Title: The Quality of Information on Three Common ENT Procedures on the Internet

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Abstract

Background: The Internet hosts a large number of high quality medical resources and poses seemingly endless opportunities to inform, teach, and connect professionals and patients alike. However, it is difficult for the lay person to distinguish accurate from inaccurate information.

Aim: This study was undertaken in an attempt to assess the quality of information on Otolaryngology available on the Internet.

Methods: Sixty appropriate websites, using search engines Yahoo and Google, were evaluated for completeness and accuracy using three commonly performed ENT operations: tonsillectomy (T), myringoplasty (M) and septoplasty (S).

Results: A total of 60 websites were evaluated ($N_T = 20$, $N_M = 20$, $N_S = 20$). A total of 86.7% targeted lay population and 13.3% targeted the medical professionals. Thirty-five percent of the sites included all critical information that patients should know prior to undergoing surgery and over 94% of these were found to contain no inaccuracies. Negative bias towards medical profession was detected in 3% of websites.

Conclusions: In the current climate, with informed consent being of profound importance, the Internet represents a useful tool for both patients and surgeons.

INTRODUCTION

The internet was initially implemented by the United States Department of Defence in 1969 to maintain network function in the event of destruction at any point.¹ Since then, the Internet has experienced exponential growth both in its size and in the number of people who access it. Until recently, it was extremely difficult for the lay person to search the health care information on the Internet, but applications such as the World Wide Web are making it more accessible.¹

The Internet hosts a large number of high quality medical resources and poses seemingly endless opportunities to inform, teach, and connect professionals and patients alike.² However, it is difficult for the lay person to distinguish accurate from inaccurate information. This lack of quality control makes it potentially dangerous for patients to seek medical information on the Internet.³

The aim of this study was to assess the quality of information on Otolaryngology available on the Internet to patients in terms of completeness and accuracy of the information presented.

METHOD

Internet search

The search was performed in January 2007 on three commonly performed ENT operations: tonsillectomy, septoplasty, and myringoplasty. The World Wide Web was searched with the browser Netscape Navigator and located relevant web sites by using the advanced search options of the search engines Yahoo and Google. The set keywords we entered were ‘tonsillectomy’, ‘septoplasty’, and ‘myringoplasty’. The first sixty websites were analysed, twenty on tonsillectomy, twenty on septoplasty and twenty on myringoplasty.

Website characteristics

Each website was described and classified according to a number of characteristics. These were chosen because they were felt to be important in the evaluation of medical sites. These included the site owner (academic institution, health website, medical doctor, lay person, commercial enterprise); the target audience (lay population or medical professional); and the type of site (teaching file, abstract or article, support group, question and answer, personal account).

Website content

The content was divided into 3 categories: indications, complications, and morbidity (Table 1). The content of each site was evaluated according to the completeness and accuracy on each of the three categories. To assess the completeness and accuracy of the website, we compared their information with recognised indications, complications and morbidity.⁴

Table 1
Guidelines on indications, complications, morbidity

Tonsillectomy	Indications	Recurrent tonsillitis
		Quinsy
		Obstructive sleep apnoea
		Malignancy
	Complications	Bleeding
		Infection
	Morbidity	Pain
Septoplasty	Indications	Nasal obstruction
		Access for other surgeries
	Complications	Bleeding
		Nasal deformity
		Septal perforation
		Failure
		Haematoma
		Abscess
	Morbidity	Splint related
		Congestion
Myringoplasty	Indications	Discharge
		Hearing loss
	Complications	Failure
		Hearing loss
		Altered taste
		Vertigo
	Morbidity	Temporary hearing loss

The completeness and accuracy was graded as 0, 1, or 2. Completeness was graded as '2' if all the predetermined criteria were present as laid out in Table I, a score of '1' if some predetermined criteria were present and a score of '0' if no predetermined criteria were present. Accuracy was graded as '2' if no inaccuracies were detected, '1' if one or more inaccuracies were detected and '0' if the data was wildly inaccurate. A total was then arrived for both completeness and accuracy and expressed as a percentage.

For example, in the tonsillectomy websites; one website

(<http://www.betterhealth.vic.gov.au/BHCV2/bhcarticles.nsf/pages/Tonsillectomy?open>)

was graded as follows; completeness for indication was graded as 1 (some but not all indications given). Completeness for complications was scored as 2 (all complications given). Completeness or morbidity was scored as 2 (all relevant morbidity given). The total score was 5/6 for completeness of the website and allocated a percentage score of 83%. Accuracy was scored as 2 out of a maximum of 2 (no inaccuracies identified). The percentage score for this was thus 100% accuracy. All websites scores were thus totaled and an average percentage for completeness and accuracy given.

Bias was documented in all cases as being (subjectively) positive, negative or neutral towards medical professionals. A final subjective question was asked in all cases – 'If I was going for surgery, would this website make me less likely to do so?' Each website was assessed independently by the two authors (J Kulasegarah and M Harney). Differences in evaluation were resolved by discussion.

