

Cause and Prevention of Microkeratome Jamming Related to Lid Squeezing

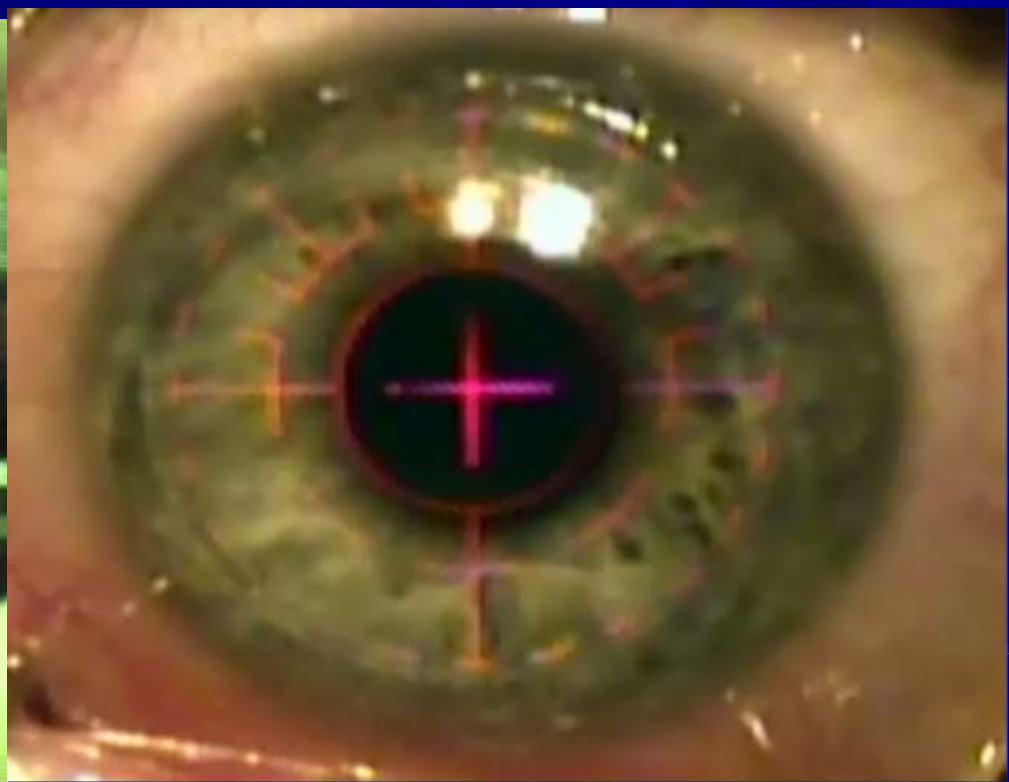
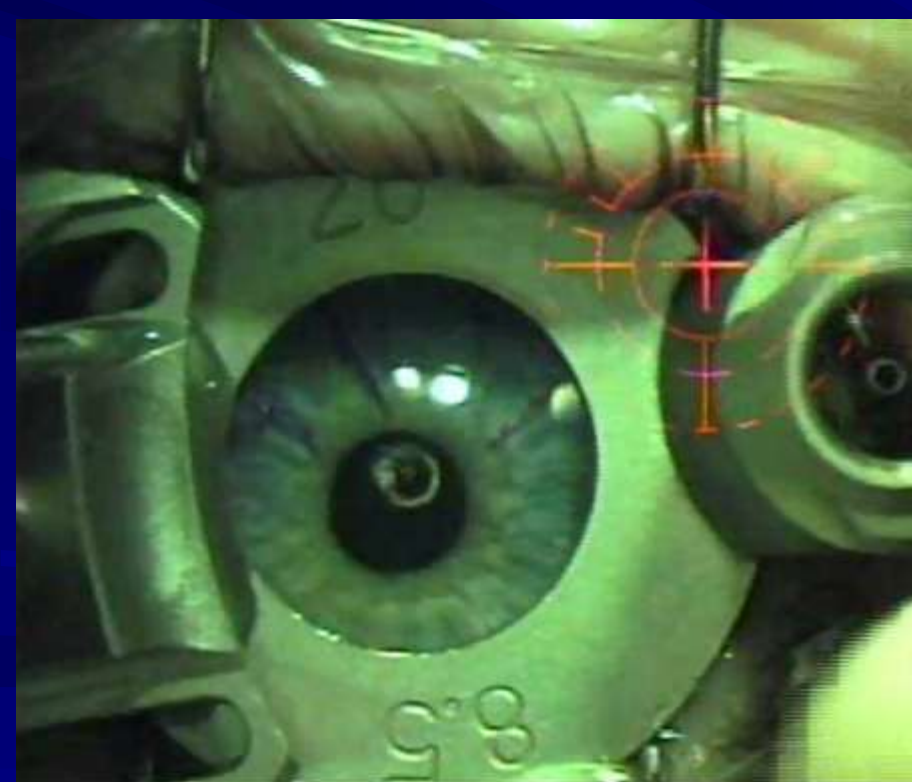
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The authors have no financial interest in the
subject matter of this paper.

