

for surgical failure owing to causing granulation tissue formation, synechia formation and punctal erosion.²⁻⁴

Syed *et al*'s comparison of our study with contradictory evidence in the literature including their own study seems selective. There is clear evidence available in the literature for and against the use of stents in DCR and this was acknowledged in our introduction. Several studies (including a prospective randomised study) show a higher success rate in DCR without stents.⁵⁻⁹ Our study concluded that stents are not necessary for primary DCR. This conclusion has been supported by two meta-analyses.^{10,11}

The postsaccal blockage for our patients was tested by the ophthalmologists, who used dacryocystography where indicated. This was a very small group of patients and was deemed too insignificant a finding to be elaborated on in our article.

Generally, a retrospective power calculation is not advised. It is not regarded as good practice and if the result of a retrospective study is significant, power is of no interest.¹²⁻¹⁴ It would appear that prospective power has been confused with retrospective power. Depending on how retrospective power is calculated, it might be legitimate to use it to estimate the power and sample size for a future study but it cannot be used legitimately as describing the power of the study from which it is calculated.¹⁵

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Retained surgical sponges, needles and instruments

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COMMENT ON

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I read with interest the review by Hariharan and Lobo in which they discuss the incidence of retained surgical items and the seriousness of outcomes to patients, particularly when sponges are retained. Clearly, this issue has not been resolved and requires attention. The authors rightfully point out that the surgical count, a primary preventive measure, has limitations. Discrepancies in the count are a common event and the sensitivity of the surgical count is only 77%.¹ We conducted a healthcare failure mode and effect analysis that identified potential failures in the processes of preventing retained sponges.² Distraction and multitasking were the most frequent causes, and are especially difficult, if not impossible, to eliminate.

In their algorithm, Hariharan and Lobo propose using a standardised count process, the surgeon confirming the final count, and the use of radiography if the surgical count is incorrect. This poses a challenge clinically. In addition to the limitations of the count, the sensitivity of intraoperative radiography for detection of a retained surgical item is only 67%.³ If we rely on these two interventions, we will not likely eliminate retained surgical items. The more sensitive postoperative survey images are taken outside of the operating theatre. This would require tremendous expense and a return trip to theatre if an item is identified. The algorithm would be enhanced by including methodological wound exploration by the surgeon, to search for sponges prior to closure, and a hard stop when a count is reported as being incorrect.

We should also comprehensively evaluate adjunct technology. There are currently three adjunct technologies available to supplement the current processes for prevention of retained sponges. Hariharan and Lobo provide a comprehensive review of the evidence regarding two: the barcoded counting system and the radiofrequency identification system. The third, a radiofrequency (RF) detection system, involves low energy RF chips sewn into sponges and a scanner for detection of the sponges. Two scanners are available: a wand that is passed over the patient and a mat that is placed under the patient.

Studies have found the sensitivity and specificity of the RF wand to be 100%, even in morbidly obese subjects.^{4,5} The mat is slightly less sensitive for detection in morbidly obese than in non-morbidly obese patients (97% vs 100%).⁵

RF technology has been shown to be highly effective in reconciling miscounts and preventing retained sponges.^{6,7} In a study including 2,285 patients, no retained sponges occurred while using the RF technology within the 12 months of data collection.⁷

I thank Hariharan and Lobo for highlighting a very important patient safety issue. Through teamwork and effective communication, we can improve patient care. However, as we cannot eliminate distraction and multitasking, we should evaluate adjunct technology to determine its applicability in the prevention of retained sponges.

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AUTHORS' RESPONSE

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We thank Dr Steelman for her interest in our article and for her comments. We agree with her that distraction and multitasking in the process of counting sponges and instruments in the operating theatre leads to incorrect counts. The

distractions result from prolonged operating time, multiple personnel in the operating room, change of personnel while the surgical procedure is being performed, operations performed as an emergency and surgical procedures performed out of hours where the number of personnel may be few, requiring them to multitask. These significant predictors of count discrepancy were listed in Table 4 of our manuscript.

Dr Steelman has raised some concerns with the algorithm we proposed in Figure 2. We would, however, like to reiterate that we have clearly stated that in the event of a count discrepancy in the operating theatre, it is the responsibility of the lead surgeon to perform a thorough body cavity search to look for the missing item. If the discrepancy persists despite a thorough body cavity search, radiological imaging should be sought to resolve the discrepancy even if it means transferring the patient outside of theatre. The implications of retained sponges or instruments were discussed in detail in our paper, and the additional expense (and return to theatre if necessary) remain justified.

We also thank Dr Steelman for highlighting a new study evaluating the incorporation of a radiofrequency detection system into existing laparotomy sponge counting protocols for the detection of retained sponges and defining associated risk factors for the same.¹ We reviewed the English language literature published between January 2000 and June 2012, and as the paper referred to was published in October 2012, it was outside the review period. We recognise that the human effort of counting sponges and instruments is prone to error, and an urgent need exists to incorporate and evaluate new technologies that could be used to assist prevalent methods to reduce rates of retained objects; in our article, we discussed the merits of the adjunctive use of sponges tagged with radiofrequency identification chips.

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