International Journal of Community Medicine and Public Health
Alwagdani AM et al. Int J Community Med Public Health. 2021 Oct;8(10):5137-5141
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20213825

Review Article

Medical and surgical outcome of retropharyngeal abscess and its prognosis

Ashwag M. Alwagdani[1]*, Saga K. Alwabel[2], Batool H. Alyami[3], Abdullah A. Rajkhan[4], Abdulaziz A. Alshehri[5], Mohammed S. Aloufi[6], Hamza A. Alandijani[6], Bassam R. Alsaeedi[7], Roqia M. Alshaikh[8], Abrar A. Aldhammen[9], Rashed A. Alnemer[10]

[1]Department of Otolaryngology–Head and Neck Surgery, King Fahad Armed Forces Hospital, Jeddah, Saudi Arabia
[2]College of Medicine, Qassim University, Qassim, Saudi Arabia
[3]College of Medicine, Najran University, Najran, Saudi Arabia
[4]Department of Emergency Medicine, King Abdullah Medical Complex, Jeddah, Saudi Arabia
[5]Department of Internal Medicine, King Fahad General Hospital, Jeddah, Saudi Arabia
[6]College of Medicine, Taibah University, Medina, Saudi Arabia
[7]College of Applied Medical Sciences, King Abdulaziz University, Rabigh, Saudi Arabia
[8]College of Medicine, Umm Al-Qura University, Mecca, Saudi Arabia
[9]College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia
[10]College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia

Received: 31 August 2021
Revised: 15 September 2021
Accepted: 16 September 2021

***Correspondence:**
Dr. Ashwag M. Alwagdani,
E-mail: Dr.Wagdani_AM@hotmail.com

ABSTRACT

Although retropharyngeal abscess is not a common condition, it can impact the quality of life of the affected patients, and can even be life-threatening. Asphyxia, upper respiratory tract obstruction, and respiratory distress might then develop secondary to this abscess which continues to grow even larger increasing the seriousness of the complications. Surgical incisions and long-course medical and antibiotic therapies have been described in the literature for the management of retropharyngeal abscess. In this study, the literature review discusses the surgical and medical treatment of retropharyngeal abscesses and the predicted prognosis of the disease after treatment based on evidence obtained from studies in the literature. Early presentation and management are important in achieving better outcomes and enhancing the prognosis. Therefore, patients should be aware enough of the symptoms that might suggest the presence of a retropharyngeal abscess. Using intravenous antibiotics can achieve favorable outcomes. However, some adverse events might be associated and the treatment might not be completed as a result of reduced patient compliance. Surgical management is also efficacious and can be done by different approaches as discussed earlier. Nevertheless, it can also be associated with some complications. Therefore, providing optimal care for these patients should be considered in all scenarios to enhance the prognosis.

Keywords: Retropharyngeal, Infection, Abscess, Management, Prognosis

INTRODUCTION

Although retropharyngeal abscess is not a common condition, it can impact the quality of life of the affected patients, and can even be life-threatening. Children under five years of age are the most commonly affected. Also, the condition was also detected among adults. Retropharyngeal abscess is common in this age because

children are usually subjected to recurrent respiratory tract infections, which subsequently lead to the development of suppurative cervical lymphadenitis and retropharyngeal abscess (Figure 1). On the other hand, the condition develops in older populations by a different mechanism that is trauma to the posterior part of the pharynx, which might be associated with inoculated retropharyngeal space and abscess formation. Asphyxia, upper respiratory tract obstruction, and respiratory distress might then develop secondary to this abscess which continues to grow even larger increasing the seriousness of the complications. Surgical incisions and long-course medical and antibiotic therapies have been described in the literature for the management of retropharyngeal abscess.[1-3] In the present study, we have discussed the surgical and medical treatment of retropharyngeal abscesses and the predicted prognosis of the disease after treatment, based on evidence obtained from studies in the literature.

Figure 1. Lateral X-ray for a patient with a retropharyngeal abscess.

