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Peer Review File
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Reviewer A's Comments

Comment 1: It is unclear exactly what the objective of the study is. It should not just be about reporting blood loss. This is nothing novel. If the objective is to compare EBL vs ABL then this should be stated clearly in the title and abstract of the paper; however, as authors noted, the results were not significantly different (between EBL and ABL)

Reply 1: Thank you. We have modified the title, abstract and introduction to clarify the objective of the paper being a comparison of EBL vs. ABL. We also report blood loss during a rare procedure that only a few centres carry out – useful information which adds to the body of existing literature

Changes in the text 1: The title, abstract and introduction have been revised. The submission (title) has also been updated

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Comment 2: Furthermore, the indications for transfusion are not clear. A 10-year period is a long time and practices change. Was transfusion indicated with intraoperative hemoglobin <7? <8? delta hemoglobin? hemodynamic instability? was it done "arbitrarily" when surgeons or anesthesiologists felt that blood loss was high?

Reply 2: Thank you. We have added wording to the calculation of actual blood loss paragraph to clarify that transfusion is guided by Trust protocols and at our Trust, Hb <8 is an indication for ABT (<9 for those with cardiac morbidity).

Changes in the text 2: Text added to introduction

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Comment 3: Authors should try to justify their study a little better, simply reporting blood loss is not a novel finding and it has been done before. And if EBL vs ABL is not statistically significant, then why do authors state "it was decided that ABL would be used as the only measure of blood loss for all cases" this seems like a biased approach without scientific support

Reply 3: Thank you. We have added wording to clarify the objectives of the study (see comment 1) and justify the study better. The questions driving this paper are (1) what is the blood loss on average and (2) what factors (if any) affect it? For example, does the specific tumour type/approach/staging increase bleeding? We answered some of these questions and did not find any statistically significant difference in

blood loss rates, as reported. As such, this is useful information and is helpful in surgical planning (even though it is a small, retrospective review). The use of ABL is also supported in the literature (and this is referenced in the introduction). Furthermore, the ABL calculation is more reproducible and standardised and therefore makes for a more reliable analysis of variables.

Changes in the text 3: See for comment 1

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Comment 4: What are strategies that can be done to reduce blood loss? staged procedures? I.V. TXA? topical TXA?

Reply 4: Thank you. The strategies for reducing blood loss are already discussed in the clinical relevance paragraph. Our unit uses a standardised protocol for these patients which includes TXA, cell salvage and maintaining normothermia.

Changes in the text 4: None

Reviewer B's Comments

Comment 1: Regarding the Study design section of the Abstract, isn't this a retrospective study?

Reply 1: Thank you. Yes, wording has been added to the abstract to clarify this and it is already mentioned in the methods section

Changes in the text 1: Text added to abstract

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Comment 2: Cell salvage is recommended in the conclusion. However, whether cell salvage is really recommended or not can only be concluded if it is confirmed that there is no difference in survival, local recurrence, or other complications from tumor recurrence or metastasis compared to cases in which cell salvage is not used. Therefore, the postoperative follow-up period, survival rate, presence or absence of local recurrence, development of distant metastasis, and presence or absence of postoperative systemic treatment or radiotherapy should be specified for the 22 cases.

Reply 2: Thank you. We agree that this is important information and should be included. However, due to the retrospective nature of our study and difficulty getting hold of data from before the introduction of our electronic database in 2017 we are unable to comment on survival, local recurrence and survival rates. We anticipated that there would be no difference in survival, local recurrence and distant metastasis rates where cell salvage was and was not used - since cell salvage does not determine survival and the study was not randomised this would be an observation, not a proven outcome.

Similar difficulties are encountered when looking at how many patients received chemo/radiotherapy. The doses and durations of such treatments are also not currently details that we hold as they are carried out at other centres.

Changes in the text 2: Wording has been added to the limitations section to reflect the difficulties of retrieving this information and wording changed slightly in the discussion section to reflect this

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Comment 3: Preoperative embolization of the tumor is an effective method to reduce intraoperative bleeding, and it is necessary to specify whether preoperative embolization was performed in 22 cases. It is also advisable to specify the level of tumor embolization and whether coil embolization alone or embolization with particulate matter was performed.

