

Throat-related quality of life in peritonsillar abscess sufferers: application of the adult tonsil outcome inventory

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Abstract

Objective: To investigate throat-related quality of life in peritonsillar abscess sufferers.

Method: The adult tonsil outcome inventory questionnaire, which is a validated throat-related quality of life tool, was administered to individuals who had recently suffered a peritonsillar abscess and to control subjects.

Results: The mean inventory score was significantly higher (reflecting poorer throat-related quality of life) in peritonsillar abscess sufferers ($n = 55$, mean score 25.8 out of 100) than in age- and gender-matched controls ($n = 55$, mean score 8.7) ($p < 0.001$). Neither gender nor interval between episode of peritonsillar abscess and inventory completion date were significantly correlated with the overall questionnaire scores. However, younger abscess sufferers reported greater symptom severity and throat-related quality of life impact than older abscess sufferers.

Conclusion: Peritonsillar abscess had a significant impact on throat-related quality of life. In many, peritonsillar abscess represented an acute episode on a background of chronic throat problems. For optimal management, notably the place and timing of tonsillectomy, this impact should be taken into account. The adult tonsil outcome inventory is an ideal tool for use in clinical practice.

Key words: Peritonsillar Abscess; Tonsillectomy; Quality of Life

Introduction

Peritonsillar abscess is a common condition for which incidence rates are increasing, in the UK and around the world.^{1,2} A recent review demonstrated the potential for evidence-based modifications in the clinical management of this condition. Key areas of deficient knowledge identified were patients' experience of symptoms and their impact on throat-related quality of life (QoL).¹

Peritonsillar abscess sufferers are a diverse group of patients. Most patients exhibit a similar set of clinical signs and symptoms. However, there are likely to be individual differences in terms of severity, frequency and the impact of symptoms on QoL.^{3,4} Tonsillectomy can be performed as a definitive treatment, to prevent further episodes of peritonsillar abscess. However, deciding when it is appropriate to perform this procedure (weighing the risks and benefits of surgery) can often be difficult.⁵ These decisions are often currently made at the presentation of acute symptoms, based on crude

estimates of episodes of sore throat, tonsillitis or peritonsillar abscess.

Some previous studies have shown the negative impact of chronic tonsillitis on throat-related QoL in adults.^{6–8} However, no studies to date have looked specifically at peritonsillar abscess sufferers, who appear to have a somewhat different disease course and variable symptoms to tonsillitis sufferers.^{3,4} Little is known about the severity and impact of peritonsillar abscess on throat-related QoL, or whether peritonsillar abscess is an acute event or an acute event on a background of chronic throat symptoms.

With increasing pressure to justify clinical decision making and resource allocation, tools which allow reliable identification of those who would benefit most from interventions are vital. This study therefore aimed to assess the throat-related QoL of adults with peritonsillar abscess and the utility of the 14-item adult tonsil outcome inventory ('ATOI-14')⁹ in peritonsillar abscess patients.

Materials and methods

Subjects

A two-centre prospective questionnaire study was conducted on adult patients who had suffered a confirmed peritonsillar abscess, diagnosed by pus on aspiration or drainage, over a six-month period between June and November 2011. Patients were identified from the records at Sunderland Royal Hospital and Freeman Hospital (Newcastle upon Tyne), UK. The adult tonsil outcome inventory was administered to these patients ($n = 55$) directly while in hospital or by telephone interview shortly after.

A control group comprising individuals from the general population also completed the questionnaire. Any individuals with a history of peritonsillar abscess or tonsillectomy were excluded from this group. An equal number ($n = 55$) of age- and gender-matched control group volunteers were randomly selected for comparison with the peritonsillar abscess sufferers.

Questionnaire

The validated adult tonsil outcome inventory, originally developed by Baumann *et al.*, is used to assess throat-related QoL in adults.⁹ Initially published in German, the inventory used in this study was a modified version adapted for an English-speaking population.

This 14-item inventory comprises Likert scales (0 = least severe to 5 = most severe), which assess the impact of various aspects of throat symptoms on patients' lives. It asks specifically for reflection on symptoms that occurred over the previous six-month period.

