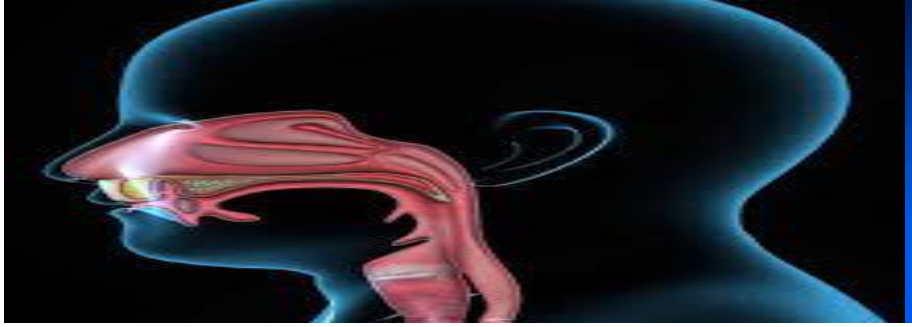
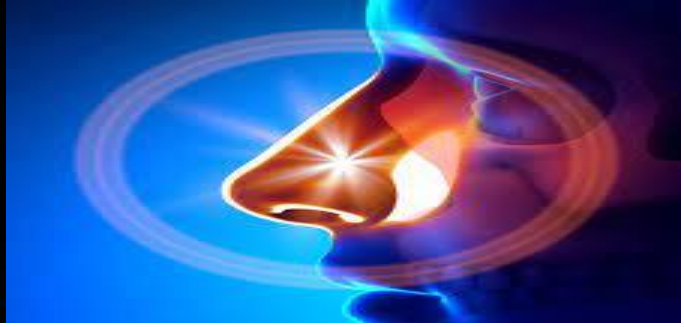

ENT NEWSBUZZ

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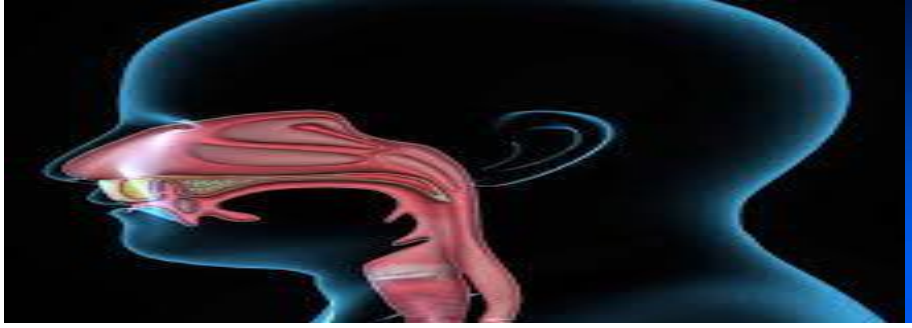


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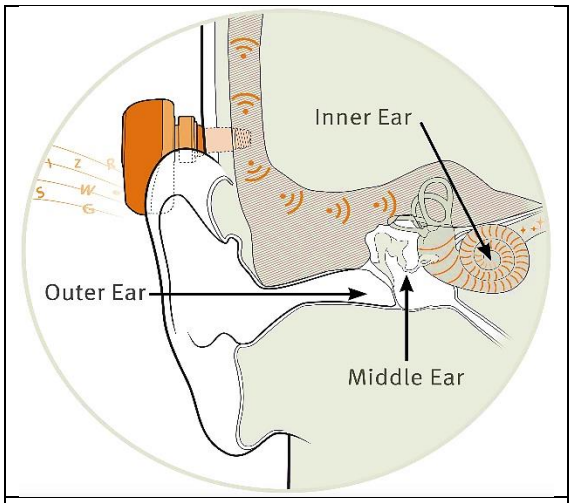
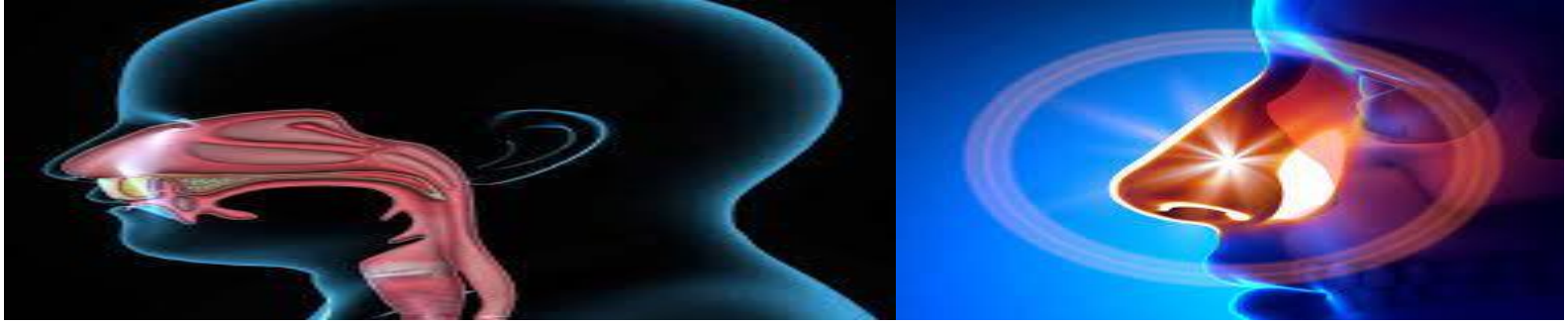
Evaluation of the characteristics and audiological results of superpower sound processor fitted in patients with severe-to-profound mixed hearing loss

