



ONGS SURGERY TOTAL LARYNGECTOMY TOTAL PHARYNGECTOMY TOTAL ESOPHAGECTOMY WITH GASTRIC PULL UP. -THE FORGOTTEN SURGERY SANTOSH KUMAR

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Abstract : Total laryngo pharyngo esophagectomy with gastric pull up also known as the ONGS surgery is indicated for large post cricoid tumor with cervical oesophagus involvement. The goal of this procedure is to cure the patient from malignant tumor and restore normal swallowing. With the availability of newer and improved radiotherapy techniques like CHART (continuous hyperfractionated accelerated radiotherapy) the local and delayed complications of radiotherapy has reduced in the recent times. Morbid surgeries like the ONGS are avoided. Now the present indication for ONGS has been restricted to either cases with radiotherapy failure or as a salvage procedure. So in recent times with the rarity of this procedure being performed, it has almost been FORGOTTEN. The purpose of this paper is to highlight ONGS as primary modality of treatment.

Keyword :ONG'S, Forgotten surgery

Introduction:



The hypopharynx means literally low pharynx, tumors in this region have been considered as extrinsic laryngeal carcinomas. Cancer of hypopharynx are rare with average annual incidence of 1:100000. Increased incidence in males of over 2.5:100000 is seen in India, Brazil, central and western Europe. India records the greatest incidence in male population 8 – 15 cases in 100000 populations and for women its 1:100000. Anatomically hypopharynx is divided in to 3 distinct regions: 1.Pyiform fossa 2. Post cricoids 3. Posterior pharyngeal wall. Post cricoids region includes mucosa and submucosa extending from inferior aspect of arytenoids to the bottom of the cricoid cartilage. Post cricoids tumors account for nearly 20% of all hypopharyngeal

malignancy. The epidemiology of post cricoids cancer has been considered historically to be different to that of the pyiform fossa. Post cricoids tumors are more common in women. The female to male ration is approximately 2:1. Post cricoids cancer is more common largely among malnourished Indian women. Its most commonly associated with Petterson - brown Kelly syndrome. This syndrome is characterized by small narrowed lipped mouth, angular stomatitis, smooth pale facial skin and koilonychias and iron deficiency anaemia. Patterson – Brown Kelly syndrome is associated a 30% risk of future development of post cricoids cancer. Post cricoids region acts as a upper sphincter of oesophagus, recurrent trauma caused in the region leads to fibrosis, stricture and web formation. Because of the web, stagnation of food particles causes chronic irritation in this region eventually predisposing to malignancy.

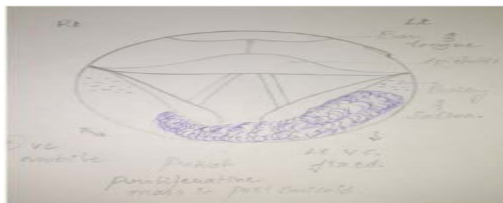
Case details:

A 45 year old lady came to ENT outpatient department with chief complains of difficulty in swallowing for past 5 months. Dysphagia was more for solids than liquids that is level 3 according to dysphagia outcome severity scale. She also complained of hoarseness of voice for past 2 months, which was gradual in onset and slowly progressive in nature. History of aspiration was present for past 1 month. History of loss of weight was present but not quantifiable. No history of any breathing difficulty, no history of any neck swelling or any mass sensations in the neck. No history of any referred ear pain. no history of any hemoptysis. History of cricopharyngeal web dilation was done 10 years ago, following which she didn't had similar complains. No history any other surgeries or blood transfusions done in the past, no history of any associated comorbidities.

On examination:

Patient was conscious, co-operative & oriented with no signs of pallor, icterus, cyanosis, clubbing, lymphadenopathy and oedema. Examination of oral cavity was normal without any stains or pigmentations. Examination of Oropharynx was normal. Nose and ear examination were all normal. On examination of neck didn't reveal any mass nor there were any signs of lymphadenopathy. Laryngeal contour was widened and laryngeal crepitus was normal. IDL examination showed a Pinkish Proliferative mass originating in the post cricoid region, extending

into the left pyriform fossa. With bilateral pooling of saliva and Left vocal cord was fixed while the right vocal cord mobility was restricted. Glottic chink was adequate. Posterior pharyngeal wall, eryepiglottic fold and epiglottis were free from tumour.



Systemic examination of CVS, GIT, CNS, RS were all normal.

Investigations:

1. CBC, LFT, RFT - normal.
2. Bleeding & clotting profile - normal.
3. x-ray nasopharynx soft tissue lateral view- prevertebral thickening of the soft tissue.
4. X-ray Ba swallow.
5. CT neck plain and contrast.
6. USG neck and abdomen – normal.
7. DNE –normal
8. VLS & biopsy.

