

# National UK survey of antibiotics prescribed for acute tonsillitis and peritonsillar abscess

V VISVANATHAN, P NIX

## Abstract

**Aim:** To survey antibiotics prescribed for patients admitted with acute tonsillitis and peritonsillar abscess to UK ENT departments.

**Materials and methods:** An anonymous postal questionnaire was sent to UK ENT consultants.

**Results:** Intravenous benzylpenicillin alone was preferred significantly more often for acute tonsillitis ( $n = 175$ ) than for peritonsillar abscess (83) ( $p < 0.001$ ). A combination of benzylpenicillin and metronidazole was preferred significantly more often for peritonsillar abscess ( $n = 131$ ) than for tonsillitis (62) ( $p < 0.001$ ).

**Conclusions:** In this survey, penicillin was the commonest antibiotic choice for tonsillitis; this is in accordance with published guidelines. For cases of peritonsillar abscess, benzylpenicillin with metronidazole was the most common antibiotic combination chosen. However, the high resolution rate of peritonsillar abscess following drainage and treatment with penicillin alone suggests that multiple antibiotics are unnecessary and inappropriate in this setting.

**Key words:** Tonsillitis; Peritonsillar Abscess; Antibiotics

## Introduction

Acute tonsillitis and peritonsillar abscess are common emergencies managed by ENT departments. However, the management of these conditions varies amongst otolaryngologists. Primary care physicians usually manage cases of acute tonsillitis, although patients with worsening symptoms usually require hospital admission for antibiotics, analgesia and parenteral fluids. Peritonsillar abscess is the most common suppurative complication of acute tonsillitis.<sup>1</sup>

A previous UK national survey reported that an ENT department manages an average of 29 cases of peritonsillar abscess a year, and that the vast majority of ENT consultants would admit patients for treatment, which would include needle aspiration or incision and drainage of the abscess.<sup>2</sup> Further reports on the management of peritonsillar abscess revealed that 83 per cent of UK ENT surgeons would adopt a 'watch and wait' policy for a single episode of peritonsillar abscess, 15 per cent would perform a routine interval tonsillectomy, and 6.8 per cent would perform an abscess tonsillectomy in selected cases.<sup>3</sup>

Although studies have reported the microbiology of tonsillitis and peritonsillar abscess, the choice of antibiotics varies widely and to an extent remains unclear.

## Aims

This study aimed to survey the antibiotics prescribed for patients admitted with acute tonsillitis and peritonsillar abscess to UK ENT departments.

## Methods

An anonymous postal questionnaire (Appendix 1) was sent to UK ENT consultants registered with the British Association of Otolaryngologists and Head and Neck Surgeons. The questionnaire was primarily a closed response item questionnaire, although some areas allowed free text responses.

The questionnaire covered initial choice of antibiotics, preferred alternative in case of penicillin allergy, and duration of prescription for acute tonsillitis and peritonsillar abscess. In order to increase the response rate, all questionnaires were accompanied by a self-addressed, stamped envelope.

We analysed respondents' statements regarding antibiotic choice and duration of prescription, in order to detect prescribing differences for tonsillitis versus peritonsillar abscess.

## Results

A total of 513 questionnaires were posted to consultants who permitted their contact details to be utilised for study purposes, and 302 (59 per cent) replies were

From the Department of ENT/Head and Neck Surgery, Leeds Teaching Hospitals NHS Trust, Leeds General Infirmary, Leeds, West Yorkshire, LS1 3EX. UK.

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received. Of these 302 replies, three consultants were retired, one stated that cases of tonsillitis and peritonsillar abscess were no longer managed by him but by junior staff, and one was in private practice. Therefore, there were a total of five exclusions, leaving 297 valid questionnaires, which were reviewed and analysed.

*Antibiotics for in-patient tonsillitis management*

For in-patient management of tonsillitis in patients without penicillin allergy, 175 (59 per cent) respondents chose intravenous benzylpenicillin alone, 62 (21 per cent) benzylpenicillin with metronidazole, 30 (10 per cent) cefuroxime with metronidazole and 24 (8 per cent) Augmentin (amoxicillin and clavulanic acid). The remaining six (2 per cent) respondents chose Augmentin with metronidazole (two), cefuroxime alone (two), amoxicillin (one) and clindamycin (one).

In cases with penicillin allergy, 148 (50 per cent) respondents chose erythromycin, 113 (38 per cent) clarithromycin and 30 (10 per cent) cefuroxime. Three consultants stated the need to seek appropriate microbiology advice, and 2 consultants favoured clindamycin and one favoured azithromycin.

