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1.0 Introduction

Retropharyngeal abscesses (RPAs) occur when retropharyngeal lymphadenitis suppurates and forms an abscess. RPAs often follow upper respiratory tract infections and are classically seen in children < 5 years of age. They present with fever, reduced neck movement due to pain (especially lateral movement), irritability, dysphonia, dysphagia, excessive drooling, or even symptoms of upper airway compromise. Early diagnosis and management are essential, as RPAs can be associated with significant morbidity and mortality. All patients with RPA will require admission to hospital for IV antibiotics and some will also need surgical drainage.

In patients who are unwell, septic, have signs of upper airway compromise, or are not responding to IV antibiotics, a CT scan is indicated as the definitive diagnostic test and is necessary prior to surgical drainage. In well patients without signs of sepsis or upper airway compromise, empiric IV antibiotics started after an abnormal lateral neck x-ray are often curative. Well patients who respond to empiric IV antibiotics rarely need CTs.

This Clinical Practice Guideline is intended to guide the investigation, treatment, and management of patients who present to SickKids Hospital with suspicion of an RPA.

Objectives:

In the target population, the objectives of this Clinical Practice Guideline are to:

- Improve standardization of care for patients with RPAs across the continuum of care
- Streamline the care of these patients from hospital arrival to discharge
- Decrease the use of unnecessary diagnostic studies
- Outline each service's role and responsibilities, as well as, facilitate clear communication and handover among parties
- Optimize the patient experience when presenting to the hospital with this condition

Target Users:

Include, but are not limited to:

- Emergency Medicine physicians, nurses, nurse practitioners, physician assistants, and trainees
- Paediatric Medicine physicians, nurse practitioners, and trainees
- ENT physicians, nurse practitioners, and trainees
- Pharmacists

2.0 Clinical Practice Recommendations

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Target Population:

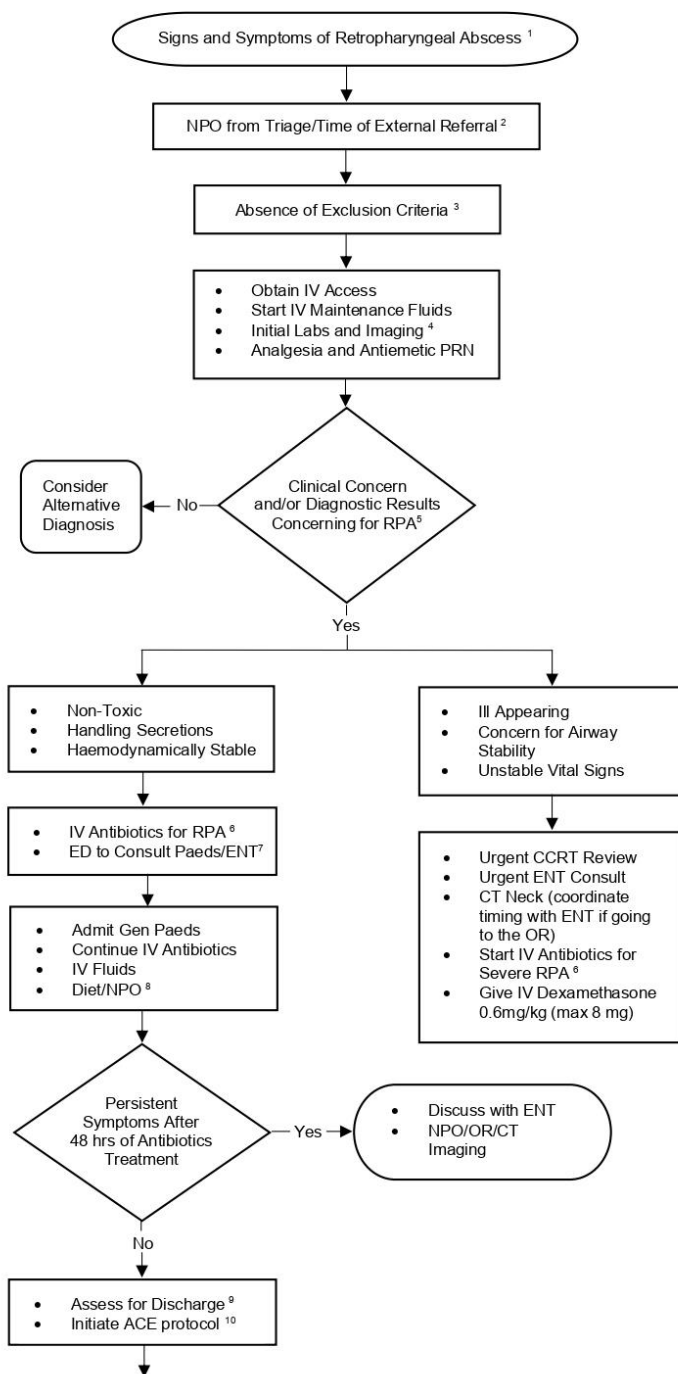
- **Inclusion criteria:** This management pathway is primarily intended for use in clinically stable children \geq 12 months of age with a diagnosis or suspected diagnosis of Retropharyngeal Abscess without signs of upper airway compromise