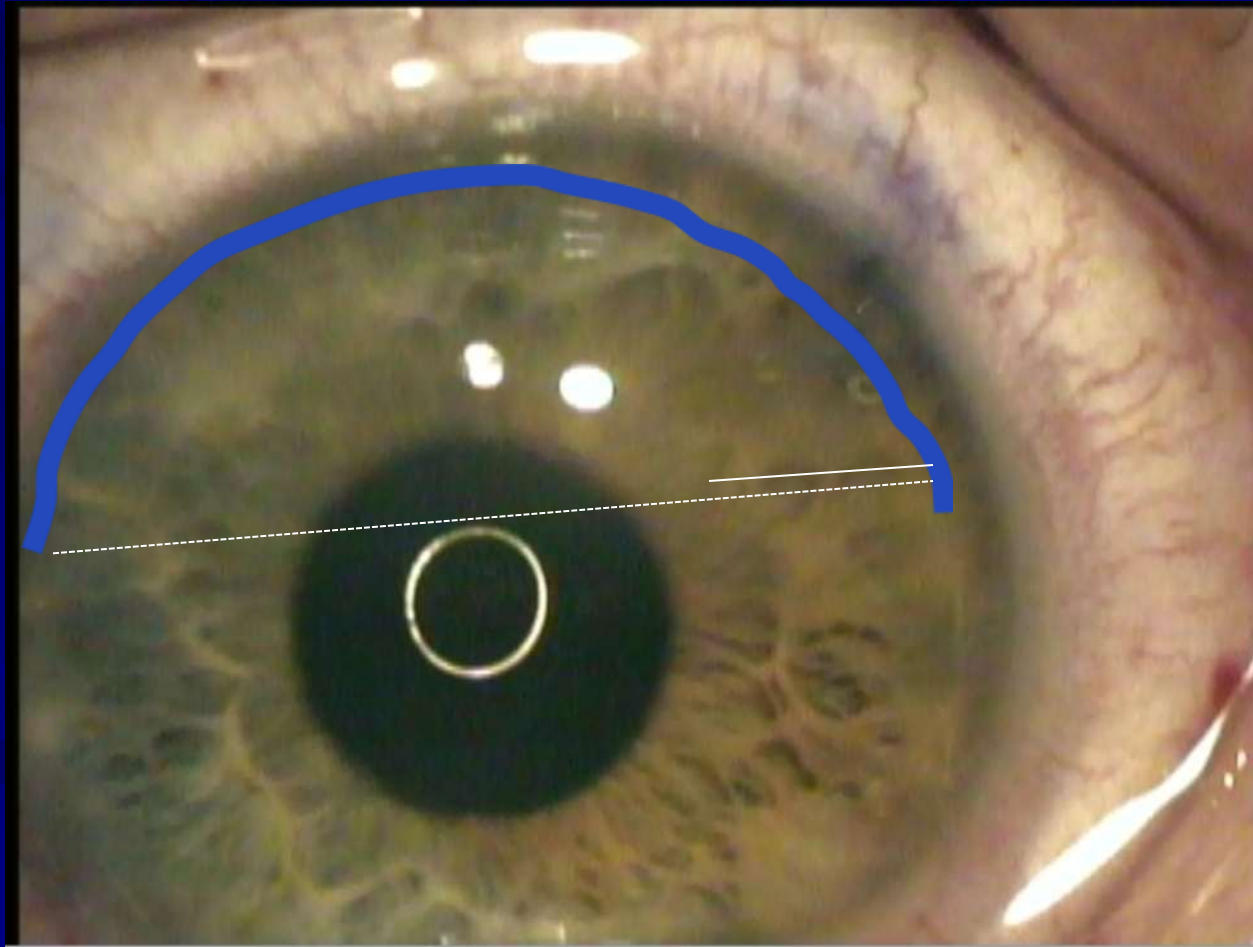
The Zyoptix XP microkeratome has been used in our center for the past seven years in over 15,000 eyes.



