

Clinical dilemma on retropharyngeal cellulitis and croup

Retrofaringeal yumuşak doku enfeksiyonları ile krup arasındaki klinik ikilem

Saz E U Erdemir G Ozen S Aydoğdu S

Department of Pediatrics Division of Emergency Medicine Ege University School of Medicine,
Bornova,Izmir-Turkey

Summary

We report a case of retropharyngeal cellulitis which exactly mimics the croup symptoms. The case reported was an 19-month-old male. He was brought to the emergency department with a chief complaint of stridor and his mother denied any fever, trauma, upper respiratory or gastrointestinal complaints. He was alert, drooling, and became agitated when approached. He was intermittently stridulous, especially when placed supine, although he was not hoarse at rest. His neck was not hyperextended in the "sniffing" position . He had moderate substernal, intercostal, and supraclavicular retractions an nasal flaring. In addition, mild expiratory wheezing was appreciated upon auscultation. Examination of the neck revealed some anterior and posterior lymphadenopathy.

Both lateral neck radiograph and computed axial tomography revealed that the present case has retropharyngeal widening and possible abscess. Based on these findings direct laryngoscopy and aspiration was performed and diagnosed as cellulitis. Since the symptoms have improved with intravenous metronidazol and ceftriaxone he was discharged from the hospital.

Key Words: Retropharyngeal cellulitis, children

Özet

Bu olgu, laringotrakeit klinik belirtilerini birebir taklit edip yanlısamalara neden olan retrofaringeal yumuşak doku enfeksiyonlarının ciddiyetini vurgulamak amacıyla sunulmuştur.

Olgu acil servise stridor ve hırıltılı solunum yakınmaları ile getirildi. Fizik bakışında alt, üst interkostal retraksiyonları saptanan ve burun kanadı solunumu olması nedeni ile ilk planda krup sendromu olarak düşünülen bir olguydu. Krupa yönelik olarak uygulanan tedavilere yanıtız ve kliniğin daha da ağırlaşması üzerine çekilen lateral servikal grafi ve boyun tomografisinde retrofaringeal genişleme saptandı. Kulak burun boğaz kliniği operasyon odasında direkt laringoskopi ile drenaj uygulandı. Olgudaki enfeksiyonun retrofaringeal sellülit ile uyumlu olduğu düşünülerek metronidazol ve seftriakson tedavileri başlandı ve şifa ile taburcu edildi.

Anahtar Kelimeler: Retrofaringeal sellülit, çocuklar

Introduction

Retropharyngeal soft tissue infections are uncommon but potentially lethal infections, especially in the pediatric population under the age of five years (1,2). Abscesses in this group are classically secondary to upper respiratory infections especially oropharyngeal infections, while in the adult group they are usually secondary to trauma, foreign bodies, or as a complication of dental infections.

The diagnosis of retropharyngeal cellulitis and abscess, although most common in children under 6 years of age, is often misdiagnosed in the newborn or early infancy period (2).

Pediatricians are well aware of common causes of acute respiratory distress in infants and young children (3). Clinical decisions are influenced by the patient's signs, symptoms, historical background, and epidemiologic considerations.

Retropharyngeal abscess (RPA) or cellulitis may present with symptomatology that mimics respiratory tract infections such as epiglottitis, croup, or bronchiolitis.

Yazışma Adresi: Eylem Ulas Saz
Children's Hospital of Ege University Section of Emergency
Medicine Bornova Izmir Turkey
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Because of its rare occurrence, RPA or cellulitis is not commonly considered in the differential diagnosis of respiratory distress in infancy.

Case

A 19-month-old male infant was evaluated for a chief complaint of stridor for one day. He was brought to the Emergency Department (ED) by his mother who denied any fever, trauma, upper respiratory or gastrointestinal complaints, and stated that the child had been otherwise healthy. One week earlier, he had had upper respiratory tract infection, but other than that he had no other medical problems. Past medical history was negative for prior wheezing or choking episodes.

In the ED his temperature was 37.8°C, pulse was 120, and respiratory rate was 38 breaths per minute. He was alert, drooling, and became agitated when approached. He was intermittently stridulous, especially when placed supine, although he was not hoarse at rest. His neck was not hyperextended in the “sniffing” position nor was it stiff. He had moderate substernal, intercostal, and supraclavicular retractions and nasal flaring. In addition, mild expiratory wheezing was appreciated upon auscultation. Examination of the neck revealed some anterior and posterior lymphadenopathy.