- **Exclusion criteria:** The Clinical Practice Guideline is not intended for use in patients who:
 - Age < 12 months
 - Have a compromised airway
 - Are systemically ill (septic or in shock)
 - Are immunocompromised
 - Have had previous neck or airway surgery
 - Have head, neck, or airway trauma
 - Have trismus or a deviated uvula
 - Have a peritonsillar abscess on oral examination

Clinical Practice Guideline:

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Retropharyngeal Abscess, Clinical Practice Guideline



1. Signs and Symptoms of RPA
<ul style="list-style-type: none"> Fever Decreased neck movement (especially laterally) Change in voice Decreased PO intake Drooling
2. External Referrals
<ul style="list-style-type: none"> NPO immediately from referral Direct transfer to SickKids Get contact details of referring Physician & Family
3. Exclusion Criteria
<ul style="list-style-type: none"> Compromised airway Patient septic or in shock Immunocompromised Previous neck or airway surgery Head, neck or airway trauma Age < 12 months Suspected peritonsillar abscess (i.e. trismus, uvula deviation)
4. Initial Labs and Imaging
<ul style="list-style-type: none"> Electrolytes (Na, K, Cr, Glu) CBC + diff CRP Blood culture if < 2 years or ill appearing X-ray soft tissue neck
5. Results Concerning for RPA
<ul style="list-style-type: none"> Elevated CRP and WBC X-ray findings suggestive of RPA (see page 2)
6. IV Antibiotics for RPA
<ul style="list-style-type: none"> IV Clindamycin 10-13 mg/kg/dose q8h + IV Cloxacillin if no response to Clindamycin + IV Vancomycin if severe, failed 1st line therapy, severe beta-lactam allergy, or MRSA risk factors
7. ENT Consult in ED
<ul style="list-style-type: none"> Patients who are stable, well and without signs of Airway Compromise may not need an out of hours ENT consult
8. Diet/NPO
<ul style="list-style-type: none"> NPO from midnight every night NPO guidelines: 8 hrs from the last ingestion of solids, 6 hrs for formula/milk, 4 hrs for breast milk, 2 hrs for clear fluids (jello is not a clear fluid) Review in the AM: <ul style="list-style-type: none"> If improving, diet as tolerated If not improving, keep NPO & discuss with ENT
9. Discharge Criteria
<ul style="list-style-type: none"> Well appearing Vitals stable or improving fever pattern Tolerating diet (no IV hydration required) Improving neck ROM Reside within the GTA and family is agreeable with returning to ACE clinic ACE visit can be scheduled within 24-48 hrs (check if ACE is open on weekends)

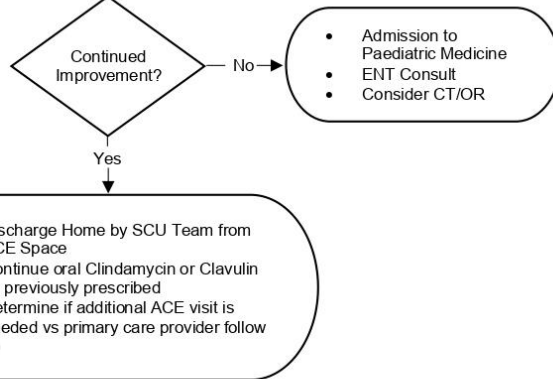
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Prior to Discharge Home:

