

CARCINOMA OF OESOPHAGUS ; A LETHAL PROBLEM

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INTRODUCTION

The carcinoma of the oesophagus is the malignant tumor of the oesophagus^{1,2,3}. It is a fatal disease. Combination therapy offers improved survival rate to some extent. Early diagnosis is rewarded by decreased operative mortality, relief of symptom and higher 5 year survival rate following curative surgery.

The results of surgical treatment are further improved by;

1. pre-operative physical & emotional preparation of the patient,
2. Higher surgical skill & co-ordination of the nursing, surgical, anaesthetic, intensive care specialist and physiotherapist⁴.

INCIDENCE AND EPIDEMIOLOGY¹

1. It is seen in 5-10% of all malignancies.
2. It is seen in 10 % of all gastro-intestinal malignancies.
3. It is less common than carcinoma of bronchus, stomach, colon, prostate and pancreas.
4. It is common between fifty to seventy years age group.

5. Nearly 28 % of the patients are females.
6. It is common in males .
7. Male to female ratio varies between 2:1 to 20:1 in different studies.
8. It is four times more common in colored people as compared to white races.
9. It is 25 times more common in alcoholics.
10. It is 6-7 times more common in smokers.
11. It is more common in Japan, China, Scotland, Russia and Scandinavian countries.
12. 10-20 new patients of carcinoma of oesophagus are seen per 1000,000 per year in France & 5 cases per 100,000 in USA & 100 cases per 100,000 in China.
13. It is 20-30 times more common in China than Europe and is seen commonly in younger males.
14. Squamous cell carcinoma is the most common type (80-90%).
15. Adenocarcinoma is seen in 5-10 % of the cases.
16. The incidence of adenocarcinoma is rising and squamous cell carcinoma is decreasing.
17. Anaplastic carcinoma is seen in 5-10% of the cases.
18. The tumor is usually diagnosed quite late.
19. Only 40% of the patients with carcinoma of oesophagus report within three months of

the onset of symptoms.

20. The prognosis is very poor and depends upon stage of the disease. Overall 5 years survival is less than 5%.
21. It causes 20% of all cancer deaths.

Its incidence is higher in patients who suffer from following conditions^{2,3} ;

- a. Oesophagitis (Barrett's oesophagus).
- b. Achalasia cardia.
- c. Corrosive Strictures of oesophagus.
- d. Plummer-Vinson syndrome.
- e. Diverticula.
- f. Webs.
- g. Tylosis type B
- h. Scleroderma

Barrett's oesophagus is the replacement of oesophageal squamous epithelium by columnar-lined mucosa and it carries an increased risk of malignancy⁵.

ETIOLOGY

The exact cause of carcinoma of the oesophagus is not known.

Environmental and dietary factors are blamed for causing this disease. Following conditions are associated with a higher incidence of carcinoma of oesophagus^{1,2,3}.

ALCOHOL INTAKE

Beer carries a substantial risk. Less dilute forms of alcohol carry no risk. It is more common in heavy drinkers.

HABITUAL SMOKING

Tobacco smoking is a strong risk factor for squamous cell carcinoma of oesophagus and gastric

cardia. The increase is about five fold in smokers than non-smokers. The people in habit of chewing tobacco (naswar, paan) also run a higher risk of having carcinoma oesophagus.

INGESTION OF EXOGENOUS CARCINOGENS

Ingestion of exogenous carcinogens and promoting factors such as nitrosamine and tannins etc increase the risk of carcinoma of oesophagus.

It is seen in patients who eat salted, pickled or smoked food.

Hot and spicy food intake, amount of fat ingested and total calories also influence its occurrence.

INFECTION WITH HUMAN PAPILLOMA VIRUS

It is also associated with increased risk of carcinoma oesophagus.

ABSENCE OF PROTECTIVE SUBSTANCES

Absence of protective substances in fruits, green vegetables (vit A, B₂, C and E) and trace elements such as Iron, Zinc, Selenium etc may lead to increased risk of oesophageal carcinoma. Coeliac disease sufferers run an increased risk.

ASSOCIATED CONDITIONS

Plummer-Vinson syndrome, achalasia cardia and corrosive strictures of the oesophagus are commonly associated with oesophageal cancer. Carcinoma of oesophagus frequently occurs in patients with long standing achalasia cardia. It shows;

- 1- p53 alterations, over expression and mutational change.
- 2- Inflammation seen in these patients is associated with alteration of the p53

protein.

- 3- Expression of tumor suppressor gene is increased in areas showing proliferation.