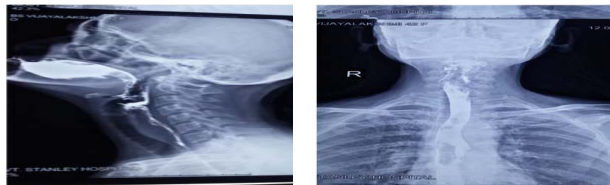
x-ray nasopharynx soft tissue lateral view:



Prevertebral soft tissue thickening present from the level C3 to C7.

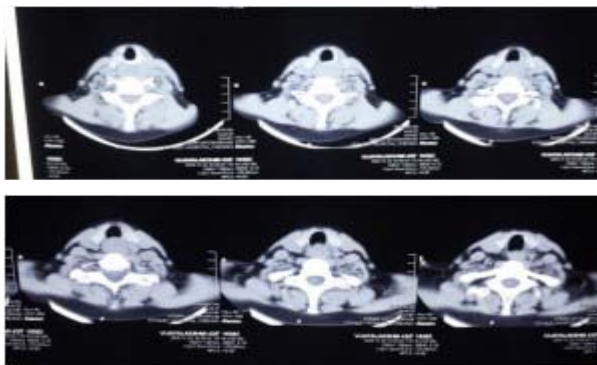
- Tracheal air column normal.

x-ray Ba swallow



- Entry of barium into the cervical oesophagus restricted.
 - Entry of barium into thoracic oesophagus appears normal.
- Impression: Growth in the laryngopharynx extending from c3 to c7 and probably involving cervical oesophagus and left pyriform fossa

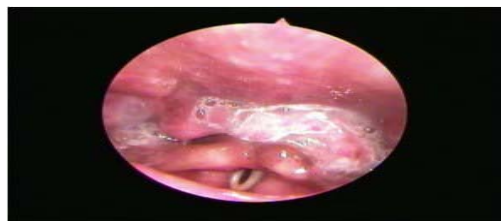
CT neck plain and contrast:



Impression:

- Proliferative mass seen involving post cricoids region.
- Mass extending into left pyriform fossa and cervical oesophagus.
- No lymphadenopathy. All great vessels are normal without any mass infiltration.

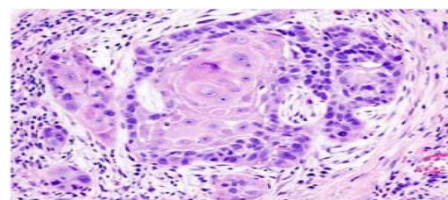
VLS:



Pinkish Proliferative mass originating in the post cricoid region, extending into the left pyriform fossa. With bilateral pooling of saliva and Left vocal cord was fixed while the right vocal cord mobility was restricted. Glottic chink was adequate. posterior pharyngeal wall, eryepiglottic fold and epiglottis were free from tumour. Subglottis was normal.

HISTOPATHOLOGY:

- HPE: Nests of malignant squamous epithelial cells with abundant eosinophilic cytoplasm & pleomorphic hyperchromatic nuclei.
- IMP: Well differentiated keratinizing Squamous cell carcinoma.



Diagnosis and staging:

- Malignant growth of hypopharynx (post cricoid) with cervical oesophagus involvement.

Stage 3:- T3, N0, M0

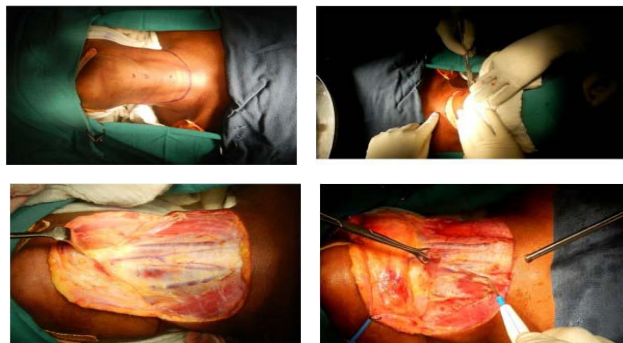
Treatment plan:

ONG'S surgery - Total laryngectomy + Total pharyngectomy + Total esophagectomy with Gastric pull up. Post operative chemo-RT depending on operative findings. Patient was posted for surgery along with surgical gastroenterology team after getting fitness for surgery.