METHODS

This literature review is based on extensive literature in Medline, Cochrane, and EMBASE databases which was performed on 01 August 2021 using the medical subject headings (MeSH) or a combination of all possible related terms.[4,5] This was followed by the manual search for papers in Google scholar while the reference lists of the initially included papers.[6,7] Papers discussing the surgical and medical treatment of retropharyngeal abscesses were screened for relevant information, with no limitation on date, language, age of participants, or publication type.

DISCUSSION

In general, patients that were adequately diagnosed with the presence of a retropharyngeal abscess should be admitted to the hospital to achieve better management and receive adequate care. Following this, these patients should be assessed by an otolaryngologist, and intravenous antibiotic therapy should be inaugurated. Furthermore, the type of the administered antibiotics should be wide-spectrum that would be able to eradicate all the potential upper respiratory tract bacterial infections, especially anaerobic organisms. Surgical incisions and drainage of the abscess should be immediately conducted in patients with airway compromise to relieve the obstruction and enhance the outcomes of these patients.[8-10] Additionally, intravenous or empirical antibiotic therapy is the first-line management modality that should be conducted for at least 24-48 hours since admissions in patients that do not suffer from airway compromise or severe respiratory distress. Following this period, if no improvement was noticed, the case should be re-evaluated by the attending otolaryngologist to consider whether to continue the antibiotic therapy or to plan for surgical incision and drainage. However, some factors have been reported to increase the risk of requiring a surgical incision, including the persistence of symptoms for more than three days with no response to the medical treatment, and the presence of a huge abscess are with a cross-sectional area of 2 square cm.[11-14] In addition, it is also worth mentioning that there is poor evidence that patients presenting with abscess areas that are larger than 3 square cm would benefit from the surgical procedures within the first 24-48 hours regardless of the administration of antibiotic therapy.[14,15] However, it should be noted that this evidence has been validated among pediatric populations and no standards for adult patients have been reported in the literature, despite the significant outcomes following the surgical approaches.[16] Accordingly, further studies are needed to draw adequate management standards and protocols for all patients with different characteristics and demographics.

Initially treating patients with antibiotics has been associated with negative drainage, although some studies report that it is not as significant as the rate obtained by surgical interventions.[14] Among the different studies in the literature, some of them reported that the management of retropharyngeal abscess can be done medically without surgical interventions, which might be needed only in cases of resistance to the medical treatment modalities, or in cases of recurrence.[17,18] On the other hand, other authors prefer to use early surgical interventions as the first-line management modality for such cases to enhance the outcomes.[15] Furthermore, another intermediate approach was furtherly described by Nagy et al that indicated that all patients should be treated with antibiotic therapy with a lower threshold for conducting surgical interventions for some patients that might experience recurrence or did not respond to the medical treatment.[19] The rate of achieving successful management events using this process (mainly with antibiotics) was reported to be 18-57%.[20-24] Other studies have also reported success rates up to 100%. However, it is hard to interpret the data from most of the previously reported studies because many of them have retrospectively recruited their patients. Besides, using lateral neck films for diagnosing the abscess was conducted by some studies, and therefore, some of the included cases might be overlapped with cellulitis.[21,22,25] Careful and adequate airway examination should be

conducted for all patients when the treatment of the retropharyngeal abscess has been conducted, especially within the first 24-48 hours. Moreover, many adverse events were reported with the administration of antibiotic therapy. For instance, in the investigation that was conducted by Mayor et al where the authors have included 31 adult patients with retropharyngeal abscesses, the duration of treatment was considered long, with a mean duration of 12.8 days from initiating the administration of antibiotics, as compared to the potentially shorter periods when using surgical interventions that would not also be affected by patient's compliance.[17] Besides, the authors also reported that spontaneous rapture was observed in four patients, while three patients suffered from respiratory distress, which was an indicator for intubation and tracheotomy in these patients. Sichel et al also indicated that the mean duration of antibiotic therapy was as long as 11 days in their 11 patients with retropharyngeal abscesses that were managed with intravenous amoxicillin-clavulanic acid.[18] However, they also reported that none of their patients developed any observable complications. In another context, Page et al reported that the mean duration of hospital stay was shorter among patients that were treated with surgical approaches as compared to other patients that were initially treated with antibiotics, however, the estimated differences were not statistically significant.[14] Also, the authors of the study found that similar durations of hospital stay were estimated for patients that were initially treated with surgical approaches compared to other patients that were treated with surgical interventions following the failure of the medical ones.[14]

