



# Incidence of trismus in Head and Neck cancer

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## ABSTRACT

**Objective:** To investigate the incidence of trismus and to analyse the impact on health related quality of life (HRQL) in patients with trismus undergoing treatment for Head & Neck (H&N) cancer.

**Methods:** This prospective study assesses the incidence of trismus ( $\leq 35$  mm) and HRQL in H&N cancer patients during 2007 in a University hospital setting. Maximum interincisal opening was measured in 69 patients during the study year and the EORTC HRQL questionnaires and Gothenburg Trismus Questionnaire (GTQ) was used.

**Results:** In the present study the incidence of trismus was 9% pre-treatment and the highest incidence (38%) was found 6 months post-treatment. Patients with tumors of the tonsils were the most prone to develop trismus. The trismus patients reported negatively affected HRQL in terms of ability to work and affected social and family life than those without trismus. Furthermore, all patients with H&N malignancies had severe problems with deteriorated HRQL parameters, especially at three months post treatment.

**Conclusion:** The incidence of trismus in patients with H&N cancer is non-negligible. Trismus severely impairs HRQL and daily life activities in H&N cancer patients.

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## INTRODUCTION

Tumor growth in the head and neck (H&N) region and the necessary treatment of H&N tumors, may impair important functions which leads to pain, oral dysfunction and negatively affects health related quality of life (HRQL) [1, 2].

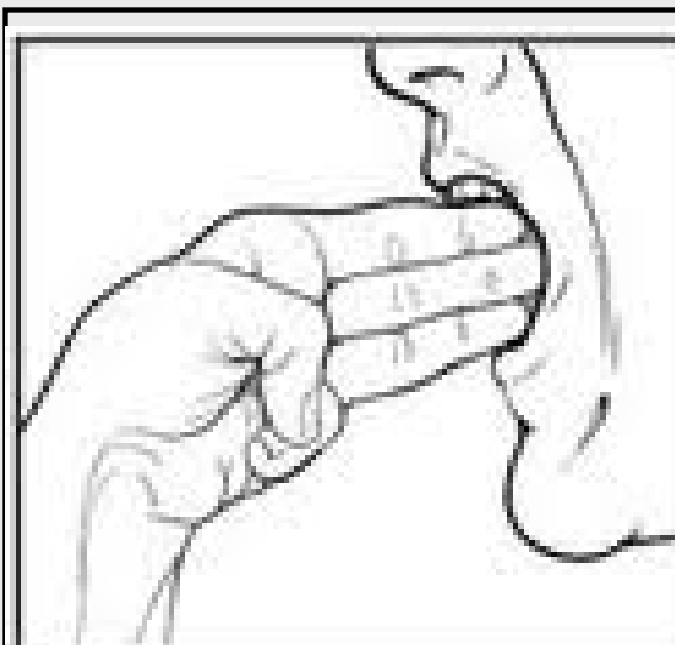
A symptom related to the treatment in H&N cancer, which previously has not been paid much attention to in the literature, is trismus.

Trismus, restricted mouth opening, is a condition that for the single patient might result in great difficulties in daily life activities. Recent studies have shown that patients with trismus have persisting problems with pain, chewing and eating, dry mouth and lack of taste, all of which results in impaired HRQL [3, 4].

The most common cause of oncology related trismus is radiation-induced fibrosis, while postsurgical scarring may also play a role. The percentages of trismus in H&N cancer patients reported in the literature vary, and a recently published study including 69 patients by Johnson et al. revealed a high incidence of trismus (42%) [5].

## METHODS AND MATERIALS

During the study year (2007) 75 patients with a primary diagnosed H&N cancer referred to the Ear, Nose and Throat (ENT) clinic at Sahlgrenska University Hospital and presented at the weekly tumour board meeting were included in the study. In the present study, we used the trismus definition proposed by Dijkstra et al. [5] i.e. the cut off criterion for trismus as maximum interincisal opening (MIO) of 35 millimetres (mm), which is generally nowadays regarded as gold standard [14,15]. During the study year, MIO was measured and different PRO questionnaires were filled out before start of the oncological treatment (pre-treatment) and then at 3, 6 and 12 months after the end of the oncological treatment (post-treatment). The newly developed symptom-specific trismus questionnaire Gothenburg Trismus Questionnaire (GTQ) was combined with the HRQL questionnaires EORTC QLQ C30 and EORTC QLQ H&N 35.



The criteria for trismus, suggested by Dijkstra et al with a cut off level for trismus at  $MIO \leq 35$  mm, was used [5].

The MIO was measured using a ruler and was carried out with the patients seated in an upright position.

## AIM

The aim of this study was to investigate the incidence of trismus prospectively and to analyse the impact on HRQL in patients undergoing treatment for H&N cancer. This study also investigated the symptom-specific instrument Gothenburg Trismus Questionnaire (GTQ) according to its responsiveness to change over time in H&N cancer patients.



Trismus and trismustraining with the Therabite device



## Incidence of trismus in different H&N cancer diagnoses

	Pre-treatment	Post-treatment 3 month	Post-treatment 6 month	Post-treatment 12 month
<b>Diagnose</b>	n (%)	n (%)	n (%)	n (%)
Salivary gland	0 (0)	2 (20)	2 (22)	1 (14)
Gingival, bucca	0 (0)	2 (33)	1 (25)	1 (50)
Tonsil	4 (17)	11 (46)	9 (38)	6 (27)
Base of toungue, tumor colli, oropharynx	3 (27)	4 (36)	6 (55)	5 (50)
Toungue, floor of mouth	0 (0)	3 (20)	5 (38)	2 (17)
Sinus, nose	0 (0)	2 (33)	2 (33)	1 (20)
Other (lip, palate, epipharynx)	0 (0)	1 (33)	1 (50)	1 (50)
<b>All diagnoses</b>	<b>7 (9)</b>	<b>25 (33)</b>	<b>26 (38)</b>	<b>17 (28)</b>

## RESULTS

- The incidence of trismus during the study year at the different measurement points were 9% pre-treatment and 33%, 38%, 28% at 3, 6 and 12 month post-treatment respectively.
- During the study follow-up year the patients reported statistically significant more symptoms post-treatment compared to pre-treatment data in all three GTQ domains (diagnos specific trismus questionnaire).
- The trismus patients had also more problems with their ability to work and attend leisure, social and family activities, which was related to their limited mouth opening.
- Patients with trismus reported more problems according to physical function, pain and appetite loss (clinically significant) at 12-months post-treatment compared to non-trismus patients.

## CONCLUSIONS

Overall the incidence of trismus (MIO  $\square$  35 mm) was high in our material; 38% of the patients had trismus 6 months after finishing their oncological treatment in this prospective study. Furthermore, we found that patients with trismus had more pain and greater negatively affected HRQL than patients without trismus. The GTQ instrument has previously shown to have good psychometrically qualities according to validity and reliability and the present study has now also documented the responsiveness of GTQ to change over time [6].

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