

Quality of life after neck-dissection: Comparison of the oncological and functional results of the radical and modified radical neck dissection in patients with head and neck carcinomas

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The most significant prognostic factor in patients with head and neck cancer is the presence of cervical node metastases. Indications for the various techniques of neck dissection can undergo substantial variations according to the metastatic status found, biological aggressiveness of tumour, nodal volume and personal viewpoint of the attending clinician. Authors discuss the indications and contra-indications of the various surgical techniques of neck dissection and evaluate long-term results. The present paper reports on clinical experience with radical neck dissection (RND), modified neck dissection (MRND) and selective neck dissection (SelND). Between 1986-1994 623 patients with the tumors of the oral cavity, pharynx, larynx and paranasal sinuses were treated at our department. The data, such as age, gender, neck nodal stage, tumour grade and localisation of primary tumour were recorded. Neck dissection was performed in 511 cases, 351 RND, 135 MRND, 25 SelND. In 32 cases, bilateral neck dissection was performed. Neck dissection was performed in 249 patients with persistent node metastasis after radiotherapy. Survival, neck control rates and other factors in patients who had a RND, were compared with those who had MRND. Regional lymph node metastases of head and neck cancer occur in predictable pattern. Based on these patterns of nodal metastasis, the recommendations for the use of modifications of neck dissection are represented.

Key words: head and neck dissection; quality of life

Introduction

The most significant prognostic factor in patients with head and neck cancer is the presence of cervical node metastases. Indications for various techniques of neck dissection can undergo substantial variations according to the metastatic status found, biological aggressiveness of the tumour, nodal volume and personal experiences of the surgeon. Management of the neck in cancers of the upper aerodigestive tract continues to be a topic of great debate.

In addition to lymph node metastases, survival is related to the site and stage of the primary tumour, histological pattern of invasion, status of the resection margins and, for patients with metastases, the number and anatomical level of positive nodes, and the presence and extent of extracapsular spread. These pathological features are important indicators of tumour behaviour and should be incorporated into protocols for assessment of prognosis. Although computed tomography and magnetic resonance imaging have contributed to the ability to identify metastatic disease in head and neck cancer, inadequacies in evaluating lymphadenopathy still exist. The accuracy of preoperative diagnosis of cervical lymph-node metastasis in head and neck cancer was assessed with physical examination and

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– in some cases – CT assessments of the metastatic status.

Radical neck dissection (RND) is the standard treatment for cervical metastases at head and neck cancer. Although effective, RND produces significant morbidity. In an effort to reduce this morbidity, modifications of RND have been developed. These modifications can be comprehensive yet they spare some or all of the nonlymphatic structures removed by RND (MRND), or they can remove less than all the lymph node groups and are termed selective neck dissections (SelND).

Material and methods

Between 1986-1994, 623 patients with the tumours of the oral cavity, tongue, pharynx, larynx and paranasal sinuses were treated at our department. The localisation of the primary tumor is shown in Table 1.

Table 1. Localization of 442 primary tumors

| | | | |
|--------------------|---------------------------|-----|----|
| | Larynx | 77 | |
| Glottic | | | 15 |
| Supraglottic | | | 43 |
| Transglottic | | | 19 |
| | Hypopharynx | 87 | |
| | Mesopharynx | 135 | |
| Tonsillo-lingualis | | 92 | |
| Palatum molle | | | 10 |
| Radix linguae | | | 33 |
| | Cavum oris | 89 | |
| Lingua | | | 47 |
| Sublingua | | | 42 |
| | Epipharynx | 10 | |
| | Other tumours of the neck | 44 | |

Neck-dissection - primary or secondary - was performed in 511 cases on 442 patients (in 69 cases bilateral neck dissection was performed) (Table 2).

