Reviewer Assessment

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Technical problems during laparoscopy: a systematic method of troubleshooting for surgeons

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Reviewers’ Comments to Original Submission

Reviewer 1: Thomas Carus

Jul 03, 2017

Reviewer Recommendation Term: 
Accept with Minor Revision

Overall Reviewer Manuscript Rating: 
70

Custom Review Questions Response

Is the subject area appropriate for you? 5 · High/Yes
Does the title clearly reflect the paper’s content? 4
Does the abstract clearly reflect the paper’s content? 4
Do the keywords clearly reflect the paper’s content? 4
Does the introduction present the problem clearly? 4
Are the results/conclusions justified? 4
How comprehensive and up-to-date is the subject matter presented? 4
How adequate is the data presentation? N/A
Are units and terminology used correctly? 4
Is the number of cases adequate? N/A
Are the experimental methods/clinical studies adequate? N/A
Is the length appropriate in relation to the content? 4
Does the reader get new insights from the article? 3
Please rate the practical significance. 3
Please rate the accuracy of methods. N/A
Please rate the statistical evaluation and quality control. N/A
Please rate the appropriateness of the figures and tables. 3
Please rate the appropriateness of the references. 3
Please evaluate the writing style and use of language. 4
Please judge the overall scientific quality of the manuscript. 2
Are you willing to review the revision of this manuscript? Yes
**Comments to Authors:**

It is a very important topic for all laparoscopic surgeons. Some points are missing, e.g. what to do when the light source breaks down during the operation? Always check the life cycle of the light bulb before beginning the operation. It is almost impossible to change the bulb during the operation (very hot!), so there should be an extra light source.

The mentioned courses are very important. But normally every surgeon gets an instruction session before using the instruments or other technical devices. During these sessions, all kinds of possible problems are discussed to train the surgeon before the surgery. Therefore I see no real “danger” for patients, when surgeons didn’t go to special courses or use strict algorithms. They should not learn by doing and have to be instructed, which can be done by several ways.

I don’t agree the conclusion that “… surgeons, trainees and aspiring junior doctors have a deficiency in the technical knowledge...”. These surgeons should not perform any laparoscopic operation before getting this knowledge. In Germany, surgeons have a device certificate for each device they use intraoperatively and are not allowed to use them without instruction. These points should be mentioned in the manuscript.

Are there some data showing higher safety or less complications using e.g. a “problem-solving chart in operation theaters”?

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**Reviewer 2: Ferdinand Köckerling**

Jul 30, 2017

**Reviewer Recommendation Term:** Accept  
**Overall Reviewer Manuscript Rating:** 60

**Custom Review Questions**

| Question                                                                 | Response |
|--------------------------------------------------------------------------|----------|
| Is the subject area appropriate for you?                                 | 4        |
| Does the title clearly reflect the paper’s content?                      | 4        |
| Does the abstract clearly reflect the paper’s content?                   | 4        |
| Do the keywords clearly reflect the paper’s content?                     | 4        |
| Does the introduction present the problem clearly?                       | 4        |
| Are the results/conclusions justified?                                   | 4        |
| How comprehensive and up-to-date is the subject matter presented?        | 4        |
| How adequate is the data presentation?                                   | 4        |
| Are units and terminology used correctly?                                | 4        |
| Is the number of cases adequate?                                         | N/A      |
| Are the experimental methods/clinical studies adequate?                  | N/A      |
| Is the length appropriate in relation to the content?                    | 4        |
| Does the reader get new insights from the article?                       | 3        |
| Please rate the practical significance.                                  | 4        |
| Please rate the accuracy of methods.                                     | N/A      |
| Please rate the statistical evaluation and quality control.              | N/A      |
| Please rate the appropriateness of the figures and tables.               | 4        |
| Please rate the appropriateness of the references.                       | 4        |
| Please evaluate the writing style and use of language.                   | 4        |
| Please judge the overall scientific quality of the manuscript.           | 3        |
| Are you willing to review the revision of this manuscript?               | Yes      |

**Comments to Authors:**

The authors have developed a helpful checklist for the surgeon to overcome technical problems with the laparoscopy stack during minimally invasive procedures. Every surgeon is aware of this problem, especially during nights and on weekends, when experienced operating theatre assistants are not available. Conversions due to malfunction of the video-endoscopic equipment are reported. With the increased level of evidence proving superiority of the minimally invasive versus open approach, conversion induced by equipment failure become more and more problematic. The authors suggest a systematic way forward to troubleshooting laparoscopic tower equipment problems. Every surgeon performing laparoscopic surgery should read this paper and feel more confident with technical problems of the laparoscopy stack.
Authors’ Response to Reviewer Comments

Jul 31, 2017

I would like to thank you all the reviewers for their time (taken out of their busy clinical schedule) and valuable comments. I very much appreciate the. I have responded here to all the comments and suggestions as requested.

Reviewers’ comments:

Reviewer #1:
It is a very important topic for all laparoscopic surgeons. Some points are missing, e.g. what to do light source break down during the operation? Always check the life cycle of the light bulb before beginning the operation. It is almost impossible to change the bulb during the operation (very hot!), so there should be an extra light source.

