

**Morbidity, Mortality and Blood Loss Associated With Pelvic and Sacral Tumour Surgery**

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**Introduction**

Hemipelvectomy and sacrectomy are the most definitive treatment options for primary and secondary tumours in the pelvis and sacrum. They can be invasive operations, often associated with significant morbidity, and the potential for substantial blood loss and a prolonged period of hypotensive anaesthesia. Consequently patients undergoing such procedures experience a prolonged stay in hospital and have significant post-operative morbidity.<sup>1-3</sup> There are a paucity of data regarding post-operative morbidity following such procedures. Methods for reducing blood loss remain a surgical and anaesthetic challenge. Hypotensive epidural anaesthesia (HEA) is one technique routinely used at our institution. The technique involves combining a high cardiac output with hypotension by means of a high epidural and spinal anaesthetic to reduce the mean arterial pressure, and combined with a continuous adrenaline infusion.

**Purpose**

To report the morbidity and mortality following hemipelvectomy and sacrectomy at our institution.

Compare morbidity between patients receiving HEA and conventional anaesthetic techniques.

**Methods**

The hospital oncology database was retrospectively searched for patients who underwent hemipelvectomy or sacrectomy between 01/01/00 and 31/07/14. 174 Patients were identified and their notes reviewed. Demographic, anaesthetic and post operative data, length of hospital admission and blood loss, as demonstrated by a change in haemoglobin, estimated blood volume and volume transfused, were obtained. Complications were graded according to the Clavien-Dindo Classification of surgical complications.

**Results**

There were 62 excisions, 40 endoprosthetic reconstructions, 37 hindquarter amputations, 16 hemipelvectomies, 16 sacrectomies and 3 pelvic exenterations with hindquarter amputation. Median duration of HDU admission, and entire hospital stay were 20 hours (IQR 11) and 19 days (IQR 17), respectively. Clavien-Dindo Complications were: None – 48.9%, Grade 1 - 8.1%, Grade 2 - 16.2%, Grade 3a - 1.2%, Grade 3b - 20.8%, Grade 4a – 1.7%, Grade 4b - 1.7%, Grade 5 - 1.7%. The most common groups of complication were: Infection - 25.4%, dislocation 5.8%, poor fitting prosthesis 4.6%, post-operative bleeding 3.4%, bladder/ureter damage 2.9%, complications of anaesthetic 2.3%, nerve damage 2.3%, urinary retention 1.7%, DVT 1.2%, and other 9.8%. Death occurred in 2.3% (4/174) within 90 days of operation. In terms of post-operative infections: 52.3% were

superficial, 40.9% were deep infections requiring surgical intervention, 9.1% were hospital acquired/aspiration pneumonia and 2.2% were osteomyelitis.

HEA was performed in 59% of patients (102/174). Intraoperative MAP was significantly lower in the HEA group 53mmHg vs. 58 mmHg,  $p=0.001$ ). There was significantly less blood loss in the HEA group (938ml vs. 1848ml,  $p<0.001$ ). Significantly fewer units of blood were transfused in the HEA group (2 vs.3,  $p=0.02$ ). There was no significant difference in the rates of end organ injury between the groups (AKI: 6% vs. 3%; stroke 0% in both groups; MI: 0% vs. 3%,  $p>0.05$ ).

## Conclusion

Pelvic oncological surgery has a significant post-operative morbidity. Infection rates are higher than other types of surgery, which may be attributable to the extent of the surgical incision required for such procedures. In spite of this, the infection rates at our centre were comparable or better than those reported in the literature<sup>1-3</sup> whilst mortality was also lower at our centre compared to others.<sup>1-3</sup> Patients receiving HEA demonstrated a lower intraoperative MAP, lower blood loss and subsequent transfusion requirements without a demonstrable effect on post operative morbidity or end organ injury.

## References

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