

ORIGINAL STUDY

**EMERGENCY TREATMENT IN BREATHING INSUFFICIENCY OF
SUPERIOR BREATHING WAYS**

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ABSTRACT

Breathing insufficiency by obstructing the superior breathing ways represents a rather frequent etiology, with an incidence of 2-3%, whose solving therapy needs an emergency response, its absence leading to the patient's death. The study material was represented by a number of 1393 patients diagnosed and treated for this disease in the ENT Clinic in Galati, during the years 2006 and 2009. The study method consists in the retrospective analysis of group. The results show that most of the patients were men from different urban zones who have frequently consumed alcohol or smoked cigarettes. Patients were most frequently sent to hospital through the emergency service, and the most frequent etiologies were pharyngeal odd corporals, malignant tumors and acute epiglottises. The evolution of these patients was 67% towards cure, 31% towards improvement, and 2% towards death. Depending on the zone where the obstruction is produced, apart from the common signs of acute breathing insufficiency, there are a series of specific breathing signs that allow the clinical difference between the levels of the obstacle, and the difference between the obstruction of the superior breathing ways and the lung diseases: in the superlaryngean obstruction there is neither dysphonia, nor cornage, whereas, in laryngeal obstruction there are both dysphonia with faded voice or aphonia and cornage. The main resulted conclusions were: The S.B.W. obstruction is a major emergency that leads to hypoxemia associated with hypercapnia. An emergency treatment algorithm that aims the S.B.W. desobstruction is essential in such cases. The therapeutical objectives in emergency principally aims the permeability of the breathing ways and favouring the lung ventilation. The key of therapeutical success is the S.B.W. re-permeability and keeping their permeability.

KEYWORDS: *breathing insufficiency, obstruction, breathing ways*

1. Introduction

The breathing insufficiency by obstruction of the superior breathing ways (S.B.W.) needs an emergency conduit due to the fast and severe subsidence of the breathing functions that compromise the gas exchanges between air and blood and that

could lead to death. The incidence of these diseases is of 2-3% [1].

Many cases of breathing insufficiency by obstruction of the superior breathing ways are seen daily at patients of all ages; through odd corporals at children, because of other diseases at old people (diabetes, heart diseases, cronic obstructive

bronchopneumopathy) and the decrease of the body’s biological immunity.

The diagnosis is clinical and needs emergency hospitalization in the recovery service.

2. Material and methods

During the years 2006 and 2009, in the ENT clinic of the Clinic Emergency Hospital “Saint Apostle Andrew” Galati, 1393 patients were hospitalized, diagnosed with breathing insufficiency of the superior breathing ways.

The study’s objectives were:

- etiological evaluation, clinical and therapeutical of the patients;
 - evaluation of the deficiencies of diagnosis and treatment;
 - creating the protocol for the diagnosis and treatment.
- The study is a statistical type, retrospective and was made during 1.01.2006 – 31.12.2009.

3. Results and discussions

The patient’s distribution by sex distributed 961 men (69%), while there were only 432 women (31%), showing that there were more men than women with a 2.22 rate (figure 1).

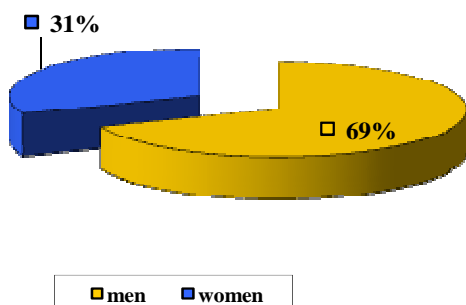


Figure 1. Patient distribution by sex

Judging by each person’s living area, there is a significant number of patients from the urban zone (808 patients), because of the easier and better accessibility to the hospital’s services, whereas there were only 585 patients from the rural zone (figure 2).

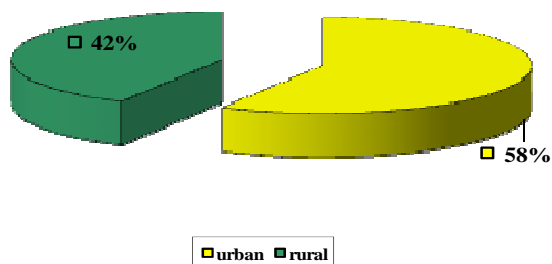


Figure 2. Patient distribution by living zone

By the age of the patients, 593 were retired (43%), 528 were employees (38%), 183 were students (13%) and 89 were jobless (6%) (figure 3).

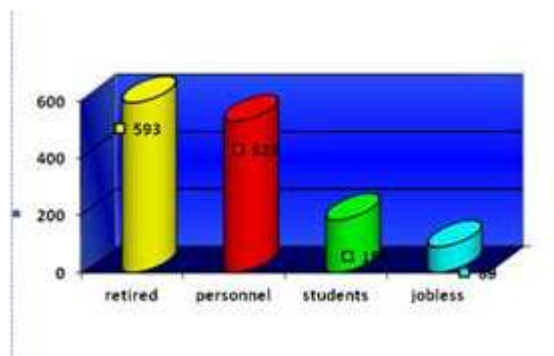


Figure 3. Patient distribution by jobs

Smoking has been identified at 610 patients (59%) while alcohol was present at 419 patients (41%), most of patients having malignant tumors (86%) were smokers and have done alcohol consumption (figure 4).

