Management of airway compromise in a paediatric mediastinal mass

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Accepted 5 December 2020

DESCRIPTION

A previously fit and well 3-month-old baby was admitted to his local hospital with worsening stridor following a 2-week history of croup-like symptoms. Chest radiograph shows a large area of mediastinal and bilateral upper-zone opacification (*figure 1*). Due to concerns of progressive airway compression and potential difficulties, securing a definitive airway referral was made to a tertiary centre with an extracorporeal membrane oxygenation (ECMO) service for further management and investigation. The patient was stabilised with steroids and adrenaline nebulisers and given positive-pressure ventilation for transfer.

With the full ECMO team in attendance, a 3.5 endotracheal tube was placed under direct vision in theatre by Ears, Nose and Throat (ENT) surgeons following rigid bronchoscopy evaluation of the airway. Subsequent imaging with CT thorax illustrates a 9×6.5×6 cm predominantly homogeneous, soft-tissue mass in the anterior mediastinum with moderate airway compression (*figure 2*). Biopsy results later confirmed diagnosis of thymoma.

Thymoma is an aggressive lympho-epithelial neoplasm of the anterior mediastinum. While they are the most common anterior mediastinal tumours in adults, they represent less than 1% of all mediastinal tumours in children.¹ Contrast-enhanced CT is the current gold-standard investigation for evaluating and staging a thymoma. Due to the rarity of such cases, there is currently no universal staging system; the Masaoka staging system is widely recognised and used.² Treatment depends on

Figure 2 Coronal CT thorax shows a large mass of the anterior mediastinum encasing the great vessels.

staging and is discussed through a multidisciplinary team approach. This case was treated with high-dose steroids, but there was subsequent expansion of the thymoma on steroid weaning, and the patient ultimately required thymectomy.

In this case of a paediatric mediastinal mass with worsening acute airway symptoms, the impending potential for a 'can't intubate, can't ventilate' situation was recognised by all teams involved. There were also concerns that rigid bronchoscopy or tracheostomy by ENT may not be possible owing to airway compression and lesion size. This necessitated expedited transfer to a tertiary centre where a multidisciplinary airway management strategy involving specialist paediatric ENT, anaesthetics and ECMO team afforded the best opportunity to safely secure the airway.

Learning points

- ▶ Thymoma is a rare cause of a mediastinal mass in children.
- ▶ A large mediastinal mass such as a thymoma can cause airway compression and/or obstruction.
- ▶ Identification of potential airway difficulties and prompt consideration of centres could support extracorporeal membrane oxygenation as rescue airway intervention.

Contributors All authors, MMYN, AH, PS and RH, contributed to writing and revision of this manuscript. Case identified by AH. Project led by AH and RH.

Figure 1 Plain film chest radiograph shows a large mediastinal mass and bilateral upper-zone opacification.

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To cite: Ng MMY, Hall A, Sidgwick P, et al. *BMJ Case Rep* 2021;**14**:e236446. doi:10.1136/bcr-2020-236446

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Parental/guardian consent obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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