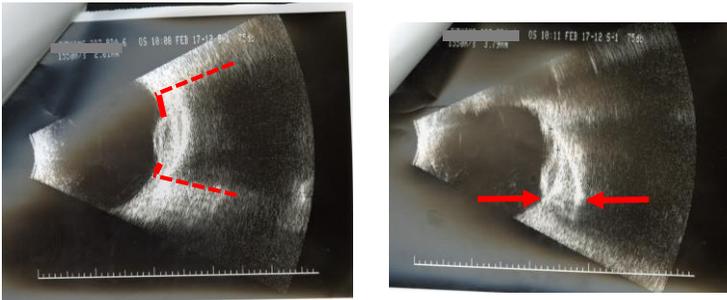


- Eye plaque brachytherapy has been a standard of care treatment of ocular melanoma since the results of the Collaborative Ocular Melanoma Study (COMS) trial demonstrated equivalent survival between enucleation and plaque arms.
- Ultrasound is used in diagnosis of ocular melanoma and for plaque treatment planning to determine prescription depth and appropriate plaque size.
- Ultrasound (US) guidance is commonly but not universally used to verify proper positioning of the plaque.
- Several studies have demonstrated the importance of US guidance for detecting insufficient margins and/or plaque tilt.

| Study                    | % moved      | % tilted   |
|--------------------------|--------------|--|
| Harbour et al (1996)     | 14% (4/29)   | 7% (2/29)  |
| H. Tabandeh et al (2000) | 15% (18/117) | 1.7% (2/117)                                       |
| Almony et al (2008)      | N/A          | 10% (16/162) at implant<br>51% (82/162) at removal |
| Chang et al (2012)       | 36% (54/150) | N/A  |



- Quality assurance of the ultrasound system must be performed, particularly with regard to accurate determination of axial and transverse distances. At UCLA, axial distances are assured using a calibration block, and transverse distances are assured by measuring and confirming the known transverse size of the plaque in-vivo.
- UCLA treats approximately 80 plaque patients per year with ultrasound-guided I-125 plaque brachytherapy for ocular melanoma. Custom plaques built using 24-carat gold foil allow low-profile plaques in a variety of standard and unique formats.
- UCLA uses 1000-centistoke silicone oil as a novel intra-ocular radiation shield.

#### References:

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- Chang et al: Intraoperative Ultrasonography-Guided Positioning of I-125 Plaque Brachytherapy in the treatment of choroidal melanoma. *Ophthalmology* 2012; 119:1073-1077