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Original article

Possible role of anti-inflammatory drugs in complications of pharyngitis. A retrospective analysis of 163 cases



J. Demeslay^{a,*}, G. De Bonnecaze^a, B. Vairel^a, B. Chaput^b, J.-J. Pessey^a,
 E. Serrano^a, S. Vergez^a

^a Service d'ORL et de chirurgie cervico-faciale, CHU de Toulouse, hôpital Larrey, 24, chemin de Pouvoirville, TSA 30030, 31059 Toulouse cedex 9, France

^b Service de chirurgie plastique, reconstructrice et des brûlés, CHU Toulouse, hôpital Rangueil, 1, avenue du Pr-Jean-Poulhès, TSA 50032, 31059 Toulouse cedex 9, France

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ABSTRACT

Objectives: Complications of pharyngitis (peritonsillar abscess, retropharyngeal abscess, and cervical cellulitis) are rare, but appear to be on the increase over recent years and many of these patients have been treated by anti-inflammatory drugs prior to admission. The purpose of this study was to review the current epidemiological data concerning these complications and investigate a possible correlation with anti-inflammatory drug use.

Material and methods: A single-centre retrospective review of epidemiological, clinical and microbiological data was performed on the medical charts of patients hospitalised for peritonsillar abscess, retropharyngeal abscess or cervical cellulitis between 2005 and 2010.

Results: Over a six-year period, 163 patients were hospitalised for complications of pharyngitis, with a sex-ratio of 1.82 (104/57). The number of cases of peritonsillar abscess (PTA) increased from 13 to 28 cases per year from 2005 to 2010 and the number of cases of retropharyngeal abscess increased from three to six cases per year over the same period. The number of cases of cellulitis remained stable with an average of 1.82 cases per year. Each year, significantly more patients with an abscess were admitted to our unit with a history of anti-inflammatory drug use (13.3 ± 4.6) than without anti-inflammatory drug use (7.8 ± 4.3) ($P < 0.01$). Micro-organisms were identified in 80% of cases, with mixed strains in 73% of cases, *Streptococcus* in 72% of samples and *Streptococcus pyogenes* in 19% of cases of PTA. A favourable outcome was observed in all patients in response to medical and surgical treatment.

Conclusion: In line with the literature, we observed an increasing incidence of complications of pharyngitis. The present series comprised significantly more patients admitted for PTA with a history of anti-inflammatory drug use. A multicentre prospective controlled study in Nantes on a large cohort is currently underway and will probably confirm these preliminary results.

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1. Introduction

Pharyngitis and sore throat are common and usually benign diseases [1]. However, they can be responsible for infectious complications with an incidence ranging between 16 to 37 per 100,000 inhabitants [2–5]. These complications are rare, but potentially serious, such as peritonsillar abscess (PTA), retropharyngeal abscess, and can even be life-threatening, in the case of cervical cellulitis.

The incidence of local complications of pharyngitis and sore throat is currently on the increase [6], especially in children

[7,8]. These data from the literature are concordant with data from French national health databases. Several explanations can be proposed, such as a lower rate of prescription of antibiotics and increased consumption of anti-inflammatory drugs. However, management of pharyngitis must comply with the treatment guidelines clearly defined by the *Agence Française de Sécurité Sanitaire des Produits de Santé* (French Agency of health security of products of health) (AFSSAPS) [9]. Anti-inflammatory drugs are not recommended in the pharyngitis treatment flow-chart, but prescription of an antibiotic is often associated with treatment by anti-inflammatory drugs. Self-prescribed medication is also a common practice, as patients have easy access to anti-inflammatory molecules.

Anti-inflammatory drugs have been incriminated by many authors in the development of necrotizing fasciitis in children with

* Corresponding author.

E-mail address: demeslayjulie@yahoo.fr (J. Demeslay).

chickenpox [10–12], and PTA in the course of infectious mononucleosis [13], although a statistical correlation has not been clearly established.

The objectives of this study, based on a series of 163 patients, were to describe the recent epidemiological data concerning peritonsillar abscess, retropharyngeal abscess and cervical cellulitis and to investigate a possible correlation between these complications and previous use of anti-inflammatory drugs.

2. Material and methods

A single-centre retrospective review was performed on the medical charts of 163 patients hospitalised in our otorhinolaryngology and head and neck surgery department for management of peritonsillar abscess (PTA), retropharyngeal abscess or suppurative cervical cellulitis between January 2005 and December 2010. Cases were identified from the French PMSI database. Three types of data were recorded for each patient: epidemiological (age, gender, admission and discharge dates), microbiological (culture and bacterial identification, resistance) and clinical (patient's pre-hospital and in-hospital management, antibiotic therapy, surgical treatment, tracheotomy, surgical revision, outcome, first episode, relevant history, immunodepression, diabetes, subsequent tonsillectomy).