Clindamycin (15 mg/kg/8 hour), or ampicillin-sulbactam (50 mg/kg/6 hour) should be the first-line antibiotic modalities to be indicted for patients presenting with retropharyngeal abscess. If the patient's condition does not improve following this step or was septic, the treatment plan should be changed to the administration of linezolid or vancomycin. Clinical improvement and afebrile are the main signs based on which empirical antibiotic therapy should be discontinued. Oral antibiotics might then be used when the patients continue to be clinically stable. Clindamycin (18 mg/kg/8 hour) or amoxicillin-clavulanate (45 mg/kg/12 hour) have been reported to be effective in such cases. This treatment plan should be continued for two weeks, and the patient can be discharged and continue his treatment plan from home.

Regarding the prognosis after surgical procedures, a previous investigation by Kirse and Robertson showed that high cure rates were obtained following successful surgical drainage procedures.[15] It has been reported that conducting the surgery through the transoral approach is favored by many clinicians because it does not leave a scar, in addition to being associated with less trauma.[26] When planning to conduct a transoral surgery, surgeons should be aware that the pus will be located medial to the neck great vessels and should not extend beyond a big area away from the retropharyngeal space. If a further abscess was detected between the layers of the deep fascia of the neck, or if the pus was located in a retro-lateral position to the neck great vessels, the risk of recurrence and complications increase in such situations.[27,28] Accordingly, in such situations, the transoral approach is not preferred and surgeons should plan to conduct the open cervical one, as first reported by Dean.[29] Having intraoperative imaging available might favor the results of the surgery and enhance the outcomes, minimizing the risk of trauma.[30] The transnasal approach to drain a retropharyngeal abscess was also previously reported in the literature. Schuler et al also indicated that adding an intraoperative navigation system would furtherly increase the accuracy and effectiveness of the surgical approach.[31] It should be noted that surgical management of retropharyngeal abscess might be associated with some complications as recurrence, secondary infections, aspiration of pus, and potential alterations to the relevant anatomical structures. Therefore, clinicians should adequately decide whether patients should be indicated to have surgery or not. Furthermore, evidence in the literature shows that preferring one of the management modalities over the other is still controversial among the different studies.[13,15] Another factor that can determine the success of the surgery is the presence of purulence at the drainage site, and therefore, adequate attention should be provided for this point to adequately predict the right approaches and decide what is best for the patient based on the associated factors.[11] For instance, the presence of trismus and posterior pharyngeal bulge might predict the presence of pus.[14] Although none of these factors is a significant predictor, it has been reported that having a history of rash might predict the length of hospital stay and the rate of negative drainage. However, the presence of this factor might be a sign of pharyngitis and not a retropharyngeal abscess. Accordingly, the radiological examination would be a very helpful tool in these situations.[14]

After the surgery, patients usually require parenteral nutrition that might extend for more than one month because these patients are required to follow the nothing by mouth strategy following the surgery until all the signs and symptoms of the retropharyngeal abscess have faded away. Within the intensive care units, patients should also be continued to be closely monitored and carefully examined to achieve better outcomes. While adequate management is provided by the healthcare systems and personnel, patient's awareness is also important in achieving adequate management of retropharyngeal abscess before the development of other related complications. Patients should be educated that having symptoms like dyspnea, dysphagia, and fever should be an indicator to be examined by an otolaryngologist to be adequately managed. In this context, many patients delay their presentation and seeking for medical care, thinking that the condition is as simple as having an upper respiratory tract infection. Besides, recommendations about lifestyle modifications for these patients should be also conducted by the relevant healthcare physicians that should advise patients to eat healthily, lose weight, and stop smoking and alcohol intake.[32-34] Following adequate

management and care measures, the prognosis after treatment of the condition is good. However, aggressive treatment should be conducted and the patient should be admitted early to the intensive care unit. Delayed diagnosis and management are indications for complications and unfavorable adverse events, with an estimated mortality rate that reaches up to 40%.[1,35].

