

## Short Reports

### Single use versus reuse of endoscopy biopsy forceps: A survey of patient preference

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#### ABSTRACT

**Background.** Although there are no confirmatory data on this, we suspect that most endoscopy centres in India reuse single-use ('disposable') endoscopic biopsy forceps due to the cost of these forceps and the perceived low risk of infection transmission on reuse. Low-cost single-use biopsy forceps are now available in India, bringing into question the justification for such a practice. We aimed to determine the type of forceps (single-use or reused) patients would prefer during endoscopy for themselves, whether this is dependent on cost, and what cost would be acceptable to them.

**Methods.** Among patients (conveniently selected from indoor or outdoor) reporting for endoscopy at the division of gastroenterology at a private tertiary-level hospital, we distributed an information sheet about the survey 30–45 minutes before the procedure. After they completed reading the sheet, an endoscopy nurse and/or doctor explained the study. The patient then completed a questionnaire of multiple choices with tick boxes.

**Results.** Of 151 patients approached, 4 declined to participate. Of 147 patients surveyed (age range 16–83 years; 82 men), 127 (86.4%) preferred single-use forceps, 16 (10.9%) preferred reused forceps, and 4 (2.7%) could not decide and left the decision to the physician. When informed that single-use forceps may be available for about ₹1000 (approximately US\$ 15), 131 patients (89.1%) preferred these forceps, 11 (7.4%) preferred reused forceps, and 5 (3.4%) could not decide. Forty-four patients (33.1%) stated that an acceptable cost for a forceps for them would be ₹500 (approximately US\$ 8), for 65 patients (48.9%) patients it was ₹1000, and for 24 (18.1%) it was ₹1500.

**Conclusion.** About 90% of patients in this survey preferred single-use forceps; a cost of ₹1000 for single-use forceps was acceptable to over two-thirds of them.

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#### INTRODUCTION

An ideal endoscopy biopsy forceps should be easy to use, should obtain adequate tissue for histological examination, operate without mechanical failure and, most importantly, should not expose patients or practitioners to risk of cross-contamination or infection.<sup>1</sup>

Manufacturers of these biopsy forceps label them for single use ('disposable'). The primary reason is the warranty on sterilization. However, clinicians, especially in resource-poor countries, reuse these forceps (and many such endoscopic and other accessories) till mechanical failure is anticipated or sets in, after varying levels of in-house re-sterilization. Single-use forceps have many advantages, namely, they do not need per-use sterilization, give good quality of tissue, are medico-legally prudent, and there is no risk of transmission of infection. However, they are generally expensive. Reuse of these forceps requires attention to strict cleansing and sterilization before each use, but they could still carry a risk of transmission of infection, however negligible. They are less expensive on a per-use basis and the risk from mechanical failure is not critical.

Many studies have compared reused and disposable forceps in terms of cost-effectiveness and safety concerns.<sup>1–4</sup> Current data favour the use of disposable forceps because of safety concerns.<sup>1</sup> However, Kimmey *et al.* report that the overall risk of transmission of infection during endoscopy, irrespective of the procedure, is only 1 per 1.8 million procedures.<sup>5</sup>

We did this survey to ascertain the preference of patients about the type of forceps to be used on them during endoscopy.

#### METHODS

We did this survey on patients (indoor or outdoor) reporting for endoscopy (upper gastrointestinal [GI] or colonoscopy). It was a convenience sample, neither consecutive nor randomized. Permission was obtained from our institutional ethics committee to conduct the survey; the questionnaire was reviewed and approved.

Patients received an information sheet 30–45 minutes before the procedure. The sheet mentioned the purpose of the survey and known information about the pros and cons of the types of endoscopy biopsy forceps (single-use disposable and reused sterilized). After they completed reading the sheet, an endoscopy nurse and/or doctor explained the purpose of the survey and discussed the details, including the following facts: that the reused forceps were not recommended for reuse by the manufacturer, that cleansing and sterilization were done in-house, and that their response to the questionnaire would not affect any procedure to be adopted during their endoscopy.

The survey questionnaire had optional fields for patient identity and income category (a majority of patients did not fill in the latter, so this was excluded from analysis), and a multiple-choice section with yes/no options for choice of forceps and acceptable cost if single-use forceps were to be used.

