

# Being on the wrong side: A case of trepopnea during PAP titration

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## Introduction

We describe a case of a 56-year-old man with severe OSA who developed trepopnea and central apneas during PAP titration study.

## Case Presentation

A 56-year-old man with no past medical history diagnosed with severe obstructive sleep apnea struggled with autotitrating CPAP therapy. During repeat in-lab titration study, while receiving CPAP at 14 cmH<sub>2</sub>O, he developed tachypnea up to a rate of 48 respirations per minute interspersed with periods of central apneas. These events began were observed during NREM and REM sleep and started in the latter half of the study. All events occurred while the patient was lying on his right side.

An extensive work-up showed no signs of disease that may explain his trepopnea. A third PAP titration study was uneventful where he was treated successfully with CPAP 12 cmH<sub>2</sub>O and spent 55% of his total sleep time supine on his right.

## References

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## Discussion

We described a case in which a patient with no medical history developed tachypnea with central apneas while undergoing PAP titration. Gupta et. al published a case series where episodes of tachypnea during PAP titration were also observed with periods of apnea. No clear explanation was given for these events, being thought to be the physiologic response of positive pressure during REM sleep. In our patient, most events occurred during NREM sleep. Since these events were observed while he was in the right lateral decubitus position, it raised our suspicion for trepopnea.

Trepopnea, from the Greek words trepo (to twist) and pnea (to breath), denominates a phenomenon where patients have a change in their breathing pattern dependent on their position. It is believed that displacement of the heart in the lateral decubitus position may cause impingement of the pulmonary veins that ultimately manifest as tachypnea. The mechanism behind this phenomenon is poorly understood and its prevalence is unclear.