CONCLUSION

Early presentation and management are important in achieving better outcomes and enhancing the prognosis. Therefore, patients should be aware enough of the symptoms that might suggest the presence of a retropharyngeal abscess. Using intravenous antibiotics can achieve favorable outcomes. However, some adverse events might be associated and the treatment might no be completed as a result of reduced patient compliance. Surgical management is also efficacious and can be done by different approaches as discussed earlier, however, it can also be associated with some complications. Therefore, providing optimal care for these patients should be considered in all scenarios to enhance the prognosis.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Jain A, Singh I, Meher R, Raj A, Rajpurohit P, Prasad P. Deep neck space abscesses in children below 5 years of age and their complications. Int J Pediatr Otorhinolaryngol. 2018;109:40-3.
2. Angajala V, Hur K, Jacobson L, Hochstim C. Geographic health disparities in the Los Angeles pediatric neck abscess population. Int J Pediatr Otorhinolaryngol. 2018;113:134-9.
3. Quinn NA, Olson JA, Meier JD. Pediatric lateral neck infections - Computed tomography vs ultrasound on initial evaluation. Int J Pediatr Otorhinolaryngol. 2018;109:149-53.
4. Ghozy S, Tran L, Naveed S. Association of breastfeeding status with risk of autism spectrum disorder: A systematic review, dose-response analysis and meta-analysis. Asian J Psychiatr. 2020;48:101916.
5. Mahmoud AR, Dahy A, Dibas M, Abbas AS, Ghozy S, El-Qushayri AE. Association between sarcoidosis and cardiovascular comorbidity: A systematic review and meta-analysis. Heart Lung. 2020;49(5):512-7.
6. Ghozy S, Nam NH, Radwan I. Therapeutic efficacy of hepatitis B virus vaccine in treatment of chronic HBV infections: A systematic review and meta-analysis. Rev Med Virol. 2020;30(3):e2089.
7. Hashan MR, Ghozy S, El-Qushayri AE, Pial RH, Hossain MA, Al Kibria GM. Association of dengue disease severity and blood group: A systematic review and meta-analysis. Rev Med Virol. 2021;31(1):1-9.
8. Adoviča A, Veidere L, Ronis M, Sumeraga G. Deep neck infections: review of 263 cases. Otolaryngologia polska. 2017;71(5):37-42.
9. Lorrot M, Haas H, Hentgen V. Antibiotherapy of severe ENT infections in children: peripharyngeal abscesses. Archives de pediatrie. 2013;20(3):1-4.
10. Behari S, Nayak SR, Bhargava V, Banerji D, Chhabra DK, Jain VK. Craniocervical tuberculosis: protocol of surgical management. Neurosurgery. 2003;52(1):72-80.
11. Shefelbine SE, Mancuso AA, Gajewski BJ, Ojiri H, Stringer S, Sedwick JD. Pediatric retropharyngeal lymphadenitis: differentiation from retropharyngeal abscess and treatment implications. Otolaryngol-Head Neck Surg. 2007;136(2):182-8.
12. Craig FW, Schunk JE. Retropharyngeal abscess in children: clinical presentation, utility of imaging, and current management. Pediatrics. 2003;111(6 Pt 1):1394-8.
13. de Marie S, Tjon ATRT, van der Mey AG, Meerdink G, van Furth R, van der Meer JW. Clinical infections and nonsurgical treatment of parapharyngeal space infections complicating throat infection. Rev Infect Dis. 1989;11(6):975-82.
14. Page NC, Bauer EM, Lieu JE. Clinical features and treatment of retropharyngeal abscess in children. Otolaryngol-Head Neck Surg. 2008;138(3):300-6.
15. Kirse DJ, Roberson DW. Surgical management of retropharyngeal space infections in children. The Laryngoscope. 2001;111(8):1413-22.
16. Ridder GJ, Technau-Ihling K, Sander A, Boedeker CC. Spectrum and management of deep neck space infections: an 8-year experience of 234 cases. Otolaryngol-Head Neck Surg. 2005;133(5):709-14.
17. Plaza Mayor G, Martínez-San Millán J, Martínez-Vidal A. Is conservative treatment of deep neck space infections appropriate? Head Neck. 2001;23(2):126-33.
18. Sichel JY, Dano I, Hocwald E, Biron A, Eliashar R. Nonsurgical management of parapharyngeal space infections: a prospective study. The Laryngoscope. 2002;112(5):906-10.
19. Nagy M, Pizzuto M, Backstrom J, Brodsky L. Deep neck infections in children: a new approach to diagnosis and treatment. The Laryngoscope. 1997;107(12):1627-34.
20. Gianoli GJ, Espinola TE, Guarisco JL, Miller RH. Retropharyngeal space infection: changing trends. Otolaryngol-Head Neck Surg. 1991;105(1):92-100.
21. Morrison JE, Pashley NR. Retropharyngeal abscesses in children: a 10-year review. Pediatr Emerg Care. 1988;4(1):9-11.
22. Thompson JW, Cohen SR, Reddix P. Retropharyngeal abscess in children: a retrospective and historical analysis. The Laryngoscope. 1988;98(6):589-92.
23. Broughton RA. Nonsurgical management of deep neck infections in children. Pediatr Infect Dis J. 1992;11(1):14-8.