Surgical procedure:

Anaesthesia: General anaesthesia through orotracheal intubation. Position: supine with neck extension. Local infiltration: tumescent solution.(10ml sodium bicarbonate+1ml of 1:1000 adrenaline+30ml of 2% lignocain+500ml of ringer lactate) Under sterile precautions GA was given through orotracheal intubation. Patient was put in position and neck was painted and draped. Glucsoreson's incision was made extending from mastoid tip on one side to the suprasternal notch and reaching onto the mastoid tip of opposite side. Subplatysmal flap was elevated above upto the level of

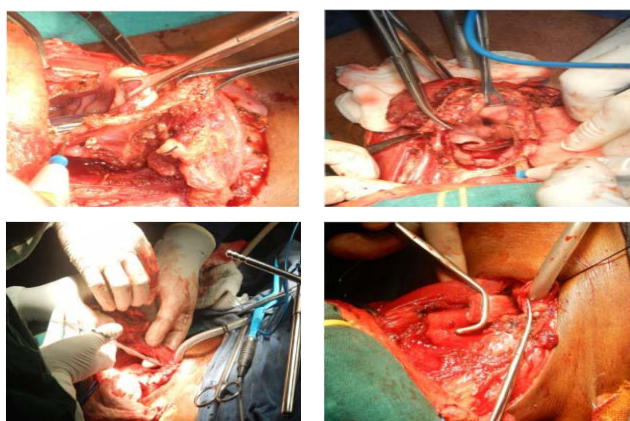
hyoid bone and inferiorly up to the sternum and clavicle. Sternohyoid muscle was divided and Omohyoid muscles were identified and divided on both sides at its tendoneous attachment in between the two bellies. Similarly Sternothyroid muscles were divided and retracted laterally. Thyroid gland was exposed in the middle and divided through the isthmus. Superior laryngeal pedicle is identified, divided and ligated with 2.0 silk. Middle thyroid vein was ligated.



Hyoid bone was skeletonized by dividing the attachments of suprahyoid and infrahyoid muscle. The whole of hyoid bone was delineated after dividing the stylohyoid ligament on both sides.



Inferior laryngeal pedicle identified and ligated on left side. Pharyngotomy done above the hyoid in the oropharyngeal mucosa and larynx along with hyoid bone pulled anteriorly. Larynx was mobilized along with mucosa of hypopharynx separated from the prevertebral mass muscle which was found to be free of any infiltration. There was a proliferative growth involving the post cricoid region and whole of left pyriform fossa mucosa extending upto the upper oesophagus. The larynx divided along with left thyroid lobe and divided from the level below the 2nd tracheal ring along with upper oesophagus.

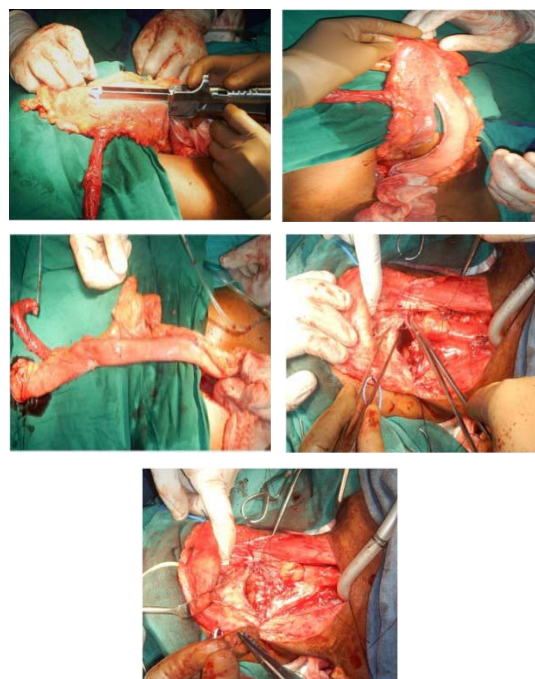


Laprotomy incision was made and the stomach, duodenum and hiatus were visualized. Stomach was released from the omental attachments, lesser sac after dividing greater omentum few centimetres away from gastroepiploic arcade. Adhesions between stomach and pancreas released.

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Left gastroepiploic vessels identified by incising lesser omentum ligated and divided. Transhiatal esophageal mobilization done. Right gastric vessels preserved. Tubularization of stomach along greater curvature planned by measuring the approximate length of the oesophagus needed to reconstruct. Tubularization done with 80mm TLC staplers with 3 firing. More than adequate conduit length obtained, brought to neck orthotopically. Excess of conduit trimmed and excised along with oesophagus. Tension free pharyngo gastric anastomosis done with 3-0 vicryl plus continuous interlocking sutures. Hemostasis attained.



