



and Other Interventional Techniques

The quality of information about laparoscopic bariatric surgery on the Internet

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Abstract

Background: Although easy access to the Internet can provide much information for patients, the quality and accuracy of information are uncertain. This investigation evaluated information concerning laparoscopic bariatric surgery available via the Internet.

Methods: Searches on the six most popular search engines and two metasearch engines were performed. The first 20 “hits” for each separate search were included in the study.

Results: A total of 602 “hits” were found. Only 119 unique Web sites were found. Although 63 of the 119 sites discussed some procedure related to laparoscopic obesity surgery, 18 of the 63 had biased or misleading information, 30 did not discuss the details of the procedure, 37 did not discuss other procedures, 30 did not discuss complications, 37 did not discuss death as a risk, and 7 did not discuss laparoscopic procedure as an option. Only 89 of the original 602 “hits” led to Web sites that discussed laparoscopic obesity surgery, details of the procedure, and complications in an unbiased manner.

Conclusions: A large amount of information is available via the Internet. However, it is difficult for the patient to identify the unbiased information. The Internet is not a dependable source of information for patients.

Key words: Internet — Bariatric surgery — Laparoscopy — Patient education

Since its conception in 1969, the Internet has come to be regarded as one of the most powerful sources of information available to the public. More than 50% of U.S. households alone have a personal computer, and 37

million people currently have access to more than 30 million available sites on the World Wide Web [1, 2, 4, 8]. The ever-increasing popularity of the Internet has become evident, with the number of people who have Internet access currently rising by up to 20% monthly. With such an enormous wealth of “information” literally at the public’s fingertips, it is estimated that more than 85% of Internet users search the Web for information on health and medical topics. Because of such high demand among patients for Web-based health information, the Internet has responded with recent exponential growth in the number of available “medical” sites. The educational value, scientific quality, and content of this information, however, have yet to be truly assessed.

As more patients opt to educate themselves over the Internet, surgeons need to be aware of the quality of the data available to his or her average patient. It is important to evaluate the information obtainable via the Internet because having a misinformed patient can be more difficult than having an uninformed patient. This investigation studied the available Internet information regarding laparoscopic obesity surgery.

Methods

The four terms, “laparoscopic obesity surgery,” “laparoscopic gastric bypass,” “laparoscopic bariatric surgery,” and “laparoscopic Roux-en-y bypass,” were used to search with the six most popular search engines and two metasearch engines. The terms were arbitrarily chosen to represent likely possibilities that patients would use while searching the Internet. The six search engines were America Online, Yahoo, Lycos, Go, MicroSoft Network, and Netscape, and the two metasearch engines were Search and Metacrawler. A search was performed by accessing each search engine Web site (e.g., www.search.com) and typing the aforementioned terms in the marked box.

Only the first 20 “hits” for each separate search were included in the study. Each page and site were explored and reviewed in detail by the primary author. Each site was evaluated critically for inclusion of educational information concerning laparoscopic obesity surgery, discussion of at least one procedure related to laparoscopic surgery, details of the procedure, discussion of other procedures, details of

Table 1. Evaluation of unique Web sites discussing obesity surgery procedures ($n = 63$)

	<i>n</i> (%)
Laparoscopic surgery as an option for obesity surgery	56 (89)
Details of a procedure	33 (52)
Complications of a procedure	33 (52)
Discussion of accurate weight loss results	30 (48)
Death as a complication of procedure	26 (41)
Discussion of other procedures	26 (41)
Biased or misleading information	18 (29)

complications, discussion of death as a risk for the procedure, and discussion of laparoscopic surgery as an option for obesity surgery. The Web site was considered to have some educational information if any aspect of bariatric surgery (preoperative workup, operative technique, postoperative follow-up evaluation, results, risks, or benefits) was discussed. Each site also was reviewed critically for the presence of misleading or biased information.

Results

For each search, a range of 18 to more than 1,000 Web sites was listed. Only the first 20 "hits" were reviewed. A total of 602 "hits" were found and reviewed, although 54 of the "hits" led to invalid links. Because different searches discovered the same pages, only 250 unique pages were found. Whereas 250 unique pages were found from the original 602 "hit," only 119 unique Web sites were found. In other words, some of the 250 unique pages actually were different pages of one Web site. Only (56%) 67 of 119 unique Web sites had some type of education information concerning obesity surgery, and only 63 (53%) of the 119 sites discussed some procedure related to obesity surgery.