Three cases of jamming of the Technolas Zyoptix XP® microkeratome related to patient squeezing resulted in partial flap formation, all in the first eye attempted and in males with deep set eyes and strong lids.



In the third case the microkeratome could not be reversed. The assembled suction ring-microkeratome was removed after suction was released, resulting in a partial flap with a partial flap tear.

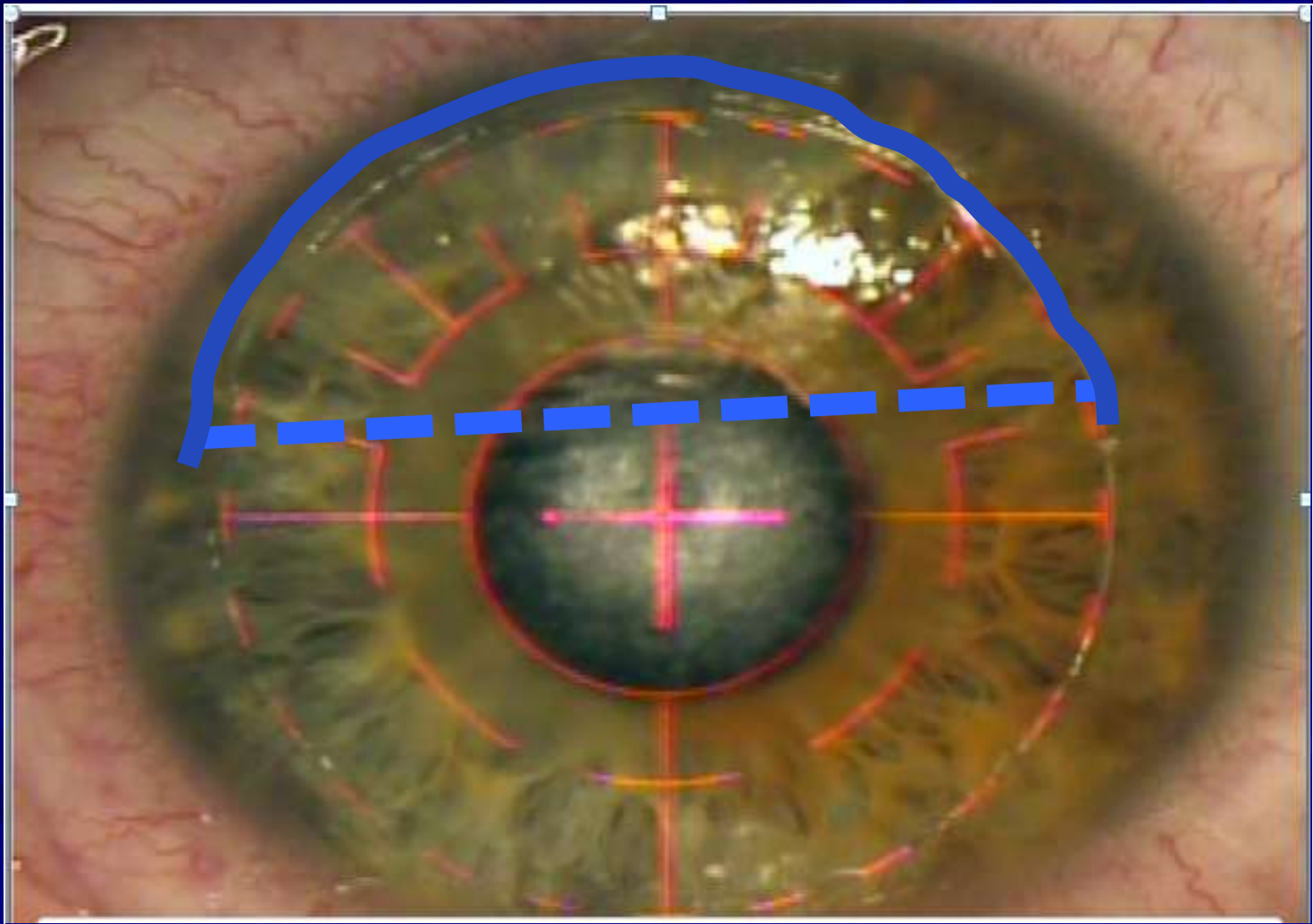


Contact in place with flap repositioned

The mechanism for the first two cases was unclear. The microkeratome would not reverse during the third case, thereby allowing inspection and documentation of the mechanism.

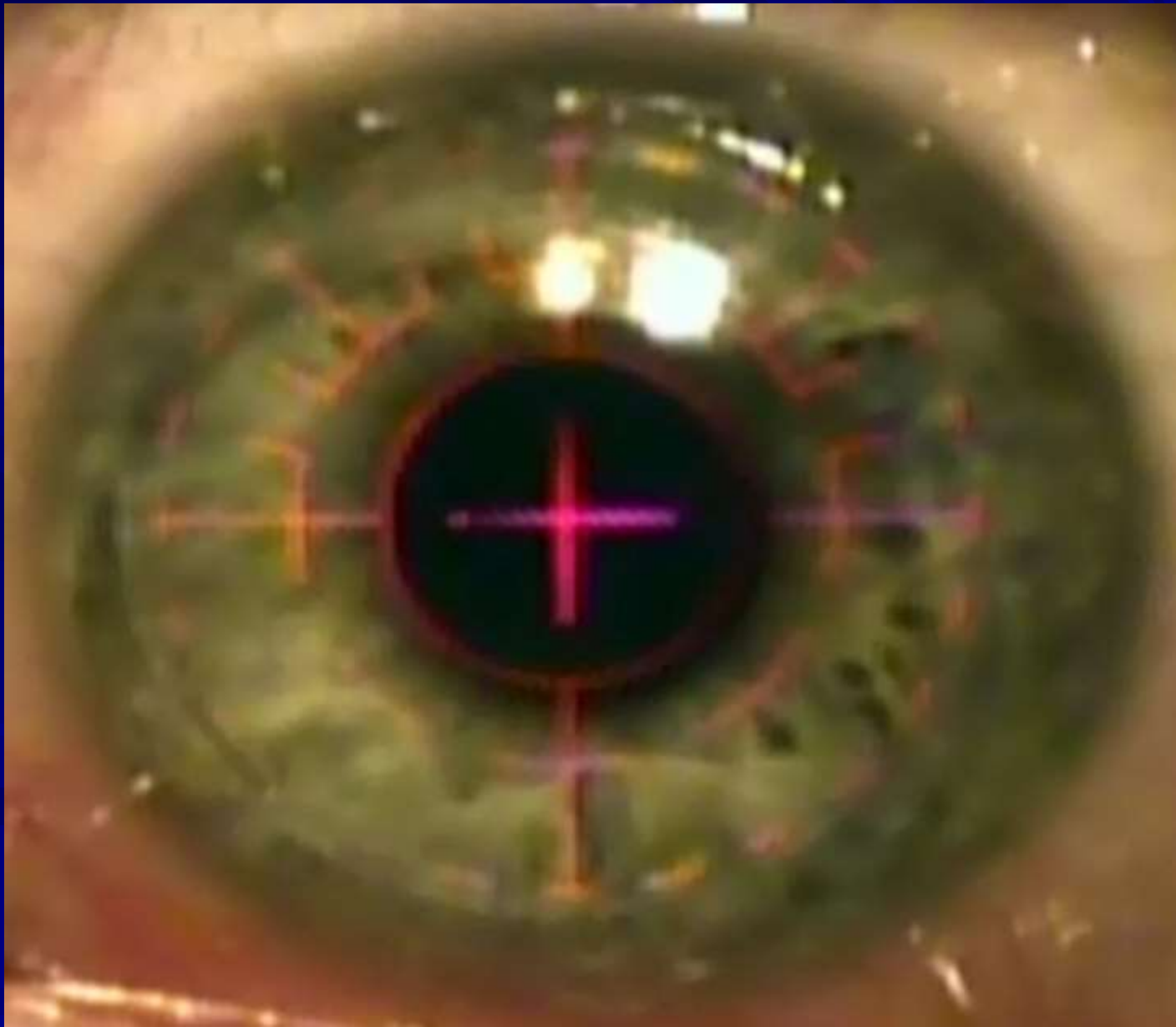


All patients had successful photorefractive keratectomy
at a later date.