Reply 3: Thank you. Pre-operative embolisation is not unit protocol unless the tumour is a renal metastasis. None of these patients had spinal metastasis (they were all primary spinal bone tumours) therefore none of our patients underwent preoperative embolisation. Wording has been added to Table 1 to reflect this. Secondarily, in the case of renal spinal metastasis, embolisation of the tumour compartment may suggest a plan to violate the tumour margins, which is contradictory to the aims of an en bloc procedure.

Changes in the text 3: Wording added to Table 1

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Comment 4: Line 114. Was the tumor size 0.126 cm3, or was it a very small tumor?

Reply 4: Thank you. Yes, the tumour size was 0.126cm3

Changes in the text 4: No changes

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Comment 5: Does the "small tumor" include cases that can be treated with anterior corpectomy only or partial spondylectomy instead of en bloc spondylectomy?

Reply 5: Thank you. As we are sure the reviewer is aware, en bloc means resecting with a clear margin and this can vary in terms of size and extent. In theory, there could be a very small tumour involving, for example, just the posterior elements. Planned surgical approach and extent of the resection was determined by the nature of the tumour and pre-op surgical planning in a specialist MDT.

Changes in the text 5: Methods section updated to reflect the use of MDT discussion with regards to surgical procedure

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Comment 6: Also, I think that the Enneking classification, which indicates the extent of the tumor within the vertebral body, should also be clearly stated.

Reply 6: Thank you. These tumours were not classified using the Enneking staging as it was felt the tumour size and surgical approach were more important factors in determining blood loss than Enneking classification. For example, one would expect a larger blood loss in larger tumours (necessitating more extensive dissection) or in tumours that required combined anterior and posterior approaches.

Changes in the text 6: None

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Comment 7: Both are total spondylectomies, but if the tumor spans the pedicle and extends anteriorly to posteriorly, a partial intralesional pediculotomy may be necessary. In such cases, it is necessary to specify how the tumor has spread, as bleeding tends to be more frequent.

Reply 7: Thank you. Any tumour requiring intralesional resection was excluded from this study as by definition, this is not an en bloc curative resection. Only tumours amenable to TES with potentially clear margins were included in the analysis and suitability for TES was determined in our specialist MDT

Changes in the text 7: None

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Comment 8: As described in the article by Yokogawa et al, "total en bloc spondylectomy without intralesional pediculotomy," "total en bloc spondylectomy with intralesional pediculotomy," or "total piecemeal spondylectomy" the surgeon should specify which surgery was performed.

Yokogawa N, Murakami H, Demura S, et al (2018) Total spondylectomy for Enneking stage III giant cell tumor of the mobile spine. Eur Spine J. https://doi.org/10.1007/s00586-018-5761-3

Reply 8: Thank you. All cases were TES procedures without intralesional pediculotomy.

Changes in the text 8: Wording added to demographics paragraph of results section

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Comment 9: The surgical procedure related to bleeding should be clearly stated. Whether or not tranexamic acid was administered. Whether a powerful hemostatic tool such as Aquamantis was used. It should also be noted if there was any intraoperative segmental arteriovenous injury.

Reply 9: Thank you. TXA was used in all cases and this is addressed in the clinical relevance section of the paper. The standard tools for our unit

- Meticulous surgical technique with careful intraoperative haemostatic control with use of mono/bi polar diathermy, surgical clips, sutures/ties, local control measures (e.g. packing/compression) as well as blunt dissection in relatively avascular tissue planes where possible.
- Segmental vessels identified and ligated as routine when visualized

Each approach is fairly bespoke dependent upon tumour type/level/size and highly surgeon dependent. No Aquamantis is used in our unit

Changes in the text 9: None

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Comment 10: The name and manufacturer of the equipment on which the cell salvage was performed must be stated.

Reply 10: The cell salvage equipment used was the Sorin Xtra® Autotransfusion System, LivaNova

Changes in the text 10: Methods section updated with model and manufacturer of the cell salvage equipment used in our Trust