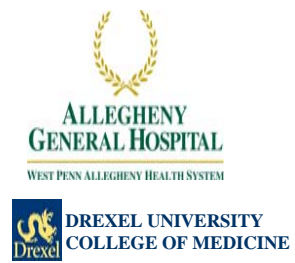




# #P90: Preliminary single institutional clinical experiences with the Contura™ Multi-Lumen Brachytherapy (MLB) applicator in delivering Accelerated Partial Breast Irradiation (APBI).



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## BACKGROUND

- APBI with external beam techniques, multi-catheter or single lumen brachytherapy (SLB) applicators has shown promise for early stage breast cancers.
- Although SLB has improved conformal dose distribution and sparing of adjacent normal tissues, it is limited where the skin or rib separation distance from the radioactive source is inadequate.
- Pre-clinical studies have demonstrated superiority of the Contura™ MLB dose distribution.
- Herein, our early clinical experience with Contura™ MLB is reported.

## METHODS

- 20 patients (mean age 68), with ER/PR positive status, Tis, T1 or small (<3cm) T2 breast carcinomas were treated using the Contura™ applicator following partial mastectomy (2/2008 to 2/2009).

Contura™ MLB



Ultrasound guided placement of Contura™ MLB



- 12 patients had IDC, 4 had DCIS, 3 had ILC, and one had invasive medullary histology.

- Sentinel lymph node biopsies were negative in all invasive lesions as were margins of resection.
- NSABP B-39 dose parameters (3400 cGy; 340 cGy/fx, twice daily) were used in treatment of the patients.
- Median skin and rib distances were 9.0 mm (range 3-17mm) and 6.0 mm (range 1-51 mm) respectively.
- Using the central lumen of the Contura™ applicator, SLB applicator parameters for each patient were also calculated for comparison to the MLB applicator.

## RESULTS

- There was no evidence of postoperative infection or acute tissue toxicity.
- The skin and rib doses in all treated patients were reduced with the MLB applicator, by 7.1% (range 5-37%) & 11.4% (range 4-44%) respectively as compared to SLB calculations ( $p < 0.05$ ).

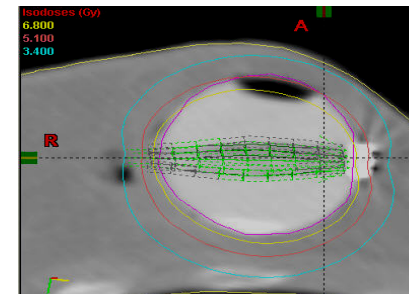
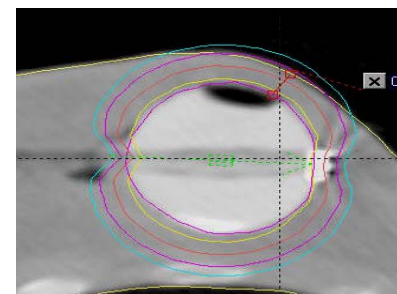
Max skin and rib dose comparison with confirmed 95% of the Planning Target Volume for evaluation (PTV\_eval) histogram –volume of normal tissue receiving 150% of the dose (V150), volume of the normal tissue receiving 200% of the dose (V200)

### SLB

Max skin – 4.3 Gy (128%)  
 PTV\_eval coverage - >95%/95%  
 V150 – 30cc V200 – 8cc

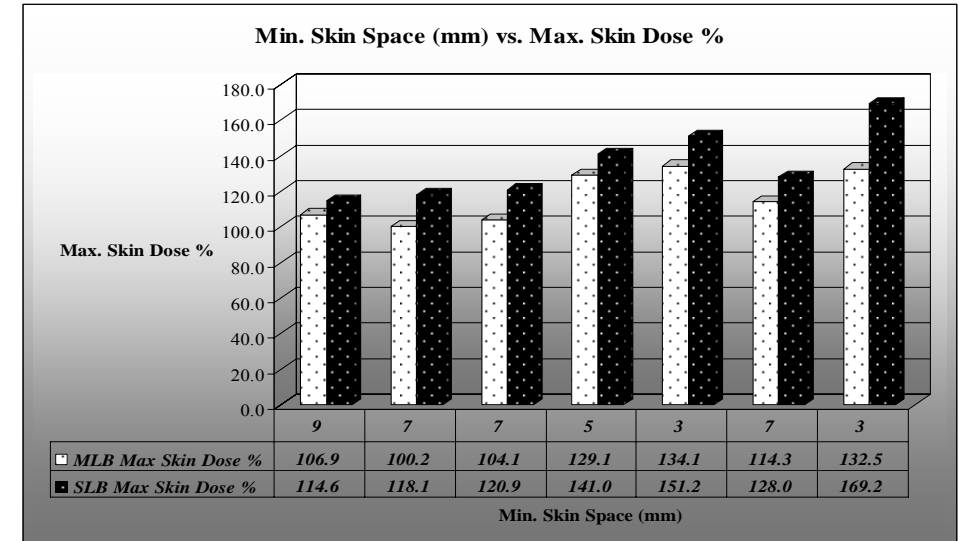
### MLB

Max skin – 2.9 Gy (85%)  
 PTV\_eval coverage - >95%/95%  
 V150 – 20cc V200 3.5cc

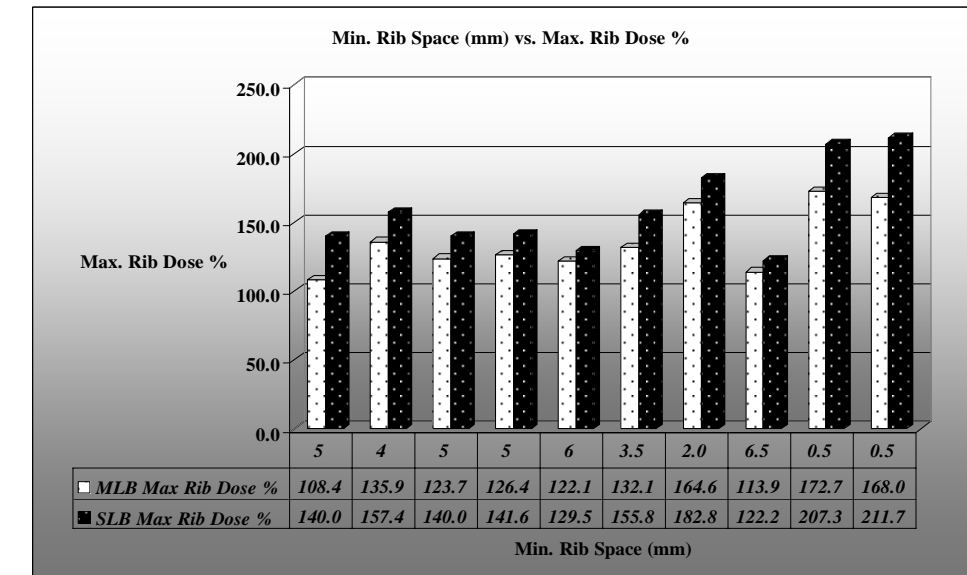


- The greatest differences occurred in those patients with the shortest distance between skin or rib to balloon surface.

- In patients with skin spacing of 3-9 mm, the maximum skin dose was decreased by 17% (range 8-37%,  $p < 0.05$ ).



- In those with rib distances of 0.5-7 mm, the maximum rib dose was decreased by 22% (range 7-44%,  $p < 0.05$ ).



## CONCLUSIONS

- These early observations demonstrate the advantage of MLB with improved tissue conformity and diminished radiation dose to skin and chest wall.
- Long term clinical outcomes are under current investigation.