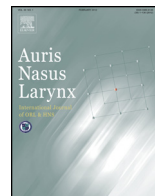




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Subglottic laryngitis – Changes in therapy approach over the past 20 years

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ABSTRACT

Objective: To show changes in the management of subglottic laryngitis over the last twenty years in Croatia.

Methods: We sent questionnaires to paediatricians and otolaryngologists (ENT) in 9 Croatian hospitals in 1993, 2003 and 2013. In the questionnaire we presented a case of a child with moderately difficult subglottic laryngitis, after which they had to answer questions about the management of this kind of a patient and common therapy practice in their hospitals. All data were categorical, described in absolute frequencies and with relative percentages. The Cochran–Armitage test for trend was used in the analysis of different treatments over the years among ENT and paediatricians. Associations were statistically significant if $p < 0.05$.

Results: During a twenty-year period main novelties included the introduction of racemic epinephrine use (ENT from 3.3% in 1993 to 92.3% in 2013; paediatricians from 17.2% in 1993 to 100.0% in 2013) and downfall of humidification (ENT from 60.0% to 23.3%; paediatricians from 60.0% to 12.0%), antibiotic (ENT from 53.0% to 2.3%; paediatricians from 21.0% to 0.0%) and antihistaminic use (ENT from 67.7% to 0%; paediatricians from 43.2% to 2%), while corticosteroids (both parenteral and nebulized form) remained the cornerstone in treatment of moderately severe subglottic laryngitis.

Conclusion: Main novelties included the use of racemic epinephrine and downfall of antibiotic, antihistaminic and humidification therapy use, while corticosteroids remained the cornerstone in the treatment of moderately severe subglottic laryngitis. Differences between approaches among specialities are minimized during 20-year period.

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1. Introduction

Subglottic laryngitis is potentially a life-threatening condition with sudden onset and dramatic clinical presentation demanding prompt management and airway preservation [1–3].

Since the subglottic laryngitis is a viral disease, the treatment is mainly symptomatic, although some studies suggest there may be benefits from antiviral agents [3]. In history, the treatment of subglottic laryngitis consisted of mist therapy, humidification, intubation, and in more difficult cases, even tracheotomy was performed [3–7]. In search for the right therapy over the decades, antibiotics were commonly used, since it was believed they would prevent more difficult bacterial infections of the laryngotracheal area and because they could not rule out epiglottitis [3]. In the 1960s

glucocorticoids usage became more common, but there were some controversies over selecting the best route of administration, deciding on good candidates and most of all, whether they would be safe [1,3,8–12]. Racemic epinephrine was later introduced giving fast resolution of symptoms even in difficult cases [1,3,13,14]. Another recent modality is heliox, which shows short-term benefits when administered together with oral or intramuscular dexamethason in children with moderate to severe croup [15].

Treatment of croup is nowadays based on reducing the inflammation and swelling of subglottic area, with corticosteroids and racemic epinephrine as cornerstones of therapy [12,13]. The aim of our study is to show changes in management of subglottic laryngitis over the last twenty years in Croatia.

2. Materials and methods

Following our institutional review board approval, we sent questionnaires to paediatricians and otolaryngologists (ENT) in

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9 Croatian hospitals. Eight of them were county hospitals (with otolaryngology and paediatric departments) and one was the University Hospital Centre. Questionnaires were first sent in 1993, then in 2003 and the last ones in 2013. The otolaryngologists and paediatricians filled out the questionnaires anonymously and sent them back to the authors. In the questionnaire we presented a case of a child with moderately difficult subglottic laryngitis (modified Westley croup score 5), after which they had to answer questions about the management of this kind of a patient and common therapy practice in their hospitals. Nebulized racemic epinephrine is given without intermittent positive pressure breathing (IPPB) in Croatia. The questionnaire from the year 2013 is shown in Appendix 1, and it also includes questions about the place of treatment and cooperation between paediatricians and otolaryngologists in the treatment of subglottic laryngitis. All questions had multiple choice answers. The answers were recorded in Microsoft Office Excel Datasheets (ver.2003) and analyzed. All data were categorical, described in absolute frequencies and with relative percentages. The results were shown in tables and graphs. The Cochran–Armitage test for trend was used in analysis of different treatments over the years 1993, 2003 and 2013 among ENT and paediatricians. Associations were statistically significant if $p < 0.05$ (GraphPad Prism ver.6).

3. Results

3.1. Demographics

In 1993 the questionnaire was filled out by 82 otolaryngologists and 81 paediatricians, in 2003 by 44 otolaryngologists and 40 paediatricians, and in 2013 by 43 otolaryngologists and 50 paediatricians. The study conducted in 2013, which included questions about the place of treatment this illustrative case (Appendix 1), found that most of otolaryngologists and paediatricians would treat the child with moderate subglottic laryngitis in an out-patient clinic (74.4% ENT vs. 74.0% paediatricians) and all of them would treat this child with medicaments (100.0% both groups). Neither otolaryngologists nor paediatricians would have chosen intubation and/or tracheotomy as a treatment of choice in this particular case.

