

# Hy-fy hitch- zygomatico-hyoid suspension for dysphagia



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## Hy-fy Hitch- Zygomatico-hyoid Suspension for the Management of Post Surgical Dysphagia

abstract:

Dysphagia is not only a main symptom of the head and neck cancer but also the dangerous complication of the various surgical and other treatment modalities for the same. Though various studies have been done to diagnose this condition but very little is done towards the surgical management of this life threatening condition. through this article the new surgical technique of managing oroesophageal dysphagia by hyoid suspension. Our technique zygomatico-hyoid suspension is simple and logically effective way of managing dysphagia secondary to the surgical resection of lesion in the patient with head and neck cancer. Though this technique is not tried in large number of patients hence the long term benefits and overall improvement in patients quality of life is yet to be ascertained but still it can be a new direction in the surgical management of dysphagia.

### Introduction

Dysphagia is a term derived from the Greek words dys (difficulty) and phagein (to eat) <sup>1</sup>. It is a symptom that expresses a disorder in the transport of food and endogenous secretions (saliva) through the upper digestive tract. Oropharyngeal dysphagia (OD) is a more anatomically restricted term referred to alterations in the transfer of the bolus from the mouth to the esophagus (that means, in bolus propelling from the mouth to the pharynx,

in the pharyngeal reconfiguration during the swallow, or in the opening of the upper esophageal sphincter. <sup>2</sup>

OD is an inescapable concern in the management of patients with oral cancer. Being as a symptom at presentation, as an adverse effect during whatever the treatment, or as sequelae compromising the quality of life of the patients, swallowing disorders have to be adequately anticipated and dealt with. For an outcome to be considered functional, the patient has to be able to swallow in an effective and safe manner. Actually, preserving a functional deglutition is usually the most important goal of the different function-preserving surgical techniques in head and neck cancer surgery.

Normal oropharyngeal swallowing:

swallowing is mainly divided into three phases: 1) preparatory oral phase , 2) oral phase and the last 3) pharyngeal and oesophageal phase. mechanically , several closely coordinated actions are involved:(1) elevation and retraction of the soft palate with closure of oropharynx,(2) UES opening, (3) laryngeal closure at the level of the laryngeal vestibule,(4) tongue loading (ramping), (5) tongue pulsion , and (6) pharyngeal clearance. a fundamental aspect of deglutitive pharyngeal reconfiguration is in transforming the oropharynx from a respiratory to a swallowing pathway by opening the inlet to the esophagus and sealing the inlet to the larynx. Laryngeal vestibule closure and hence airway protection during swallowing is achieved by laryngeal elevation and anterior tilting of the arytenoid cartilages against the base of the epiglottis. UES opening results from anterior traction caused by

contraction of the suprahyoid and infrahyoid musculature evident fluoroscopically by anterior hyoid movement.

Pathophysiology of dysphagia:

Can be divided into two categories:

1) directly due to the resection of the tissues involved in the swallowing i. e. tongue .

2) due to the damage caused by the radiation therapy by following ways:

a: decreased pharyngeal peristalsis.

b: decreased or defective posterior inversion of the base of the tongue towards the posterior pharyngeal wall.

c: decreased elevation of hyoid bone and larynx and decreased inversion of epiglottis. The use of laryngeal suspension as a technique to improve function following surgical resection of the anterior floor of the mouth was first described by Edgerton and Duncan and DesPrez and Kiehn.<sup>3, 4</sup> Later Jabaley and Hoopes simplified the concept of laryngeal suspension after partial or complete resection of the hyomandibular complex by means of a heavy chromic catgut suture between the thyroid cartilage and mandibular symphysis on the premise that the main vector of force required to support the larynx is anterior and superior in the midline.<sup>5</sup> Goode R. L. also described the similar technique of laryngeal suspension after total laryngectomy by thyroid mandibular suspension and he found that swallowing function was improved significantly with his method of laryngeal

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suspension. <sup>6</sup> Hillel A. D. and Goode R. L. gave lateral laryngeal suspension technique in which the thyroid cartilage was suspended to the condyle of resected mandible a modification of Goode R. L.'s original technique, the advantage of this technique is it causes superior as well as lateral movement of larynx which widens the opening of hypopharynx. <sup>7</sup> All these techniques have proven that the hyoid suspension does improve swallowing function to some extent but all these techniques are hyomandibular suspension and our technique is the only technique in which we have used zygomatic bone as a support bone through which hyoid is suspended and in our view this technique provides the most stable and most effective way of displacing hyoid antero-superiorly resulting in the better swallowing control. In this article we describe our method of hyoid-zygomatic suspension.