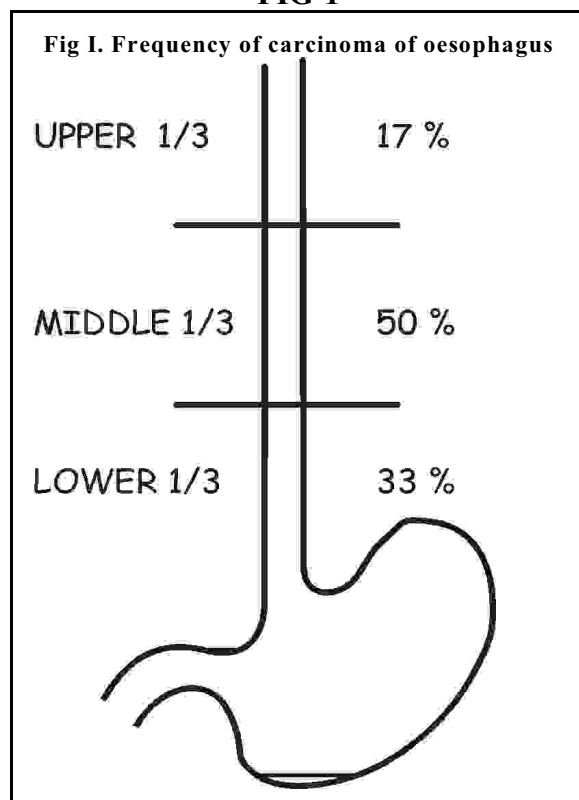
PATHOLOGY^{1,2}

The carcinoma of oesophagus is mainly squamous cell carcinoma, but lesions of lower end of oesophagus may be of columnar cell type (Adenocarcinoma). These may possibly be an extension of carcinoma of stomach.

The frequency of malignancy at different sites of oesophagus is as given below Fig I;

1. Upper 1/3 17%
2. Middle 1/3 50%
3. Lower 1/3 33%

FIG-1



Previous view that the tumor is present at the points

of constriction of the oesophagus has not been proved by any investigation.

MACROSCOPIC FEATURES

Following types are seen :

SMALL EARLY LESION

The carcinoma of oesophagus begins as in-situ lesion. Early lesions appear as small gray white plaque like thickened lesions.

These lesions appear as thickening of mucosa and submucosa. These extend with the time and encircle whole of the oesophageal lumen.

The prognosis after surgery is very good. 5 years survival is achieved in 85% of patients if treated at this stage.

CONSTRUCTIVE LESIONS

(Stenosing, Scirrhus or flat lesions)

These lesions tend to spread within the wall of the oesophagus causing thickening, rigidity and narrowing of the lumen.

FUNGATING LESIONS (60%)

(Cauliflower type)

The lesion protrudes into the oesophageal lumen and blocks it. It is the most common type of carcinoma of oesophagus. It is seen in 60% of the cases.

ULCERATING LESION

Excavating Lesion (25%)

The lesion is similar to epithelioma. It is seen in 25% of the cases.

The lesion presents with everted and raised margins. It erodes deeper into oesophageal wall, respiratory passages, mediastinum, aorta and pericardium.

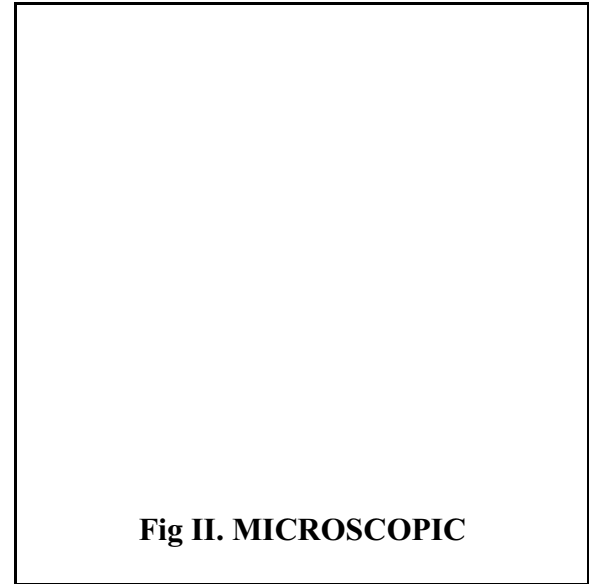
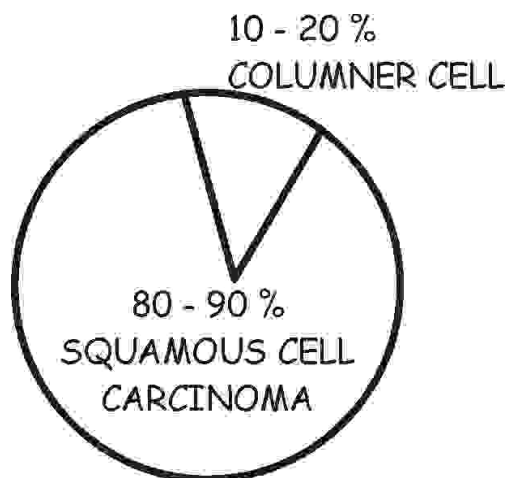
MICROSCOPIC APPEARANCE

