



## Pediatric Endoscopy in Otorhinolaryngology at Yalgado Ouedraogo Teaching Hospital

Bakyono E\*, Goueta A, Zaghré N, Martial Nao EE, Yanogo A, Gyebré YMC, Ouoba K  
Department of Otolaryngology, Centre Hospitalier Universitaire, YalgadoOuedraogo  
Ouagadougou, Kadiogo, Burkina Faso

\*Corresponding Author: Bakyono E, Department of Otolaryngology, Centre Hospitalier  
Universitaire, YalgadoOuedraogo Ouagadougou, Kadiogo, Burkina Faso, Tel: 00 226 75 25  
22 22, E-mail: leben\_manu@yahoo.fr

**Received date:** July 25, 2018; **Accepted date:** August 23, 2018; **Published date:** August 28, 2018

### Abstract

**Background:** Endoscopy is a common surgical procedure in the exploration and treatment of ENT pathology. Our purpose is to study rigid endoscopy contribution in paediatric patients in ENT.

**Methodology:** We therefore conducted a retrospective study of 10 years from January 1, 2004 to December 31, 2013 in ENT unit at Yalgado Ouedraogo teaching hospital in Ouagadougou.

**Results:** A total of 629 children who received rigid endoscopy was collected, representing 35.5% of the surgical procedures performed in children. The average age of the patients was 4.5 years. 0 to 5 years old age group was the most represented with a male. The esophagoscopy has been performed with 63.1% of the cases. Foreign bodies were the most frequent findings with 74.7% of the cases. We noted 2.9% of complications including 1.3% of reversible cardiorespiratory arrest and 1.3% of deaths.

**Conclusion:** Endoscopy is an important surgical procedure that should not be trivialized.

### Keywords

Pediatric; Pathology; Surgery; Inflammation; Respiratory

### Introduction

Rigid endoscopy, either diagnostic or therapeutic, purpose occupies an important place in the exploration of the upper aero-digestive tract [1]. It is very common practice among the child [1-3]. We report in this work our experience over 10 years in order to describe indications, morbidity and mortality related to rigid endoscopy in children in otorhinolaryngology (ENT).

### Materials and Methods

We conducted a retrospective study with a descriptive purpose covering the period from 1 January 2004 to 31 December 2013, conducted in the Department of Otolaryngology and Neck Surgery of the University Hospital Yalgado Ouédraogo Ouagadougou. Data sources were incorporated by the clinical records of patients, surgery records, and records of hospitalization.

Information was collected on a form of inquiry including socio-demographic data, indications (clinical and imaging signs), endoscopic findings, therapeutic gestures and scalable data (morbidity and mortality).

All patients from 0 to 15 years who received rigid endoscopy in the study period were included. Thus 269 patients with a complete clinical record were included in the study. Data was analyzed by the software Epi info version 3.5.4.

## Results

### Epidemiological data

In 10 years, 629 children benefited from an endoscopy represented 35.5% of the surgical procedures in children. The total number of endoscopy realized during the same period was 1098. The frequency of Pediatric endoscopy was 57.3%. The average age of the patients was 4.5 years with extremes of 1 month to 15 years. 0 to 5 years old age group was the most representative in our study. There were 392 patients of male and 237 female patients, or a sex ratio of 1:6.

### Clinical data

Esophagoscopy was done in 63.1% followed patients of pharyngo-laryngoscopy and trachea-Bronchoscopy with respectively 38.4% and 19.7%. The indications of endoscopy were dominated by digestive tracks foreigners bodies (FB) in 59.3% of cases followed by lower airways foreigners bodies (LAFB) in 24.7% of cases then chronic dysphonia in 7.6% of cases.

### Endoscopic discoveries

FB was more frequent with 74.7% of cases followed by tumors in 6.4%, injuries 6% of cases and infections/inflammations 4%. Endoscopy was normal in 8.9% of cases.

### Foreign body

The average age of patients who experienced a foreign body was 4.1 years with a male predominance of 61.1%.

### Tumors (n=40)

The location of the foreign body in digestive and airways tracks was 71.3% and 28.7% of cases respectively. Digestive foreign bodies were inorganic nature in 89.3% of the cases, dominated by coins in 76.3 percent of cases. The LAFB were organic nature in 60% of cases.

The tumors were located essentially at the level of the larynx in 97.5% of the cases. It was laryngeal papillomatosis in 76.9% of the cases, polyp in 17.9% of cases and nodule in 5.2% cases. A pharyngeal

location suspicious of malignancy was also noted or 2.5% of cases.