Introduction: A bone conduction device (BCD) is a well-established approach for treating conductive or mixed hearing loss in people who are unable to use traditional hearing aids due to ear canal obstruction (e.g., chronic/recurrent otitis) or outer and/or middle ear malformations. In percutaneous applications, vibrations generated by the BCD are delivered directly to the skull via a skin-penetrating abutment attached to a titanium implant. Percutaneous applications have an advantage over nonsurgical or passive transcutaneous systems where vibrations were not attenuated by soft tissue, resulting in 10–15 dB more effective transmission at the high frequencies. However, even with a percutaneous BCD, significantly more power was necessary to attain the same hearing levels as a traditional hearing aid.[1] Bone-anchored hearing aids (BAHA) are bone-conduction-powered devices that consist of an osseointegrated bone-anchored titanium implant and an audio processor. Sound waves can bypass the middle and outer ears and travel straight through the bone to the inner ear. Currently, there are two primary types of BAHA devices: transcutaneous devices, which connect to the implant through an unbroken skin using magnets, and percutaneous devices, whose abutment penetrates the skin and connects directly to the implant. Depending on the patient's bone conduction threshold, the audio processor offers multiple power settings.[2] Despite the fact that the Baha 5 superpower has been on the market for six years, very few studies on its efficacy have been conducted, most likely due to its low popularity.[1] The purpose of the current study was to assess the features and audiological outcomes in patients with severe to profound mixed hearing loss who are equipped with this powerful sound processor.



Bone-anchored hearing device



Methods: In this retrospective study, 82 adult patients with severe-to-profound mixed hearing loss who received a powerful sound processor and a percutaneous bone-anchored hearing device as implants were included. A total of 58 data sets were available for analysis after patients with defective or missing audiological data (n = 24) were removed. The patients' medical records were utilized to gather baseline data on the following: implant side, BCD experience, previously used BCD, gender, age at fitting or audiological assessment, cognitive or intellectual handicap, hearing loss etiology, and choice of device wearing. Additional hearing aid information was also collected. The primary outcome measures were quiet free-field speech perception and unaided and assisted pure-tone thresholds.

Results: All patients' median unaided air conduction (AC) thresholds averaged over 0.5, 1 and 2 kHz ($PTA_{0.5–2\ kHz}$) was 75 dB HL, and all patients' median unaided AC thresholds averaged over 1, 2 and 4 kHz ($PTA_{1-4\ kHz}$) was 84 dB HL. The median $PTA_{0.5–2\ kHz}$ for bone conduction and direct bone conduction were 52 and 47 dB HL, respectively. The median speech perception score at 65 dB SPL was 80% (mean 79%, range 28%–100%) with the superpower device, while the median free-field speech reception threshold was 54 dB sound pressure level (SPL) (Figure 1). The effective gain was 18 dB, while the effective dBC-gain was 14 dB. The median functional gain was 42 dB.