Table 1 displays the results from the critical evaluation of the 63 Web sites. Although "laparoscopic" was used in each search, ironically, laparoscopic surgery was discussed as an option for obesity surgery on only 56 (89%) of the 63 Web sites. Whereas 33 Web sites (52%) discussed details and complications of at least one procedure, only 26 (41%) of the 63 sites mentioned death as a complication of bariatric surgery. On 26 (41%) of the Web sites, more than one procedure for bariatric surgery were discussed. Although 30 (48%) of the sites disclosed accurate weight loss results, 18 (29%) had biased or misleading information about some aspect of bariatric surgery. Only 89 (15%) of the total original 602 "hits" led to Web sites that discussed laparoscopic obesity surgery, details of the procedure, and complications in an unbiased manner.

Discussion

Although our investigation demonstrated that quality information about laparoscopic obesity surgery exists on the Internet, the quality Web sites may be difficult to find. Only 15% of the original "hits" led to an appropriate Web site for patients.

Without prior knowledge of laparoscopic obesity surgery, it is difficult for a patient to find his or her way

to these Web sites. In fact, one of the most troublesome and potentially dangerous effects of the Internet is the assumption and expectation of many patients that most Web sites are under some type of governmental regulation or publishing guidelines. Some patients do not always realize that anyone with access to the Internet and the appropriate Web page-building software can create his or her Web site. Although authors of the more popular medical Web sites on the Internet may be physicians, this is not always the case. In fact, thousands of Web sites exist with no identifiable author or referenced source of information. Furthermore, many Web sites are often online only to market a commercial health care product or to offer a non physician's personal opinion on a medical matter. Although authors obviously vary in their education and accuracy of presented information, no one has mandated publishing regulations or evaluations regarding the content of his or her Web site.

It may be that many of the sites reviewed were not meant to be all encompassing. Their intent may not have been to discuss operative management. The purpose of each site may not be obvious, and it is impossible to design a study that examines only those Web sites that intended to discuss such things as operative management. However, like us, the layperson who performs searches via the internet does not necessarily know the intent and purpose of each site. The fact remains that patients must search through many Web sites before they are able to find the appropriate information.

We did not attempt to differentiate between solicitations and educational sites. Although it may be easy to determine this by viewing some sites, the difference is not always apparent. A site that discusses all aspects of laparoscopic bariatric surgery in a complete and accurate manner with a referral doctor's phone number could be considered either a solicitation or an educational site. Also, it was difficult to determine whether certain bariatric practices were from academic institutions or private practices. Many private practices have loose academic affiliations, and many academic practices take on names that do not make the academic affiliation obvious.

One study attempted to determine the quality of vascular disease information presented on the Internet [7]. The researchers found that nearly one-third of Web sites presented misleading information or advocated unconventional therapy. Specifically in the area of leg ischemia Web sites, it was found that experimental and misleading treatments were most often promoted, whereas the more beneficial and conventional therapeutic methods were not mentioned. A similar study investigating the available Internet information on breast augmentation reported that 54% of the Web sites did not discuss any complications of surgical procedures, and 83% were biased toward a particular surgical technique [3].

The sheer volume of medical information on the Internet also poses an immediate threat to the miseducation of patients with Internet access. Although most Internet users may use search engines as their preferred access to information on the Web, it is estimated that no

search engine is able to index more than one-third of all the Web pages available on a particular topic. In addition, most Internet users presume that the search engines somehow rank available Web sites and then list them accordingly. Internet users are not aware that most search engines make no attempt to evaluate sites for accuracy. Most often, indexes are produced that force users to sort the good data from the bad because of the many links listed that realistically have nothing to do with the topic being searched, which is demonstrated by our data as well. Finding useful information is both troublesome and challenging because of the large extent of irrelevant sites. The few sites with both accurate and valuable clinical information for patients often are the most difficult to find. In the previously mentioned study on breast augmentation, the Aesthetic Society Web site was rated highly as an accurate Internet source for patients [3]. However, the study stated that this Web page was not found in the top 20 listings of AOL, Excite, or Yahoo's indexes, noting that this occurrence was possibly because the site is not as appealing in presentation as others [3]. Search engines rank sites according to many other criteria including monetary reimbursement, but not according to medical accuracy or even true relevancy.