Histologically 80-90% of the lesions are squamous cell carcinoma and rest of these are columnar cell carcinomas Fig II (Adenocarcinoma).

Rarely sarcomas are also seen. Leiomyosarcoma is the most common type of sarcoma. Mixed tumors may also be seen. Some tumors have large pleomorphic anaplastic cells. Some are "oat cell" type tumors having small uniform cells with deeply chromatic nuclei (APUDOMAS)

The carcinomas are seen from well differentiated to anaplastic types. Most of the carcinomas have gone beyond the oesophageal wall at the time of diagnosis.

Adenocarcinoma arises from Barrett's epithelium in patients with long standing reflux. Majority of these lesions are seen to arise from lower oesophagus. Its prognosis is poor. Its spread is similar to squamous cell carcinoma.



The cyto-pathologic changes of adenocarcinoma of oesophagus are⁶;

Loss of orientation and nuclear crowding.
 High nuclear / cytoplasmic ratio.
 Prominent nucleoli.
 Nuclear and cytoplasmic moulding.
 Hyperchromatic nucleus.
 Coarse chromatic clumps.
 Multilayered tissue fragments.

SPREAD

The tumor spreads ;

- i. Directly (Trans-mucosal)
- ii. Through lymphatics
- iii. Through blood vessels

DIRECT SPREAD

It occurs both in transverse and longitudinal directions. It may involve the muscle wall of the oesophagus, pulmonary tree, mediastinum, aorta and pericardium and may lead to fatal outcome.

LYMPHATIC SPREAD (Fig III)

The rich lymphatic network in the submucosa promotes extensive longitudinal and circumferential spread. It occurs both by embolization and permeation of the tumor cells.

The spread occurs to supra-clavicular, para oesophageal, tracheo-bronchial and sub-diaphragmatic lymph nodes.

The spread of tumor from upper one third of the oesophagus is mainly to the cervical lymph glands.

The spread from middle one third of the oesophagus is mainly to the para-tracheal, tracheo-bronchial and mediastinal group of lymph glands. Similarly the spread from the lower one third of the oesophagus is to the gastric, coeliac and sub-diaphragmatic glands.

BLOOD BORNE SPREAD

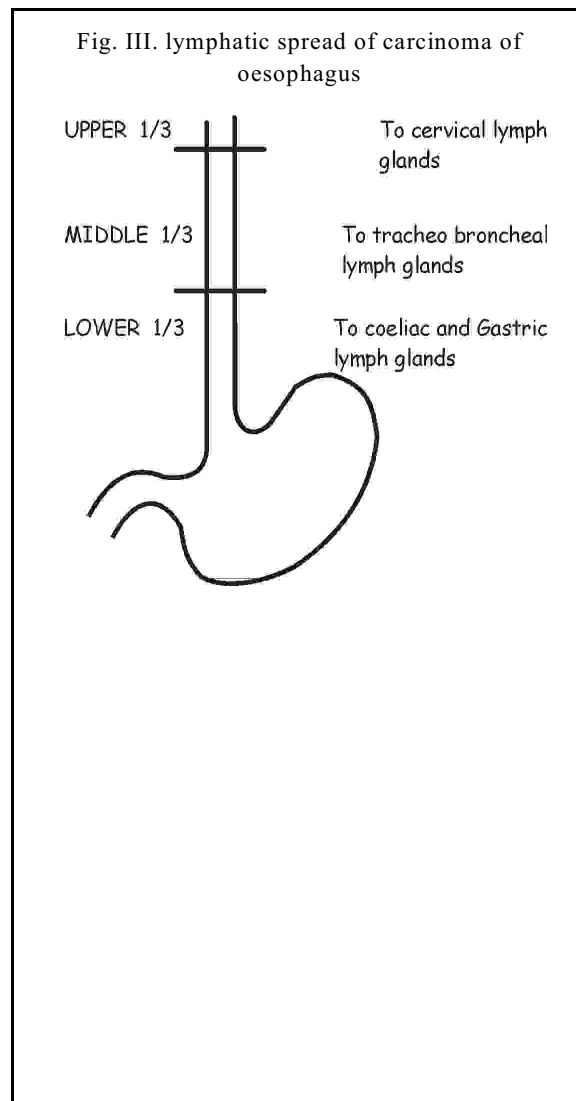
Its blood borne spread occurs commonly to liver and lungs.