#### RESULTS

Of 151 patients approached at convenience, 4 declined to participate. Of 147 patients surveyed (age range 16–83 years; 82 men), 16 preferred to remain anonymous. One hundred twenty-seven patients (86.4%) preferred single-use forceps irrespective

of cost, 16 (10.9%) preferred reused forceps, 4 (2.7%) could not decide and left the decision to the physician. When informed that single-use forceps may be available for about ₹1000 (approximately US\$ 15), versus no extra cost for reused forceps, a few more patients (131; 89.1%) preferred single-use forceps, 11 (7.4%) still preferred reused forceps, and 5 (3.4%) could not decide. Forty-four patients (33.1%) stated that for them an acceptable cost for single-use forceps was ₹500 (approximately US\$ 8), for 65 patients (48.9%) it was up to ₹1000, and for 24 (18.1%) it was up to ₹1500.

## DISCUSSION

We believe that a majority of endoscopy centres in India reuse biopsy forceps, despite their label mandating single use. This belief is not based on published data, since centres would for obvious reasons not accept this, but on personal communication and an informal email survey. The major problems related with reuse are risk of infection and transmission of pathogen, which are rare and can be prevented by appropriate sterilization.<sup>3,6,7</sup> The World Endoscopy Organization recommends three steps for sterilization of these accessories:<sup>8</sup> (i) initial cleaning with sterile, filtered, drinking-quality or boiled water and detergent, followed by brushing; (ii) cleaning again with disinfectant solution (e.g. glutaraldehyde, per acetic acid, orthophthaldehyde); and (iii) sterilization with steam under pressure (autoclaving) or ethylene dioxide. We suspect that in busy clinics and in resource-poor centres all the three essential steps may not always be followed.

Another issue with reused forceps is their decreased mechanical performance on repeated use, which may be due to kinking of the coiled sheath of the forceps, rusting in the forceps closure mechanism, bent spikes, etc.<sup>2</sup> Misdiagnosis caused by residues or contaminants from previous procedures is another risk.<sup>4</sup> However, despite all these risks, reuse of devices is still in practice due to their low per-patient cost, even after adding reprocessing cost, maintenance and repair costs.<sup>9–11</sup> India does not have accredited agencies that can certify the sterility and integrity of accessories.

On the other hand, single-use biopsy forceps do not need pre-use sterilization, have no risk of transmission of infection, and provide good quality of tissue for analysis. Single-use forceps are now being made available at lower costs than before. Hence, this survey to know patient preference, whether their choice was dependent on cost, and at what cost.

In this survey, 86% of patients preferred the single-use forceps. On being informed that such forceps may be available at approximately ₹1000, an additional 3% (total 89%) preferred these, but 7% still preferred reused forceps. The acceptable cost of single-use forceps was ₹500 to 33% of patients, ₹1000 to 49%, and ₹1500 to 18%; thus, a majority of patients (67%) would accept ₹1000 (approximately US\$ 15) as cost for disposable forceps. These data are comparable to that from the West<sup>4</sup> and also from the East.<sup>1</sup> It should be emphasized that many more patients preferred single-use forceps before stating their preferred cost.

There are obvious limitations to this survey. It was conducted in a private hospital in a large city; the average patient at this centre is from the middle-income group and less so from the upper-income group. The results of the survey may not be applicable to patients being treated in government-run institutions, where the average patient is from the low-income group and education/awareness levels are lower. However, we could not gather

information on income despite assuring anonymity. We also did not know how many of our patients were covered by insurance. Finally, the patients interviewed were neither consecutive nor randomized.

In conclusion, nearly 90% of patients in the private healthcare setting in this survey preferred the use of single-use forceps; a cost of ₹1000 for the forceps was acceptable to two-thirds of those surveyed. Our survey reopens the debate on single use versus reuse of single-use accessories, an issue that needs to be seen in the light of not only patient safety and benefit but also in terms of resource allocation and economic considerations. Although the acceptable cost mentioned by our respondents may vary with economic status, this survey establishes that, given adequate insight, patients would prefer single use of accessories. Unfortunately, till these products are made available at affordable costs, they may continue to be reused in many fields of medicine.

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*Conflict of interest.* None declared.

## CONTRIBUTIONS

Dr Davavala prepared the initial documents, collected and analysed the data, and drafted the manuscript.

Dr Abraham conceived the study, edited the initial documents, provided patients for the survey, supervised data collection, and finalized the manuscript. Dr Desai edited the initial documents, provided patients for the survey, supervised data collection, and edited the manuscript.

Dr Joshi and Dr Gupta provided patients for the survey and supervised data collection.

Dr Samant assisted with data collection.

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