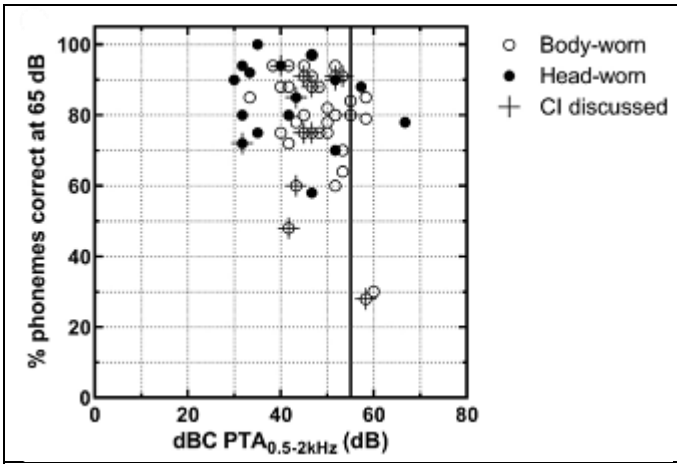
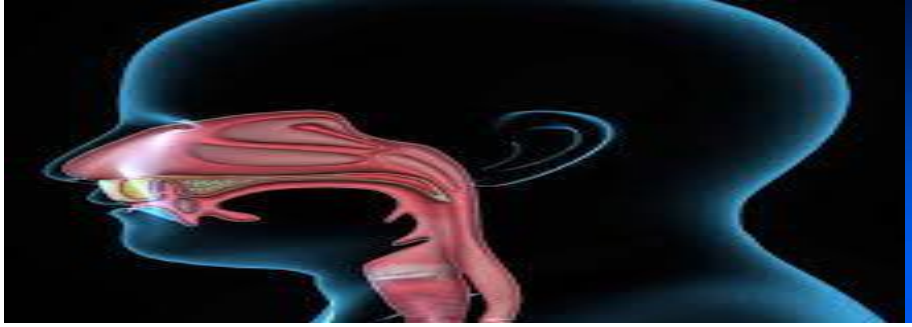
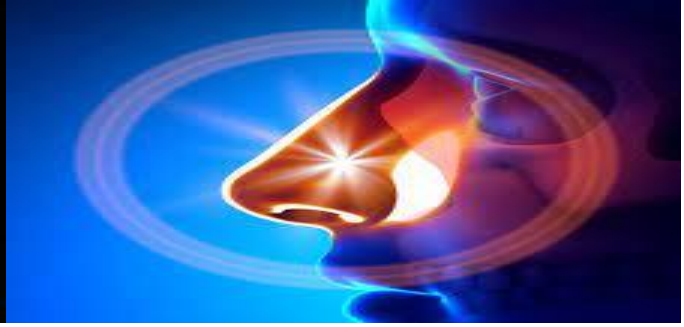


Figure 1: As a function of the dBC $PTA_{0.5–2\ kHz}$ (n = 57), assisted CVC phoneme scores at 65 dB SPL. The + symbol indicates that the patient has been informed about cochlear implantation. The vertical line shows the 55 dB $PTA_{0.5–2\ kHz}$ maximum fitting range. dBC: direct bone conduction; CVC: consonant-vowel-consonant.

Discussion: In the current study, this device was appropriate for individuals with mixed hearing loss and a sensorineural component of hearing loss up to 65 dB HL averaged over 0.5, 1, 2, and 3 kHz.[1] Similar to this, Bosman AJ et al. revealed that for users of the Cochlear Baha 5 power sound processor (BCD-P), the median bone-conduction thresholds were 25, 25, 45, and 52.5 dB HL at 0.5, 1, 2, and 4 kHz, respectively. About 55 dB HL was found to be the average.[3] BAHA provides a realistic and safer alternative hearing rehabilitation option for patients who are unable to use traditional hearing aids (CHA) or whose functional gains were insufficient or unsatisfactory.[2]

Conclusion: The current study concluded that people who were not eligible for traditional hearing aids but have severe to profound mixed hearing loss were a good fit for the bone conduction superpower device.

The bone conduction superpower device is specifically appropriate for people with severe-to-profound mixed hearing loss who are not eligible for cochlear implants or traditional hearing aids.

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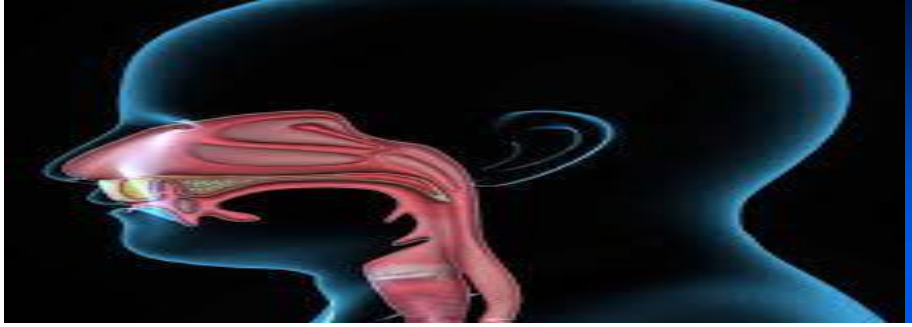