Table 2. Block-dissection (primary and secondary) by the year of performance

| | Primary | Secondary | | | Total |
|------|---------|-------------------|-----------------|------------|-------|
| | | After Irradiation | After Operation | Sec. Total | |
| 1986 | 6 | 1 | 4 | 5 | 11 |
| 1987 | 15 | 6 | 6 | 12 | 27 |
| 1988 | 10 | 11 | 3 | 14 | 24 |
| 1989 | 14 | 15 | 3 | 18 | 32 |
| 1990 | 28 | 29 | 10 | 39 | 67 |
| 1991 | 39 | 39 | 8 | 47 | 86 |
| 1992 | 34 | 37 | 10 | 47 | 81 |
| 1993 | 48 | 41 | 11 | 52 | 100 |
| 1994 | 59 | 18 | 6 | 24 | 83 |
| | 253 | 197 | 61 | 258 | 511 |

Among them, there were 362 men and 80 women, with a median age of 53 years. Bilateral radical neck dissection in one stage was not performed. Frequently, the internal jugular vein was saved, and when the extension of the metastases admitted a modified neck dissection was performed. The histological finding in most cases was squamous cell carcinoma of different grade. Patients were monitored until recurrence of neck disease, or for a period of 2 years or longer. Salvage surgery for radiation or surgical failures was refused by 258 patients.

Hundred and five patients with clinically negative neck had undergone modified neck dissection. In our opinion, selective removal of lymph node groups by MRND and thus saving important structures (e.g. the internal jugular vein, XI nerve, and sternocleidomastoid muscle) in clinically positive necks are appropriate in many patients. Careful selection of the types of neck dissection and judicious use of postoperative radiation therapy can optimise cure rates as well as functional and cosmetic results.

Results

Seventy-five patients, had regional recurrence most of them (45%) were seen after N3-neck operation.

Table 3. Recurrence rate by the method of neck dissection

| | Block-Dissection | Regional Recurrence | |
|-------|------------------|---------------------|-----|
| RND | 351 | 63 | 18% |
| MRND | 135 | 11 | 8% |
| SelND | 25 | 1 | 4% |
| | 511 | 75 | 15% |

Table 3 shows the recurrence rate by the method of neck dissection.

Nodal metastases of head and neck cancer occur mostly in predictable patterns in draining lymph nodes. Based on these patterns of regional metastases, recommendations for the use of modifications of neck dissection are presented. After MRND, the function of the arm is intact, the cosmetic result of the neck is better and there is no swelling of the face, pain and weakness of shoulder.

Discussion

Radical neck dissection is a standard treatment for cervical metastases in head and neck cancer. Modi-

fications of the neck dissection reduce the risk and the mortality of the operation. In squamous cell cancers of the head and neck with either clinically negative neck or N1 stage, MRND is an adequate node sampling procedure. Quick-frozen section and histology during the operation help to determine the radicality and extension of neck dissection. Both inadequate and excessive surgery can be harmful for patients. Modified neck dissection which preserves the uninvolved accessory nerve in the clinically positive neck in selected cases does not adversely affect survival or regional recurrence. In the clinically positive neck (N2-N3) comprehensive neck dissection with preservation of the spinal accessory nerve is oncologically sound.

Modified neck dissection which is less distressful for the patient and produces better cosmetic and functional results. It can only be applied if it does not compromise the radical approach to the treatment of the tumour disease.

Having made a great number of operations our experience is that MRND is oncologically sufficient. In N0-N1 cases and in selected patients for

N2 neck with pre- or postoperative irradiation can be effectively performed. The quality of life of the patients after MRND is better, because we have saved some anatomical structures and produced satisfactory cosmetic and functional results.

References

1. Bergman SA, Ord RA, Rothman M. Accuracy of clinical examination versus computed tomography in detecting occult lymph node involvement in patients with oral epidermoid carcinoma. *J Oral Maxillofac Surg* 1994; **52**:1236-9.
2. Élő J, Balatoni Zs, Kótai Z. Diagnostical and therapeutical problems of "N0-neck" in cases of head and neck tumours. *Fül-orr-gégegyógy* 1994; **40**:197-204.
3. de-Campora E, Radici M, Camaioni A, Pianelli C. Clinical experiences with surgical therapy of cervical metastases from head and neck cancer. *Eur Arch Otorhinolaryngol* 1994; **251**:335-41.
4. Steinhart H, Schroeder HG, Buchta B, Schmidt A, Kleinsasser O. Die prognostische Signifikanz von Kapseldurchbrüchen bei Halslymphknotenmetastasen von Plattenepithelkarzinomen. *Laryngorhinootologie* 1994; **73**: 620-5.