

Introduction

Two procedural methods commonly employed during the anterior approach of the cervical spine have been associated with bradycardia and the resultant systemic side effects. Kaspar-like retraction systems and recently modified blades are designed to retract soft tissue structures in a fashion causing the least amount of contact and leverage on the great vessels in the neck. These principal teaching dictums stress the points of a careful surgical approach and dissecting the longus coli musculature to better facilitate placement of retracton blades. Manipulation of the adjoining carotid artery structures have also been associated with bradycardia and its self-limiting systemic effects.

The other rarely encountered episode of bradycardia occurred with the use of cooler irrigants prior to closing the wound of the anterior cervical incision. The implementation of this method paralleled our larger patient populace whereby intent to decrease post-oeporative swelling and minimizing neck pain and soft tissue complaints within the perioperative period. The rare but episodic bradycardia was witnessed intraoperatively under neuroanesthesia.

Methods

A year long data set of approximately 250 intra-operative cases were reviewed for evidence of bradycardia (under 60 BPM) from either retraction or irrigant based methods. Neuro-anesthesia was administered for all cases and analysis of the records revealed a number (3) of episodes of bradycardia selectively associated with either mechanical intrusion or thermal changes within the surgical site.



In all cases, like anesthetic agents were administered, the operative technique was the same, and cold irrigant was used at case end. In all three patients, the reported Body Mass Index (BMI) was greater that 33 kg/m2. There were no lasting effects of any of the bradycardia episodes, and in only one case was a parasympatholytic given to return the resting heart rate to normal.

Results

Clinical analysis of the anterior cervical approach in more that 250 cases over a two-year aggregate revealed three cases of documented braycardia. In the three presented cases, non-threatening bradycardia passed with no addverse effect noted on the patients outcome and required only manipulation of the retractors and continuance. These observed incidents were most likely the result of surgical technique, but self limiting in presentation and resolution.

Conclusions

Benign Bradycardia has been observed with inadvertant leverage and manipulation upon the carotid artery and its contiguous structures. These rhythm changes has also been with the use of cooler irrigant on closure, with all recorded incidents resolving without sequelae or requirement of further treatment. Proper retraction techniques are elemental and imperative in the practice of cervical spine surgery, and neuro-anesthetic vigilance and recognition of such physiological changes can be pharmacologically treated if persistent or clinically worrisome.

References

1. <http://www.ncbi.nlm.nih.gov/pubmed/20878263>
2. <http://www.ncbi.nlm.nih.gov/pubmed/11733662>
3. <http://www.ncbi.nlm.nih.gov/pubmed/9218293>
4. <http://www.ncbi.nlm.nih.gov/pubmed/8368664>

Learning Objectives

Soft tissue retraction
Post operative irrigant
Self-limiting bradycardia