



ORIGINAL RESEARCH PAPER

Oncology

NEED FOR DISSECTION OF LEVEL IIB IN SQUAMOUS CELL CARCINOMA OF OROPHARYNX: A REVIEW OF LITERATURE

Keywords: level Iib, neck dissection, oropharynx SCC, occult metastases

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ABSTRACT

Neck dissection in Squamous Cell Carcinoma (SCC) of oro-pharynx usually involves removal of lymph node groups in level I to V, when the neck nodes are clinically positive. The dissection of level Iib may cause damage to the Spinal Accessory Nerve (SAN) leading to postoperative morbidity. In the setting of a clinically negative neck (NO) with probable occult metastases, the need for dissection of level Iib is debatable. This review evaluates the prevalence of occult metastases to level Iib in SCC of oro-pharynx. A systematic literature search was adopted to identify articles relevant to the present review, which revealed a higher tendency for involvement of level Iib when the primaries were the tonsil and base of tongue. Through this review, it is possible to conclude that in cases of primary sites involving the tonsil and base of tongue in a clinically negative neck, level Iib inclusion in the neck dissection specimen is recommended.

Introduction

Carcinomas of the oropharynx account for 10-12% of cancers in the head and neck and 85-90% of these are confirmed as Squamous Cell Carcinomas.1 The prognosis of these malignancies depends on the nodal involvement of the cervical lymph nodes. The incidence of occult metastases in clinically negative necks(c NO) in oropharyngeal SCC is reported to be greater than 30%.1 The importance of considering the management of cervical lymph nodes in cancers of oro-pharynx even when the neck is clinically negative cannot be underestimated. The base of tongue, soft palate, tonsillar complex, posterior pharyngeal wall (PPW) are the four sub-sites included in the oropharynx.

The Level Iib referred to as the submuscular recess or posterior triangle apex is divided into two sublevels Iia and Iib by the Spinal Accessory Nerve.2 A common undesirable consequence of the neck dissection is the shoulder dysfunction, that develops in patients due to injury to the Spinal Accessory Nerve (SAN) during traction or elevation applied during the neck dissection procedure of the level Iib.

The focus of this review paper is to identify the prevalence of involvement of sublevel Iib in carcinomas of oropharynx and to evaluate the need for its inclusion in the neck dissection specimen in a clinically negative neck.

Methods

An orderly approach in identifying articles reported in literature on the subject of Elective Neck Dissection (END) in carcinomas of oropharynx was employed. Search terms included level Iib, carcinoma, oropharynx. EMBASE, Google Scholar, Medline were the search engines used.

Certain inclusion criteria were set prior to the search to ensure uniform evaluation which included:

- (a) all data pertaining to the number of patients with oropharynx carcinoma with clinically negative neck is available from the article.
- (b) The type of neck dissection employed is mentioned in the article
- (c) Iib nodes identified, labelled and sent as a separate specimen for histopathological analysis.

To evaluate the metastatic pattern to level Iib in carcinomas of oropharynx, the search results for this review identified 8 articles of relevance of which only 4 articles were included considering the inclusion criteria employed for the study .

Results

The four studies included in the review were assessed and

evaluated for the metastatic pattern to sub-muscular recess in SCC of Oro-pharynx in patients with clinically negative neck. A summary of the studies included in the review is provided in Table1.

The study by Rachael smith et al although provides the number of patients with carcinoma of oro-pharynx, does not provide the number of these patients with clinically negative necks and is hence excluded from this review.3 The study by, Corlette et al has evaluated the necessity for inclusion of sublevel Iib in the neck dissection specimen for head and neck carcinomas.4 This article has identified the sublevel Iib separately and identified metastases in this sublevel from carcinomas of oropharynx, but it is not included in the present review as the data on the number of patients with SCC of oro-pharynx with a cN0 neck is not elaborated. Silverman et al5 mentioned the number of patients with oro-pharynx carcinoma but the information on the nodal status of these patients at presentation is not available and is hence excluded from this review. Benjamin et al studied the oncologic role of level Iib in selective neck dissection in 138 patients with SCC of head and neck.6 But this study has been excluded from the present review as it does not provide information on the number of patients with oro-pharynx carcinomas with c No necks.

- From the data provided in the table 1, it can be observed that
- (A) The metastases to level Iib occurred with the carcinomas of the tonsil and base of tongue.
 - (B) The metastases to Iib is associated with metastases to level Iia in Ca of tonsil.

Discussion

Neck dissection in the setting of head and neck carcinomas is an essential part of management to provide adequate oncologic control. With the recognition of associated morbidities of radical neck dissection, selective neck dissections sparing important structures and lymph nodes that are not involved in the cancerous process are being given priority.

In a clinically negative neck, an elective neck dissection is performed, to eliminate any occult metastases in the neck. For primaries of oropharynx, the prevalence of neck metastases is established and it varies from site to site based on its lymphatics. The most commonly performed neck dissection is the supraomohyoid neck dissection (levels I-III) in a clinically NO neck.

