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Anatomical basis of sleep-related breathing abnormalities in children with nasal obstruction.

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OBJECTIVE: To define, in a group of children with nasal obstruction, the anatomical differences that differentiate those with quiet, unobstructed nocturnal respiration from those with obstructive sleep-related breathing abnormalities (snoring and obstructive sleep apnea). **DESIGN:** Case series. **PATIENTS:** Fifty-nine children aged 3 to 13 years (35 boys and 24 girls) with nasal obstruction and without tonsillar hypertrophy, known craniofacial syndromes, or neuromuscular diseases were included in the study. **MAIN OUTCOME MEASURES:** Each patient was categorized as to severity of nocturnal obstructive breathing symptoms. Angular and linear cephalometric measurements were used for assessment of craniofacial features. Clinical symptom scores were correlated with the cephalometric measurements. **RESULTS:** Significant craniofacial abnormalities were identified in patients prone to obstructive breathing patterns: increased flexure of the cranial base and bony nasopharynx, opening of the gonial angle, shortened mandibular length, dorsocaudal location of the hyoid, reduced posterior airway space, and increased velar thickness. **CONCLUSIONS:** A number of anatomical abnormalities may contribute to sleep-related abnormal breathing in otherwise normal children with nasal obstruction. Our results suggest that symptomatic children show some of the same skeletal and soft-tissue configurations that are found in adults with obstructive sleep apnea. While adenoidectomy is generally an effective treatment in children with obstructive sleep-related breathing abnormalities, the underlying craniofacial variances that remain after adenoidectomy may predispose these patients to redevelopment of obstructive breathing abnormalities in adulthood.

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