24. Goldenberg D, Golz A, Joachims HZ. Retropharyngeal abscess: a clinical review. J Laryngol Otol. 1997;111(6):546-50.
25. Thieu H, Bach Dat B, Nam NH. Antibiotic resistance of Helicobacter pylori infection in a children's hospital in Vietnam: prevalence and associated factors. Minerva medica. 2020;111(5):498-501.
26. Choi SS, Vezina LG, Grundfast KM. Relative incidence and alternative approaches for surgical drainage of different types of deep neck abscesses in children. Arch Otolaryngol. 1997;123(12):1271-5.
27. Faruqui S, Palacios E, Friedlander P, Melgar M, Alvernia J, Parry PV. Nontraumatic retropharyngeal abscess complicated by cervical osteomyelitis and epidural abscess in post-Katrina New Orleans: four cases. Ear Nose Throat J. 2009;88(7):14.
28. Zółciński L, Scheller-Suchańska E, Izydorczyk G. Rare complications during the treatment of retropharyngeal abscess. Wiadomosci lekarskie (Warsaw, Poland: 1960). 1989;42(8):545-6.
29. Paonessa DF, Goldstein JC. Anatomy and Physiology of Head and Neck Infections (with Emphasis on the Fascia of the Face and Neck). Otolaryngol Clin North Am. 1976;9(3):561-80.
30. Cable BB, Brenner P, Bauman NM, Mair EA. Image-guided surgical drainage of medial parapharyngeal abscesses in children: a novel adjuvant to a difficult approach. Ann Otol Rhinol Laryngol. 2004;113(2):115-20.
31. Schuler PJ, Cohnen M, Greve J. Surgical management of retropharyngeal abscesses. Acta oto-laryngologica. 2009;129(11):1274-9.
32. Soldatsky YL, Denisova OA, Bulynko SA. The specific features of the past medical history and etiology of pharyngeal abscess in the children. Vestnik otorinolaringologii. 2017;82(5):12-4.
33. Bochner RE, Gangar M, Belamarich PF. A Clinical Approach to Tonsillitis, Tonsillar Hypertrophy, and Peritonsillar and Retropharyngeal Abscesses. Pediatr Rev. 2017;38(2):81-92.
34. Caccamese JF, Coletti DP. Deep neck infections: clinical considerations in aggressive disease. Oral Maxillofac Surg Clin North Am. 2008;20(3):367-80.
35. Côrte FC, Firmino-Machado J, Moura CP, Spratley J, Santos M. Acute pediatric neck infections: Outcomes in a seven-year series. Int J Pediatr Otorhinolaryngol. 2017;99:128-34.

Cite this article as: Alwagdani AM, Alwabel SK, Alyami BH, Rajkhan AA, Alshehri AA, Aloufi MS, et al. Medical and surgical outcome of retropharyngeal abscess and its prognosis. Int J Community Med Public Health 2021;8:5137-41.