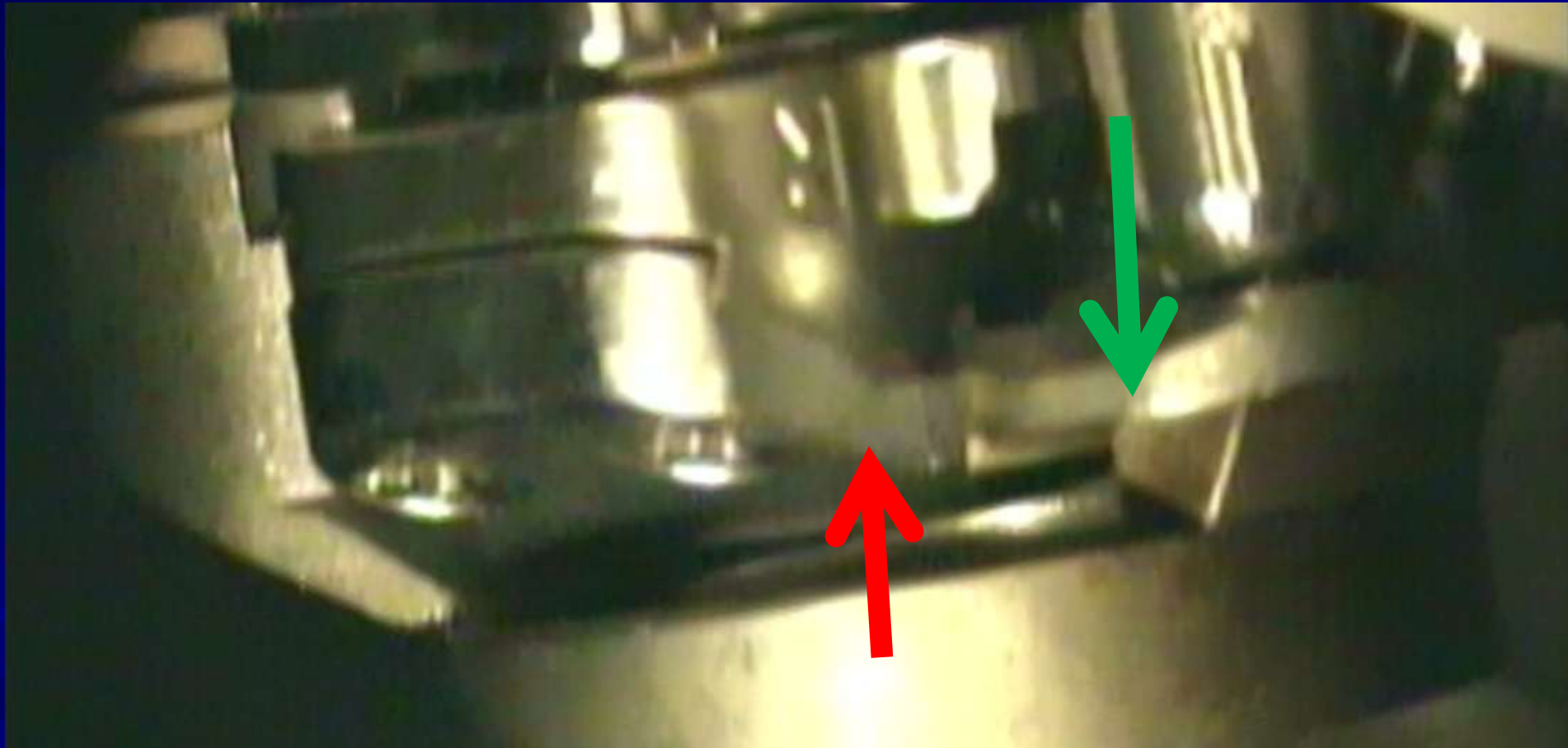


PRK with alcohol over previous partial flap (40%)

PRK (alcohol) over partial flap



The jammed microkeratome from the third case showed that the guide on the microkeratome head which normally slides under the overhang of the microkeratome ring had instead advanced against this overhang and jammed.