We modified the inventory to include various demographic questions. In addition, to ask the number of peritonsillar abscess episodes experienced over the preceding six-month period. To score the inventory, the responses to the 14 questionnaire items are divided by 70 and multiplied by 100 to give an adjusted

score out of 100 (as detailed in the original paper).⁹ Higher scores reflect poorer throat-related quality of life.

Statistical analysis

Analysis was performed using the Statistical Package for the Social Sciences software version 19.0.0.1 (SPSS, Chicago, Illinois, USA). Multiple linear regression analysis was performed to examine the relationships between overall inventory scores and various parameters including age, sex, length of time from abscess episode to questioning, and number of peritonsillar abscess episodes suffered during the preceding six months. Statistical significance was defined as $p < 0.05$.

Results

The mean adjusted overall inventory score was significantly higher in the peritonsillar abscess group (25.8 out of 100, standard deviation (SD) ± 25.9) than in the age- and gender-matched control group (8.7 out of 100, SD ± 10.4), $p < 0.001$ (Table I).

Results for the peritonsillar abscess group revealed that the sex of the patient and the length of time from abscess episode to questioning (range 0–6 months) were not correlated with the overall scores. Unsurprisingly, there was a positive correlation between the number of episodes of peritonsillar abscess experienced during the preceding six-month period and the inventory score. However, age at questionnaire completion had the strongest correlation with overall inventory score (greater than that between inventory score and number of discrete peritonsillar abscess episodes) ($p < 0.005$), with younger people reporting far higher scores overall. Using unstandardised coefficients, we determined that an 18-year-old was likely to have an inventory score of 37.1 out of 100, whereas a 50-year-old would probably have almost half that score, at around 20.1 out of 100

TABLE I
ADULT TONSIL OUTCOME INVENTORY RESULTS

Inventory item	Peritonsillar abscess group*	Control group*	<i>p</i>
Dry throat	1.5 \pm 1.6	0.9 \pm 1.2	0.045 [†]
Catarrh	1.7 \pm 1.8	0.5 \pm 0.9	<0.001 [†]
Sore throat	2.5 \pm 2.0	1.3 \pm 1.4	0.001 [†]
Swallowing difficulties	1.5 \pm 1.9	0.6 \pm 0.9	0.024 [†]
Feeling ill	1.6 \pm 1.7	0.9 \pm 1.2	0.077
Reduced ability to work or do daily chores	1.1 \pm 1.7	0.4 \pm 1.1	0.035 [†]
Frequency of visits to doctor	1.2 \pm 1.7	0.0 \pm 0.0	<0.001 [†]
Cost of doctor visits (e.g. missed work, travel, parking)	0.8 \pm 1.4	0.0 \pm 0.2	<0.001 [†]
Frequency of antibiotic use	1.2 \pm 1.8	0.1 \pm 0.3	<0.001 [†]
Cost of medications (prescription or bought at chemist)	0.9 \pm 1.7	0.4 \pm 0.7	0.259
Trouble at work as result of missed working days associated with throat problems	1.0 \pm 1.7	0.2 \pm 0.5	0.002 [†]
Reduced participation in events or activities as result of throat problems	1.1 \pm 1.6	0.3 \pm 0.8	0.006 [†]
Fewer gatherings with family or friends as result of throat problems	1.0 \pm 1.6	0.3 \pm 0.8	0.002 [†]
Feeling depressed as result of throat problems	1.0 \pm 1.7	0.3 \pm 0.7	0.081
Overall score (total)	18.1 \pm 18.1	6.1 \pm 7.9	<0.001 [†]
Adjusted score ((total/70) \times 100)	25.8 \pm 25.9	8.7 \pm 10.4	

* $n=55$; data represent mean scores \pm standard deviation. [†]Statistically significant difference.