- Ensure family knows to return to ACE Space at the next day at 0800 and directions given to 7D
- Discharge instructions given (NPO @ 2400, pain management)
- Trial of oral Clindamycin on unit prior to discharge home. If not tolerated, switch to oral Clavulin.
- Provide prescription for oral Clindamycin 10 mg/kg/dose TID (total 14 day course)


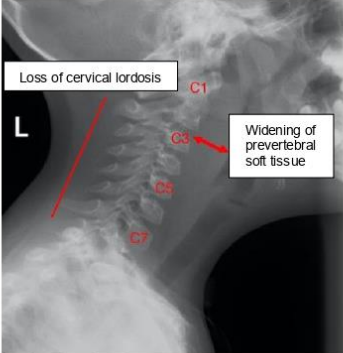
ACE Management:

- Patient return NPO to ACE at 0800 on Day 3 (± Day 4)
- Paeds to assess patient at 0800 to determine if CT/drainage is clinically indicated



10. ACE protocol

- Enroll patient in the ACE Space to return the next day @ 0800
- Communicate with ACE team via email (ace.requests@sickkids.ca) AND phone/in person (647-530-5638)
- Please include the following information: name, MRN, reason for clinic visit, pertinent history/concerns/social issues
- Handover to SCU medical team and review with SCU staff MD

Interpretation of Lateral X-Rays of Soft Tissue of the Neck	
<p>Radiological Findings Suggestive of Retropharyngeal Abscess</p> <ol style="list-style-type: none"> 1. Widening of the retropharyngeal space 2. Loss of normal cervical lordosis 3. Presence of retropharyngeal air 	<p>Normal Upper Airway Anatomy</p> 
<p>Prevertebral soft tissue</p> <ul style="list-style-type: none"> • Thickness depending on the level and the age of the child • Normal prevertebral soft tissue measurements: <ul style="list-style-type: none"> ○ In older children, prevertebral soft tissue is less than the width of half a vertebral body down to C3/4 level ○ From C5 onwards it is acceptable for prevertebral tissue to be up to the width of a vertebral body • RPA prevertebral soft tissue measurements: <ul style="list-style-type: none"> ○ Thickening greater than 7 mm at the level of the second cervical vertebrae or greater than 14 mm at the level of the sixth cervical vertebrae <p>*If there is a strong clinical suspicion for RPA, please consult ENT regardless of prevertebral soft tissue measurements</p>	<p>Retropharyngeal Abscess</p> 
<p>Virk JS, Pang J, Okhovat S. Analysing lateral soft tissue neck radiographs. Emerg Radiol 2012;19(3):255-60</p>	

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3.0 Implementation and Evaluation Plan

Implementation Plan

- Education and awareness of CPG to be implemented by medical teams within the Emergency Department, the Division of Paediatric Medicine, and the Department of Otolaryngology.
- Opportunities for education around CPG include resident/fellow academic half-days, trainee orientation, nursing orientation/staff meetings, staff physician meetings, clinical handover, and bedside teaching.
- Inpatient Medical Directors of the Emergency Department, ENT service, and Paediatric Medicine to communicate any updates in practice to the Division of Paediatric Medicine.

Evaluation Plan

- Compare baseline pre-implementation and post-implementation data for
 - Number and timing of CT scans completed on children with suspected RPA and indications documented for imaging
 - Duration and selection of antibiotics for patients treated for RPA
 - Length of stay of patients with RPA who appear non-toxic at presentation
- Eventual development of an EPIC order set
 - Evaluate utilization of the order set

4.0 Guideline Group and Reviewers

Guideline Group Membership:

