

*Full Length Research Paper*

# A study of surgical causes of respiratory distress in children

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Respiratory distress of any cause in children is an emergency. Immediate attention is necessary to prevent mortality. Urgent attention could be medical or surgical depending on the cause. The aim of this study is to look at surgical causes of respiratory distress in children. Mode of presentation, gender difference and treatment is considered. Records of all children who are presented with respiratory distress of surgical aetiology were retrieved. All from paediatric surgical unit and otolaryngology unit of University of Port Harcourt Teaching Hospital. It is a prospective study, period of study between January 2008 to January 2012. One case of Bronchial foreign body was retrieved from records of cardiothoracic unit of the hospital. A total of 75 children had respiratory distress arising from surgical aetiology. There were 55 males and 20 females with m/f ratio of 2.8:1, ages from 0 to 5 years. Acquired causes have highest number with obstructive adenoid and Tonsil followed by laryngeal foreign body. High mortality rate was observed in the congenital causes, tracheoesophageal (TOF), recording highest mortality. Surgical causes of respiratory distress remain common among children. Obstructive adenoid and Tonsil followed by laryngeal foreign body remain topmost among various causes.

**Key words:** Respiratory distress, surgical cause, tracheoesophageal fistula, laryngeal foreign body.

## INTRODUCTION

After the first breathe drawn by opening the mouth, newborn infants subsequently breathe primarily through the nose. Hence they are regarded as obligate nasal breathers (Swift and Emery, 1973).

Therefore any lesion causing obstruction to airflow, result in respiratory distress in children. Lesion, causing obstruction to airflow could be medical or surgical.

The causes of airway obstruction with subsequent respiratory distress are numerous in children. Some have been observed in this study and listed on the appropriate tables. However, the symptoms are essentially similar, mouth breathing, feeding problems, sleep disturbances,

respiratory distress, cyanosis and stridor (Swift and Emery, 1973; Tostevin et al., 1995).

The severity of the problem will depend on the degree of the blockage and the size of the child (Belmont and Grundfast, 1984).

This article is set to consider only surgical causes of respiratory distress in children, mode of presentation, gender difference and treatment out come. There are few articles concerning this topic and the authors hope that this will provide information for further works.

## PATIENT AND METHODS

Records of all children who presented with respiratory distress of surgical aetiology were retrieved. All from paediatric surgical unit and otolaryngology unit of

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**Table 1.** Showed causes of respiratory distress and gender distribution. Obstructive adenoid and tonsils came higher in the list, while bronchial foreign body came least.

Cause	Gender distribution	
	Male	Female
Obstructive Adenoid/Tonsil	20	8
Tracheosophagia fistula	6	2
Cystic hygroma	4	2
Diaphragmatic hernia	3	1
Cervical neuroepithelioma	-	1
Macroglossia	3	1
Teratoma	2	-
Laryngeal Web	-	1
Bilateral Choanal Atresia	1	1
Laryngeal foreign body	8	4
Laryngeal papilloma	3	-
Laryngeal stenosis	2	-
Lymphoma	2	-
Brochial foreign body	1	-
Total	55	20

**Table 2.** Highlighted congenital causes with TOF having the highest number, followed by cystic hygroma. The least were choanal atresia, laryngeal web and cervical neuroepithelioma.

Congenital causes	No. of cases
Tracheosophagial fistula TOF	8
Cytics Hygroma	6
Teratoma	2
Diaphragmatic hernia	4
Macroglosia	4
Cervical neuroepithelioma	1
Laryngeal web	1
Bilateral chonal atresia	1

Congenital causes 27(30%).

University of Port Harcourt Teaching Hospital.

It is a prospective study, period of study between January 2008 to January 2012. One case of Bronchial foreign body was retrieved from records of cardiothoracic unit of the hospital. Patient that had medical causes of respiratory distress were excluded in the study.