Annual distribution of cases shows the number of admissions as follows (table I):

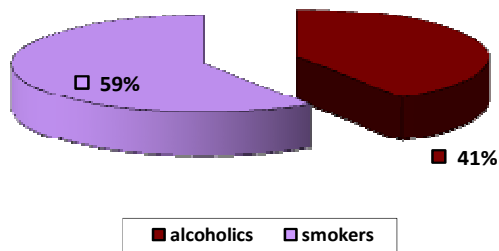


Figure 4. Patient distribution by risk factors

Table I. Patient distribution by years

Year	Patients
2006	400
2007	344
2008	292
2009	357

The most common category of admission was an emergency, 833 patients were sent directly to hospital (58%). Reason for hospitalization was the constant respiratory failure.

Predominant causes of upper airway obstruction in the pharynx are foreign corpus - 237 patients (17%), acute epiglottitis and Quinke edema - 267 patients (19%) and malignant tumors - 334 patients (24%). The remaining 445 patients (40%) had other causes of obstruction (figure 5).

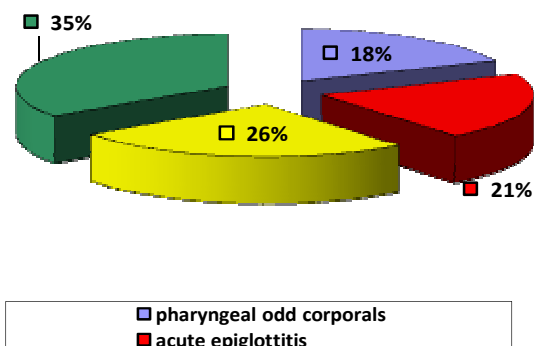


Figure 5. Patient distribution by the obstruction's etiology

In 27% of cases repermeability of the upper airway was performed by extraction of foreign bodies (coins, food bolus, pork bone, chicken bone, fish bone) by bronchoscopy 24%, 5% suspension laryngoscopy, direct laryngoscopy 31%, 2% tracheotomy, excision tumor 4% (figure 6).

Of the 1393 patients admitted, 930 were cured (67%), 425 further developed (31%) and 35 deaths (2%) (figure 7).

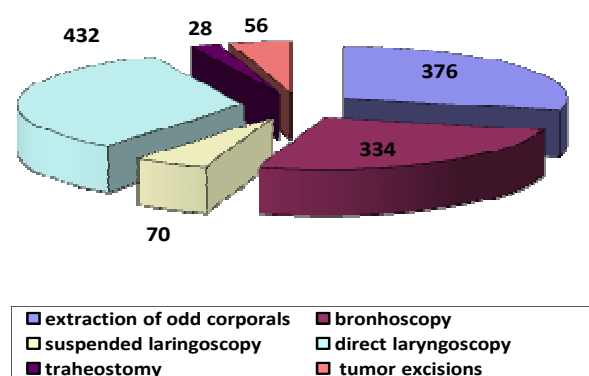


Figure 6. Patient distribution by treatments applied

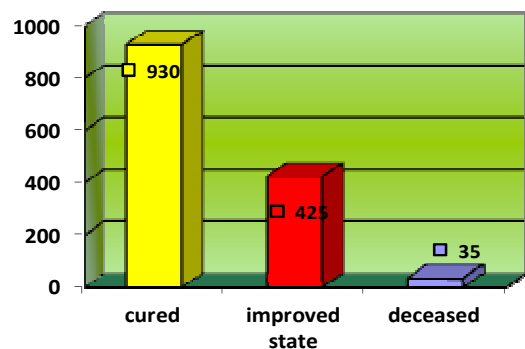


Figure 7. Patient distribution by the post therapeutic evolution

Due to changes in diet, pollution, environment flawed pollutants at work, there was an increased incidence of tumors of SBW and especially malignant tumors.

From the study, an algorithm to approach the upper respiratory insufficiency in an emergency was developed.

1. Oxygen is the highest priority to maintaining its "success" intubation or resume spontaneous ventilation.

2. It will take into account the classification Cornack-Lehaw (if laryngoscopy grade IV intubation attempt is abandoned that could increase the difficulty of the case).

3. ENT emergency doctor calls to detect factors predictive preanesthetic for tracheal intubation is difficult because different therapeutic conduct.

4. There should be a mandatory action plan organized by priority and alternative attitudes to failure.

5. Calm attitude in which self-control, experience and training are a priority.

6. Failure must be accepted with the request for aid (technical assistance and audiologist and anesthesiologists) prior to patient deterioration.