STAGING^{2,3}

It is essential to assess the extent of disease first and then plan the treatment. T.N.M or international staging systems are commonly used.

Full staging of the tumor is performed after histological diagnosis has been made. It includes barium swallow and endoscopy which allow assessment of length of tumor, distortion of oesophageal human, possibility of submucosal satellite nodules, rigidity and mobility of the tumor.

The inoperability of thoracic oesophagus and involvement of sub-diaphragmatic structures such as liver and lymph glands is assessed.



Vocal cord paralysis must be checked for the involvement of recurrent laryngeal nerves.

Diaphragmatic paralysis (phrenic nerve involvement) should be checked by abdominal ultrasonography or fluoroscopy.

T.N.M STAGING

(T) PRIMARY TUMOR

- | | |
|-----|-----------------------------------|
| Tx | Primary tumor cannot be assessed. |
| To | No evidence of primary tumor. |
| Tis | Carcinoma in situ. |

- T1 Tumor involves only mucosa.
 T2 The tumor invades muscularis mucosae.
 T3 The tumor invades the peri-oesophageal tissue.
 T4 The tumor invades adjacent structures.

(N) REGIONAL LYMPH NODES

- Nx Regional lymph node can not be assessed.
 N0 No regional lymph node metastasis present.
 N1 Regional lymph node metastasis present.
 N2 Juxta regional lymph node involvement.

(M) DISTANT METASTASIS

- Mx Distant metastasis cannot be assessed.
 M0 No distant metastasis.
 M1 Distant metastasis present.

STAGE - I

The tumor is limited to the lamina propria or submucosa only.

STAGE - II

The tumor is limited to the oesophagus.
 Lymph glands may be involved (regional mobile nodes) but are resectable.

STAGE - III

The tumor is more than 10 cm in length.
 It extends to the adjacent lymph glands.
 The tumor or the lymph glands or both are inoperable. (inoperable local extension).
 Tight stricture is a 90% predictor of this stage.

STAGE - IV

All the features of stage three.
 Perforation or fistula formation.
 Presence of distant metastasis.

CLINICAL FEATURES AND DIAGNOSIS

The carcinoma of the oesophagus mainly presents in the 50-70 years males. History is very much suggestive of the diagnosis.

Local examination has very little to offer in the diagnosis. General examination of the patient is also suggestive of the diagnosis such as severe weight loss, anorexia and cervical lymph-adenopathy may be due to carcinoma of the oesophagus. The usual presenting features are;

DYSPHAGIA

It is difficulty in swallowing which is not severe in the beginning and may be noticed only to solid foods. It gets worse progressively and then is noticed to fluids also. When the oesophageal obstruction becomes complete, tumor necrosis and its swallowing may improve the dysphagia occasionally.

ODYNOPHAGIA

It is painful swallowing which is a late presentation of carcinoma of oesophagus. The painful tongue fails to push the food backwards during oral phase of swallowing and causes this feature.

REGURGITATION

The swallowed secretions which fail to enter the stomach due to oesophageal obstruction, trickle out of oesophagus.

Some of these secretions are aspirated into the tracheo-bronchial passages and some come out of mouth. It is commonly known as pseudo-vomiting.

RETROSTERNAL DISCOMFORT

It is a fairly common symptom. The usual cause is

oesophagitis due to oesophageal obstruction and collection of food material and salivary secretions proximal to the obstruction.

It may be severe in the presence of certain complications of carcinoma of oesophagus such as perforation, pericarditis and pleural effusion.

Continuous chest pain in these patients indicates mediastinal invasion.

COUGH & HOARSENESS

It is common with upper oesophageal lesions. It occurs due to direct invasion of recurrent laryngeal nerve or airway.

Aspiration pneumonitis is another reason for discomfort. There could be oesophageo-tracheal fistula which may lead to attacks of cough after every fluid intake.