An interesting finding of our study is the high occurrence of Web sites available on the Internet that are not at all directed at or designed to be used for patient information. In the vascular study, it was found that patients searching for medical education related to vascular disease will 67% of time encounter sites that are not at all oriented to patient education and do nothing to enhance patient knowledge [7]. Irrelevant information on vascular disease was most commonly presented in the form of literature abstracts, departmental directories, meeting information, and advertisements. Although a few of these may be useful to some patients, overall, these sites may cause more confusion to the patient.

In the breast augmentation study, an assessment of available Web sites with information on breast augmentation noted that most of the sites identified by the general search engines were Web sites of individual physicians [3]. Although these Web sites were sometimes found to be informational, it was presumed that most existed for the purpose of marketing rather than education. Of the Web sites that photographically documented breast augmentation results, the study noted that none of the physician sites showed bad results. Other Web sites that seem to blur this distinction between marketing and education are sites where in physicians pay to be included. These include both health Web sites produced by various educational, governmental, and commercial organizations in addition to various "chat rooms" featuring an expert. Most of these chat rooms do not confirm the physician's qualifications, board certification, or affiliation.

The interaction between patients and the medical field on the Internet undoubtedly is a dynamic yet potentially hazardous one. In fact, it has been stated that

up to 60% of patients with Internet access would go so far as to select or even change physicians depending on the capability of communicating with their physician via the Internet [5].

It is no longer unrealistic to envision the day when patients of the future use only the Internet as their preferred source of medical information. Patients can essentially use the Internet to decide whether to have a procedure, how they want it performed, and who they want to do it. Even now, Web sites exist that essentially allow patients to solicit bids from surgeons on desired cosmetic surgery procedures, with patients in effect choosing surgeons solely on the basis of the charge for the procedure [6].

Such widespread use of the Internet by patients requires improved education describing the severe limitations of the Internet as a medical resource. Web sites can be an extremely misleading and inconsistent source of information for patients. However, with the useful information that does exist on the Internet, patients may be able to search the Internet and gain accurate information as long as they have an understanding and awareness of the Internet's possible shortcomings.

We believe that the ideal Web site discusses educational information, various bariatric options, laparoscopic surgery, some details of the procedures, risks and benefits of the procedures, and discussion of accurate weight loss results. Web sites should not claim that one specific procedure is the only option for all patients. Discussion of complications should be accurate and not misleading.

A large amount of information, both biased and unbiased, is available via the Internet. However, it is difficult for the patient to ascertain the unbiased information because he or she must wade through a vast amount of unrelated, biased, and incomplete information. Laparoscopic bariatric surgeons often may need to spend time not only to educate, but also reeducate their patients. The Internet is not a dependable source of accurate information for patients.

References

1. Bezaitis A (1999) Vital signs. *PC Magazine* 18: 14
2. Feingold M, Kewalramani R, Kaufmann GE (1997) Internet and obstetrics and gynecology. *Acta Obstet Gynecol Scand* 76: 718-724
3. Gordon JB, Barot LR, Fahey AL, Matthews MS (2001) The Internet as a source of information on breast augmentation. *Plast Reconstr Surg* 107: 171-176
4. Kassirer J (1995) The next transformation in the delivery of health care. *N Engl J Med* 332: 52-54
5. Rohrich RJ (2001) The Web and your cosmetic surgery practice. *Plast Reconstr Surg* 107: 1253-1254
6. Schafernak KT (2001) Surgery by the lowest bidder. *Am Surg* 67: 103-104
7. Soot LC, Moneta GL, Edwards JM (1999) Vascular surgery and the Internet: a poor source of patient-oriented information. *J Vasc Surg* 30: 84-91
8. Wullkan ML, Smith SD, Whalen TV, Hardin WD Jr (1997) Pediatric surgeons on the Internet: a multi-institutional experience. *J Pediatr Surg* 32: 612-614