Response:
• Thank you. This is covered in the table as ‘Cable between the monitor and image producer loose/ Xenon lamp burned out’. But now I have drawn the attention of the readers to that particular phrase (light source break down during the operation) and addressed it.

The mentioned courses are very important. But normally every surgeons gets an instruction session before using the instruments or other technical devices. During these sessions, all kinds of possible problems are discussed to train the surgeon before the surgery. Therefore I see no real “danger” for patients, when surgeons didn’t go to special courses or use strict algorithms. They should not learn by doing and have to be instructed, which can be done by several ways.

Response:
• I absolutely agree with the fact that things can be done in several ways and that is my whole point.
• Surgeons do not need to attend all courses and read all instructions prior to operating. But these courses and reading are important and emphasizes the safe use of various equipment including lap tower. The real danger exist when surgeons are not familiar and these courses, reading including my algorithm (any one of them) provide an avenue for safe practice.
• Not all surgeons (especially junior doctors) in all countries receive formal instruction session from industry representatives prior to using those instruments. The surgeon may have been taught the usage of that particular instrument by either industry representative, surgeon colleague, surgeon supervisor or surgeon mentor. In spite of any teaching/ instruction received it always helps to have a systematic approach (aided by an algorithm) to trouble shoot any issues with lap tower. And more over we all have different ways of learning and need reference document to refer to when in need irrespective of the knowledge or training. My algorithm only provides this and helps in maintenance of patient safety.

I don’t agree the conclusion that “… surgeons, trainees and aspiring junior doctors have a deficiency in the technical knowledge…”. These surgeons should not perform any laparoscopic operation before getting this knowledge. In Germany, surgeons have a device certificate for each device they use intraoperatively and are not allowed to use them without instruction. These points should be mentioned in the manuscript.

Are there some data showing higher safety or less complications using e.g. a “problem-solving chart in operation theaters”?

Response:
• Not all of them have deficiency in knowledge. Some are better than the others. I have made appropriate changes to the sentence (varied knowledge) in the conclusion.
• It is fantastic that all surgeons are required to and have certification to every device that they use. But unfortunately it is not the case in most of the countries. In this event my algorithm provides a reference point for safe practice.
• There is data available showing that systematic/ checklist based approach when feasible and practical reduces complications (ref 11). WHO has clearly shown (not mentioned in the manuscript as it doesnt directly relate to lap tower trouble shooting) that a checklist when appropriate reduces adverse events in theatre, which has been the basis for introduction of widely accepted ‘Pre operative WHO patient checklist’. Our checklist/ algorithm is along the same lines but addressing a specific component of the operating theatre.
Reviewer #2:
The authors have developed a helpful checklist for the surgeon to overcome technical problems with the laparoscopy stack during minimally invasive procedures. Every surgeon is aware of this problem, especially during nights and on weekends, when experienced operating theatre assistants are not available. Conversions due to malfunction of the video-endoscopic equipment are reported. With the increased level of evidence proving superiority of the minimally invasive versus open approach, conversion induced by equipment failure become more and more problematic. The authors suggest a systematic way forward to troubleshooting laparoscopic tower equipment problems. Every surgeon performing laparoscopic surgery should read this paper and feel more confident with technical problems of the laparoscopy stack.
Response:
Thank you very much for your kind words. Much appreciated

Reviewers’ Comments to Revision

Reviewer 1: Thomas Carus
Aug 01, 2017

Reviewer Recommendation Term: Accept
Overall Reviewer Manuscript Rating: 85

| Custom Review Questions                                      | Response       |
|--------------------------------------------------------------|----------------|
| Is the subject area appropriate for you?                     | 5 - High/Yes   |
| Does the title clearly reflect the paper’s content?          | 5 - High/Yes   |
| Does the abstract clearly reflect the paper’s content?       | 5 - High/Yes   |
| Do the keywords clearly reflect the paper’s content?         | 5 - High/Yes   |
| Does the introduction present the problem clearly?           | 5 - High/Yes   |
| Are the results/conclusions justified?                       | 4              |
| How comprehensive and up-to-date is the subject matter presented? | 4              |
| How adequate is the data presentation?                       | 4              |
| Are units and terminology used correctly?                   | 4              |
| Is the number of cases adequate?                             | N/A            |
| Are the experimental methods/clinical studies adequate?     | N/A            |
| Is the length appropriate in relation to the content?        | 4              |
| Does the reader get new insights from the article?           | 4              |
| Please rate the practical significance.                      | 4              |
| Please rate the accuracy of methods.                        | N/A            |
| Please rate the statistical evaluation and quality control.  | N/A            |
| Please rate the appropriateness of the figures and tables.   | N/A            |
| Please rate the appropriateness of the references.           | 4              |
| Please evaluate the writing style and use of language.       | 4              |
| Please judge the overall scientific quality of the manuscript. | 3              |
| Are you willing to review the revision of this manuscript?   | Yes            |

Comments to Authors:
Thank you for the Revision of your manuscript - everything fine now.