WEIGHT LOSS

These patients progressively lose weight. They are unable to eat enough food and also lose weight because of malignancy. General nutritional state should be assessed and monitored by serial anthropometric measurements like skin fold thickness and triceps girth.

INVESTIGATIONS

Following investigations are helpful in the assessment of general condition of the patient and confirmation of the diagnosis :

URINE EXAMINATION

It is a simple investigation for the general assessment of the patient.

BLOOD EXAMINATION FOR;

1. Hemoglobin estimation
2. Total leucocyte count
3. Differential leucocyte count
4. Sedimentation rate
5. Urea and electrolytes
6. Serum iron level
7. Serum transferrin level
8. Serum protein (Albumin) level
9. Grouping & cross match.

PULMONARY FUNCTION TESTS

E C G , S T R E S S E C G & ECHOCARDIOGRAPHY X-RAY CHEST

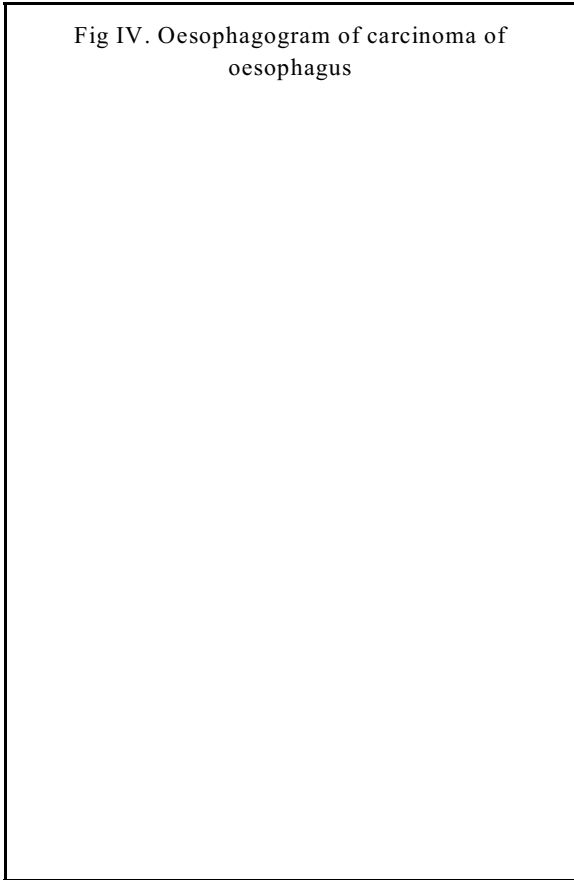
It helps to show lung parenchymal involvement and features of aspiration pneumonia. It may also show;

1. Air-fluid level in the oesophagus (due to collection of secretions and air above the obstructed mega oesophagus).
2. Pleural effusion
3. Infiltrates suggesting aspiration
4. Mediastinal widening
5. Lung metastasis⁴

BARIUM SWALLOW (OESOPHAGOGRAPHY)

Single contrast films may be exposed. It shows typical irregular stricture or shouldering. It helps to access the length of the tumor and distortion of the lumen of the oesophagus⁴. Double contrast films are not helpful in oesophageal studies Fig IV.

Fig IV. Oesophagogram of carcinoma of oesophagus



ULTRASOUND SCAN

It is performed to check up the diaphragmatic movements which may be absent in phrenic nerve paralysis due to tumor infiltration. It is also used for detecting liver secondaries, para-aortic L.nodes & ascites.



ENDOLUMINAL ULTRASONOGRAPHY (EUS)

It is a high resolution endoscopic ultrasonography. The ultrasound probe is attached to the endoscope. It helps to assess the tumor and detects depth of tumor penetration and its extension into para-oesophageal tissue. It is essential for T staging and detecting peri-oesophageal lymph glands. Its accuracy rate for T staging is 80 –90% and for N staging is 60 – 80%⁴.

Following five oesophageal layers are identified and there invasion is seen and documented;

- I. Mucosa
- II. Lamina Propria
- III. Muscularis Mucosa
- IV. Muscularis Propria
- V. Advential Layer

Its pick up rate is about 85% in patients where examination is complete and the stricture is passable by the endoscope.

Endoscopic ultrasonography (EUS) is also helpful in the diagnosis of very early and subepithelial lesions. It is a superior investigation to assess transmural invasion⁷. It is superior to CT in detection of the metastasis to regional lymph nodes⁸. It has its own limitations as it cannot pick up distant metastasis⁹. Its use is limited to the tumors which are passable by the endoscope. Its greatest use is in the assessment and staging of the disease. It also helps in choosing the adjuvant therapy.

