

Diphtheria Revisited: An Interesting Case Report from IndiaAnoushka Sahai¹, Pooja Shrivastav¹, Kartik Narkhede¹, Ashwinikumar Gaikwad^{1*}, Hetal Marfatia²¹Senior Resident, Department of ENT and Head-Neck Surgery, Seth G.S Medical College and King Edward Memorial Hospital²Professor and H.O.D, Department of ENT and Head-Neck Surgery, Seth G.S Medical College and King Edward Memorial Hospital

Received: 10-06-2023 / Revised: 16-07-2023 / Accepted: 09-08-2023

Corresponding author: Dr Ashwinikumar Gaikwad

Conflict of interest: Nil

Abstract:**Background:** Diphtheria, caused by *Corynebacterium diphtheriae*, remains a significant concern in developing nations like India, where vaccination efforts encounter obstacles. This study presents a critical case of diphtheria-induced airway obstruction in an 8-year-old Indian girl, emphasizing the importance of early detection and management in resource-constrained contexts.**Case Presentation:** At a Western Indian tertiary care hospital, an 8-year-old girl exhibited sudden breathlessness, mouth breathing, and midline neck swelling, along with four days of rhinitis. Clinical evaluation revealed respiratory distress, 98% oxygen saturation on high-flow oxygen due to inadequate room air oxygenation, and evident dyspnea. Bilateral grade 4 tonsillar hypertrophy, characterized by a unique white membrane enveloping the tonsils, and Bull's neck-like lymphadenopathy supported the diagnosis. Failed intubation led to an urgent tracheostomy. *Corynebacterium diphtheriae* infection was confirmed through lab analysis, prompting immediate antitoxin therapy and antibiotics, with vigilant monitoring and supportive care.**Conclusion:** This case underscores the intricacies of diagnosing and managing diphtheria-induced airway obstruction, particularly in resource-limited areas like India. The need for a tracheostomy due to failed intubation highlights the urgency of timely intervention in constrained medical environments. With diphtheria persisting as a threat in India due to vaccination challenges, early diagnosis, prompt treatment, and effective airway management are crucial. The study emphasizes the necessity of robust vaccination programs and healthcare systems to prevent resurgences of fatal infections like diphtheria.**Keywords:** Diphtheria, Vaccination challenges, Tonsillar membrane, Tracheostomy, Antitoxin therapyThis is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**Diphtheria, caused by *Corynebacterium diphtheriae*, remains a pertinent concern in developing countries like India, where vaccination programs face challenges [1,2]. This case report sheds light on a critical incident of diphtheria-induced airway obstruction in an 8-year-old Indian female child. The report emphasizes the significance of early diagnosis and management in a resource-constrained setting.**Case Report**

An 8-year-old female child at a tertiary care hospital in Western India presented with abrupt breathlessness, mouth breathing, and midline neck swelling. Rhinitis had plagued her for the past four days. Clinical assessment revealed the child in respiratory distress, with 98% saturation on high-flow oxygen due to the inability to maintain adequate oxygenation on room air. Dyspnea was evident.

Oral examination disclosed bilateral grade 4 tonsillar hypertrophy with a distinctive white, dirty membrane enveloping the tonsils. Bull's neck-like lymphadenopathy further supported the diagnosis. A failed intubation necessitated an urgent tracheostomy to secure the airway. Laboratory analysis confirmed *Corynebacterium diphtheriae* infection, prompting immediate diphtheria antitoxin therapy and antibiotics. The patient's condition was vigilantly monitored, and supportive care ensured optimal oxygenation and respiratory management.**Discussion**

This case underscores the complexities of diagnosing and managing diphtheria-induced airway obstruction, especially in resource-limited regions like India. Classic clinical indicators including respiratory distress, lymphadenopathy, and the characteristic tonsillar membrane helped establish the diagnosis. However, the need for a tracheostomy due to failed

intubation emphasizes the urgency of timely intervention, particularly in settings with constrained medical resources [3, 4].

In countries like India, where comprehensive vaccination coverage remains a challenge, the threat of diphtheria persists. While cases may be rare, the

potential for life-threatening airway obstruction necessitates heightened vigilance. Physicians and healthcare workers must maintain a strong suspicion of diphtheria when encountering patients with characteristic symptoms, especially in areas with limited access to healthcare and vaccination [5,6].



