

## Pain Treatment in Parotid Cancer with Manual Lymph Drainage Ad Modum Dr. Vodder

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### Abstract

The parotid gland is a large salivary gland on both sides of the face, beneath the external auditory canal, behind the mandibular ramus, and in front of the temporal bone's mastoid process. The facial nerve and parotid lymph nodes are found inside the gland. Parotid carcinoma is made up of 90% epithelial parenchyma, with the mucoepidermoid being the most prevalent. The analgesic impact of manual lymphatic drainage is one of its effects, as it acts on various possible causes of pain. On the one hand, it plays a role in the inflammatory process, and on the other, it can influence pain perception. The authors describe a patient who developed neck pain after traditional parotid surgery and treatment for parotid malignancy. The patient experiences pain at level 10 on the Visual Analogue Scale (VAS).

**Keywords:** Parotid Cancer; MLD; Manual Lymph Drainage; Vodder

### Introduction

The parotid gland is a large salivary gland on both sides of the face, beneath the external auditory canal, behind the mandibular ramus, and in front of the temporal bone's mastoid process. It's about 25 grammes in weight. The facial nerve, the retromandibular vein, and the external carotid artery all pass through this area. The parotid gland produces the most serous saliva [1-3].

Inside the gland there are parotid lymph nodes. The facial nerve (VII cranial nerve) divides it into two parts, one superficial and one Deep [1,2].

The great auricular nerve, which innervates the gland's sheath as well as the skin above it, innervates it. The sensory innervation of the trigeminal nerve is provided by the trigeminal nerve [1,2]. Parotid carcinoma is made up of 90% epithelial parenchyma, with the mucoepidermoid being the most prevalent. In high-grade tumors, cervical lymphatic spread is possible in up to 55% of cases. The surgical treatment of choice, with adjuvant radiotherapy if locoregional control is required, is the first line of defense [3].

Manual lymphatic drainage (MLD) is a massage method that follows the lymphatic flow on the surface of the skin to facilitate drainage of the affected limb [4,5]. MLD normalizes the interstitial tissue by increasing lymphatic flow and lymphatic vessel contraction [6-9]. The analgesic effect gained from the application of the MLD by working on many possible causes of pain is another impact. On the one hand, neuropeptides that excite sensory and sympathetic nerve fibers are released into the interstitial space during the inflammatory process, producing neuro-vasoactive chemical mediators (histamine and substance P), which cause ischemia phenomena and sensitize nociceptors [10-12]. MLD causes an increase in the generation and transfer of interstitial fluids via the lymphatic system, making it easier to eliminate inflammatory exudate [13]. On the other side, it can contribute to pain perception. MLD strokes can activate the Melzak pathway [14-

15], stimulating the free ends of the micro fascial system’s mechanoreceptors [16]. Currently, the processes proposed to produce Melzak’s control gate’s analgesic effect [14], assume that myelinating afferents activate the inhibitory interneurons of the dorsal horn of the spinal cord, allowing pain transmission through unmyelinated nerves to be modulated. This is accomplished by mechanically stimulating the MLD on the Aβ fibers, resulting in a lateral inhibition of the pain fibers, despite of the fact that these claims lack sufficient evidence [17].

### Case Report

Patient with neck pain following classic parotid surgery, 70 years old and male, referred from the radiation service.

Diagnosed in September 2017 of parotid cancer T2N1M0 (Table 1), grade I epidermoid histology, with metastatic occupation of 5 cervical nodes.

Table 3

**Staging of Parotid Tumors**

**Primary Tumor (T)**

TX Primary tumor cannot be assessed

T0 No evidence of primary tumor

T1 Tumor 2 cm or less in greatest dimension

T2 Tumor more than 2 cm but not more than 4 cm in greatest dimension

T3 Tumor more than 4 cm but not more than 6 cm in greatest dimension

T4 Tumor more than 6 cm in greatest dimension

**Regional Lymph Nodes (N)**

NX Regional lymph nodes cannot be assessed

N0 No regional lymph node metastasis

N1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension

N2 Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension or in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension

N2a Metastasis in a single ipsilateral lymph node more than 3 cm but not more than 6 cm in greatest dimension

N2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension

N2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension

N3 Metastasis in a lymph node more than 6 cm in greatest dimension.

**Distant Metastasis (M)**

MX Presence of distant metastasis cannot be assessed

M0 No distant metastasis

M1 Distant metastasis

Stage Grouping	Approximate 5-Year Survival Rate (%)
I T1a, N0, M0	85%
T2a, N0, M0	
II T1b, N0, M0	75%
T2b, N0, M0	
T3a, N0, M0	
III T3b, N0, M0	40%
T4a, N0, M0	
Any T, N1, M0 (except T4b)	
IV T4b, Any N, M0	15%
Any T, N2, M0	
Any T, N3, M0	
Any T, Any N, M1	

**Table 1:** Staging of Parotid cáncer. Ashok R. Shaha [18].

Total parotidectomy was performed, with unilateral functional dissection of the cervical lymph nodes with classic incision (Figure 1). Subsequently, he received 22 radiotherapy sessions. He finished the treatment 4 months ago.