*Antibiotics for in-patient peritonsillar abscess management*

Respondents' choice of antibiotics for in-patient treatment of peritonsillar abscess varied from their treatment preferences for tonsillitis. Eighty-three (28 per cent) respondents chose benzylpenicillin alone, 131 (44 per cent) benzylpenicillin with metronidazole, 47 (16 per cent) cefuroxime with metronidazole and 27 (9 per cent) Augmentin. Of the remaining nine (3 per cent) respondents, six chose Augmentin with metronidazole, and the remaining three preferred amoxicillin, clindamycin or cefuroxime alone. Three respondents stated that if there was no clinical improvement after 24 hours of treatment with benzylpenicillin alone, they would add metronidazole.

In cases with penicillin allergy, 131 (44 per cent) respondents preferred clarithromycin, 125 (42 per cent) erythromycin, 18 (6 per cent) cefuroxime and 18 (6 per cent) cefuroxime with metronidazole. Three respondents stated the need to seek microbiology advice, one preferred azithromycin and one clindamycin.

The duration of antibiotics prescribed for tonsillitis and peritonsillar abscess (Table I) was divided

TABLE I  
RESPONDENTS' DURATION OF ANTIBIOTIC PRESCRIPTION FOR  
TONSILLITIS AND PERITONSILLAR ABSCESS

Condition	Duration (n (%))	
	1 week*	2 weeks†
Tonsillitis	247 (83)	50 (17)
PTA	178 (60)	119 (40)

\*5–7 days; †10–14 days. PTA = peritonsillar abscess

TABLE II  
RESPONDENTS' CHOICE OF ANTIBIOTICS FOR TONSILLITIS AND  
PERITONSILLAR ABSCESS

Antibiotic	Tonsillitis (n)*	PTA (n)*	p†
Benzylpenicillin	175	83	<0.001
Benzylpenicillin + metronidazole	62	131	<0.001
Cefuroxime + metronidazole	30	47	0.052
Augmentin‡	24	27	0.067
Other	6	9	0.438

\*n = 297. †95% significance level, chi-square test.  
‡Co-amoxiclav. PTA = peritonsillar abscess

into two categories for the purpose of analysis: up to one week (i.e. 5–7 days), and up to two weeks (10–14 days).

*Statistics*

Based on questionnaire responses, a one-week course of antibiotics was prescribed by 83 and 60 per cent of respondents for tonsillitis and peritonsillar abscess, respectively; this difference was statistically significant (p = 0.002, chi-square test). A two-week course of antibiotics was prescribed by 17 and 40 per cent of respondents for tonsillitis and peritonsillar abscess, also a significant difference (p < 0.0001, chi-square test).

Analysis of respondents' antibiotics choices (Table II) revealed that intravenous benzylpenicillin alone was chosen significantly more often for acute tonsillitis (n = 175 respondents) than for peritonsillar abscess (83) (p < 0.001). A combination of benzylpenicillin and metronidazole was preferred significantly more often for peritonsillar abscess (n = 131) than for tonsillitis (62) (p < 0.001). There were no statistically significant differences for other groups of antibiotics, as regards choice for tonsillitis versus peritonsillar abscess.

**Discussion**

There is a lack of evidence to support the routine use of antibiotics in patients with a sore throat. However, in severe cases of sore throat, antibiotics should not be withheld and, considering its easy availability, cheapness and side effect profile, penicillin is regarded as the antibiotic of choice.<sup>4</sup>

With reference to eradication of group A β haemolytic streptococcus, cephalosporins have been shown to be significantly more effective than penicillin.<sup>5</sup> The clinical significance of such eradication lies in minimising the complications of sore throat, such as rheumatic fever and acute glomerulonephritis. Serious complications of sore throat such as Rheumatic fever and Glomerulonephritis are rare in the UK. Hence there is no indication (and therefore challenging) for the routine use of cephalosporins. A Cochrane review of the use of antibiotics for patients with a sore throat concluded that antibiotics provided a modest benefit in reducing the risk of suppurative complications of sore throat, such as acute otitis media, sinusitis and peritonsillar abscess.<sup>1</sup>

Peritonsillar abscess results from infection of the peritonsillar space. Treatment options for peritonsillar abscess include needle aspiration, incision and drainage, and abscess tonsillectomy, followed by antibiotics. Despite its prevalence, there are no definite guidelines for the management of this condition, including the choice of antibiotics. Penicillin resistance has been found in less than 10 per cent of peritonsillar abscess micro-organisms in some studies, and in more than 50 per cent in others.<sup>6,7</sup> Broad-spectrum antibiotics are used to treat peritonsillar abscess due to the range of microbes involved; apart from group A  $\beta$  haemolytic streptococcus, common microbes isolated include *Staphylococcus aureus*, *Bacterioides fragilis* and *B melaninogenicus*. However, reports suggest that, even in cases of penicillin resistance, clinical improvement is still evident after abscess drainage and treatment with penicillin alone.<sup>8</sup>

Herzon, in a series of 130 patients with peritonsillar abscess, reported a cure rate of 95 per cent (123 patients) as a result of needle aspiration followed by penicillin alone.<sup>9</sup> Snow *et al.*, in their series of 91 cases of peritonsillar abscess, obtained a positive culture in 60 per cent; 53 per cent grew group A  $\beta$  haemolytic streptococcus, and clinical improvement was observed following needle aspiration of the abscess and parenteral penicillin alone.<sup>8</sup> Routine culture of peritonsillar abscess aspirate is unnecessary; however, it may be prudent to send pus for microbiological evaluation in cases of recurrence, resistance or immunosuppression.