TABLE II
MULTIPLE REGRESSION RESULTS

Group	Variable	Mean value \pm SD	Correlation with ATOI scores		
			B	R ²	<i>p</i>
Peritonsillar abscess (<i>n</i> = 55)	Age* (years)	39.2 \pm 18.8	-0.37	0.15	0.004 [†]
	Sex (34 males, 21 females)	–	0.81	0	0.87
	Time from episode to questioning (weeks)	16.3 \pm 10.6	-0.30	0.03	0.21
	Peritonsillar abscess episodes (<i>n</i>)	1.4 \pm 1.0	5.5	0.10	0.02 [†]
Control (<i>n</i> = 55)	Age* (years)	39.4 \pm 14.7	-0.15	0.09	0.03 [†]
	Sex (34 males, 21 females)	–	0.01	0	0.97

*Age at questionnaire completion. [†]Statistically significant correlation. SD = standard deviation; ATOI = adult tonsil outcome inventory

(based on the regression analysis results of this cohort) (Table II).

Item-by-item analysis of the inventory revealed that peritonsillar abscess sufferers had significantly higher mean scores (based on symptoms experienced over the previous 6 months) for 11 of the 14 items (Table I).

Discussion

The findings of this study demonstrated that pre-existent throat symptoms were far more prevalent and severe in patients treated (at secondary care facilities) for peritonsillar abscess than for control subjects. Furthermore, these symptoms had a significant impact on patients' QoL. For many affected patients, peritonsillar abscess may therefore represent an acute episode on a background of chronic throat symptoms.

We identified considerable variation in the range of overall adult tonsil outcome inventory scores among sufferers, as demonstrated by the large SD. This highlights great heterogeneity in terms of the symptoms and the impact of disease on QoL, and emphasises the need to identify those who would gain the most benefit from tonsillectomy. Younger patients experienced significantly worse symptoms overall and reported greater throat-related QoL impact. These findings may justify a lower threshold for tonsillectomy intervention in such patients. Our findings indicate that age is the best indicator of possible benefit from tonsillectomy, better even than the number of peritonsillar abscess episodes experienced. The latter crude assessment is the method often employed today as the indication for surgery in such cases.

The adult tonsil outcome inventory is easy to use. Furthermore, the findings indicate that the length of time from peritonsillar abscess to inventory completion (which was within a six-month period) was not a significant factor. Together, these factors further indicate that the inventory is a useful tool to aid clinicians' decisions regarding tonsillectomy for peritonsillar abscess.

The overall inventory scores found in the current study were lower than those previously reported in a population of recurrent acute tonsillitis sufferers from the same region of the UK (with the latter having a mean adjusted score of 52.3 out of 100).¹⁰ However,

in this previous study, the inventory was administered on much younger (mean age of 25.4 years) pre-operative tonsillectomy patients, which may partly account for the difference in scores.

This questionnaire study has inherent limitations. For instance, the questionnaire only focuses on symptoms experienced in the preceding six months, whereas most clinicians would consider symptoms over numerous previous years when managing chronic symptoms. However, there are inherent accuracy problems associated with patients' ability to recall symptoms over longer time periods, which is also a concern for the crude episode calculations currently used. Serial measurements could be made using the inventory in order to monitor symptom severity and QoL impact changes over time.

- **Peritonsillar abscess has a significant impact on throat-related quality of life (QoL)**
- **Peritonsillar abscess often represents an acute episode on a background of chronic throat problems**
- **Younger sufferers report greater symptom severity and throat-related QoL impact than older sufferers**
- **The adult tonsil outcome inventory is useful for identifying those likely to benefit from tonsillectomy**

A further issue concerns the timing of surgical interventions: although the inventory can identify those who may benefit from tonsillectomy based on symptoms and QoL impact, there are other considerations for optimal tonsillectomy timing, such as disturbances to work and education.

Further studies could utilise the inventory to assess the impact of surgical interventions on symptoms and QoL. In addition, comparison with other tonsillitis cohorts would be useful.

Conclusion

This study demonstrated that peritonsillar abscess has a significant impact on throat-related QoL. Peritonsillar abscess may represent an acute episode on a

background of chronic throat problems. The adult tonsil outcome inventory is an ideal tool for use in clinical practice to identify those who may benefit most from tonsillectomy.

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Mr J Powell takes responsibility for the integrity of the content of the paper

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