Reviewer’s report

**Title:** The role in surgical and pathological classification of echocardiography in patients with ruptured mitral chordae tendineae: a large sample study

**Version:** 1  **Date:** 8 June 2011

**Reviewer:** Uri Gabbay

**Reviewer’s report:**

Major Compulsory Revisions

1. Along the entire manuscript the authors use of confusing definitions and unclear expressions such as “surgical results”, “surgical analysis” and “surgical outcome” which seem to refer in several occasions to the “surgical findings” during surgery rather than “results” in terms of post operative consequences.

2. The aim was not clearly defined. I believe the main question the research targets is how accurate are the preoperative predicting tests (TTE and TEE) in comparison with the gold standards of surgical findings and histological examination. However, the authors should revise and clear the aim of the study.

3. The title is confusing and the use of the term “sample” seems inappropriate.

4. There is no abstract although an abstract is clearly indicated by the Journal of Cardiothoracic Surgery instructions for authors.

5. As far as I understand the study is an observational study, however it was difficult to decide whether the study is an observational cohort study i.e. surveillance of several years or rather a retrospective cohort (historical prospective). If the study is not a retrospective cohort the authors should clarify why so many cases were not examined (either TEE or histological). Please clarify and correct.

6. Missing patient information - how representative are the patients? There is some confusion regarding the said “sample” of patients in the title. Is it a sample or rather a complete surveillance of all consecutive patients as said elsewhere?

7. Missing diagnosis data - how, where and when was the initial diagnosis made? Was the MR acute or chronic? How long was the time gap from diagnosis to surgery? How long was the time gap from symptoms to diagnosis? If this data is available please detail if not please notify.

8. Data analysis and Statistical analysis: If the main aim was to compare the accuracy of preoperative predicting tests (TTE and TEE) with the gold standards of surgical findings and histological examination then the focus should have been on prediction accuracy (positive and negative predictive value, likelihood ratio etc’) for each leaflet, rupture severity and underlying cause. Please correct or clarify.
9. If the main aim was to compare the accuracy of preoperative predicting tests (TTE and TEE) with the gold standards of surgical findings and histological examination what is the relevance of surgery types. Please revise the result section accordingly.

10. I’m bothered with the statement (page 6 under the title Echocardiography characteristics and role in classification of RMCT pathology) “mitral valve prolapse (n=242, 100%)” by which the entire research population was diagnosed with MVP. MVP is attributed to myxomatous degeneration. Are the authors suggesting in their population MVP is attributed to a different underlying cause such as being a consequence of the rupture itself (either of single leaflet or both). Is it still considered MVP? Anyhow, in that case MVP cannot be considered causative to RMCT. Please clarify and discuss this issue.

11. The authors had notified a partial RMCT was more frequent than total (complete would be a better expression). These results are different from previous studies regarding surgical cases. It should have been discussed whether the predominance of partial rupture may be associated with poorer survival of complete rupture (survival bias) or a result of different indication for surgery.

12. The low sensitivity in diagnosing complete rupture by TTE in comparison with TEE should be discussed regarding possible confounders as both tests were not performed simultaneously (the TTE preceded TEE which was only performed during the surgery), TEE was performed on a sedated patient (which may improve the accuracy of the results) and the examiner may be more experience. Please discuss.

13. Page 9 line 6; The authors discuss why RMCT of anterior leaflet is associated with higher rate of MVR while RMCT of posterior leaflet is associated with higher rate of mitral valve repair and suggest different leaflet chordae mechanical characteristics. It should be also analyzed by the underlying cause as CRV is highly associated with RMCT of the anterior leaflet and myxomatous degeneration with RMCT of the posterior leaflet. Thus the explanation for MVR predominance of anterior leaflet RMCT is the underlying cause of CRV which isn’t feasible for repair. Accordingly, in posterior leaflet RMCT the predominant underlying cause is MVP /myxomatous degeneration which feasible for repair. It should be mentioned that the overall outcomes in terms of mortality morbidity and quality of life are better for repair.

14. Page 10 line 5 “according to Gabbay …they were still main cause of RMCT”. The cited reference suggested myxomatous degeneration is the leading underlying cause (as it is also MVP underlying cause) but both SBE and CRV remained considerable cause not the main causes.

Minor Essential Revisions

15. Page 2 line 2: “… and of mitral regurgitation (MR)”. This is a confusing statement as mitral regurgitation is a consequence of the chordae tendinae
rupture rather than its cause. Please correct or clarify. Similar statement appears along the manuscript.

16. Page 2 line 5: “Various surgery …”. It is not clear whether the author point toward a previous surgery the RMCT patient had undergone or rather to the present (RMCT) surgical findings (which seem to me the case). Please clarify.

17. Page 2 line 9; “the role in surgical…” Again I believe the author had meant surgical findings. Please clarify.

18. Page 2 last line; “echocardiography, pathological and surgical analysis…”. Again the meaning is unclear (does surgical analysis refers to surgical findings?). Please correct or clarify.

19. The TEE was performed during surgery while TTE sometime (how long?) earlier. This fact raises two problems. First, how similar are TEE results when it is performed in ambulated most probably anxious patient in comparison with sedated patient on the operating table? Second, the tests (TTE and TEE) were not performed simultaneously (TTE preceded TEE which was only performed during the surgery) which may raise possibility of deterioration with time.

Discretionary Revisions

20. I strongly recommend the authors to seek the assistance of an English editor.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests