Journal Reviews

Head & Neck

Minimally invasive video-assisted thyroidectomy 2.0: Expanded indications in a tertiary care cancer center

Background: Minimally invasive video-assisted thyroidectomy (MIVAT) advantages include a smaller incision, less extensive surgical dissection, improved visualisation secondary to rigid fiberoptics, and decreased postoperative pain. The aims of our study were to report our experience using expanded indications of MIVAT.
Methods: A retrospective chart review of a single surgeon's initial experience was carried out at a tertiary academic cancer center.
Results: In all, 53 patients were identified, of whom 40 underwent total thyroidectomy and 13 underwent hemithyroidectomy. Thyroid volume, nodule size, incision length, and surgical time were all examined. Most common pathology was well-differentiated papillary thyroid cancer (69.8%): 42% of patients had evidence of thyroiditis found on pathology; 17% of patients had temporary vocal cord paralysis, with only 1 case of vocal cord paralysis persisting >6 months (1.9%). Six patients (11%) experienced temporary hypocalcemia, requiring postoperative calcium supplementation; no patients experienced permanent hypocalcemia.
Conclusions: The use of MIVAT with expanded indications shows complication rates comparable to those of traditional open thyroidectomy.
Reviewer's opinion: An interesting paper from Memorial-Sloan Kettering Cancer Center looking at MIVAT for thyroid cancer management. Paper shows safety of MIVAT technique in there hands in a small group of patients. It is popular in certain centers around the world. I feel one can still do thyroidectomy through a small incision without the need for using the MIVAT and producing similar cosmetic results.– MD
Head & Neck Minimally invasive video-assisted thyroidectomy 2.0: Expanded indications in a tertiary care cancer center.
Kim AJ, Liu JC, Ganly I, Kraus DH.
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2011;33(11):1557-61.

Transoral laser microsurgery as primary treatment for advanced-stage oropharyngeal cancer: A united states multicenter study

Background: Nonsurgical modalities are sometimes advocated as the standard of care for advanced oropharyngeal tumours. Oncologic and functional results have been modest. The aim of our study was to evaluate outcomes of a minimally invasive approach, using transoral laser microsurgery (TLM) as the primary treatment for advanced oropharyngeal carcinoma.
Methods: A prospectively assembled database of 204 patients with American Joint Committee on Cancer (AJCC) stages III and IV tonsil or tongue base cancer, treated primarily with TLM during 1996–2006 at 3 centers with minimum 2-year follow-up was analysed. Survival, locoregional control, and swallowing status were recorded.
Results: Mean follow-up was 49 months and 79.4% of patients were alive. Three-year overall survival, disease-specific survival, and disease-free survival were 86%, 88%, and 82%, respectively. Local control was 97%, and 87% of patients had normal swallowing or episodic dysphagia.
Conclusions: TLM as a primary treatment for advanced oropharyngeal malignancy confers excellent survival and swallowing proficiency.
Reviewer's opinion: The authors conclude that TLM is highly effective primary treatment option for management of advanced stage oropharyngeal cancer especially in the presence of HPV-positive biomarkers. The paper shows improved survival with adjuvant therapy. The addition of chemotherapy to radiotherapy was not associated with significant gain than radiotherapy alone. Therefore 83% was not exposed to risks of chemotoxicity. – MD
Haughey BH, Hinni ML et al.
Head & Neck
2011;33(12):1683-94.

Neuro-Oncology

SOX 2 dependent sub-population in Glioblastoma

Glioma stem-like cells, such as those identified in glioblastomas, have been shown to have the potential for self-renewal, cell division and multi lineage differentiation. However, the origin of these cells and their molecular phenotype are not yet fully characterised. Of particular importance may be tumour suppressor genes such as P53, PTEN and NF1. In this study the authors characterised 11 high grade glioma cultures in terms of their pattern of gene expression and response to two tyrosine kinase inhibitors targeting PDGFR and IGF-1R (Imatinib and NVP-AEW541). Two genetically distinct subgroups (Type A and Type B) were identified with differential expression of soluble proteins, extracellular matrix proteins (ECM) and transcription factors. Interestingly all of the type A cultures were GFAP positive whereas type B cultures showed high expression of ECM proteins. Furthermore, lineage specific markers such as GFAP, CXCR4 and EAAT1 were more highly expressed in Type A cultures than in Type B cultures which expressed CNP, PDGFRB and Laminin. There was no differential expression of the stem cell markers nestin and BMI1 between the two subsets however SOX2, another stem cell marker, was highly expressed in type A cultures. This was confirmed using immunofluorescence which showed exclusive expression of SOX2 in type A cells *in vitro*. Analysis of gene expression in two sets of clinical glioblastoma specimens (n=138) identified a similar pattern of gene expression in different tumour samples. Tissue from which the Type A cultures were derived formed *in vivo* tumours in SCID mice in all cases (8/8) whereas only 4/12 formed tumours in type B highlighting the increased tumourigenicity of the type A subgroup. Furthermore, type A cultures have an increased propensity to develop neurospheres which was inhibited by SiRNA mediated downregulation of SOX2. SOX 2 downregulation also resulted in increased sensitivity to treatment with TKIs with an additive effect when TKIs were given in combination.
Reviewer's opinions: This study identifies two genetically distinct subpopulations within a set of glioblastoma cultures, both displaying expression of stem cell markers. One subset appears to be enriched for SOX2 and is both neurosphere forming *in vitro* and tumourigenic *in vivo*. Furthermore, their subsets suggest some similarities between the recently described classical, proneural and mesechymal subsets of glioblastoma. The authors also highlight a novel way of overcoming resistance to TKIs highlighted in previous studies by combining both treatments. – SB
Identification of a SOX-2 dependent subset of tumour and sphere forming glioblastoma cells with a distinct tyrosine kinase inhibitor sensitivity profile.
Hagerstrand D, He X, Lindh MB, Hoefs S, Hesselager G, Ostman A, Nister M.
Neuro-Oncology
2011;13(11):1178-91.