#### Material and methods:

We perform zygomatico-hyoid suspension in all the patients undergoing total or partial glossectomy with or without mandible resection. The procedure was performed at the Mahatma Gandhi Cancer Institute Miraj.

#### **Notes on Hyoid-zygomatic Suspension Technique**

The hyoid suspension in which 24 gauge stainless steel wire was prestretched and using a awl 26cm in length a circumzygomatic to the hyoid bone suspension was carried out by the key steps were the following. The procedure was performed under general anesthesia while doing primary resection of the tumor. Patient was placed in anti-trendelenburg position with neck hyperextension. Incision was given in natural skin crease between the

hyoid inferior body and the thyroid notch. Median strap muscle dissection between two imaginary parasagittal planes crossing the lesser cornu of the hyoid bone was carried out. Hyoid bone mobilizing test in anterosuperior direction carried out permanent hyoid fixation after having tested the correct position of the thyroid cartilage below the hyoid bone, following fixed steps which are as follows: The zygomatic arch is palpated and puncture wound is performed at the origin of the temporal process of the zygomatic bone. Two pre-stretched 24 gauge wires are passed circumferentially around the hyoid bone in the region where the insertion of the fibrous loop for the intermediate digastric tendon is present. Later awl is inserted from the arch puncture wound and passed anterior to the masseteric muscle and brought to the hyoid bone body region where the already wire loops are present. The wire is fed into the eye of the awl and later pulled out. This wire is removed from the awls eye and stabilised. The awl now is reinserted superficial to the arch brought out from the previous anterior massetric site to the hyoid bone, the other end of wire is fed in the eye and the wire along with the awl is brought out. Traction is given bilaterally and the mobility of the hyoid along with its infrahyoid component is examined. Mandibular movements have to be checked before the wires are twisted and stabilised. Untoward traction is to be avoided in order to avoid hyoid bone fractures. Incision lines are closed in layers.

### **Postoperative Followup**

Postoperatively all patients tolerated the procedure well, with no intra- or postoperative complications. patients . all patients were kept on nasogastric tube ( NGT ) feeding for minimum 3 weeks postoperative period after which

the decision to remove the tube and oral feeding was taken on the basis of patient to patient ability to swallow . No special or additional post-operative care or assessment is required .

## Discussion

The hyoid is a u-shaped bone located in the anterior neck midline, at the centre of three force vectors directed, respectively, towards the mandible, sternum, and mastoid process. It gives insertion to the middle constrictor muscles, which form the lateral wall of the hypopharynx. The suspension of this bone to the Zygomatic bone restores the inferior collapse of the reconstructed floor and lateral mandibular region and improve the tone of the middle constrictor muscles. this technique unlike all the previous technique doesnt take support of the mandible at all hence in cases where in mandible resection is performed along with the tongue or the larynx this technique is probably the only option available to the surgeon to suspend the hyoid bone. Without resuspension, it is speculated that resection of submental lateral mandibular region may lead to inferior and posterior displacement of the hyoid bone. A posterior displacement of the hyoid bone may be implicated in obstruction of the pharyngeal airway which in turn may lead to Dysphagia, or swallowing impairment . The postsurgical alteration in size and position of the hard and soft tissues surrounding the pharyngeal space is also responsible for the airway obstruction.

## CONCLUSION:

Cicumzygomatic hyoid suspension technique is a innovative technique and it is the only technique of hyoid suspension in which instead of mandible the <https://assignbuster.com/hy-fy-hitch-zygomatico-hyoid-suspension-for-dysphagia/>

support is taken from zygomatic bone . as in this technique the vector is in same direction but its supporting bone absolutely nonmobile there by giving greater elevation and stable anterior displacement in comparison to the other techniques of hyoid suspension. we found that swallowing and infra hyoid functions improved in our patient thereby QOL improved. This Hyoid suspension technique is effective when short-term results are considered. The necessity of a more valuable anatomic-based diagnostic approach is crucial to guide the patient selection. Long-term follow-ups and randomized prospective trials with case-control series are needed to increase the level of evidence of this surgery.