Feeding jejunostomy done with 10 fr infant feeding tube by modified mitzel technique. Wound closed in layers, rectus closed with 1-0 prolene. Skin closed with 2-0 ethilon. Ryles tube fixed in position and tracheostomy tube secured.





Post operative care:

- } NIL ORAL
- } I/O CHART
- } IV ANTIBIOTICS
- } RYLES TUBE ASPIRATION
- } NOT ALLOWED TO SWALLOW SALIVA
- } IV FLUIDS– DNS 2pints, D5 2pints, RL 1pint
- } Inj. Deriphyllin/Inj. Dexa/Inj. Fortwin & phenergan

POD-1:

- } General examinations
- } CVS- S1 & S2
- } CHEST- B/L air entry, crepitus
- } GIT- passed flatus
- } WOUND- Bleeding/ Dressing soakage - Elevated flap
- } Ryles tube position
- } IV line
- } Drainage measured
- } Tracheostomy tube care
- } Weight of the patient measured.
- } ECG
- } CHEST X-RAY
- } Chest physiotherapy
- } RBS
- } Ambulate the patient
- } Daily dressing

POD-2:

- } BRONCHORRHOEA
- } Swab from tracheostomy & oral suction tip for C/S
- } Drain < 30ml– remove
- } Ryles tube feed

POD-3:

- } Serum calcium
- } Astymin infusion

POD-10

- } Alternate suture removal

POD-12

- } All suture removal
- } Oral feed start



Discussion:

In 1960 Ong and Lee were the first to describe gastric transposition with pharyngogastric reconstruction. They used a transthoracic approach for the single-stage reconstruction after pharyngoesophagectomy. At present, the “gastric pull-up” technique is performed without thoracotomy in favour of blunt oesophageal dissection to reduce the high morbidity and mortality associated with simultaneous violation of the thorax and abdomen.

INDICATIONS OF ONGS:

- Large post cricoid mass,
- Extension of tumor into Cervical oesophagus,
- Second tumor in oesophagus,

- Tumor and perforation,
- Thyroid cancer invading pharynx,
- Heavy irradiation damage,
- Peristomal recurrence,
- Failed previous methods.

Why ONG'S was chosen as the primary modality of treatment in our case:

- ;} Large post cricoid mass.
- ;} Cervical oesophagus extension.
- ;} Fixed VC.
- ;} No lymphadenopathy
- ;} Well nourished & non anaemic patient.
- ;} Younger age.

As patient was just 45 years old without any co morbidities. She was well nourished and non anaemic which is the main prognostic factor for expected complete recovery from the surgery. Tumor was well differentiated and confined to the larynx and oesophagus without any nodal or distant metastasis. All these factors made her the ideal candidate for ONG'S procedure by which she would be cured of the cancer and restore swallowing within 2 weeks.

ADVANTAGES AND DISADVANTAGES OF ONG'S

Advantages	Disadvantages
Complete cure	Morbid procedure
Single staged procedure	Long duration of surgery
Shortest duration to restore swallowing	Intra-operative cardiac accidents and bleeding are common
Better prognosis when combine with post operative chemo-RT than with chemo-RT alone	Post operative complications like: Pharyngocutaneous fistula, loss of voice, permanent tracheostoma.

BENEFITS OF GASTRIC PULL THROUGH:

Gastric transposition offers many of the ideal elements for pharyngoesophageal reconstruction: It provides a reliable, single-stage restoration of alimentary continuity by use of well-vascularized tissue from a donor site that is remote from the field of radiation. Significantly, it allows complete removal of the esophagus, thereby eliminating the dangers of unappreciated submucosal extension or a synchronous tumor in the distal esophagus. There is only one visceral anastomosis, which is generally located in the neck, thereby decreasing the possibility of stricture, fistula, and postoperative mediastinitis. Before the mastery of microvascular techniques, gastric transposition was regarded as the procedure of choice for hypopharyngeal lesions because it was a relatively simple and reliable technique that allowed most patients to swallow with timely healing and reasonable morbidity

ADVANTAGES AND DISADVANTAGES OF GASTRIC PULL THROUGH

Advantages	Disadvantages
Sterile graft tissue	Gastric reflux
Peristalsis retained	Early satiety
Shorter hospital stay	Post prandial pressure sensation
Easier operative Technique	Loss of gastric reserve
Single staged procedure	Late development of esophagitis, stenosis or barrett's esophagus

Benefits of abdominal viscera:

- ;} Single staged.
- ;} Better blood supply.
- ;} Retaining peristalsis.
- ;} Reduced fistulas, strictures

OTHER METHODS OF RECONSTRUCTION:

- ;} Colon
- ;} Intestinal free microvascular flaps (jejunal best)

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