Figure 1: 8 year old child with the presence of diffuse soft neck swelling giving the appearance of Bull's neck (a). (b) Dirty white membrane over grade 4 enlarged tonsils and uvula suggestive of Faucial Diphtheria.

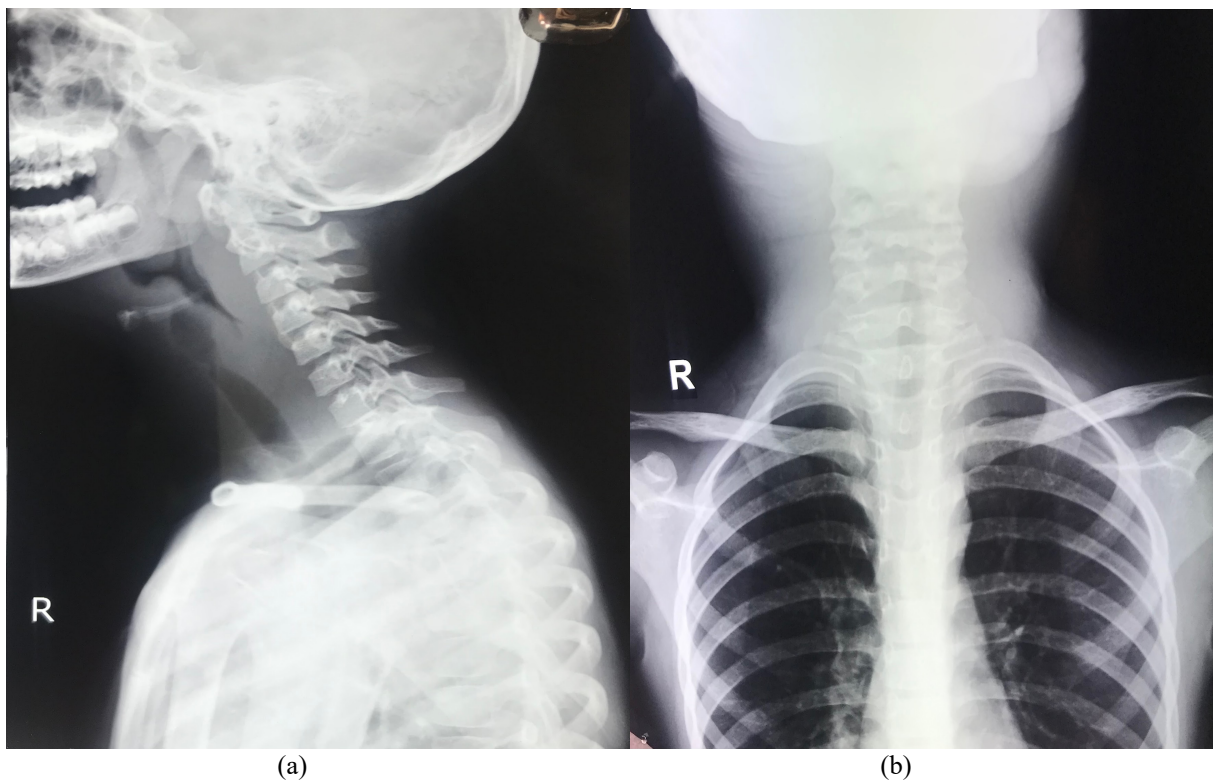


Figure 2: Plane skiagram suggestive of increase in prevertebral soft tissue in the cervical region which is reaching up to the base of skull. Presence of narrowing of the nasopharynx, oropharynx and trachea

Conclusion

This case report from India underscores the gravity of diphtheria-induced airway obstruction, particularly in a developing country context. The challenges faced in diagnosis, coupled with the urgency of a tracheostomy, underscore the pivotal role of timely recognition and intervention in managing such cases. With diphtheria still posing a threat in countries like India due to vaccination obstacles, the importance of early diagnosis, prompt treatment, and effective airway management cannot be overstated.

This case serves as a stark reminder of the need for robust vaccination programs and healthcare infrastructure in developing nations. Preventing the resurgence of potentially fatal infections like diphtheria requires concerted efforts to enhance vaccination coverage and strengthen healthcare systems. Timely diagnosis, appropriate treatment, and vigilant airway management are paramount for favourable outcomes in cases of diphtheria-induced airway obstruction, particularly in resource-limited settings like India.

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