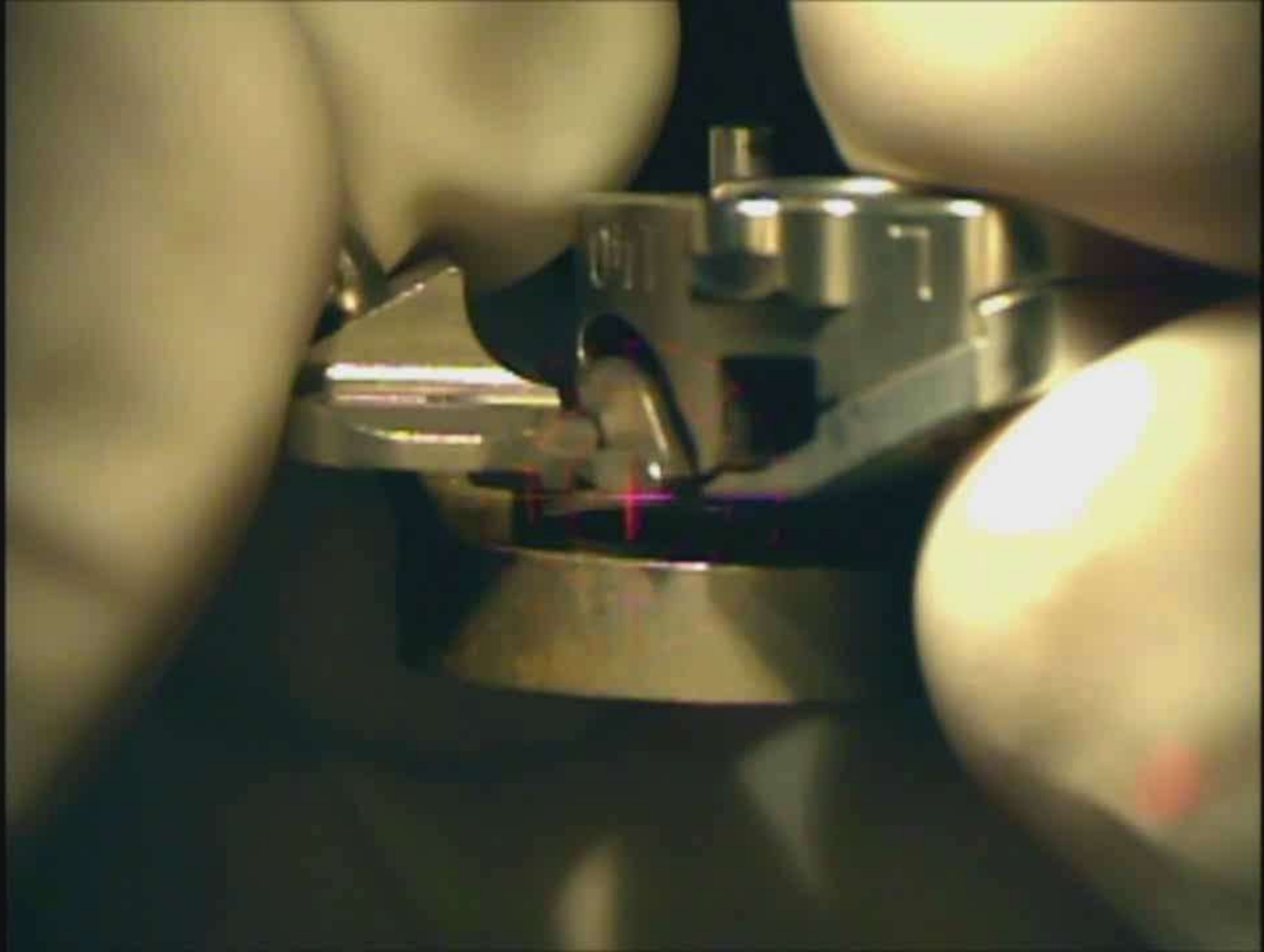


Glide (red) is jammed into the ring overhang (green)

