Nasal Cavity Dimensions in the Normal Pediatric Population

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ABSTRACT

Objectives: 1. To define age-specific dimensions of the normal pediatric nasal cavity. 2. To determine if there are differences in normal pediatric nasal dimensions based on gender.

Methods: A retrospective review of computed tomographic (CT) images of the sinus, face, orbit, and neck performed in children aged 0-16 years between October 2002 and July 2005 at a tertiary pediatric hospital. Patients with a history of congenital nasal abnormality, distorting maxillofacial trauma, or sinonasal mass were excluded. Digital axial CT images were reviewed in a standardized fashion by two observers. Patient data were divided into groups based on age and gender. Inter-observer variability within specific age groups was also recorded. There were identifiable differences in the nasal cavity dimensions analyzed based on gender.

Results: The nasal cavity grows proportionately with age and the dimensions of the nasal cavity are similar in both genders. Normal data reported in this study may be useful for surgical planning and management of choanal atresia and congenital or acquired nasal stenosis.

INTRODUCTION

• Obstruction of airflow through the nasal cavity causes respiratory compromise
• The severity of respiratory compromise is determined by the degree of obstruction in relation to the size of the nasal passage
• Age-specific normal values for the pediatric nasal cavity have not been fully defined
• Computed Tomography (CT) is the investigation of choice for evaluation of nasal obstruction in the pediatric population

METHODS

• Retrospective Review
• Tertiary Children’s Hospital
• October 2002-July 2005
• Inclusion criteria:
  – Children aged 0-16 years
  – CT of sinus, neck, orbit, or face
  – Axial scans performed parallel to the hard palate
• Exclusion criteria:
  – Congenital nasal abnormality
  – Distorting maxillofacial trauma
  – Sinonasal mass

REFERENCES


CONCLUSIONS

• The nasal cavity grows proportionately with age
• There is variability in nasal cavity dimensions within specific age groups
• There is no significant difference in age-matched nasal cavity dimensions based on gender
• Normative data for nasal cavity dimensions may be useful for surgical planning and management of choanal atresia and congenital or acquired nasal stenosis

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