OESOPHAGOSCOPY

It is endoscopic visualization of oesophagus. It shows the lesions in upper, middle and lower third of the oesophagus¹⁰.

Dye endoscopy using lugols solution is very important because it allows detection and evaluation of the extent of oesophageal mucosal cancer. The lesions show as unstained areas⁹.

ENDOSCOPIC FNAC

Endoscopically directed fine needle aspiration cytology has been a valuable adjunct to forceps biopsy in the evaluation of gastric and oesophageal lesions¹¹.

BIOPSY

Endoscopic biopsy is confirmatory of the diagnosis.

LUGOLS TEST

The lugols staining pattern helps in the detection of earlier lesion of carcinoma oesophagus, carcinoma in situ and intra epithelial extension which are otherwise difficult to detect. These can be easily detected by Lugol staining.

This method is useful to detect severe dysplasia and extension of tumour¹¹.

The usefulness of the staining pattern with Lugol's solution to diagnose the oesophageal lesions such as squamous cell carcinoma and severe dysplasia has been proved by many studies. The precise delineation of the proximal resection line during surgery of oesophageal carcinoma with unexpected wide extension is detectable¹¹.

Four grades of Lugols test are seen ;

Grade I	Greenish(normal mucosa)
Grade II	Brown staining (dysplasia)
Grade III	Less intense staining (Ca. in situ)
Grade IV	Unstained (frank carcinoma)

THORACOSCOPY

Endoscopic examination of the thorax helps to see the local spread of the disease. It allows to sample the involved lymph glands and diseased tissue for histological examination.

BRONCHOSCOPY

Bronchoscopy is performed to exclude involvement of trachea and bronchial tree in all types of carcinoma of upper and middle third of oesophagus.

C.T. / MRI SCAN

These may be useful in staging the tumor in advanced carcinoma¹³. These help to detect;

- i. Length of tumor.
- ii. Relationship of tumor to adjacent structures(aorta, pericardium, pulmonary tree etc.)
- iii. To assess the status of retroperitoneal and mediastinal lymph glands⁴.
- iv. Liver metastasis.

Both of these imaging investigations are more expensive and unsatisfactory in diagnosis of early oesophageal carcinoma (lesions smaller than 5cms) and spread into the mediastinum. But these are helpful in advanced carcinoma of oesophagus. Both have nearly the same accuracy in predicting the resectability of these tumors.¹⁴

LAPAROSCOPY

It is used to pick up intra abdominal extension of the disease process. It is used for the assessment of metastasis in the liver, diaphragmatic hiatus, coeliac axis and peritoneal metastasis. Its accuracy rate is more than 90%. It is much better than other investigations^{13,15}.

It is useful in lesions of lower third of oesophagus. Laparoscope is used for direct vision. Laparoscopic ultrasonography is also used in selected cases.

TREATMENT

Objectives of the treatment are;

- I. Preparation of the patient for definitive treatment. (Improving the nutritional status)
- II. Relief of dysphagia and associated symptoms. (Chest infection etc.,)
- III. Removal of the neoplastic tissue completely or as much as possible.
- IV. Terminal care of the patient in case of inability to treat or palliate the patient.

The following modalities are available for the treatment of carcinoma of oesophagus;

1. Surgery, curative or palliative (bypass).
2. Radiotherapy
3. Chemotherapy
4. Intubation
5. Tumor destruction with laser, cryo-probe or photo-dynamic therapy.
6. Combination of these modalities.

The treatment plan is decided depending upon following factors;

1. Stage of the disease
2. General condition of the patient.
3. Associated cardio-pulmonary disease.

The treatment is ;

1. Initial treatment
2. Definitive treatment
3. Terminal Care

INITIAL (SUPPORTIVE) THERAPY

The general condition (nutrition) of the patient should be improved before any kind of definitive treatment is undertaken.

The fluid and electrolyte deficiencies should be corrected by providing naso-gastric feeding or parenteral infusion.

Aspiration of the foetid fluid from the oesophagus must be performed.

Naso-gastric feeding with balanced and high protein diet should be done. If it is not possible, parenteral feeding and blood transfusions should be carried out to improve the general health and anaemia of the patient.

Antibiotics should be used to control the chest infection and aspiration pneumonia.

Chest physiotherapy and postural drainage of the tracheo-bronchial passages should also be performed to clear the airways and improve ventilation. Satisfactory cardiopulmonary function must be achieved before surgery.