7. Do not perform more than three intubation attempts.

8. Extubation is performed or after disease remission is followed by tracheotomy.

In terms of etiological diagnosis, we classified according to the following classifications:

1. Infections and suppurations

- suprahioidian diffuse phlegmon (Gensoul)
- Tiro-Hio abscess, epiglottitis Lodge
- endoabscess and odd corporals

2. Perilaryngeal corporals

- the hypo pharyngeal odd corporal is very large
- laryngeal odd corporal
- trachea-bronchial odd corporal

3. Traumatisme

- laryngeal and tracheal injuries (hematoma, bleeding, obstruction of cartilage fragments, moving and pinching the lumen).
- Thermal burns, chemical (edema)
- surgical stenosis

4. Tumors

- Benign (condromes, lipomas, fibromas, spider, adenomas, schwannomas)

- internal laryngocel

- malignant tumors (based on language, Pear shaped sinuses cause late obstruction, but the laryngeal glottis causing obstruction especially early)

5. Nerve problems

- laryngeal ictus (special form of laryngeal spasm)
- Diplegia laryngeal paralysis, with closed glottis
- S. Riegel applicants
- applicants Palsy dilatation function (S. Gerhardt)

6. Edemas

- infectious, mechanical, renal, neuro-humoral, radiation
- Infectious-infection and suppurations of CRS

Laryngoscopy is the first step in examining the upper airway, allowing both diagnosis and treatment of possible etiologies, such as foreign corpus laryngeal edema Quinke, etc.. The first laryngoscopy was performed in 1854 by Manuel Garcia, who managed for the first time to explore the glottis and pharynx [2,3]. By examining the larynx in 1895 was made indirectly by means of mirrors. On April 23, 1895 Alfred Kirstein report the first direct examination of larynx and vocal cords and in 1913, Chevalier Jackson presents the first statistics on laryngoscopy [4,5]. Henry H. Janeway, a U.S. anesthesiologist, first attached to a light source to the laryngoscope and used for direct introduction into the airways of anesthetic substances. Today, laryngoscopy was replaced by videolarinoscopy with advantages that it is more convenient for the patient and provide additional details [6,7].

Quinke edema or an angioedem can sometimes have genetic causes. Thus, hereditary angioedema (HAE), exists in three forms, all due to genetic mutations, autosomal dominant transmitted. Types I and II are caused by mutations in the gene SERPING1, leading either to low levels of C1-inhibitor protein (HAE type I) or dysfunctional forms

of the same protein (HAE type II). HAE type III has been associated with mutations in the F12 gene, which encodes coagulation factor XII. All forms of HAE lead to abnormal activation of the complement system and cause swelling and other anatomical regions of the body other than the larynx [8,9,10,11].

Between the malignancies that induce acute respiratory failure, by far the most common is the cancer laryngeal. The most common form is squamous cell carcinoma histology, reflecting its origin from the squamous cells that form the vast majority of laryngeal epithelium. Cancer can develop in any part of the larynx, but the cure rate is affected by the tumor. Most often affected is the glottis, the most rare tumors infraglottic. Extension tumor extension is either directly or by metastasis to regional lymph nodes. The most common lung metastases were recorded. Among the etiological factors involved, the most common are smoking, alcohol consumption, intensive use of the vocal cords (singers) [12,13].

In terms of evolution of these patients, in large obstructions with acute respiratory failure, which is not involved in evolutionary time, there are two possibilities: either obstructions cause sudden asphyxia and fatal coma or, obstructions installed in a progressive body tries first phase to cope with changes such respiratory hypoxia (breathing Cheyne-Stockes, Kussmaul, Biot), circulatory changes (bradycardia secondary to decreases in BP, cardiac arrhythmias, extrasystoles) and neuropsychiatric disorders (asthenia to adinamie then loss of consciousness, sometimes seizures). In the stenosis of progressive lumen obstruction is slow, in weeks or months, and although breathing is very small lumen, the patient supports the lack of air which gradually gets used [1]. Topographic diagnosis of obstruction site aims to establish: supralaryngeal, laryngeal or tracheal (sublaryngeal).

Depending on the level at which obstruction occurs there than common signs of acute respiratory failure and a series of specific respiratory signs that

allow clinical differentiation between different levels of obstruction and to differentiate between upper airway obstruction and lung diseases: the supralaryngeal obstruction there is neither dysphonia nor cornage, while in the laryngeal obstruction there is dysphonia with faded voice or aphonia with cornage. [14].

5. Conclusions

It is more often met at males, as well as patients in urban areas.

Alcohol and tobacco are present at a major percentage of these patients being often associated with this malignancy.

SBW is a major emergency obstruction leading to hypoxemia associated with hypercapnia. Besides the causes obstruction and volume of SBW occur tongue, soft tissues, vomiting, laryngospasm, secretions and reactive edema.

It requires emergency treatment algorithm designed primarily SBW desobstruction.

The objectives of emergency therapeutic aims:

- a) airway permeability
- b) stimulating lung ventilation
- c) combating hypoxia
- d) preventing complications

The key to success is the therapeutic repermeability of the SBW and maintaining their permeability.

Evolution of patients post-therapy is most often to cure or improvement, and rarely to death - especially those with end-stage malignancy.

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