The Table 1 below shows the locations of foreign bodies

**Table 1:** Distribution FB according to their location.

Pathology	Localisation	Number (n)	Percentage (%)
Digestive track FB	Esophagus	322	96.1
	Pharynx	12	3.6
	Tonsil	1	0.3
<b>Total 1</b>		335	71.3
Lower airways track FB	Bronchus	95	70.4
	Larynx	32	23.7
	Trachea	8	5.9
<b>Total 2</b>		135	28.7
<b>Total</b>		470	100

### Traumatic injuries (n=38)

The traumatic observed were divided between the esophagus and larynx, respectively or 92.1% and 7.9% of the cases. It's legacy of burning caustic of the esophagus to type of stenosis in 86.8% of the cases on the one hand and on the other hand, closed trauma of neck, 7.9% of laryngeal stenosis and 5%, 3% of esophageal wound.

### Infections and inflammations (n=25)

The inflammations and infections accounted for 4% of endoscopic findings. Their seat of choice was the VRI in 68% of cases (laryngeal 52%-trachea and bronchi 16%) followed by the pharynx and esophageal in respectively 20%, 16% of the cases. These inflammations were acute in 76% of the cases and chronicles in 24% of cases.

### Endoscopic treatment

During the procedure, a therapeutic gesture was made in 85.1% of the cases. Extraction of foreign body has been the main therapeutic gesture with 86% of the cases followed by excision of tumour and the expansion to the candles in respectively 7.3% and 6.7% of cases.

#### Associate gesture

Biopsies of the larynx and pharynx have occurred in 4.8% of cases and an emergency tracheotomy in 0.8% of patients.

#### Complications and mortality

Complications were observed in 1.3% of cases. It was a reversible cardiorespiratory arrest. Eight (8) death or 1.6% of cases, 5 cases during the extraction of lower airways foreign body, 2 cases by respiratory distress due the one large tumour pharyngienne, the other to a large retro-pharyngeal abscess and last death by haemorrhage per endoscopic.

#### Discussion

Rigid endoscopy in ENT is a surgical procedure common among children. Our frequency of 57.3% is higher than that of Ouoba et al. and Akolbout et al. [1,2] who found respectively 50.43% and 52.57% but it is less than those of Ag Mohamed et al. [3] who found 67%. The average age of our patients was 4.5 years. It could be related to the indications dominated by foreign bodies. Indeed foreign bodies formed 87% of the indications. They are the prerogative of the child [4-6]. In series exclusively concerning children, the average age of inhalation or ingestion of a foreign body varied from 21 months to 4.78 years [7-9].

Male predominance is classical in the foreign body [4-6,10]. Indeed the boy is sharper than the little girl and explores its environment by wearing at the mouth. Esophagoscopy was the most realized in our study, 63.1%, followed by pharyngo-laryngoscopy and trachea-bronchoscopy with respectively 38.4% and 19.7%. These results are correlated with our indications dominated by digestive track foreign body with 59.3% of cases, followed by the lower airways foreign body and dysphonia in respectively 24.7% and 7.6% of cases. Esophagoscopie and its indications came to head in a number of African studies [1-3]. As endoscopy performed at any age or in child in a specific way, the results are stackable. Ouoba, and Ag noted respectively 56.85%, 68% of indications of oesophagoscopie [1,3]. Thus the endoscopic discoveries dominated by digestive foreign bodies 71.3% cases and respiratory in our study can be explained by the fact that the child

explores its environment by wearing at the mouth [11].

The laryngeal pappilomatosis was the most observed tumour with 76.9% of the cases. Chronic dysphonia and laryngeal Dyspnea are signs of appeal requiring an endoscopy, which will be both diagnostic and therapeutic. Our result is relatively higher than that of Ag Mohamed et al. [3], who noted 58% of laryngeal pappilomatosis whose target was both adults and children. Other discoveries by trauma and infectious and inflammatory lesions that were noted at frequencies varied from 6% and 4% of the cases.

The traumatic lesions observed were dominated by the strictures in 94.7% of the cases. They are mainly the aftermath [12]. Most of our patients were late in the ENT structures, which has failed to support early and adapted. Indeed the degree of severity of the initial lesions of digestive conditions support. This evaluation is optimal if the upper endoscopy is carried out in the 12 to 24 h after ingestion. For Janousek, when the child is seen before the 36<sup>th</sup> time, a rigid endoscopy must be carried out to assess the damage and adapt treatment [13].