Patients with purulent pharyngitis or any other upper respiratory tract infection not considered to be a complication of pharyngitis (such as epiglottitis or abscess of the base of the tongue) were excluded.

Statistical analysis was performed with Excel and XLSTAT software (Student's test). Quantitative data were expressed as the mean \pm standard deviation. A *P* value less than 0.05 was considered statistically significant.

3. Results

3.1. Epidemiological data

From January 2005 to December 2010, 127 adult patients (105 males and 58 females, i.e. a sex-ratio of 1.82) were hospitalised for management of PTA, 23 for retropharyngeal abscess and 13 for cervical cellulitis (Fig. 1).

Thirteen patients were hospitalised for PTA in 2005 versus 31 patients in 2009 and 29 patients in 2010. The number of cases of

PTA increased from three cases in 2005 to seven cases in 2009 and six cases in 2010. The number of cases of cervical cellulitis remained stable, with an average of 1.82 cases/year over these last six years. In 2010, PTA represented 80% of all complications of pharyngitis, while retropharyngeal abscess accounted for 17% and cervical cellulitis accounted for 3%. Over this six-year period, we observed significantly more cases of peritonsillar abscess than retropharyngeal abscess and cellulitis ($P < 0.05$).

Males accounted for 65% of cases of PTA, 61% of cases of retropharyngeal abscess and 69% of cases of cervical cellulitis. The median age was 32 years (range: 16–76) for PTA, versus 50 years for cervical cellulitis (range: 21–86) and retropharyngeal abscess (range: 19–79).

The mean length of hospital stay was four days (range: 1–9) for PTA, eight days (range: 4–26) for retropharyngeal abscess and 17 days (range: 8–38) for cervical cellulitis. Median length of hospital stay was four days for PTA and 7 days for retropharyngeal abscess and 17 days for cervical cellulitis.

3.2. Bacteriological data

A pus sample for a bacteriological examination was systematically realized when a pus sample was obtained during aspiration-incision or surgical drainage, and was contributive in 131 patients (80%). In contrast, five samples (3%) remained sterile, especially in cases of cervical cellulitis. No bacteria were identified on 27 (17%) of the 163 aspiration samples performed (blank aspirates or bacteriological examination not performed), including 26 samples from patients with PTA (20%) (Table 1). One or several micro-organisms were identified in 97 (76%) of the 127 cases of PTA. Bacteriological examination was contributive for 22 (96%) of the 23 samples of retropharyngeal abscess and 12 (92%) of the 13 samples of cervical cellulitis gave positive bacteriology results. Multiple bacterial strains were identified, with at least two bacteria identified in 67 (70%) PTA samples, 15 (66%) retropharyngeal abscess samples and 10 (77%) cervical cellulitis samples. Aerobic bacteria were isolated in 83% of PTA samples, with group A, B, F, G or nongroupable *Streptococcus* ($n = 90$), *Enterococcus* ($n = 7$) and *Staphylococcus aureus* ($n = 4$). Anaerobic bacteria were isolated in 17% of PTA samples [*Fusobacterium sp.* ($n = 8$), *Peptostreptococcus sp.* ($n = 4$) and *Prevotella sp.* ($n = 8$)], 22% of retropharyngeal abscess samples and 46% of cervical cellulitis samples.

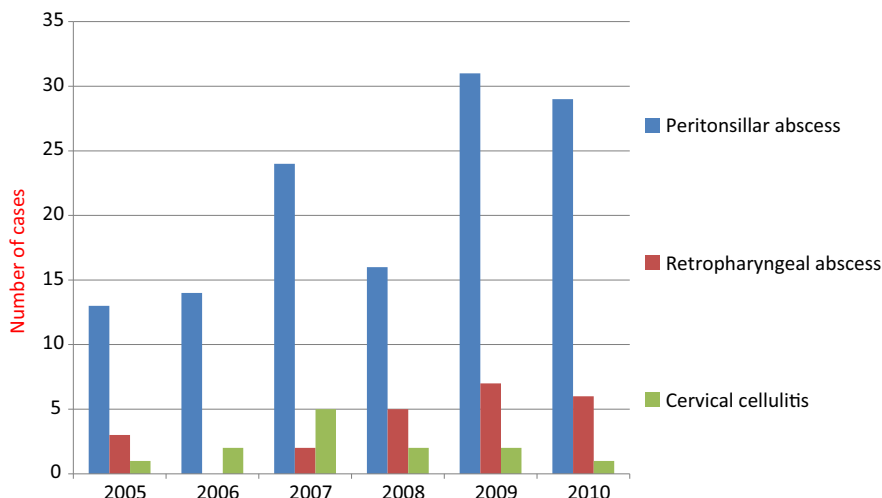


Fig. 1. Number of cases of PTA, retropharyngeal abscess and cervical cellulitis hospitalised per year from 2005 to 2010.

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