# Unique Cases of Nasogastric Tube-Related Pressure Ulcers in Patients with a Postcricoid Cushion

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## Introduction

- In the pediatric setting, nasogastric tubes (NGTs) are commonly used to provide nutrition to infants and children who cannot take in enough calories by mouth or are at risk for aspiration.
- Like other medical devices, NGTs have the potential to cause pressure injuries through constant compression on mucosal surfaces, resulting in impaired venous blood return, potentially leading to tissue ischemia and necrosis.
- Current literature reports NGT-related pressure ulcers typically occur on the columella or nasal mucosa.
- We present a case series of a rare location of ulceration at the site of a postcricoid cushion, a normal anatomic variant arising from prominent venous plexuses located in the posterior cricoid area.

## Purpose

To investigate pediatric patients with postcricoid cushion ulcers and make recommendations for how to approach management of postcricoid cushion injuries caused by NGTs.

## Case Descriptions

- We report two patients, both with Trisomy 21 and laryngomalacia, at 2 and 3 months old who were admitted to the PICU with acute hypoxic respiratory failure due to viral bronchitis.
- Their hospital courses were complicated by the inability to wean off CPAP and postcricoid cushion injury secondary to NGT use indicated for poor oral intake.
- Both patients had evidence of severe laryngeal reflux on exam, likely contributing to their respiratory symptoms.
- AE fold division was performed for worsening respiratory symptoms in the setting of mild laryngomalacia.
- Following the procedure, the patients were maintained on CPAP and medical management (ie, H2 blocker, PPI) with reflux precautions and repeat scopes to monitor for airway inflammation and worsening ulceration.
- Both patients had their NGT removed to allow their postcricoid cushion ulcers to heal and were transiently given peripheral parenteral nutrition (PPN).
- At discharge, patients were recommended to wean from PPN to NGT feeds and referred to GI/Pediatric Surgery for evaluation of eventual gastrostomy tube placement.

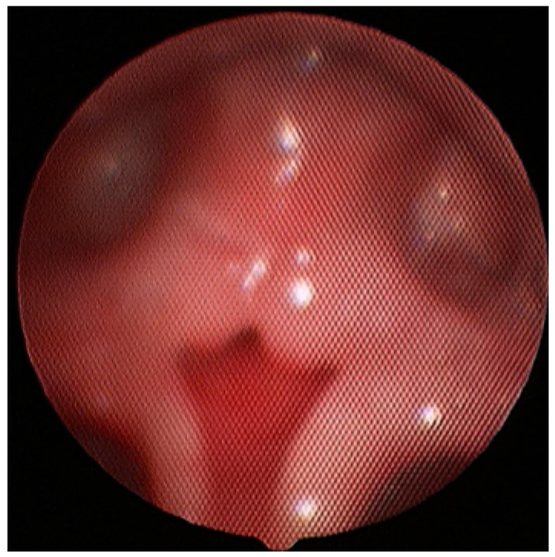

**Figure 1.** Postcricoid cushion (PCC) without ulceration.


**Figure 2A & 2B.** PCC ulceration anteromedial to NGT in Case 1 **(2A)** and Case 2 **(2B)**.

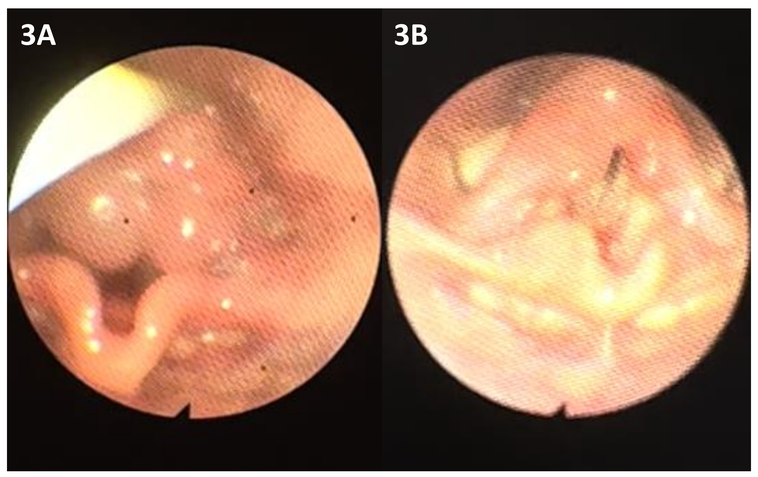


**Figure 3A & 3B.** Both figures show Case 2 glottis on inspiration. Patient with NGT in place on BiPAP presenting with respiratory distress and close to intubation **(3A)**. Patient on CPAP one week later and weaned to HFNC after NGT removal **(3B)**. Patient was discharged on room air with a gastrostomy tube a few weeks later.

| Case 1 | Case 2 |
|---|---|
| 2-month-old full-term w/ T21 | 3-month-old preterm w/ T21 |
| NGT placed 4 days after hospitalization | NDT placed 4 days after hospitalization |
| DLB: prominent PCC, mildly retroflexed epiglottis, supraglottic edema, grade 1 subglottic stenosis | DLB: severe PCC edema, retroflexed epiglottis, tightened AE folds, redundant periarytenoid tissues |
| S/p AE fold division: NDT, H2 blocker, PPI, steroids, azithromycin | S/p AE fold division: NGT, CPAP, H2 blocker, PPI, steroids, antibiotics |
| Discharged 1 month later on room air and PPN | Discharged 1.5 months later on CPAP and PPN |
| Weaned from PPN to NGT feeds and planned for G-tube | |

## Discussion

- Currently, there is a sparsity of literature on NGT-induced postcricoid cushion ulceration.
- Our recommended management includes NGT removal, replacement with a smaller tube, reflux precautions, and, if necessary, temporary feeding modifications (eg, gastrostomy or parenteral nutrition).
- For high-risk patients (eg, Trisomy 21, laryngeal reflux, URI), preemptively using the smallest NGT may help prevent such injuries.
- For infants with severe feeding difficulties and high risk of aspiration, a multidisciplinary approach involving otolaryngologists, speech therapists, and nutrition specialists is recommended.
- Ultimately, while most cases of pediatric postcricoid cushions can be managed conservatively, surgical intervention may be warranted in select cases with persistent and severe symptoms.

## References

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