Reviewer’s report

Title: Radical surgical resection of advanced thymoma and thymic carcinoma infiltrating the heart or great vessels with cardiopulmonary bypass support

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Reviewer: Gregor Jan Kocher

Reviewer’s report:

The authors report a retrospective case series of 6 patients with thymic tumor involvement of the heart (1 patient, R2-Resection) and/or great vessels (one patient with R1 resection), who were operated on CPB in a period of 14 years. Indeed the literature data and thus the evidence on how to treat such advanced cases is limited. Nevertheless consensus exists that complete tumor resection is the major prognostic factor, which renders the indication for a tumor debulking surgery in a 61-year old patient with already known myocardial invasion rather questionable. Furthermore it is not clear to me from the given information, why CPB was necessary at all in 2 of the patients (Nr. 2 and 4) – even though patient Nr. 2 was on CPB the involved part of the aorta was not totally resected (resulting in an R1-Resection) and as realized by the authors, resection of the brachiocephalic vein usually does not require replacement, since graft patency rates are rather poor. Also resection of the SVC with reconstruction (as performed in patient Nr. 1) can often be done without the use of CPB (inguinal lines for the anesthetist on one side and having the other femoral region prepared if CPB is eventually necessary), although the situation might not have been that clear before surgery and CPB was maybe mainly used for safety reasons in this patient.

In summary we end up having 2-3 patients in whom CPB might have been avoided (including its possible complications), one of them with R1-resection and then another patient with R2-resection and a rather questionable indication for surgery, leaving a nevertheless interesting series of 2-3 patients who were successfully operated on CPB with good operative results.

Another point that needs further comments is the fact that all patients of this series (except patient Nr. 6) showed partial remission after chemotherapy – were only patients with partial response in terms of tumor reduction >= 50% selected for surgery ? After all the response rates for these tumors are known to be generally less than 50%.

The only conclusion that can be drawn from this small series of patients is, that this sort of extended resections is technically feasible, but should be reserved for highly selected cases and only as part of a multimodality treatment concept.

Concerning the structure of the manuscript:
The study results should be clearly listed in the results section and do not belong
in the discussions part. Furthermore the “limitations” should be included in the discussion.

Concerning the tables and figures:
The tables 1, 2 and 3 should be combined in order to allow a good overview on the cases:
I suggest omitting the columns “Remission” (all but one patient showed remission), “operative indication” (only one patient had only debulking -> mention this in the “structures resected” column), “surgical approach” (mention in the text), “cannulation” (ditto), “operative revision” (ditto); add a column “ICU stay”.
In my opinion figure 2 does not add much to the manuscript, whereas an intraoperative picture after tumor resection and vascular reconstruction (for example of case Nr. 5) would be much more interesting in this context.

Minor Revisions:
English language needs editing. (In the future the authors might consider having their manuscript reviewed by a native speaker before submitting their work)

**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