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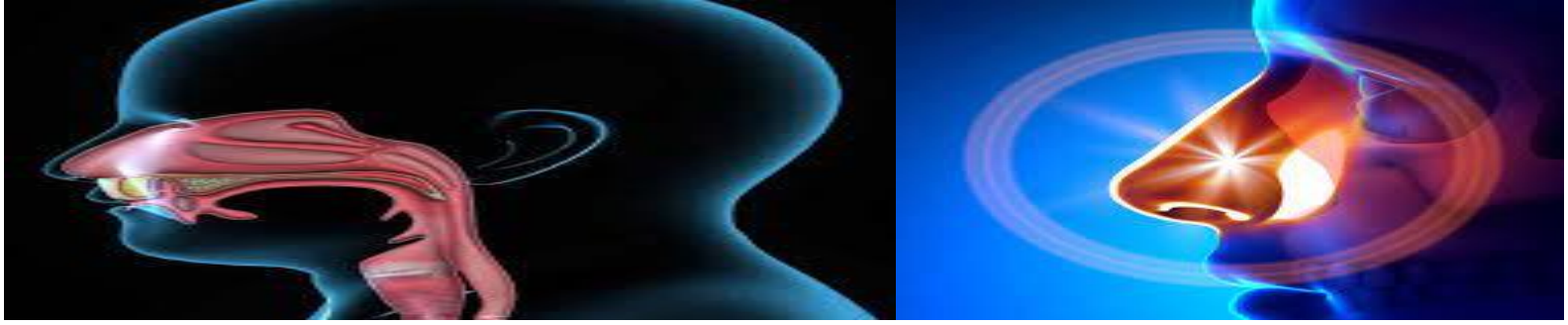
Correlation between a tube in the upper airways and children's susceptibility to sinusitis

Introduction: Sinusitis is an inflammation of the mucosal lining of one or more paranasal sinuses. Clinical symptoms can be classified as acute (<30 days), subacute (30–90 days), or chronic (>90 days).[1] The endotracheal (ET) route remains the primary intubation method for both adults and children. Conversely, nasotracheal (NT) intubation is less prevalent; in adults and children, it makes up only 4% and 5.6% of advanced airway treatments, respectively. One major risk factor for nosocomial sinusitis, which can cause sepsis in critically ill individuals has been found to be the use of ET and NT tubes. Children may be more susceptible to sinusitis than adults due to smaller airways and structural changes.[2] Patients with an advanced airway usually get their nutrition through nasogastric (NG) or orogastric tubes, however there isn't much evidence linking these tubes to pediatric sinusitis. So, this study investigated whether NG or ET tubes could help PICU patients develop sinusitis.

Methods: This retrospective analysis included 65 patients and 162 pictures, 101 of which were computed tomography (CT) and 61 magnetic resonance imaging (MRI). A pediatric neuroradiologist performed radiological re-evaluations on children who had at least two cranial scans for this investigation. Radiological images were assessed for signs of sinusitis and nasopharyngeal (NF) secretions and for the presence of nasogastric (NG) and endotracheal (ET) tubes, respectively. The time intervals between the images were also noted.

Results: The sinusitis occurrence increased significantly ($p = 0.039$) between the first (43.3%) and second (66.6%) images. It was discovered that 2.5 days was the cut-off point for sinusitis onset [area under the curve: 0.50, 95% confidence interval (CI): 0.355-0.646]. The incidence of sinusitis or the development of NF secretion did not differ significantly between single and double tubes ($p = 0.389$). Additionally, there was no significant relationship between sinusitis and the existence of an ET or NG tube. However, 84% of images with an NG tube ($p = 0.003$) and 52% of images with an ET tube ($p = 0.004$) had NF secretions (Figure 1).