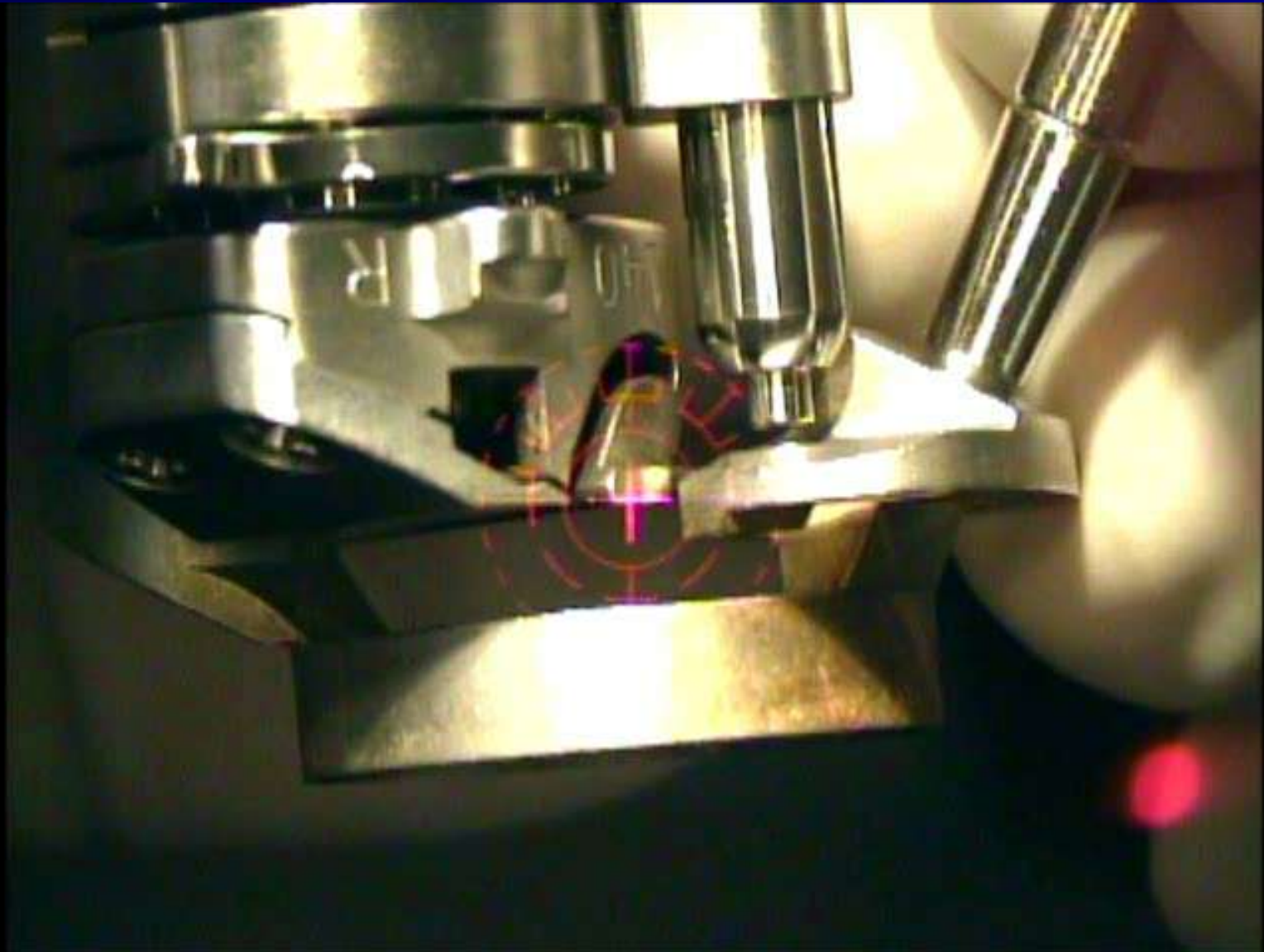
This jam can only be reproduced if the microkeratome head is first knocked slightly off angle and then advanced with the head not fully seated down into the microkeratome ring.



