Open Journal of
Clinical & Medical
Case Reports

Volume 10 (2024)
Issue 19

Case Report ISSN: 2379-1039

Infantile tracheal hemangioma in a previously healthy infant

Ola Shahrour*; Omar Jarrah; Mahmood Nouri; Ibrahim Badaineh

***Corresponding Author: Ola Shahrour**
Department of Academic Affairs, Tawam Hospital, P.O. Box 15258, Al Ain, United Arab Emirates.
Email: olashahrour97@gmail.com

Abstract

Infantile hemangiomas are common benign vascular tumors often found in children. They usually manifest as lesions on the skin and mucosal surfaces, but they can also appear in other areas such as the airway and liver. Although these tumors are benign and typically resolve on their own, complications like ulcers and permanent disfigurement can sometimes arise. In more severe cases, they may affect vital organs and cause significant damage [1]. Hemangiomas in the airway, present at birth, usually become symptomatic between 1 and 6 months of age due to rapid growth during this period. This can potentially obstruct the airway and pose a risk to the child's health [2,3]. Tracheal hemangiomas in children are rarely reported in medical literature. Here, we describe a previously healthy 2-month-old infant who presented with respiratory distress and stridor, with no skin involvement and was diagnosed with tracheal hemangiomas through computed tomography, angiography, and bronchoscopy, receiving treatment according to AAP guidelines.

Keywords: Hemangioma; Vascular tumor; Respiratory distress; Angiography; Stridor; Hypoxia.

Abbreviations: IH: Infantile Hemangioma; CT Angio: Computed Tomography Angiography; AAP: American Academics of Pediatrics; ED: Emergency Department; NVD: Normal Vaginal Delivery; NICU: Neonatal Intensive Care Unit.

Background

Infantile haemangiomas are common benign vascular tumors often seen in children. They typically appear as lesions on the skin and mucosal surfaces but can also occur in other areas, such as the airway and liver. While they are generally harmless and self-limiting, they can sometimes cause complications like ulcers and infections. In some instances, they may affect vital organs, potentially leading to severe and life-threatening damage [1].

The natural development of haemangiomas includes an initial phase of rapid growth within the first 18 months of life, followed by a spontaneous, gradual regression phase that can last until about 10 years

of age. This regression can be partial or complete and may be accompanied by scarring. Although present at birth, airway haemangiomas usually become symptomatic between 1 and 6 months of age due to their rapid growth during this period, increasing the risk of airway obstruction [2,3].

Haemangiomas are classified based on their depth (superficial, mixed, and deep) and their pattern of involvement (focal, multifocal, segmental, and indeterminate) [4]. In the present report, a 2 month old previously healthy infant presented with respiratory distress and stridor and was found to have Tracheal hemangioma and treated with medical and surgical treatment as per AAP guideline.

Case Presentation

A previously healthy 2-month-old Emirati male infant presented to our hospital's emergency department with a 4-day history of dry, intermittent cough, mild nasal congestion, and increased work breathing that became worse during crying and improved with sleep. Notably, there was no facial congestion, cyanosis, or apnea. The mother reported no fevers, recent antibiotic use, sick contacts, vomiting, changes in bowel or urinary habits, skin changes, haemangiomas, rashes, choking, or sweating with feeds.

The patient had initially been admitted to a private hospital on the first day of illness, diagnosed with a viral respiratory infection, and sent home with supportive care. He subsequently returned with worsening respiratory distress and was referred to our emergency department. The mother also noted a similar, mild episode two weeks prior, which had been managed supportively.

Regarding the birth history, the patient was born in a private facility via normal vaginal delivery, with a birth weight of 3 kg, and did not require NICU admission. There was no history of respiratory distress or stridor at birth, and feeding had been unremarkable. The family history was negative for any cutaneous, neurological, or hematological disorders, chronic lung disease, or asthma.

Upon arrival at the emergency department, the infant exhibited severe respiratory distress characterized by nasal flaring, subcostal retractions, a respiratory rate of 60, and inspiratory stridor with grunting. He was admitted to the PICU for further management and oxygen support.

Physical examination revealed inspiratory stridor, no hemangiomas or skin manifestations, and normal primitive reflexes, and chest examination was notable for transmitted upper airway sounds without focal abnormalities. A chest X-ray was unremarkable.

During his hospital stay, an initial CT Angiography of the neck (Figure1), revealed tracheal vascular malformation with collapse/consolidation of both lungs, more pronounced on the left, and a mediastinal shift to the left. Subsequent laryngoscopy and bronchoscopy under general anesthesia, performed by an experienced ENT and pulmonologist using a pediatric flexible bronchoscope with an outer diameter of 2.7 mm, identified a vascular lesion beginning at tracheal rings 5-6, obstructing 80% of the tracheal lumen, extending distally and terminating just above the carina. The main bronchi were intact, and excessive clear secretions were noted. The lesion was consistent with a hemangioma. The patient underwent laser evaporation of the lesion and was kept intubated.

