



Velopharyngeal Insufficiency and Success Rate of Adenotonsillectomy in Prader-Willi and Trisomy 21 Patients

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ABSTRACT

Background: Adenotonsillectomy (T&A) is a common procedure performed to address obstructive sleep apnea (OSA) in Prader-Willi (PW) and Trisomy 21 (T21) patients. This study evaluates the rate of velopharyngeal insufficiency (VPI) after T&A and success rate of T&A for each group.

Methods: A retrospective chart review was performed on ICD-9 coded PW and T21 patients between 2005 and 2015 who underwent T&A for OSA. The frequency of VPI after T&A, improvement in OAH, and persistent OSA after T&A were determined for each group.

Results: The study cohort included 22 PW patients and 44 T21 patients who had undergone T&A. 18% of the PW patients had post-operative VPI requiring a corrective surgical procedure, while there were no patients within the T21 cohort who had identified VPI ($p < 0.05$). In those patients that had a post-operative polysomnogram, the mean decrease in OAH of the PW and T21 patients measured 8.4 and 4.7 points, respectively ($p = 0.3$). 54% of the PW patients and 76% of the T21 patients that had a follow-up polysomnogram demonstrated persistent severe OSA post-operatively.

Conclusions: This study demonstrated a relatively high rate of VPI after T&A in children with PW, particularly when compared to another at-risk cohort of children with T21. While the OAH decreased after T&A in both groups, a significant number of children with PW or T21 had persistent severe OSA. Further investigation into the optimal management of OSA, while preventing treatment complications such as VPI, is needed for children with these high risk conditions.

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INTRODUCTION

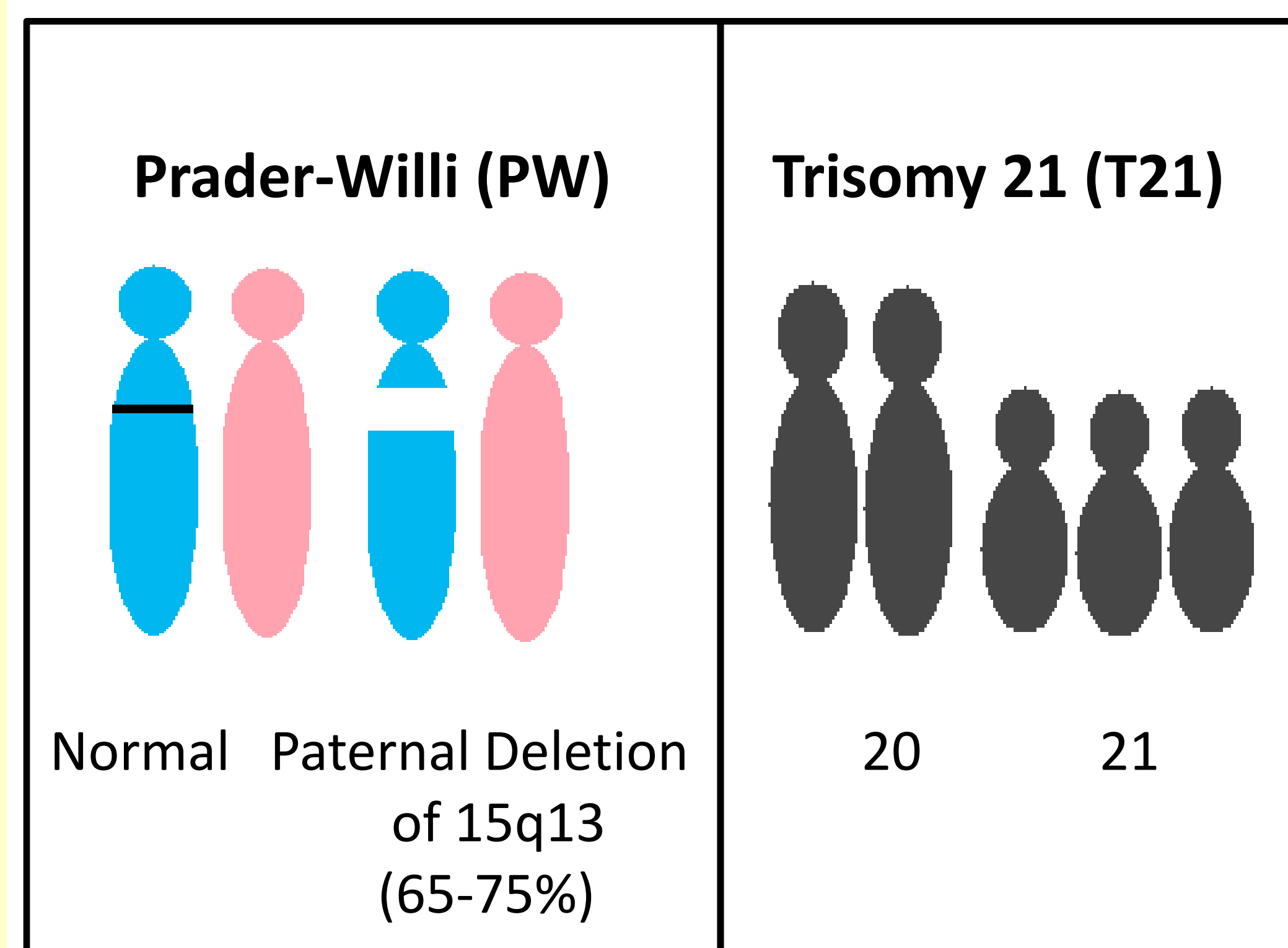
Obstructive Sleep Apnea (OSA) in Pediatrics (OAH)

<1.5 : normal
1.5-5: mild
5-10: moderate
>10: severe

•Adenotonsillectomy (AT) is the most common procedure performed to address OSA

Complications

- Bleeding
- Dehydration
- Persistent OSA
- Velopharyngeal Insufficiency (VPI)



OBJECTIVE: Determine rate of success and VPI after AT in PW and T21 patients.

METHODS AND MATERIALS

- IRB approved University of Utah/Intermountain Healthcare
- 2005-2015

Inclusion

- ICD-9- Adenotonsillectomy **AND**
- Trisomy 21 **OR** Prader-Willi

Exclusion

- ICD-9 codes related to cleft palate

- Chart reviewed Pre- and Post-operative Polysomnogram (PSG)

- Chart reviewed rate of VPI
 - Diagnosed by speech pathologist & otolaryngologist via nasometry and flexible nasopharyngoscopy

RESULTS

	Number (N)	Average Age (Years)
PW	22	3.9±3
T21	44	3.4±2.3

PW	Normal	Mild OSA	Moderate OSA	Severe OSA
Pre-operative PSG	0%	25%	25%	50%
Post-operative PSG	8.30%	58.30%	33.30%	0%

T21	Normal	Mild OSA	Moderate OSA	Severe OSA
Pre-operative PSG	0%	5.90%	29.40%	64.70%
Post-operative PSG	5.90%	11.80%	47%	35.30%

Post-operative VPI	
PW- 18.2%	T21- 0%
2 augmentation pharyngoplasty	
1 sphincter pharyngoplasty	
1 furlow palatoplasty*	

* Occult submucous cleft that was not found during AT.

DISCUSSION/CONCLUSIONS

- High percentage of persistent OSA after AT in PW and T21 patients.
- VPI more prevalent in PW patients than T21 even though both groups have characteristic hypotonia.

Further investigation into the optimal management of OSA in these high risk groups while preventing complications such as VPI is needed.