Infections and inflammations have concerned mainly the airways in 68% of cases. In contrast to the adult children, they are, in most cases, due to infections broncho-pulmonary chronic dragging, not self-limiting drug treatment that evoke a foreign body unsung and imposing an endoscopy exploration. Akolbout et al. [2] had made the discoveries of inflammatory pathology in 5.5% of cases to endoscopy.

Though well codified, the realization of an endoscopy is not without complications. These complications are not necessarily inherent to technology but also to the initial pathology and anaesthetic risk difficult to predict. Indeed, we noted 1.3% of morbidity and 1.6% of mortality. Our complication rate is lower than that of Hoeve et al. [14] who found 1.9% complication. Our mortality rate is also higher than that of Ouoba, who noted a rate of 0.35%. These deaths were noted in the lower respiratory foreign body in 5 cases. Were they related to obstruction by the foreign body or anaesthetic difficulties? The two reasons might be adopted because we did not have an autopsy. In fact

the technical level also property of the child anesthesia of Pediatric endoscopy is insufficient. Patients have be seen later, the education of stakeholders (parents, teachers) must be constantly supported for effective prevention of lower airways foreign bodies.

## Conclusion

Endoscopy in the rigid tube in the child occupies an important place in the activity of the ENT service in our hospital. Its indications are dominated by foreign bodies of the aero-digestive, particularly digestive tracks. Esophagoscopy is the most convenient type. The contribution of endoscopy is both diagnostic and therapeutic. The possible occurrence of complications that may jeopardize the prognosis reminds us that this seemingly simple surgical gesture is not trivial. Its realization requires optimal conditions.

## References

1. Ouoba K, Gyebré YMC, Ouedraogo BP, et al. Indications and contributions of endoscopy to the rigid tube in the exploration of the aero-digestive tract in ENT. *Afr J ENT Cervico-fac Surg.* 2009;7:4-8.
2. Akolbout D, Tall A, Ondzotto G, et al. Endoscopy in Oto-Rhino-Laryngology: experience of the ENT department - CHU of Brazzaville. *Med Afr Black.* 2013; 6005:237-40.
3. Mohamed AMA, Keita M, Timbo SK, et al. Endoscopy in a sub-Saharan ENT department: Case of Mali our experience over 10 years, about 374 cases. *Med Afr Black.* 2001;48:78-81.
4. Lawson S, Azoumah KD, Ayena KD, et al. Foreign bodies in ENT at Kara University Hospital. *Med Afr Black.* 2010;57:461-5.
5. Deguenonvo REA, N'Diaye M, Loum B, et al. Foreign bodies of the esophagus. About 212 cases. *Med Afr Black.* 2009;56:410-6.
6. Daoudi A, Bouchari A, Djerad, et al. Foreign stranded bodies: Anatomico-clinical analysis and therapeutic results of 203 cases. *Ann Otolaryngol path Cervico-fac.* 2012;4:A122.
7. Hssaine K, Hassouny K, Rochdi Y, et al. Foreign bodies of upper aerodigestive tract in children: About 313 cases. *Ann oto laryngol.* 2009;4:A122.
8. Mnejja M, Chakroun A, Bougacha L, et al. Bronchoscopy for foreign body inhalation in the pediatric population: Lessons learned from 223 cases. *Arch Pediatr.* 2012;19:670-4.
9. Rizk H, Rassi S. Inhalation of foreign bodies in the pediatric population: experience with 106 cases. *Ann otolaryngol Cervico-facial Pathol.* 2011;128:207-12.
10. Ouoba K, Diara C, Dao MO, et al. The laryngo-tracheobronchial foreign bodies in children at Ouagadougou University Hospital analyzed 96 observations. *Med Trop.* 2002;62:611-4.
11. Chinski A, Foltran F, Gregori D, et al. Foreign bodies in children: A comparison between Argentina and Europe. *Int J Pediatr Otorhinolaryngology.* 2012;76:S76-9.
12. Masa E, Bretona A, Lachauxe A. Management of children after ingestion of acidic or alkaline substances. *Arch Pediatr.* 2012;19:1362-8.
13. Janousek P, Kabelka Z, Rygl M, et al. Corrosive injury of the oesophagus in children. *Int Journal Pediatr Otorhinolaryngology.* 2006;70:1103-7.
14. Hoeve LJ, Rombout J. Pediatric laryngobronchoscopy. 1332 procedures stored in a data base. *Int J Pediatr Otorhinolaryngol.* 1992;24:73-82.