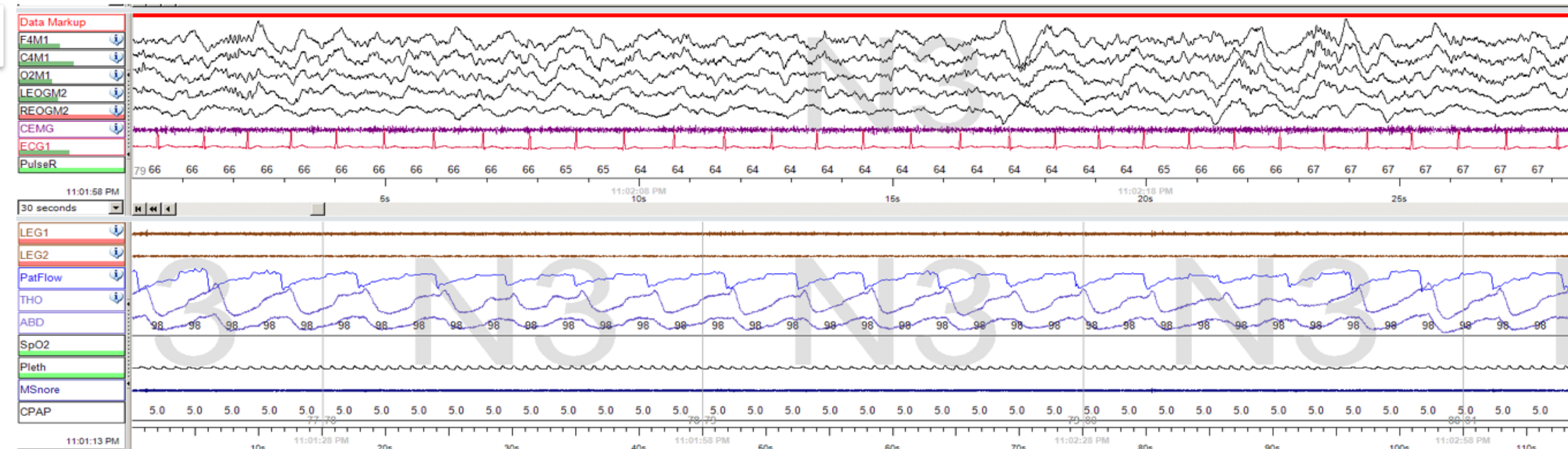


Figure 1 – Regular respiratory rate with no apneas at CPAP 5 cmH<sub>2</sub>O

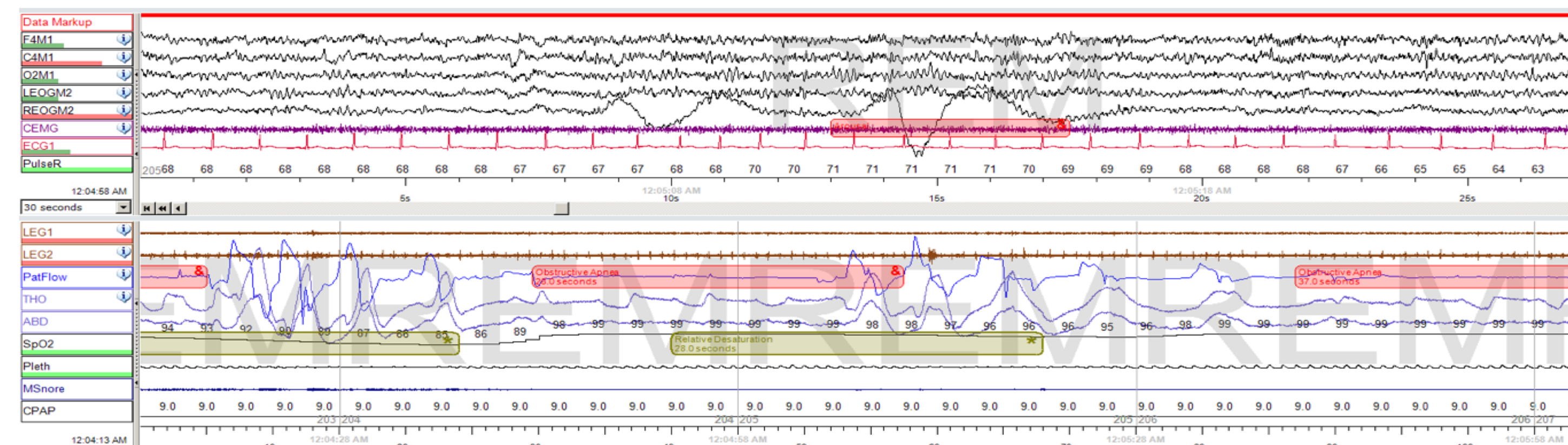


Figure 2 – Obstructive apneas at CPAP 9 cmH<sub>2</sub>O.

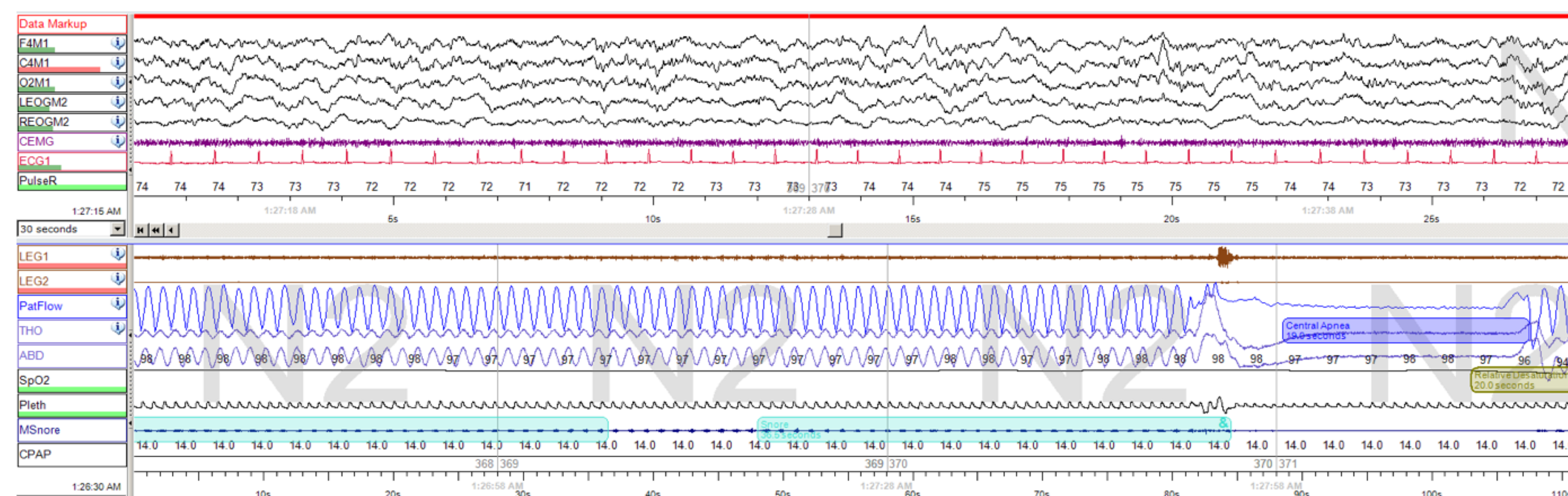


Figure 3 – Tachypnea to 48 breaths per minute at CPAP 14 cmH<sub>2</sub>O with a subsequent central apnea.