloon applicator for high dose rate treatment of esophageal cancer.

Impetus
Review of our institutional experience with Esophageal HDR:
• Well tolerated, BUT …
  • High rate of local recurrence
  • Need to overcome surface dose limitation
  • Significant increase in Grade 3 toxicity for single fraction doses above 15 Gy from SBRT spine treatments (Cox et al 2012).

• 5 independently controlled balloons
• 2 cm (up to 2.3 cm) balloon diameter
• 10 cm treatment length w/ incorporated X ray markers
• May used with oral or nasal insertion methods
• Disposable (single use device)
• CT  Compatible and MRI safe

Clinical Implementation
We maintained overall treatment regimen and clinical workflow, namely:
• 5 Gy x 3 weekly fractions + chemotherapy
• Endoscopy and fluoroscopy guidance

Changes introduced are:
• CT simulation & CT image based planning
• Dose prescribed to the entire volume

Esophageal Balloon Applicator

Treatment Planning
1. Contouring:
  • Target = Affected Esophageal lumen
  • Normal Esophagus = Esophageal lumen above and below target

Treatment verification
• Use 10% contrast (Omnipaque) in balloons
• Implanted fiducial marker (e.g Visicoil) ideal but not always feasible
• traditional tools:
  - skin markers, anatomic landmarks
  - endoscopic verification
  - insertion depth

Conclusion
A multi-institutional study is being initiated to test the efficacy of these treatments and explore dose escalation in these patients, using this applicator.

Acknowledgments/Disclosures
• FDA 510(k) approved
• Developed in collaboration with Ancer Medical
• Patent pending

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References