Feeding gastrostomy or jujinostomy is occasionally required now-a-days.

4-5 pints of blood are crossmatched and arranged before surgery.

DEFINITIVE TREATMENT

Objective of definitive treatment are;

- I. Excision of whole of thoracic oesophagus and its associated immediate lymphatics.
- II. Achievement of satisfactory passage for food from mouth to stomach.
- III. To achieve the possibility of prolonged

disease free interval with good quality of life.

- IV. Removal of lesser curvature lymph nodes adjacent to stomach and coeliac axis nodes in lower third oesophageal carcinomas.

SURGERY

It should be carried out in early lesions of carcinoma of oesophagus (T1 & T2 lesions) when the tumor has not spread to the supra-clavicular lymph glands, tracheo-bronchial passages and liver.

It should be carried out in fit patients who can withstand the trauma of major surgical procedure¹⁶.

The involvement of lymph nodes at tracheal bifurcation, coeliac axis and lesser sac indicate distant metastasis and inoperability.

It is contraindicated in T4 lesions. The patients with T3 N1 lesions of oesophagus may be considered for radical resection in fit patients.

Thoracic duct should be tied at diaphragm in continuity with oesophagus.

TRANS-THORACIC OESOPHAGECTOMY

The laparotomy is performed. Resectability of the lower oesophagus is assessed and stomach is mobilized. Then chest is opened to mobilized the oesophagus.

Resection of whole of the tumor and about 5 cm of healthy oesophagus proximal and whole of the oesophagus distal to growth is performed. Then anastomosis of the remaining oesophagus is done and following procedures are used to restore intestinal continuity;

1. Reversed gastric tube.
2. Gastro-oesophagostomy.

3. Oesophago - colonic tube (Rt. or Lt.) anastomosis.
4. Oesophago - Jejunal anastomosis.

TRANS-HIATAL OESOPHAGECTOMY

Trans-hiatal oesophagectomy is used for lesions of the lower third of oesophagus. It is a good operation which avoids thoracic anastomosis and its complications. It is safe and well tolerated procedure with lower morbidity and mortality. It has short operating and anaesthesia period¹⁷.

The treatment of choice for squamous cell carcinoma is trans-thoracic oesophagectomy¹⁶

Highest survival rate which has been reported after surgery is 24%.

MINIMALLY INVASIVE OESOPHAGECTOMY

It is endoscopic excision of the oesophagus with the help of a laparoscope or thoracoscope alone or in combination. It is a safe and feasible alternative to conventional open surgery for carcinoma of oesophagus. It is performed for Barrett's oesophagus with high grade dysplasia. Its operative time is more (7 – 8 hours) as compared to open operations but the outcome is comparable with minimum complications.

ENDOSCOPIC EXCISION

The superficial oesophageal carcinoma can be excised endoscopically by mucosal resection. It is simple and minimally invasive²⁴.

POST OPERATIVE CARE

Following special care is taken after oesophagectomy;

1. The patient is kept in intensive care.
2. The patient is kept on assisted ventilation for at least 24 hours.
3. Chest x-ray is performed to check the full expansion of lung and position of chest drains.
4. Epidural, intravenous or local analgesia is given.
5. Intravenous fluids & electrolytes are given.
6. Oxygen saturation should be monitored and supplemented.
7. Total parenteral nutrition is preferably given in early period.
8. Urinary out put is monitored.
9. Chest physiotherapy is regularly performed.
10. Thrombo-embolic prevention by use of stockings and subcutaneous heparin is done.
11. Prophylactic antibiotics are given parenterally
12. Regular Naso-gastric aspiration is continued very carefully.
13. Mouth care is looked after.
14. Pressure sores are avoided by adequate nursing.
15. Jejunostomy tubes are left in situ.
16. Gastrographin swallow is performed on 5th-6th day to check the patency of anastomosis.
17. NG tube is removed and chest drains are removed at appropriate times.
18. Check x-ray of the chest is performed.
19. Oral diet is gradually started afterwards.
20. Patient is encouraged to mobilize out of bed.

POST OPERATIVE COMPLICATIONS

1. Respiratory failure.
2. Anastomotic leakage.
3. Delayed gastric emptying.
4. Impairment of patient's nutritional and immune status.

RADIOTHERAPY

The squamous cell carcinoma of the oesophagus is radiosensitive tumor.

T3 and T4 tumors above the level of tracheal bifurcation are best treated by radiotherapy and chemotherapy pre-operatively¹⁶.

