

Diffuse Lamellar Keratitis related to intermittent blockage of a humidifier drain

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The author has no financial interest

Sporadic Diffuse Lamellar Keratitis related to a Steam Humidifier, AAO, New Orleans, Nov 2007 Mark E Johnston MD FRCSC



- The unit had stayed full of fluid during the summer because of a slow leak in the water supply valve

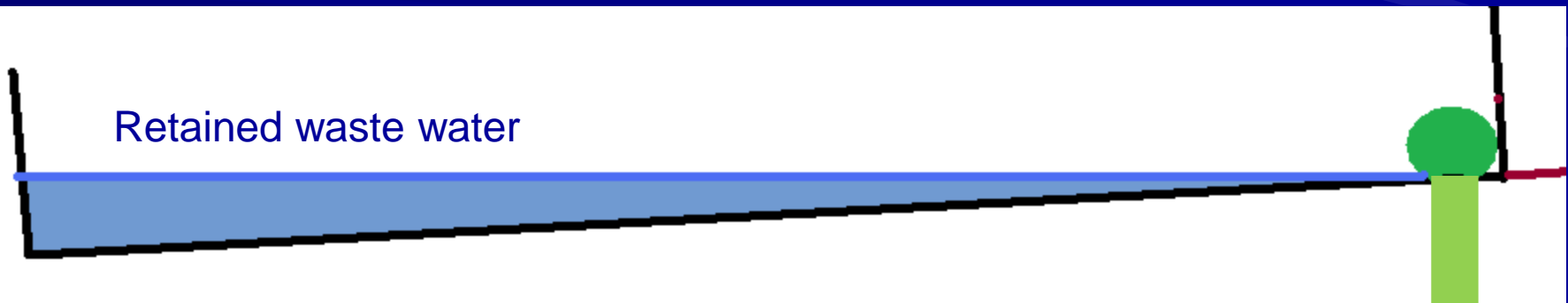
- Note organic brown debris in the bottom (and sides)
- Note calcium deposit in the base



2010 ASCRS : Mark E Johnston

Diffuse Lamellar Keratitis Related to
Waste Gas and Improperly
Mounted Air Conditioner

Inspection of the air conditioning unit was showed
rusting of the drainage pan consistent with an
improper reverse slant, away from the water trap.



Winter 2010: Diffuse Lamellar Keratitis related to intermittent blockage of a humidifier drain

- Over an eight week period 60 patients underwent routine LASIK at a satellite clinic.
 - Six patients developed mild DLK (Grade 1-2).
- All patients had early full visual recovery.
- The same equipment, staff, reusables, medications and solutions were in use in our main surgery center
- The presumed cause was environmental

The staff noted that there was a cold draft directly over the laser from the return air vent. The return air vent was moved outside the procedure room.



The laser suction nozzle was noted to have backflow of air at the end of the excimer ablation. The suction nozzle was shortened to decrease the amount of reverse air flow from the suction nozzle onto the surgical field



- At week three a wet ceiling tile was noted.
- When the tile was removed, it was below the humidifier which was working and draining properly



At week three and four additional cases occurred.
The humidifier was again inspected and it was
noted that the drain was blocked



A small air leak around the drainage hose attachment was creating bubbles in the waste water which was backing up into the humidifier



Resolution

- The humidifier was turned off and drained
- Two additional mild cases were noted at week 7 and 8.
- There have been no further cases.

Conclusion

- Intermittent blockage of the humidifier drain caused aerosolized waste water to enter the air conditioning system
- Our findings are consistent with waste water entering the operating room air supply and causing our cases of Diffuse Lamellar Keratitis.