Laboratory examination was significant for a lateral neck film which revealed a wide retropharyngeal soft tissue space measured 13 mm (Fig 1).



Fig 1. Lateral neck radiograph demonstrating widening of retropharyngeal space and reversal of the normal cervical spine curvature. The Retropharyngeal space is widened and measured 13 mm at C6.

The white blood cell count was 32200, with 88 % polymorpho-nuclear leukocytes, two percent band form, 10 % lymphocytes. Hemoglobin was 11.3 g/dl, and platelets were 478,000. As an acute phase reactant checked CRP (C-reactive protein) was 8.6 mg/dl. Computed axial tomography (CT) plays a major role in diagnosing retropharyngeal abscesses. Therefore, cervical CT was performed and demonstrated that a low-density core, soft-tissue swelling, obliterated fat planes, and mass effect (Fig 2).

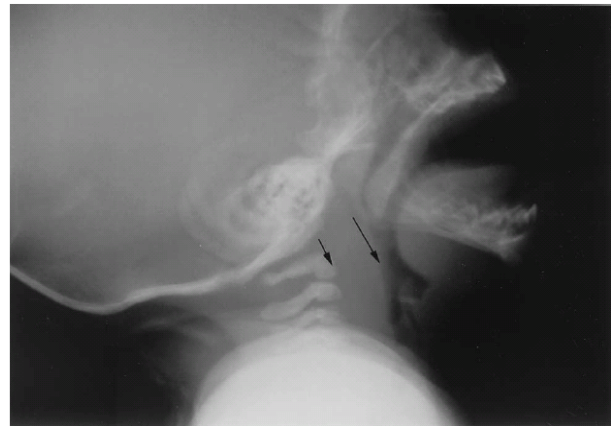


Fig 2. This CT scan of a retropharyngeal abscess demonstrates a low-density core, soft-tissue swelling, obliterated fat planes, mass effect, diameter is 2x2 cm.

Humidified oxygen, nebulized epinephrine, inhaled corticosteroids, and systemic steroid administered because the patient had an expiratory respiratory distress. First of all, the patient was judged as a laryngotracheitis. However, when those administrations seen failure lateral X ray performed, then consulted by ENT. In the operating room direct laryngoscopy was performed. The report showed that diffuse right retropharyngeal erythema and edema consistent with retropharyngeal lymphadenitis or cellulitis. An attempt at aspiration yielded only a drop of blood, which was negative for culture in anaerobic and aerobic media. A blood culture was negative for any organism. Intravenous metronidazol and ceftriaxone were used to treat possible streptococcal, staphylococcal and anaerobic species. Clinical improvement was noted over the next three days without further recurrence of stridor or fever.

Discussion

This case demonstrates an important cause of acute expiratory distress in childhood. Causes of stridor include; epiglottitis, croup, foreign body aspiration bacterial tracheitis, retropharyngeal abscess, and cellulitis (3).

Croup was considered because of the stridor, other symptoms of respiratory distress, and age. Although most croup occurs in late fall, parainfluenza and influenza can produce epidemics in the winter (4).

Epiglottitis was not considered in differential diagnosis in the present case because of Turkey's universal immunization guidelines. According to these guidelines all children have to be completed their Hib vaccination when they are 18 months (5). Hib vaccine has reduced incidence of epiglottitis. Introduction of the polysaccharide vaccine in 1985, followed by the highly effective conjugate vaccine, has reduced the incidence of epiglottitis dramatically with concomitant declines in hospital admissions. Recent studies in US show an annual incidence rate of 0.63 cases per 100,000 persons. Studies of children of all ages with epiglottitis report a seasonal variation in incidence (6).

Foreign body aspiration can cause respiratory distress in children, especially in those younger than two years of age (7). A small object can lodge in the subglottic area, producing symptoms of stridor nad respiratory distress. Food in the most common foreign body aspirated and frequently is not witnessed (8). In the present case past medical history revealed nothing for foreign body aspiration.

It has been estimated that 80% of upper airway obstruction is infectious origin; 90% of these infections are due to viral croup, five percent to epiglottitis, and five percent to other conditions (9).

RPA and cellulitis usually follows to upper respiratory tract infections and spread to the retropharyngeal area by direct continuity or by lymphatic drainage to the lymph nodes in the retropharyngeal space. Our case was consistent with those classic underlying cause. RPA or cellulitis can be secondary to trauma and rarely, secondary to cervical osteomyelitis (10,11). This case discharged from the hospital without complication and followed by outpatient clinic.

