Diffuse Lamellar Keratitis related to intermittent blockage of a humidifier drain

Purpose:

Over eight-week period 60 patients underwent routine LASIK at a satellite clinic. Six patients developed mild DLK (Grade1-2). All patients had early full visual recovery. As the same equipment, staff, reusables, medications and solutions were in use in our main surgery center, the major focus was on air quality.

Methods:

One month prior to the outbreak the humidifier water supply was blocked and was serviced. Following the first two cases, possible causes were investigated. 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 and the suction nozzle was shortened to decrease the amount of reverse air flow from the suction nozzle onto the surgical field. Other environmental causes were monitored throughout the outbreak.

Results: A

t 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 wastewater which was backing up into the humidifier. 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 wastewater to enter the air conditioning system. The outbreak resolved when the humidifier was drained and turned off. Our findings are consistent with wastewater entering the operating room air supply and causing our cases of Diffuse Lamellar Keratitis.