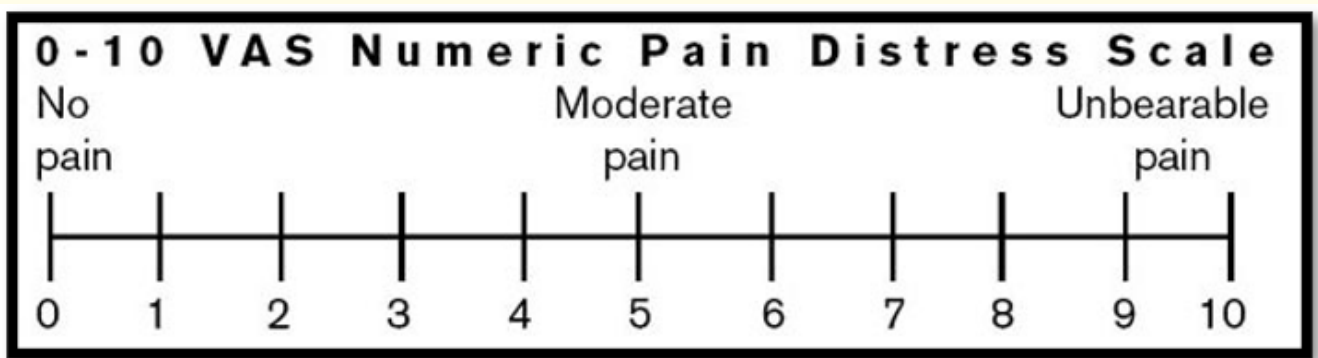


**Figure 1:** Functional dissection of the left cervical lymph nodes. (Source: own elaboration).

He complains of neck pain, as well as “tightness and irritation” in the surgical wound area. There is no obvious edema or brain injury, thus the diagnostic tests conducted to rule out consequences, ultrasound, radiography, and electromyography, provide no significant findings.

The scar appears to be in good shape, with no symptoms of fibrosis or infection. Skin is healthy, with some minor damage in the radiated area and some redness. The pain is persistent, unrelated to movement, and severe.

A slight facial paralysis is present, with the buccinator muscle being the most affected. There are no difficulties with swallowing or speaking. There is no xerostomia or temporomandibular joint dysfunction. The spinal nerve and trapezius muscle, as well as the scalenes and left sternocleidomastoid muscle, are all in good working order. His cervical articular motion is normal. The patient experiences pain at level 10 on the Visual Analogue Scale (VAS) (Figure 2).



**Figure 2:** Visual Analogue Scale. (Source: own elaboration).

For 30 minutes, the patient receives manual lymphatic drainage ad modum Vodder with a long neck and intraoral sequence to relieve discomfort. Three sessions were held once a week for three weeks, totaling nine sessions.

The patient shows considerable improvement in session number five, with a pain level of 6 on the VAS. The pain is 0 on the VAS at the end of the treatment, in the third week, and the feelings of tightness and irritation have gone away.

The level of discomfort on the VAS remains 0 in subsequent revisions at 2 weeks and a month (Table 2).

Visual Analogue Scale	
Pre-Treatment	10
5 Sessions	6
9 Sessions	0
2 Weeks Follow Up	0
1 Month Follow Up	0
3 Month Follow Up	0

**Table 2:** Pain evolution according to the Visual Analogue Scale.

### Discussion

Currently, cancer treatment takes a comprehensive approach [19]. Early detection and prevention are vital since the therapy will be more conservative, avoiding significant surgical resections and more harsh treatments that will reduce the patients’ quality of life. Oncological surgery, radiation, and chemotherapy are all treatments that can cause damage or side effects [20,21].

Gellrich., *et al.* conducted a study in Germany surveying a total of 1,652 patients after surgery, reporting 38.5% pain at the level of the shoulder girdle and 34.9% pain at the cervical level. In contrast, only 10% of patients received physiotherapy treatment [22].

There are no studies that describe physiotherapy as a treatment for pain following parotid carcinoma. Souto S., *et al.* [23] discuss the physiotherapeutic therapy of damages following cancer treatment in the head and neck, as well as the re-education of swallowing in surgery, but not pain management. Majewski-Schrage., *et al.* [24] conducted a review of the effects of DLM in traumatological lesions, concluding that DLM not only reduces edema but also discomfort.

Because there was no lymphedema or other harm in our clinical situation, the DLM treatment was focused on the pain, with the goal of eliminating it. In our case, we did not utilize a measure to assess quality of life; instead, the fact that the pain continued to fade had a beneficial impact on the patient’s quality of life.

### Conclusions

Pain management after parotid cancer treatment with MLD according to Dr. Vodder helps to minimize discomfort and keeps the effects for three months.

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