Ear Numbness Post Minimally Invasive Thyroid Surgery-The Mystery Unlocked.

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Introduction:

Thyroid surgery is fraught with complications including the potential for vocal cord palsy secondary to recurrent laryngeal nerve (RLN) injury [1, 2]. Known complications include postoperative hemorrhage, wound infection, airway obstruction, hypoparathyroidism, thyroid crisis, hypocalcaemia, hypothyroidism, pneumothorax, pleural effusion, pneumonia, tracheomalacia, laryngeal edema, injury to the esophageal wall, phrenic nerve paralysis and brachial plexus injuries [3, 4]. Auricular numbness has not previously been reported in literature as a known complication of thyroid or hemi-thyroid surgery. Greater focus has been placed upon the risk of damaging the RLN. This could be one reason why more subtle complications like auricular numbness have been overlooked in the past. The study aims to determine the prevalence of, and hypothesize possible reasons for auricular numbness amongst subjects who underwent minimally invasive thyroid surgery.

Methods:

This is a retrospective prevalence study. We collected data from patients' charts for hemi-thyroidectomies done over 24 months from 1st August 2015 till 31st July 2017. The data included age, gender, side and indication of surgery, other complications, pathology, whether cervical block used or not and finally, reported and documented post-operative auricular numbness and its duration. Statistical analysis of descriptive data was done with the aid of IBM SPSS Statistics 2015.

Table 1 – Demographic Data

Variable	Value
Age Mean	56.52 [±14.74(1SD)] years
Range	28 - 79 years
Sex Male	9 (13.23%)
Female	59 (86.76%)

Another useful tool which is under-utilized is the operating microscope. For the experienced eye, the microscope shows sharp contrast of tissues, even in depth, thereby making identification of the RLN a whole lot easier. [5]. The GAN is a superficial branch of the cervical plexus. It takes fibers from the C2 and C3 spinal nerves. The cervical plexus gives off multiple superficial cutaneous branches in addition to the GAN, including the lesser occipital nerve, which innervates the post-auricular region. There are also numerous muscular branches of the cervical plexus that innervate deep muscular structures including the strap muscles [6]. As the GAN takes off from the cervical plexus, stretch injury can occur due to forceful retraction of tissue intraoperatively. Nerve injury secondary to forceful retraction tops our differentials of etiologic factors. The Sunderland classification is a widely known surgical grading system of nerve injury. Neuropraxia is demyelination of the nerve with intact axonal sheaths. No Wallerian degeneration occurs and recovery is to be expected within days or weeks [7, 8]. Neuropraxia of the GAN explains this unusual symptom being expressed by 8 of our patients [9].

Perioperative ultrasound of the thyroid helps locate the bulk of the gland thereby guiding the incision site. A small incision is the core concept of minimally invasive hemi-thyroidectomy. Forceful retraction of tissues can invariably injure nearby structures.

Limitations for this study include recall bias. Weak documentation can be overcome with a carefully designed prospective study including a larger pool of patients. We also advocate documenting the exact duration of the numbness and its correlation with the size of the incision and possible focused nerve conduction studies to establish objectivity.

Conclusion:

Neuropraxia of the greater auricular nerve (GAN) is a complication of minimally invasive thyroid surgery. A reduction in post-operative morbidity associated with a smaller incision which in turn requires greater force of retraction leads to stretch injury of nerves. Ear numbness should be included in the consent from patients undergoing minimally invasive thyroid surgery.

References:

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Discussion:

Hemi-thyroidectomy in patients with thyroid nodules has gained popularity, both as a diagnostic and therapeutic tool, for the thyroid and endocrine surgeon over the years. Our inclination is towards a minimally invasive technique which is thought to reduce post-operative morbidity. The on-table ultrasound helps guide the precise incision site, particularly in hemi-thyroid surgeries (Image).