The retropharyngeal space is measured 14 mm at C6 and considered widened on lateral neck radiograph (12).

In a series reported by Yeoh et al, a RPA was diagnosed with certainty only when the retropharyngeal soft-tissue mass was twice the anterior-posterior diameter of the adjacent vertebral body. When the soft tissue was more than once, but less than twice, the width of a vertebral body, it was more consistent with retropharyngeal cellulitis.

Computed axial tomography (CT) plays a major role in diagnosing retropharyngeal abscesses, as it is useful in defining the precise anatomical extension and differentiating a true abscess from cellulitis. But it is not a perfect tool. In our case CT was performed and showed the exact diagnose. The abscess may be seen as a mass impinging on the posterior pharyngeal wall. The CT provides more information than the plain radiograph because it can generally differentiate between retropharyngeal cellulitis and retropharyngeal abscess and can demonstrate extension of the retropharyngeal abscess to contiguous spaces in the neck (14).

The most common chief complaints in Emergency Departments are fever and upper respiratory tract infection. Retropharyngeal abscess must be in the differential diagnosis of any child who has fever, stridor, anorexia, drooling, or dysphagia and neck stiffness. This case describes a child with, fever, stridor, wheezing, irritability, lymphadenopathy, and nuchal rigidity were due to a localized infection in close proximity to the spinal cord. Physicians must keep retropharyngeal abscess in mind when a child presents with clinical signs such as stridor, mild fever, drooling and when the croup treatment regiments to be failure.

Conclusions

RPA or cellulitis is an important, although unusual, cause of respiratory distress in infancy. Presenting symptoms can mimic those of epiglottitis an croup. Management depends upon differentiating between abscess and cellulitis with a lateral cervical film, cervical CT and ENT consult for direct laryngoscopy. As in this case retropharyngeal cellulitis may clinically and radiographically resemble RPA.

References

1. Dawes LC, Bova R, Carter P. Retropharyngeal abscess in children. ANZ J Surg. 2002; 417-20.
2. Craig FW, Schunk JE. Retropharyngeal abscess in children: clinical presentation, utility of imaging, and current management. Pediatrics 2003; 1394-8.
3. Fleisher GR. Retropharyngeal and lateral pharyngeal abscess. In: Fleisher GR, Ludwig S, eds. Textbook of Pediatric Emergency Medicine. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2000:744.
4. Denny FW, Murphy TF, Clyde WA, et al. Croup: An 11 year study in a pediatric practice. Pediatrics 1983; 71:871.
5. <http://www.saglik.gov.tr/BHIM/BelgeGoster.aspx?F6E10F8892433CFFAC8287D72AD903BECFD5012EF3779276>, Erişim tarihi; 22/07/08

6. Keyser JS, Deraky CS, Haemophilus influenzae type B epiglottitis after immunization with HbOC conjugate vaccine. Am J Otolaryngol. 1994; 15:436-43.
7. Laks Y, Barzilay Z. Foreign body aspiration in childhood. Pediatr Emerg care 1988;4:102.
8. Ozdemir C, Uzun I, Sam B. Childhood foreign body aspiration in Istanbul, Turkey. Forensic Sci Int 2005;153:136-41.
9. Battaglia JD. Severe croup: The child with fever and upper airway obstruction. Pediatr Rev 1986;7:227.
10. Allotey J, Duncan H, Williams H. Mediastinitis and retropharyngeal abscess following delayed diagnosis of glass ingestion. Emerg Med J 2006 ;23:e12 .
11. Paul CA, Kumar A, Raut VV, et al. Pseudomonas cervical osteomyelitis with retropharyngeal abscess: an unusual complication of otitis media. J Laryngol Otol. 2005 ;119:816-8.
12. C.M. Glaiser, J.E. Stark, R.F. Jacobs, et al. CT and ultrasound imaging of retropharyngeal abscesses in children, Am. J. Neuroradiol. 1992; 13:1191-5.
13. Yeoh LH, Singh SD, Rogers JH. Retropharyngeal abscesses in a children's hospital. J Laryngol Otol 1985;99:555-66.
14. Stone ME, Walner DL, Koch BL, et al. Correlation between computed tomography and surgical findings in retropharyngeal inflammatory processes in children. Int J Pediatr Otorhinolaryngol 1999; 49:121.

***Abbreviations:** RPA, retropharyngeal abscess , CT, computed tomography , ED, emergency department,