Kieff *et al.* conducted a retrospective study of 103 patients with peritonsillar abscess, and observed no significant difference in outcomes (i.e. maximum temperature, white cell count, trismus and hours of hospitalisation) for patients treated with penicillin alone versus broad-spectrum antibiotics.<sup>10</sup> They concluded that penicillin alone was as effective as broad-spectrum antibiotics in this clinical setting.

- **The routine use of antibiotics for cases of acute tonsillitis is debatable**
- **There is a wide variation in UK consultants' antibiotic preferences for in-patient management of tonsillitis and peritonsillar abscess**
- **In this survey, penicillin was the most commonly chosen antibiotic for in-patient treatment of tonsillitis, and a combination of penicillin and metronidazole was the most common regime for in-patient treatment of peritonsillar abscess**

Our study is the first to assess UK ENT consultants' choice of antibiotics to treat tonsillitis and peritonsillar abscess, and reveals significant variation. With infection control and hospital-acquired infections taking utmost priority in clinical practice across the UK, it is important to note that prescribing multiple and inappropriate antibiotics can increase the risk of

antibiotic resistance. Our respondents' variation in antibiotic choice, as summarised in Table I, may be due to the lack of evidence on the effect of antibiotic therapy as an independent variable in the treatment of tonsillitis and peritonsillar abscess.

Amoxicillin is contraindicated in tonsillitis, due to the risk of a maculopapular rash developing in cases with glandular fever. However, it is interesting to note that, in our study, 24 consultants (8 per cent) indicated they prescribed Augmentin (amoxicillin with clavulanic acid), and two prescribed Augmentin with metronidazole.

Although metronidazole is cheap (£1.53/100 ml) and effective against anaerobes, it is not without side effects, including nausea, vomiting, metallic taste, gastrointestinal disturbances, erythema multiforme, blood dyscrasias and hepatitis. In addition, intravenous metronidazole is prescribed as an infusion, thus increasing costs due to nursing administration time and preparation of intravenous infusion sets. Limited evidence on the effectiveness of broad-spectrum antibiotics in tonsillitis and peritonsillar abscess casts doubt on their routine use in clinical practice.

## Conclusions

In the UK, there appears to be variation amongst ENT consultants regarding the antibiotics prescribed for severe cases of tonsillitis and peritonsillar abscess. Penicillin is the antibiotic most commonly chosen to treat tonsillitis, and this is in accordance with published guidelines. In cases of peritonsillar abscess, benzylpenicillin with metronidazole is the most commonly chosen combination of antibiotics, followed by penicillin alone, cefuroxime with metronidazole, and Augmentin.

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**Appendix 1. National survey of antibiotic use for acute tonsillitis and peritonsillar abscess**

(1) What is your initial antibiotic(s) of choice for the in-patient management of acute tonsillitis? (Please tick)

- (a) Intravenous benzylpenicillin
- (b) Intravenous benzylpenicillin + metronidazole
- (c) Intravenous cefuroxime
- (d) Intravenous cefuroxime + metronidazole
- (e) Others (please specify) ...

(2) If penicillin allergy, what is your preferred alternative?

- (a) Intravenous erythromycin
- (b) Intravenous clarithromycin
- (c) Others (please specify) ...

(3) What is your antibiotic regime for the in-patient treatment of peritonsillar abscess?

- (a) Intravenous benzylpenicillin
- (b) Intravenous benzylpenicillin + metronidazole
- (c) Intravenous cefuroxime
- (d) Intravenous cefuroxime + metronidazole
- (e) Others (please specify) ...

(4) If penicillin allergy, what is your preferred alternative?

- (a) Intravenous erythromycin
- (b) Intravenous clarithromycin
- (c) Others (please specify) ...

(5) What is the total duration of antibiotics you would prescribe for tonsillitis and peritonsillar abscess?

- (a) Tonsillitis: ... days or ... weeks
- (b) peritonsillar abscess: ... days or ... weeks

Comments: ...

Address for correspondence:  
Mr V Visvanathan,  
ENT Registrar,  
Leeds General Infirmary,  
Leeds LS1 3EX, UK

E-mail: vikranth@hotmail.co.uk

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