1. Aliya Jaffer, Paediatric Nurse Practitioner, Paediatric Medicine
2. Iris Liu, Paediatric Nurse Practitioner, Paediatric Medicine
3. Phuong Ho, Paediatric Nurse Practitioner, Paediatric Medicine
4. Ting Ting Liu, Paediatric Nurse Practitioner, Paediatric Medicine
5. Lynn Mack, Senior Clinical Manager, Paediatric Medicine
6. Dr Hosanna Au, Staff Physician, Paediatric Medicine
7. Dr Nikolaus Wolter, Staff Otolaryngologist, Otolaryngology – Head & Neck Surgery
8. Dr Evan Propst, Staff Otolaryngologist, Otolaryngology – Head & Neck Surgery
9. Dr Elana Thau, Fellow, Emergency Medicine
10. Dr Michael Fitzgerald, Fellow, Paediatric Medicine
11. Dr Caitlyn Hui, Resident, Paediatric Medicine
12. Dr Tanvi Agarwal, Fellow, Paediatric Medicine

Internal Reviewers:

Emergency Department Quality Team

Paediatric Medicine Ward Chiefs

Sabrina Boodhan, Pharmacist, Antimicrobial Stewardship

5.0 Statement of Evidence

The recommendations presented in this guideline and the associated pathway have been created through an interdisciplinary panel of experts following extensive review of the literature, retrospective assessment and evaluation of patient data from the SickKids, and review of existing clinical guidelines. Reference lists of published guidelines and articles were also reviewed. Two key guidelines from CHOA and CHOP (3,4) were assessed in the development of this guideline. The guideline is up to date with current clinical management recommendations for RPA treatment. Lastly, there was no conflict of interest amongst the panel in the development of the CPG.

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6.0 References

1. Craig, F.W., Schunk, J.E., (2003). Retropharyngeal Abscess in Children: Clinical Presentation, Utility of Imaging, and Current Management. *Pediatrics* Vol 11, 6, 1394-1398
2. Lawrence, R., Bateman, N., (2017). Controversies in the management of deep neck space infection in children: an evidence-based review. *Clin. Otolaryngol.* 2017, 42, 156– 163
3. Children’s Hospital of Atlanta (2019). Clinical Practice Guideline for Management of Retropharyngeal Abscess. Retrieved from <https://www.choa.org/>
4. Children’s Hospital of Philadelphia (2017). ED Clinical Pathway for the Evaluation/Treatment of the Child with a Suspected Deep Neck Space Infection. Retrieved from www.chop.edu
5. Daya, H., Lo, S., Papsin, Z., Zachariasova, A., Murray, H., Pirie, P., Laughlin, S., Blaser, S., (2005). Retropharyngeal and parapharyngeal infections in children: the Toronto experience. *Int. J. Pediatr. Otorhinolaryngol.* 69, 81-86
6. Haug, R. H., Wible, R. T., & Lieberman, J. (1991). Measurement standards for the prevertebral region in the lateral soft-tissue radiograph of the neck. *Journal of Oral and Maxillofacial Surgery*, 49(11), 1149-1151. doi:10.1016/0278-2391(91)90405-b
7. Saluja, S., Brietzke, S.E., Egan, K.K., Klavon, S., Robson, C.D., Waltzman, M.L. and Roberson, D.W. (2013), A prospective study of 113 deep neck infections managed using a clinical practice guideline. *The Laryngoscope*, 123: 3211-3218.
8. Novis, S.J., Pritchett, C.V., Thorne, M.C., Sun, G.H., (2014) Pediatric deep space neck infections in U.S. children, 2000-2009. *Int J Pediatr Otorhinolaryngol.* May;78(5):832-6
9. Vieira, F., Allen, S.M., Stocks, R.M.S, Thompson, J, W., (2008) Deep Neck Infection. *Otolaryng Clin N Am* 41 (8): 459-483
10. Virk JS, Pang J, Okhovat S. (2012) Analysing lateral soft tissue neck radiographs. *Emerg Radiol* 19(3):255-60

7.0 Related Documents

- [Neck Infection Clinical Pathway](#): Children’s Hospital of Philadelphia
- [Clinical Practice Guideline for Management of Retropharyngeal Abscess](#): Children’s Hospital of Atlanta
- [Retropharyngeal Abscess](#): Radiopaedia
- [Retropharyngeal Abscess](#) : British Medical Journal Best Practice
- [Dental Abscess](#): Clinical Practice Guideline Policies and Procedures, SickKids