The off-angle head can then advance such that the microkeratome head guide is on the same plane as the overhang on the microkeratome ring and will jam at 40% excursion

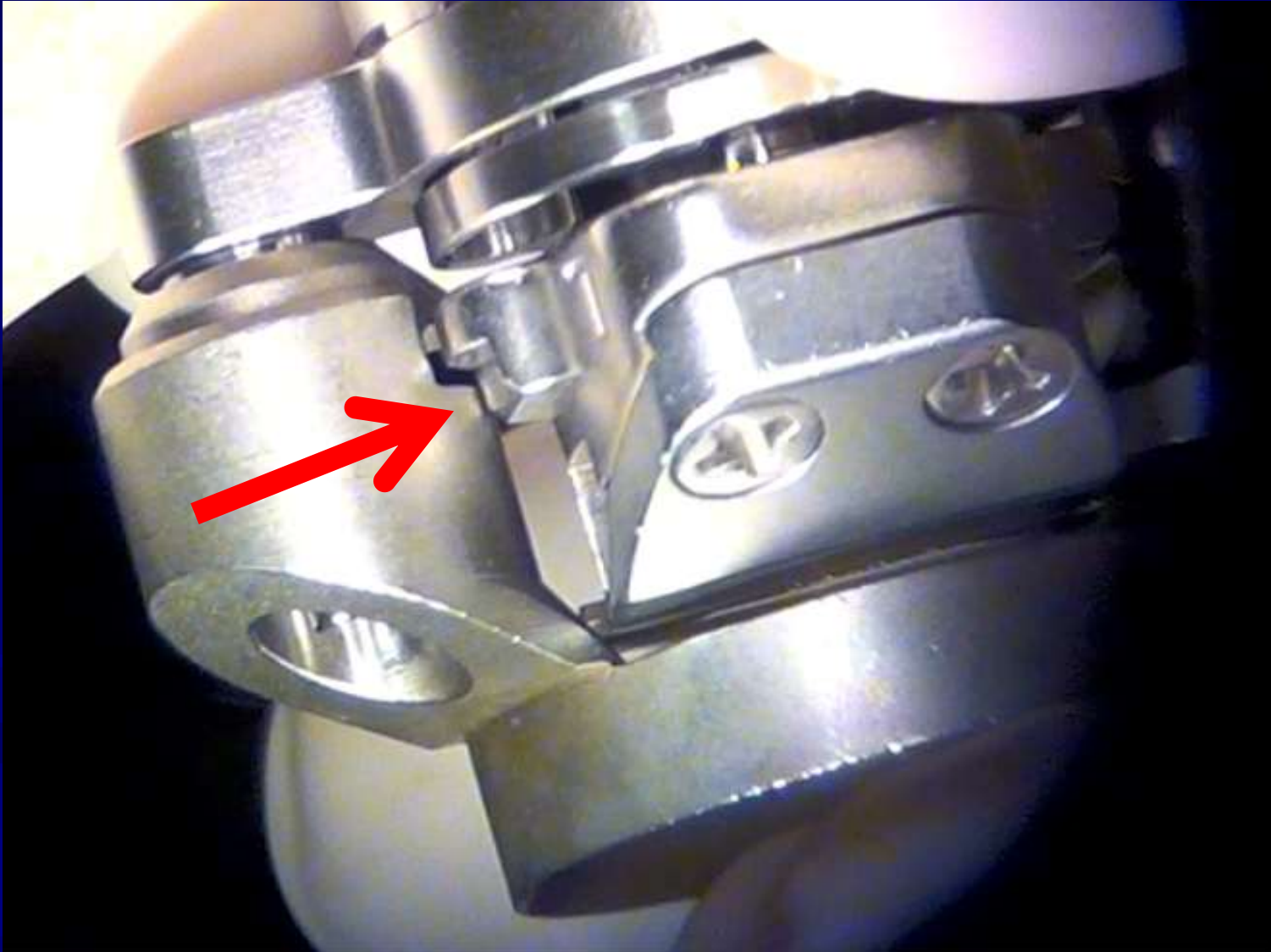


Demonstration: jamming



Caution: It may be difficult to unjam the keratome

Upper guide displacement makes the keratome difficult to unjam



No further cases have been noted for
the last two years (over 3500 eyes)

Since the mechanism of this jamming has been understood, extra care is taken, especially in squeezers, to assure that the microkeratome head guide is properly seated and lower than the ring overhang before advancing the head



Overhang

Guide