The surgical causes of respiratory distress, gender distribution and treatment outcome of each patient were properly recorded for analysis. All patients had one or two forms of surgical procedure. Like in cystic hygroma, some patients had excision as well as tracheostomy.

## RESULTS AND DISCUSSION

### Disease and treatment outcome

A total of 75 children had respiratory distress arising from

surgical aetiology. There were 55 males and 20 females with m/f ratio 2.8:1 ages from 0-5 years. Acquired causes have highest number with obstructive adenoid and Tonsil followed by laryngeal foreign body. High mortality rate was observed in the congenital causes, TOF, recording highest mortality (Tables 1 to 4).

Gender distribution showed that males were affected more than females with male to female ratio of 2.8:1<sup>1</sup>. Explanation of this observation may be explained looking at each condition on the table. 48(64%) were of acquired causes, with obstructive Adenoid and Tonsil having highest number, followed by Laryngeal foreign body. As a result of recurrent upper airway infection and subsequent enlargement of lymphoid tissues in the pharyngeal region of children, large number of children suffers from obstructive symptoms (Swift and Emery, 1973; Tostevin et al., 1995).

**Table 3.** Showed acquired causes. 28 patients had obstructive adenoid and tonsils. The least being bronchial foreign body.

Acquired causes	No of case
Obstructive Adenoid/Tonsil	28
Laryngeal foreign body	12
Laryngeal papilloma	3
Laryngeal stenosis	2
Lymphoma	2
Bronchial foreign body	1

Acquired causes 48(64%).

**Table 4.** Showed the treatment outcome in each condition. TOF recorded highest mortality. While all patients that had laryngeal foreign body had good prognosis. Some of the reasons for this result were explained in the discussion.

Causes	No. of case	outcome of treatment	
		Died	Survived
Obstructive Adenoid/Tonsil	28	-	28
Tracheoesophageal fistula (TOF)	8	8	-
Cystic hygroma	6	3	4
Macroglossia	4	-	4
Teratoma	2	2	-
Laryngeal web	1	-	1
Bilateral Choanal Atresia	1	1	-
Cervical neuroepithelioma	1	1	-
Diaphragmatic hernia	4	2	2
Laryngeal foreign body	12	-	12
Laryngeal stenosis	2	-	2
Laryngeal papilloma	3	-	3
Lymphoma	2	1	1
Brochial Foreign body	1	1	-
Total		55	20

Swift and Emery (1973) noted that children are obligate nasal breathers; hence any obstruction to the nasal and pharyngeal air passages causes respiratory embarrassment to the child.

Children are also known for their narrow anatomical airway, thereby increasing the incidence of airway obstruction from lymphoid tissue enlargement (Belmont and Grundfast, 1984; Timmons et al., 1991).

In the congenital causes, TOF ranked highest, followed by Diaphragmatic hernia (Rivera et al., 1990). High mortality is known to be associated with this condition. Reason being that few centers have paediatric surgical special units and trained manpower. Intrauterine diagnostic technique is also lacking (Paret et al., 1998).

Late presentation following transfer to tertiary centers is other associated factors militating against good prognosis.

There is good outcome in children that had laryngeal foreign body. This could be due to early treatment and

presence of otolaryngology unit in our centre (Paret et al., 1998; Abel et al., 1998).

Good prognosis was also recorded in children with cystic hygroma. All the patients that had surgical excision with tracheostomy responded well to surgical treatment. The authors use this medium to advise that treatment modality in this condition, should include tracheostomy, especially in giant cystic hygroma (Bernard et al., 1994; Zilberberg and Epstein, 1998).

In areas where success were recorded, airway management played vital role. Therefore facilities for paediatric airway management is highly essential in reducing mortality and morbidity (Ashbaugh et al., 1967; Sivan et al., 1990; Martino et al., 1999).

## CONCLUSION

Surgical causes of respiratory distress remain common

among children. Obstructive adenoid and Tonsil followed by laryngeal foreign body remain topmost amongst various causes.

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