The dissection of level Iib involves application of significant traction on the SAN leading to its injury. This leads to shoulder dysfunction postoperatively. It has been observed that the incidence of shoulder dysfunction is more in patients who underwent level Iib dissections.7

Several studies have been done to identify the involvement of level IIb nodes and to evaluate if its dissection is really necessary to obtain adequate oncologic control. Kraus et al⁸ observed the involvement of IIb nodes in only one patient of 5 patients with carcinoma of oropharynx with clinically negative neck. This patient had a primary in the tonsil. Andrea et al⁹ also observed a positive involvement of IIb nodes in only one patient with carcinoma of base of tongue. Lee et al¹⁰, Paleri et al⁷ did not find positive nodes in level IIb in their series of patients with carcinomas of oropharynx. Leaving the IIb nodes untouched prevents the shoulder dysfunction syndrome and permits better quality of life to the patient postoperatively. The choice of inclusion of IIb nodes in the specimen is dependent on site and T-stage of primary tumour, a primary in the tonsil or base of tongue with a T- stage T3 or greater

should incline the surgeon more towards inclusion of IIb nodes in the dissection specimen.

Conclusion

Through this review it is possible to observe that the metastases to level IIb is not common and it may be spared in carcinomas of oropharynx with clinically negative necks. A consideration for its inclusion may be given when the primary involves the base of tongue or the palatine tonsil. However, the limited data available in this review restricts a definitive conclusion. It is suggested that a stratification of oral cavity, oropharynx and further subsites in the head and neck region be done in prospective studies to reach a definite conclusion regarding the occult metastases in IIb nodes in carcinomas of head and neck.

Table 1:

Year	Author	No. of pts	Primary site	TNM stage	Neck dissection	Histo-pathological report with IIb Positive			Shoulder function
						No. of patients	Primary site	Other positive level nodes along with IIb	
1996	Kraus et al	44 5*	Tonsil-02 Base of tongue -02 Soft palate -01	T-variable N0 M0	SOHND-47 U/L-41 B/L-03	1	Tonsil	IIa	Compromised
2006	Young Lee et al	51	Tonsil-32 Base of tongue-11 Soft palate -07 PPW-01	T- Variable N0-21 M0	SOHND- 35 RND-1 U/L-06 B/L-15	0	-		-
2007	Villaret et al	297 32*	Oropharynx	T-Variable N0-10 M0	END	5	Tongue base	-	-
2008	Paleri et al	38 09*	Oropharynx	T- Variable N0 M0	SND	0	-	-	Compromised

References

1. Kathryn M. Van Abel and Eric J. Moore, "Focus Issue: Neck Dissection for Oropharyngeal Squamous Cell Carcinoma," ISRN Surgery, vol. 2012, Article ID 547017, 10 pages, 2012.
2. K. T. Robbins, S. Samant, and O. Ronen, "Neck dissection," in Flint: Cummings Otolaryngology: Head & Neck Surgery, chapter 121, Elsevier Mosby, Philadelphia, Pa, USA, 5th edition, 2010.
3. Smith R, Taylor SM, Trites JR, Smith A. Patterns of lymph node metastases to the submuscular recess. J Otolaryngol. 2007 Aug;36(4):203-7.
4. Corlette TH, Cole IE, Albsoul N, Ayyash M. Neck dissection of level IIb: is it really necessary? Laryngoscope 2005;115:1624-1626.
5. Silverman DA, El-Hajj M, Strome S, Esclamado RM. Prevalence of nodal metastases in the submuscular recess (level IIb) during selective neck dissection. Arch Otolaryngol Head Neck Surg 2003;129:724-728.
6. Hoyt BJ, Smith R, Smith A, Trites J, Taylor SM. IIb or not IIb: oncologic role of submuscular recess inclusion in selective neck dissections. J Otolaryngol Head Neck Surg. 2008 Oct;37(5):689-93.
7. Paleri V, Kumar Subramaniam S, Oozeer N, Rees G, Krishnan S. Dissection of the submuscular recess (sublevel IIb) in squamous cell cancer of the upper aerodigestive tract: prospective study and systematic review of the literature. Head Neck. 2008 Feb;30(2):194-200.
8. Kraus DH, Rosenberg DB, Davidson BJ, et al. Supraspinal accessory lymph node metastases in supraomohyoid neck dissection. Am J Surg 1996;172:646-649.
9. Villaret AB, Piazza C, Peretti G, Calabrese L, Ansarin M et al. Multicentric prospective study on the prevalence of sublevel IIb metastases in head and neck cancer. Arch Otolaryngol Head Neck Surg. 2007 Sep; 133(9):897-903.
10. Lee SY, Lim YC, Song MH, Lee JS, Koo BS, Choi EC. Level IIb lymph node metastasis in elective neck dissection of oropharyngeal squamous cell carcinoma. Oral Oncol 2006;42:1017-1021