RETROSPECTIVE STUDY OF CONGENITAL AIRWAY MALFORMATIONS DETECTED BY FLEXIBLE FIBEROPTIC BRONCHOSCOPY IN ALEXANDRIA UNIVERSITY CHILDREN'S HOSPITAL

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Introduction

There is a wide range of congenital airway malformations. The reported incidence of congenital airway malformations is 0.1% to 2% of the population. Diagnosis and treatment are difficult because infants and children frequently present with multiple levels of airway anomalies and a lack of coordination. Congenital airway anomalies are a leading cause of morbidity and mortality in infants.

Diagnostic evaluation should include detailed antenatal history, clinical history, and physical examination. Further investigations will be needed if the following manifestations are present including; recurrent stridor or wheeze, chronic cough, recurrent cyanotic episodes, life-threatening events, feeding difficulties with failure to thrive, failure of extubation, associated other congenital anomalies, and repeated chest infections

Bronchoscopy is the most important tool in the clinical evaluation and management of pediatric airway disease. It is a minimally invasive and superior technique for direct visualization and evaluation of airway anatomy and mucosa compared with other investigations.

Congenital airway malformations affect the quality of life and increase the family burden. The care of children who have these lesions requires considerable expenditures of time and other resources within a tertiary care center. This study could help parents and physicians to pay particular attention to this clinical condition and improve health care quality.

Aim of the work

This work aims to determine the incidence of congenital airway malformations in children with airway-related manifestations detected by flexible fiberoptic bronchoscopy (FFB).

Methods

This retrospective study included symptomatic children who underwent FFB from1st of January 2019 to 31st of December 2019. The initial source for patient identification is a retrospectively kept database (Microsoft Access 2007) of the bronchoscopy unit.

Collected data included: Demographic data, antenatal and perinatal history, history of hospitalization and ventilation, source of referral, the onset of manifestations, presenting manifestations, associated co-morbidities, investigations, the technique of bronchoscopy, and anesthesia, bronchoscopic findings, treatment and outcome.

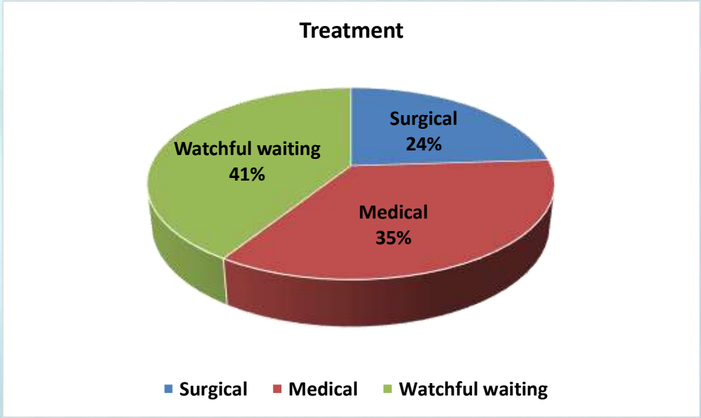
Results

A total of 162 children underwent the FFB procedure during the study period. Congenital airway malformations were detected in 52 patients (incidence 32%). 46 cases were included in this study.

This table shows that some cases had isolated malformations and others had combined malformations. The most common bronchoscopic finding was laryngomalacia followed by tracheomalacia and laryngeal cleft.

Table (1): Bronchoscopic findings in the studied cases:

Airway malformation	Total	Isolated	Combined
Laryngomalacia	30	14	16
• TypeI	1	-	1
• TypeII	7	3	4
• TypeIII	22	10	12
Laryngeal cleft	8	1	7
• Grade I	7	1	6
• Grade III	1	-	1
Membranous sub glottic stenosis	3	3	-
Vocal cord retention cyst	3	-	3
Tracheomalacia	12	5	7
• Primary	5	1	4
• Secondary	7	4	3
Tracheoesophageal fistula	3	-	3
Multiple ring tracheal stenosis	3	1	2
Glossoptosis	3	-	3
Tracheal bronchus	1	-	1
Bronchomalacia	1	-	1



Distribution of cases according to treatment

Figure(1): Non-surgical treatment including medications or just watchful waiting was needed in the majority of cases.:

Conclusion

Congenital airway malformations are not uncommon in newborns and their early detection can be beneficial for optimum management.

Airway malformations are a principal cause of morbidity in newborns.

FFB is an important diagnostic tool of congenital airway malformations that can guide medical and surgical interventions.

Surgical intervention isn't the commonly used treatment of congenital airway malformations. Watchful waiting and medical treatment are needed in the majority of cases.