RESULTS

Our search retrieved 60 websites and the characteristics of these sites are summarized in Table 2. The websites were generally professional sites, belonging primarily to academic institutions (31.7%) and professional health websites (26.7%). Of the eleven other websites (18.3%), four belonged to Medline and seven to various different health encyclopaedias. The 86.7% of websites targeted the lay population, and were given easy to read formats of ‘Question and Answer’ (26.7%), or a basic teaching file (68.3%).

We found the websites to give 65% of critical information a patient should know prior to undergoing surgery using the predetermined criteria outlined in Table 1 (i.e. they scored on average 65% for completeness of the website as described above) (Figure 1). Thirty-five percent of websites included all the predetermined criteria. These were all websites from academic institutions or professional health websites. Over 94% were found to have no inaccuracies identified (i.e. they scored on average 94% for accuracy of the website as described above) (Figure 1). This may be useful for the process of consent. A list of such recommended websites could be given to patients prior to surgery.

Table 2
Website characteristics

Web Characteristics		N	Percentage (%)
Site Owner	Academic institution	19	31.7
	Health website	16	26.7
	Medical doctor	11	18.3
	Commercial enterprise	1	1.7
	Lay person	2	3.3
	Others	11	18.3
Target audience	Medical professionals	8	13.3
	Lay populations	52	86.7

Type of site	Teaching file	41	68.3
	Question & answer	16	26.7
	Personal account	2	3.3
	Other	1	1.7
Bias towards medical professional	Neutral	58	96.7
	Negative	2	3.3

Figure 1. Completeness and accuracy of 50 websites on the World Wide Web on the three common operations in otolaryngology

Of significance, negative bias towards medical profession was detected in only two website (3%). Concerns that referring a patient, who has already been listed for surgery,

to the internet for further information, might somehow turn him against the idea of an operation, has not been borne out in this study. Fifty-eight of the sixty websites were felt to be written in a manner that would obviously not deter a patient from surgery, if they had already planned to do so (Figure 2).

Figure 2. “If I was going for surgery, would this website make me less likely to do so?”

DISCUSSION

The Internet is of great potential benefit to the health professionals and patients alike. For health professionals, it can be a valuable clinical tool, another medium by which information can be exchanged with colleagues and patients, and a constantly growing source of new information.⁵ For patients and their relatives or close friends, particularly in cases of newly diagnosed life-threatening diseases, electronic mailing lists, online support groups, and websites devoted to their particular disease or operation can provide valuable information and emotional support.⁶ The access to information provided by the Internet is likely to improve consumers' sense of control as well as their ability to participate actively in health care decisions, with potentially better psychological outcome.

In the current climate with informed consent being of profound importance, the Internet represents a useful tool for both patients and surgeons. Websites provide take-home information such as risks and benefits of a procedure, postoperative instructions, or explanations of different diagnostic modalities.⁷

The informed patient must not be seen as a threat to the doctor but as an opportunity for a more interactive and participative consultation.⁸ Increasingly, doctors will act as guide for patients on the medical information that is freely available on the World Wide Web and direct them to accurate and appropriate information about their health.

Given the rapid, uncontrolled growth of health information on the Internet and its potential influence in the health care decision, it could be argued that it is desirable to have user friendly, valid, and useful tools to evaluate any relevant information available on the Internet. Organisations like Health on the Net Foundation (www.hon.ch/Conduct.html) currently uses a Code of Conduct for medical websites to unify the quality of medical information on the Internet.⁹ Another organisation is Discern (www.discern.org.uk), which proposes benchmarks designed to make sure patients always know the source and purpose of the information they are reading.⁹ These codes of good practice rely on a form of self-regulation and require information providers to submit their websites for assessment. However, given the evolving state of the Internet, it may be difficult or even inappropriate to develop a static tool or system for assessing health websites.⁹

This study is open to bias in that the information that was determined to be important was picked out by ENT surgeons. It would be interesting to see if these results were reproduced if the relevance of the websites was analysed by patients undergoing surgery.

REFERENCES

1. Rothschild M. Otolaryngology and the Internet. *Otolaryngol Clin North Am* 1998;31:255-276.
2. Silberg WM, Lundberg GD, Musacchio RA. Assessing, controlling, and assuring the quality of medical information on the Internet. *JAMA* 1997;277:1244-1245.
3. Chen LE, Minkes RK, Langer JC. Pediatric surgery on the Internet: Is the truth out there? *J Pediatr Surg* 2000;35:1179-1182.
4. Eugene N. Myers (1997) *Operative Otolaryngology: Head and Neck Surgery*, 1st edn. Saunders (W.B.) Co Ltd., Oxford.
5. Peter R, Sikorski R. Digital dialogue: sharing information and interests on the Internet. *JAMA* 1997;277:1258-1260
6. Jadad AR, Gagliardi A. Rating health information on the Internet. Navigating to knowledge or to babel? *JAMA* 1998;279:611-614.
7. Murphy KR. Computer-based patient education. *Otolaryngol Clin North Am* 1998;31:310-317.

8. Wilson S. The Internet and the ENT clinicians in Scotland. ENT News 2001;10:68-69.
9. Kim P, Eng TR, Deering MJ, Maxfield A. Published criteria for evaluating health related websites: review. BMJ 1999;318:647-649.