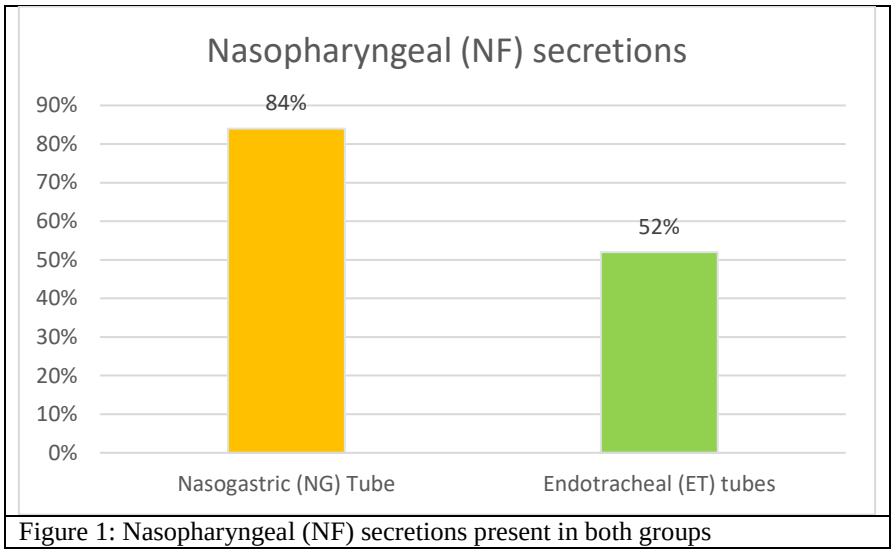


Figure 1: Nasopharyngeal (NF) secretions present in both groups

Discussion: This retrospective investigation revealed a significant association between NG and ET tubes and increased nasopharyngeal secretions, which may raise the risk of sinusitis in children in critical condition. In PICU patients undergoing cranial imaging for whatever reason, sinusitis was quite prevalent (46%), and its frequency increased by 30% over time. Sinusitis and higher secretions were linked to NG and ET tubes.[2] According to Metheny NA et al., patients with an ET tube had a 41% higher incidence of sinusitis compared to those with only an NG tube, and patients with both tubes had a 200% higher risk.[3]

Conclusion: This study concluded that insertion of NG and ET tubes, separately or in combination, clearly causes nasopharyngeal secretions to build up, which significantly delays clearance and causes critically sick children at risk for sinusitis. It was important to take this risk into account while caring for critically ill children who have these tubes because it rises gradually over time.

Higher nasopharyngeal secretions were significantly linked to both endotracheal (ET) and nasopharyngeal (NF) tubes, which may raise the risk of sinusitis in critically ill children.

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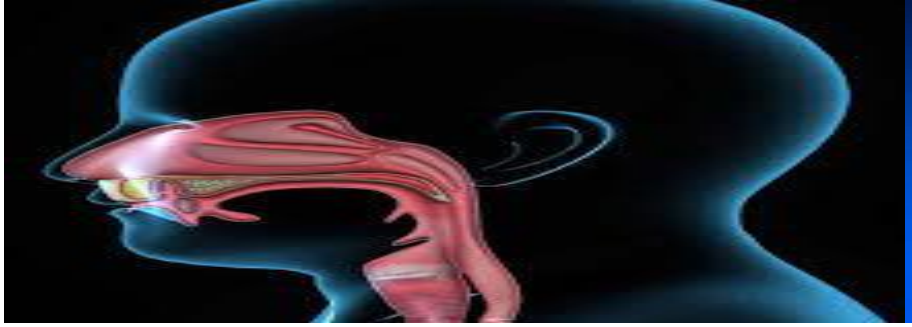


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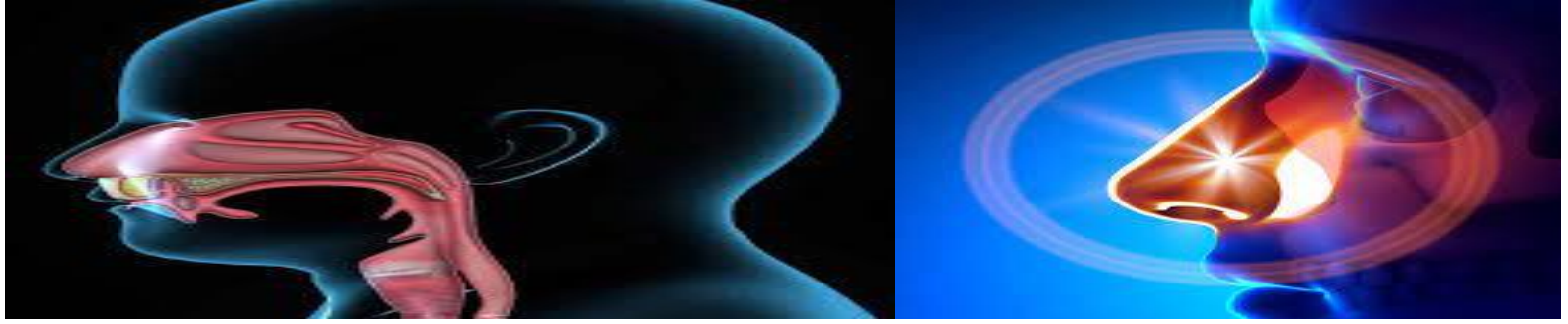
Effects of pharyngeal packing on antral cross-sectional area, gastric volume and post-operative complications

Introduction: The nasal cavity and paranasal sinuses have well-vascularized mucosa, which can cause significant bleeding during nasal surgery. Aspiration risk and the frequency of postoperative nausea and vomiting may rise if the blood's flow into the digestive system is not stopped. Pharyngeal packing is a common physical barrier used in nasal surgery to prevent blood intake.[1] Swallowing blood can cause nausea and vomiting during pharyngeal, orthognathic, and nasal operations in particular. To lessen the quantity of blood swallowed and avoid ingesting foreign objects like teeth, broken bone fragments, and tiny surgical instruments, "pharyngeal packs" are utilized.[2] In order to determine the risk of aspiration during surgery, ultrasound scanning was performed to measure the volume and content of the stomach. Gastric ultrasonography would provide information regarding the change in gastric volume brought on by blood ingestion if pharyngeal packing serves as a barrier to protect the aerodigestive tract.[1] So, this study was to explore the effects of pharyngeal packing on antral cross-sectional area, stomach volume, and post-operative problems.