Further workups, including a coagulation profile, sepsis evaluation, and echocardiogram to rule out associated cardiac anomalies, were unremarkable. The patient was started on oral prednisolone 5 mg BID for three days, along with propranolol 5 mg BID, as per AAP guidelines for tracheal hemangioma. His respiratory symptoms and vitals were closely monitored, showing an excellent response to both medications. On the third day of treatment, he was discharged on a reduced dose of prednisolone (2.5 mg BID) and continued on propranolol 5 mg BID. Follow-up with the ENT and Pulmonology teams indicated that the patient was doing well, and it was advised to continue propranolol 5 mg BID.

Discussion

Infantile hemangiomas are benign vascular tumors common in infancy, characterized by an initial phase of rapid growth followed by a slow involution phase that can last until the age of 10, sometimes resulting in scarring. These tumors are classified by depth (superficial, mixed, deep) and pattern of involvement (focal, multifocal, segmental, indeterminate) and can manifest as skin or internal organ lesions [1,2,4].

A recent meta-analysis identified several significant risk factors for infantile hemangiomas, including prematurity, low birth weight, female gender, caucasian ethnicity, multiple pregnancies, progesterone therapy, family history, and maternal smoking. None of these factors applied to our patient [4-7].

Hypoxia and the Renin-Angiotensin System (RAS) are thought to contribute to the development of infantile haemangiomas, potentially working synergistically. While hypoxia has long been considered a primary cause, recent evidence suggests that RAS, particularly the vasoactive peptide Angiotensin II (ATII), plays a crucial role in regulating the hemogenic endothelium and driving the development of these tumors [4-7].

Most infantile haemangiomas do not require intervention unless they cause significant complications, such as affecting vital organs. In our case, a previously healthy patient presented with respiratory distress and sudden upper airway obstruction without any cutaneous manifestation. For which he was initially treated for croup and asthma without improvement, for which he underwent a laryngobronchoscopy that revealed a tracheal hemangioma without any skin manifestations. The patient was treated both medically and surgically according to AAP guidelines and showed clinical improvement.

The patient was discharged home after stabilizing and maintaining oxygen saturation on room air without respiratory support. Follow-up with pediatric pulmonology and otolaryngology showed that he was doing well.

Conclusion

Infantile hemangiomas are among the most common benign vascular tumors in the pediatric population, particularly during the first months of life. They typically present as lesions on the skin, mucosal surfaces, and internal organs. Patients may be asymptomatic or exhibit vague symptoms that can lead to misdiagnosis.

Our case highlights the significant clinical challenge posed by these tumors, emphasizing the importance of early diagnosis and management to achieve favorable patient outcomes.

Conflicts of interest: we have no conflict of interest to declare.

Funding support: None.

References

1. Corbeddu M, Meucci D, Diociaiuti A, Giancristoforo S, Rotunno R, et al. Management of Upper Airway Infantile Hemangiomas: Experience of One Italian Multidisciplinary Center. Front Pediatr. 2021; 9: 717232. doi: 10.3389/fped.2021.717232.

2. Shikhani AH, Marsh BR, Jones MM, Holliday MJ. Infantile Subglottic Hemangiomas an Update. Annals of Otology, Rhinology & Laryngology. 1986; 95(4): 336-347. doi:10.1177/000348948609500404

3. Wiatrak BJ. Congenital anomalies of the larynx and trachea. Otolaryngol Clin North Am. 2000; 23: 91-110.

4. Rodríguez Bandera AI, Sebaratnam DF, Wargon O, Wong LCF. Infantile hemangioma. Part 1: Epidemiology, pathogenesis, clinical presentation and assessment. Journal of the American Academy of Dermatology. 2021. doi:10.1016/j.jaad.2021.08.019

5. Barbaria W, Khamassi I, Gaaloul K, Hamouda S, Gritli S. Tracheal Hemangioma: A Rare Cause of Hemoptysis in Children. Ear, Nose & Throat Journal. 2022; 0(0). doi:10.1177/01455613221113819

6. MacDougall MS, Afzal SY, Freedman MS, et al. Infant in extremis: respiratory failure secondary to lower airway infantile hemangioma. BMC Pediatr. 2022; 22: 744. https://doi.org/10.1186/s12887-022-03821-1

7. Choi J, Im SA, Kim JY. Submucosal Hemangioma of the Trachea in an Infant: Diagnosis and Follow-Up with 3D-CT/Bronchoscopy. Iran J Pediatr. 2016; 26(1): e2346. doi: 10.5812/ijp.2346.

Manuscript Information: Received: July 10, 2024; Accepted: August 02, 2024; Published: August 15, 2024

Authors Information: Ola Shahrour[1]*; Omar Jarrah[1]; Mahmood Nouri[1]; Ibrahim Badaineh[2]
[1]Department of Academic Affairs, Tawam Hospital, Al Ain, United Arab Emirates.
[2]Pediatrics Critical Care Department, Pediatric Critical Care Consultant, Tawam Hospital, Al Ain, United Arab Emirates.

Citation: Shahrour O, Jarrah O, Nouri M, Badaineh I. Infantile tracheal hemangioma in a previously healthy infant. Open J Clin Med Case Rep. 2024; 2270.