Reviewer’s report

Title: Predictive factors for major postoperative complications related to gastric conduit reconstruction in thoracoscopic esophagectomy for esophageal cancer: A case control study

Version: 0 Date: 12 Sep 2017

Reviewer: Simon Wood

Reviewer's report:

Major comments

1. In defining "major postoperative complications related to gastric conduit reconstruction", the authors are combining acute perioperative complications of leak and conduit necrosis, and medium/long-term complications of refractory strictures. Although ischaemia may be common to both, they are different pathologies with different implications and it is confusing to identify the same predictive factors for acute and long-term complications.

Perhaps a subgroup analysis of only leaks/necrosis may be useful for example?

2. Patient/operation/outcome characteristics - There are various features of the study population and procedure which are different to general worldwide experience and therefore affects whether the results are applicable to most surgeons' practice or the correct conclusions can be made.

Patient BMI = 21.3 - This is significantly lower than most experiences.

Gastric conduit pulled up in the "post-sternal" route - This is relatively unusual with many surgeons using the mediastinal route.

Operating time = 605 minutes (Over 10 hrs) - This is significantly longer than other published series of MIE (approximately 330-400 minutes).

Length of stay = 27 days (22 days in those without conduit problems) - Again this is significantly longer than other published series of MIO AND open esophagectomy (around 11-16 days usually).

3. Statistics

The AUC number for CRP and CPK accuracy for detecting complications was 0.68 and 0.67 and there was no accompanying confidence intervals or p-values.
AUC between 0.6 to 0.7 is considered to show 'poor' discrimination for test accuracy. I suspect the p value would be > 0.05. Although this weak correlation is acknowledged by the authors it still means the predictive ability of CRP/CPK is very low.

Also, is Student t-test applicable (Page 8) - this assumes parametric data but I would consider those variables to be non-parametric.

Statistician input would be useful to clarify these issues.

4. Conclusion

CRP and CPK are general markers of traumatic, inflammatory and infective insult and the authors even acknowledge that high levels are seen for other reasons other than conduit problems. But then they go on to say they would be useful to predict gastric conduit problems specifically and intervene early with endoscopy etc. Given the aforementioned poor predictive ability it is difficult to say if this is true or this would change practice.

Minor comments

1. Repeated comments in 'Introduction / Discussion' that esophagectomy (including minimally invasive approach) has "high incidences of morbidity and mortality", "post-operative complications related to gastric conduit are common", "morbidity after TE remains high" etc. This is arguably not true with most published operative mortality rates <5% and anastomotic leak rates around 10-12%. Also the references supporting this are outdated - Refs 1 and 11 published 2009

Update morbidity/mortality data from more recent series.

2. Please clarify why "20 patients required open esophagectomy" - this could lead to selection bias of the TE group.

3. Language accuracy - Example: Page 5, line 54/57 - "...a gastric conduit was created by cutting the proximal stomach", possibly change to "...a gastric conduit was created by resecting/dividing the lesser curve of the stomach"?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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No

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