Methods: In this prospective study, 180 patients were divided randomly to either the control group or the pharyngeal packing group. Demographic information, post-operative nausea and vomiting risk, surgery type and duration, and suctioned blood volume were collected. Ultrasound scanning was used to measure the size of the stomach antral. Post-operative nausea, vomiting, and sore throat were noted, along with their intensity. Patients were monitored to assess the occurrence and intensity of postoperative nausea, vomiting, and sore throat. Following surgery, data were collected in the post-anesthesia care unit after two hours and on the ward after twenty-four hours.

Results: Compared to the control group, the pharyngeal packing group had greater postoperative antral cross-sectional area and gastric capacity (Figure 1). There was a considerable decrease in the frequency and intensity of postoperative nausea and vomiting in the group who had pharyngeal packing. The control group in the ward experienced more frequent and severe sore throats. In contrast, functional endoscopic sinus surgery, septorhinoplasty, absence of pharyngeal packing, and lower physical status as defined by the American Society of Anesthesiologists were associated with post-operative nausea and vomiting within the ward. Post-operative nausea and vomiting within the first two hours after surgery were linked to an increased Apfel simplified risk score and post-operative antral cross-sectional area.



Discussion: In this study, the pharyngeal packing group's post-operative antral cross-sectional area and gastric capacity were considerably higher than those of the control group. Postoperative assessments of gastric volume, estimated antral cross-sectional area, cranio-caudal diameter, and anteroposterior diameter were considerably higher in both groups than pre-operative values.[1] Similar findings were found in the Temel ME et al., which indicated that the pharyngeal packing group and control groups had greater postoperative antero-posterior (AP) and cranio-caudal (CC) antral diameters as well as antero-sectional area (ACSA) than preoperatively.[3]

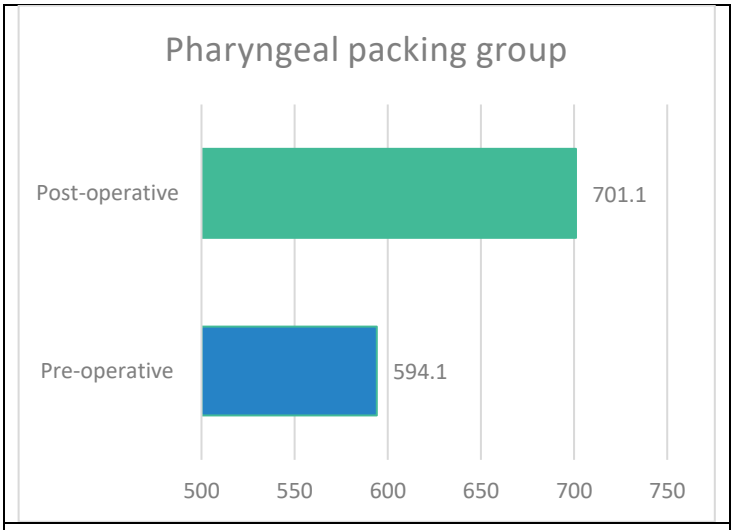


Figure 1: Antral cross-sectional area : Pre-operative vs post-operative

Conclusion: This study concluded that gastric ultrasound imaging revealed that gastric antral cross-sectional area and volume increase with blood hemorrhage during nasal surgical procedures. Pharyngeal packing lowered gastric volume and type of operation, and this was linked to a decrease in the frequency and intensity of postoperative nausea and vomiting as well as a lower incidence of sore throat.

Pharyngeal packing should be used in patients undergoing functional endoscopic sinus surgery or septorhinoplasty, as well as in those with low physical status and a high risk score.

