

Comparison Studies of Tongue Depression using Old Vs New Mouthbite

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Introduction

What is the purpose of a mouthbite (MB)?

- In the current practice of Head & Neck (H&N) radiotherapy cancer treatment, mouthbite (MB) is at times used to achieve full tongue depression at a tolerable comfort level, separating it away from the hard palate.
- This minimizes the movement of the patient's tongue and jaw during the treatment, which ensures radiation are targeted precisely onto the cancerous area and spare the healthy tissues.

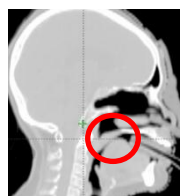
Problem with the old mouthbite

Feedback from patients & staffs	Design issue
<ul style="list-style-type: none"> Very uncomfortable Too wide for insertion 	<ul style="list-style-type: none"> Use only anterior gum or teeth to hold into position Positor portion of MB is mobile

This raises our concern to modify the design, where the new MB is able to better immobilize the tongue. Comparison studies are done to observe if the new MB serves as a better tongue depressor than the old MB.



Groove at anterior only



Posterior of the tongue is not depressed

Results

Benefits of New MB Design

- Keep width but more rounded for ease of insertion
- Lengthen to fully depress the posterior tongue
- Groove to sit entire upper gum/ upper row of teeth
- Thicker = Better grip = Higher stability/ immobilization of tongue

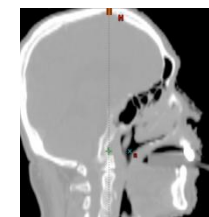


Feedback from patients

- Reasonably comfortable

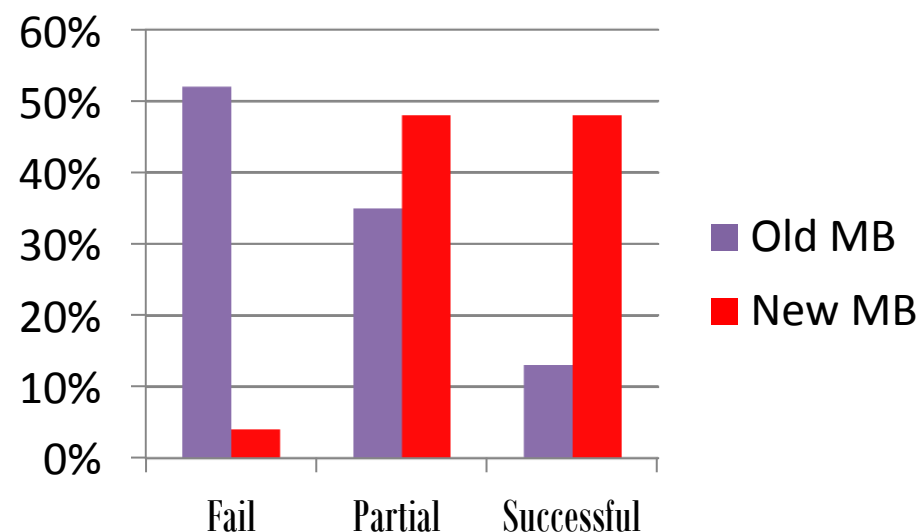
Feedback from staffs

- Less insertion difficulty
- Tongue depression has improved



Full Depression of tongue

Old Vs New MB Success Rate



Statistic result has shown that out of the 23 H&N cases treated with old MB

There are only 3 successful cases (13%) that depress the tongue completely. 8 cases (35%) give a partial tongue depression and 12 cases (52%) failed to depress the tongue at all.

However, out of the 23 cases treated with new MB.

The success rate increases to 48%. Only 4% fails to depress the tongue completely and 48% has partial tongue depression.

Methodology

From the period of 2011-2012, we collected 23 H&N cases treated with the old MB. Whereas 2012-2013, there are 23 cases treated with the new MB

Prior to actual radiation treatment, patients have to go through CT-simulation where the scan images are used for radiotherapy planning.

The CT-simulation is scanned with the patient inserting the MB. Through the sagittal slice of CT images, we are able to see if the MB has served its purpose of depressing the tongue fully.

Data is collected to compare the success rate of the old and new MB in depressing the tongue.

Conclusion

- Result has shown that the new MB has a better stability in immobilizing the tongue and minimizes the movement.
- With this, patient can be accurately positioned for repeat sessions of radiotherapy.
- Side effects such as dry mouth (xerostomia) and inflamed mucous membranes (mucositis) can be minimized

Future Development

- Patient education prior MB moulding procedure to relieve patients' anxiety and follow instruction of inserting the MB correctly.
- Working on improvement in MB-making process – Standardization of dimensions/shapes
- Trial tests still ongoing – improve partial tongue depression rate