Adenocarcinoma of the oesophagus is not radio-sensitive and has poor prognosis after radiotherapy.

5000-6000 rads have been used. Smaller doses have also been used pre-operatively.

Radiotherapy has only slight effect on the prognosis of inoperable carcinoma of oesophagus¹⁸.

Radiotherapy has its own problems such as radiation pneumonitis and stricture formation.

The treatment for un-resectable carcinoma of the oesophagus patients can be done with external beam radiotherapy (EBRT) 55Gy¹⁹.

Intra-cavity radiotherapy (brachytherapy) is also a useful method of radiotherapy for carcinoma of oesophagus. It permits good tolerance in patients with superficial oesophageal carcinoma. It should be used very carefully as it can lead to treatment related fistulas specially when used in combination with chemotherapy.

Five years survival rate is poor (6% only).

LASER COAGULATION

Complete resection is not feasible in advanced carcinoma of oesophagus. Nd-YAG laser is used for photo-coagulation. It is helpful in mucosal tumors and for palliation of advanced tumors.

Other types of small probes are also available which can produce photo-coagulation of few millimeter deeper tissue. These are helpful in more advanced

disease as a palliative procedure²⁰.

It can be combined with endoscopic intubation which offers definitive palliation but runs the risk of causing perforation²¹.

A combination of endoscopic laser therapy (ELT) and insertion of wallstents or intubation is a good alternate therapy for palliation of oesophageal carcinoma²².

Endoscopic palliation and laser therapy has almost 100% technical success rate.

The laser therapy requires several sessions and relapses of obstruction are frequent but laser therapy is safe and carries minimum risk of complication.

CHEMOTHERAPY

A combination of cisplatin and fluorouracil is commonly used and found to be successful in this disease. It can be used in T3 and T4 tumors before surgery¹⁶. Concomitant chemo-radiation may be treatment of choice for carcinoma of cervical oesophagus.

STENTING

Self expanding metallic stents are used more effectively in the palliative treatment of malignant dysphagia. These are commonly used in inoperable carcinoma of oesophagus. These may also be used in dysphagias due to extrinsic compression of oesophagus.

These stents may also be used in benign strictures as a last resort.

H Y P E R B A R I C O X Y G E N & PHOTODYNAMIC THERAPY

Combination of photodynamic therapy and hyperbaric oxygen represents a new approach in the treatment of oesophageal and cardia cancers. It show good results as a palliative procedure.

The photo chemical reaction of photodynamic therapy depends upon presence of molecular oxygen. Anoxic areas in the tumor tissue show poor response to the photodynamic therapy alone but use of hyperbaric oxygen enhances the efficiency²⁵.

INTUBATION

Intubation and bypass of the constricting lesion of the oesophagus can be performed in poor risk patients for palliation and some patients as an initial treatment for building up the patients for definitive surgery.

Various tubes for intubation are available such as;

1. Mousseuo barbin tube
2. Celestin tube
3. Atkinson's tube

All these tubes are used to bypass the tumor and maintain the gastrointestinal continuity from upper part of oesophagus to stomach .

These are less traumatic and require surgical procedure. Anaesthesia is not always required. These are used to build up the general health of the patient.

Souttar tube or Celestin tube may be used and palliation may be offered to terminal patients.

MISCELLANEOUS

Various Chinese herbal medicines have been successfully used in the treatment of carcinoma of oesophagus.

Menis pernum dehuricum (Herb) has shown prominent stromal lymphoid-cell infiltration and cancer cell degeneration in patients with carcinoma oesophagus.

This antiT tumor action seems to be due to activation of an immunological rejection mechanism²³.

PROGNOSIS

Out come of the treatment with various modalities is shown with 5 years survival rate ;

1.	Surgery alone	0%
2.	Radiotherapy alone	2%
3.	Radiotherapy & surgery	18%
4.	Radiotherapy (EBRT) and brachytherapy	11%

As the prognosis of carcinoma of oesophagus is poor, only 50% tumors are operable.

70 % of patients are dead within one year.
5-10 % survival rate is seen in five years.

COUNSELING & FOLLOW UP

The patients are without oesophagus, cardiac sphincter and pylorus after oesophagectomy. Effective storage is almost lost when the stomach has been used for oesophageal replacement.

The patients need very careful monitoring and special advice about eating habits. Most of these patients have limited time but do need fruitful life to live. They should be advised to lie and sleep in propped up position to avoid regurgition .

They should be given well balanced small and frequent meals and should have less fat content.

These patients require iron supplements and

parentrol vitamin B complex.

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