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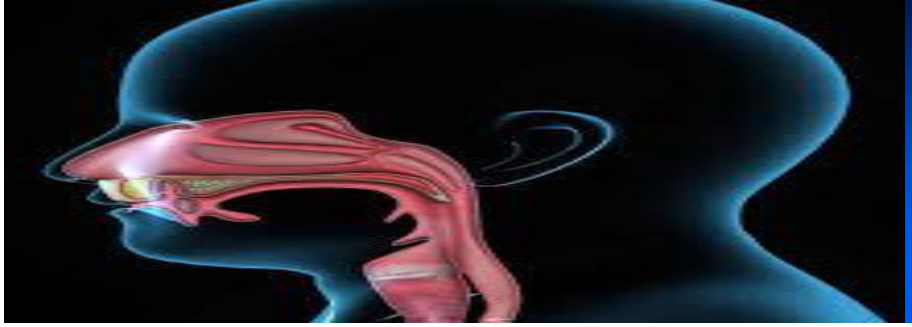


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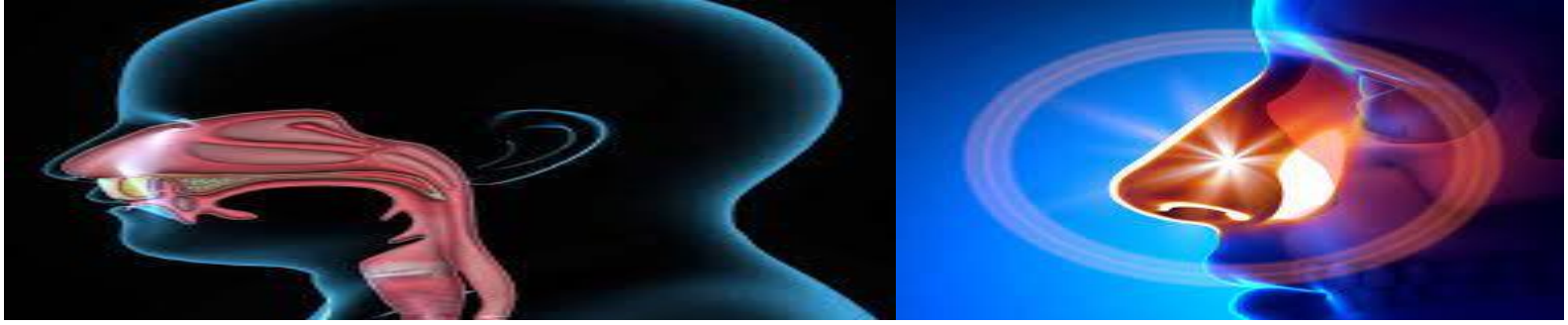
Case Report on Sublingual Gland Hypertrophy with Submandibular Gland Aplasia appearing as a Neck Mass

Introduction: Salivary gland aplasia is uncommon and typically affects multiple large salivary glands. There could be a single gland or several glands involved. There have only been a few instances of isolated unilateral submandibular gland aplasia, or aplasia combined with enlargement of the contralateral submandibular gland or sublingual glands, documented. Most unilateral submandibular aplasia cases are unintentionally found in people who do not exhibit symptoms associated with sialadenitis, xerostomia, sialolithiasis, or facial abnormalities. Aplasia of the submandibular gland on one side and enlargement of other salivary glands become clinically significant when they cause the submandibular space to lose its usual symmetry and resemble radiologic masses on cross-sectional imaging and physical examination.[1] Single submandibular gland agenesis is less common and can be observed with compensatory hypertrophy of other glands in the head and neck region, but only in the absence of other head and neck developmental issues.[2] This case report involved a patient who had agenesis of a single submandibular gland and compensatory enlargement of the ipsilateral sublingual gland, resulting in an asymptomatic neck mass.

Case presentation: A 48-year-old female patient arrived at the clinic after experiencing swelling in the area of her left neck below her mandible over eight years. She had a history of asthma and acid reflux. Patient's only symptom was the fullness beneath her mandible, and she did not feel any pain. She was diagnosed with sialadenitis at her prior visit this year. Patient sought a re-evaluation because of the persistence of the edema after conservative care. During the examination, there was fullness in the left neck, beneath the mandibular anterior body. Oral cavity fullness was also discovered during a bimanual examination. She had no lesions in her oral cavity, and the examination revealed no other abnormalities.

A CT neck with contrast revealed an enlarged sublingual gland on the left side and an absent submandibular gland on the left. Figure 1 showed the left sublingual gland's extension through the mylohyoid boutonniere. Given the mass persistence over several months, the choice was taken to go to the operating room for excision rather than biopsy. During the surgery, general



anesthesia was administered. Her symptoms subsided after she underwent a transoral excision of the left sublingual gland (Figure 2).