There was no reported death case from subglottic laryngitis in the last 20 years by interviewed otolaryngologists and paediatricians in Croatia.

3.2. Treatment of subglottic laryngitis

During 1993 in Croatia all otolaryngologists (100.0%) and most of paediatricians (63.0%) used corticosteroids for the treatment of a child with moderately difficult subglottic laryngitis as in the described case (Fig. 1a). They also frequently chose antihistaminics as a treatment option (67.7% ENT vs. 43.2% paediatricians), as well as air humidification (60.0% ENT and 60.0% paediatricians). 53% of ENT and 21% of paediatricians chose to use antibiotics in treatment of the described case. L-epinephrine (adrenaline) was chosen as a treatment modality by 3.3% of ENT and 17.2% of paediatricians.

In 2003, while investigating opinions on the treatment of the described case, we observed a downfall of antibiotic (9.1% ENT vs. 15.0% paediatricians) and antihistaminic use (22.7% ENT vs. 0.0% paediatricians). Opinions on the treatment of the described case in 2003 are shown in Fig. 1b. In this year ENT and paediatricians had most commonly chosen to use corticosteroids for the described case. 27.3% of ENT and 47.5% of paediatricians would use it parenterally (intramuscular), while 31.8% ENT and 10.0% of

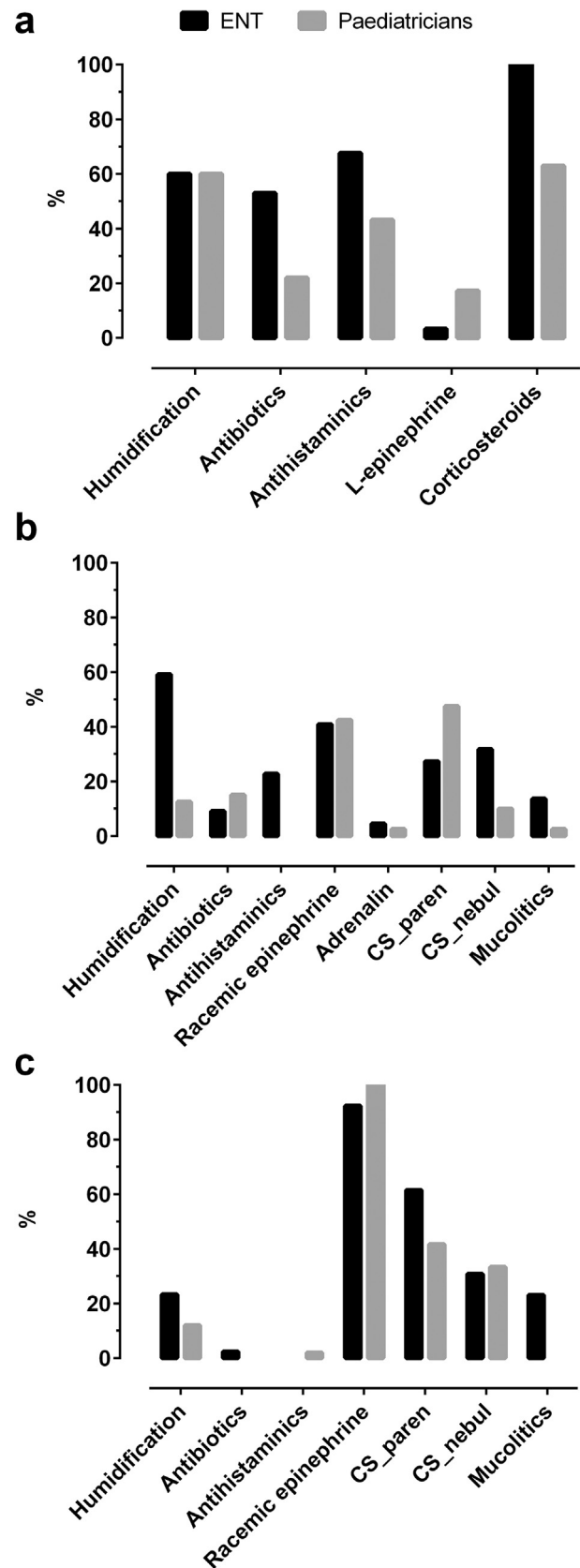


Fig. 1. Trends in opinion among otolaryngologists (ENT) and paediatricians regarding treatment of moderately severe subglottic laryngitis: a) year 1993, b) year 2003, c) year 2013. ENT – otolaryngologists; CS_paren – corticosteroids applied parenterally; CS_nebul – corticosteroids applied in nebulized form.

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