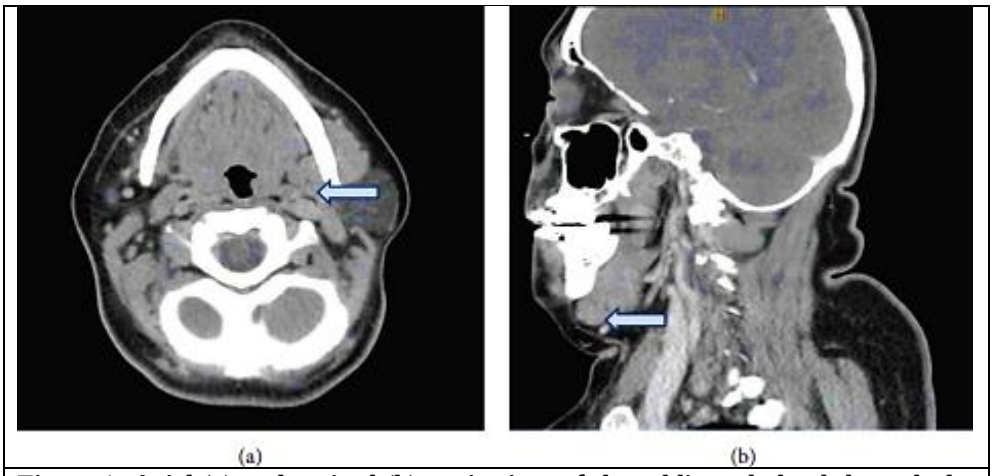
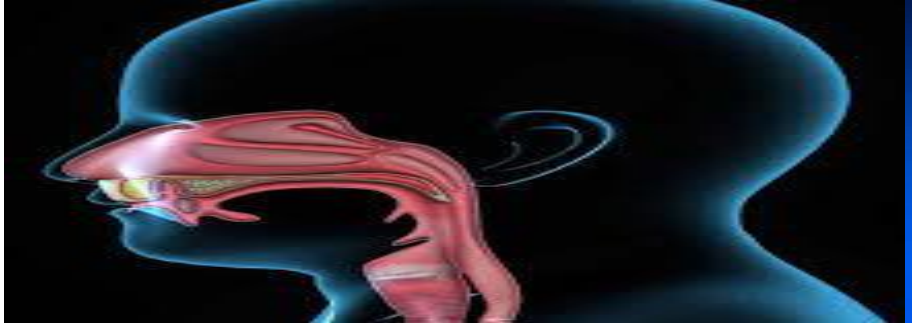
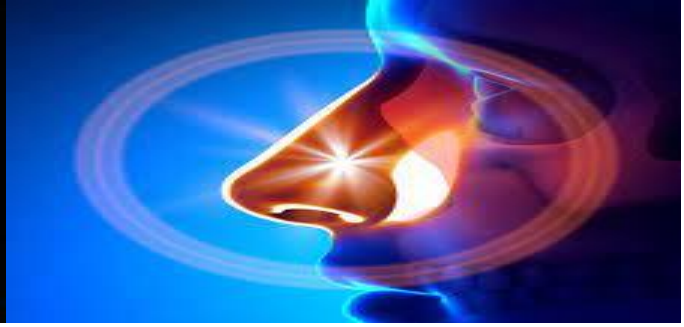


Figure 1: Axial (a) and sagittal (b) projections of the sublingual gland through the mylohyoid.

The surgery involved making an incision through the floor of the mouth's mucosa to expose the sizable sublingual gland that extends into the neck. The histology showed up as typical salivary gland tissue under the tongue. Patient has an asymptomatic neck lump, and there were several possible differential diagnoses. Congenital abnormalities, inflammatory or infectious processes, benign neoplasms, and malignant neoplasms—either primary or metastatic to a lymph node from another head and neck malignancy—were among the diagnoses to be taken into consideration for this patient. Imaging was an important diagnostic tool that helped identify the patient's aberrant salivary gland development and the cause of the lump.

Figure 2: Sublingual gland, 3.5 cm

Discussion: Incident findings on Tc-pertechnetate scintigraphy, computed tomography, magnetic resonance imaging (MRI), or ultrasound are indicative of unilateral submandibular gland aplasia. Aplasia of the submandibular gland on one side may occur alone or in conjunction with hypertrophy of the sublingual gland on the other side, the ipsilateral sublingual gland, or the bilateral sublingual gland.[1] Children who appear with recurring postprandial, clear discharge from the neck should be evaluated. Both intraoperative methylene blue injection and imaging investigations, such as MRI fistulograms, can support the diagnostic and surgical excision process.[3]

Conclusion: Sublingual gland hypertrophy is a fairly unusual appearance for a patient with a neck tumor. This condition may occur in the context of compensatory enlargement of other salivary glands due to submandibular gland aplasia. It is critical to include this unusual illness in the differential diagnosis of a patient with a neck tumor.

Imaging is an important diagnostic tool that helps identify the patient's aberrant salivary gland development and the cause of the lump.

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