

SURGICAL PRINCIPLE OF ESOPHAGEAL CARCINOMA

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I. Objectives of treatment

Based on knowledge of prognosis related to preoperative staging

* purpose of treatment : cure or palliation

III. 대수술전 환자전신상태의 평가

1. nutrition

malnutrition, body synthesizing ability(prothrombin time, serum albumin, prealbumin, serum transferin, iron binding capacity, immunocompetence(skin test, total lymphocyte count)

2. cardiovascular status

Chest pain, any symptom of irregular pulse, valvular cardiac disease

**major cause of death after extensive esophageal surgery, cardiovascular, pulmonary, infection

3. pulmonary evaluation

PA and lateral chest X-ray, pulmonary function test(FEV1, FVC)

4. evaluation of other organs

rrhosis with portal hypertension, chronic renal

failure

5. assessment for reconstructive organs

Major influence : availability and normality of underlying organs

stomach and duodenal evaluation and intestinal investigation

previous gastric or pancreatic surgery, presence of extensive colonic diverticulosis, previous colonic surgery

1) Preoperative physiologic assessment

The surgeon must confirm that the patient is able to withstand the planned operation.

1. habit: alcohol, smoking, chronic illnesses (COPD, IHD), nutritional status

2. After operation, lung lead to accumulation of interstitial lung water, which reduced alveolar volume and increase airway resistance

3. lower serum albumin level

4. preoperative lung function

FEV1 1L is not candidate

5. preoperative EF : less than 0.4

6. advanced age

2) Preoperative approach to staging

(1) Histologic cell type

Squamous cell carcinoma, Adenocarcinoma
Tumor stage—most important than histologic type

differentiation—little influence, but more frequent LN metastasis in poorly differentiation

Variant of squamous cell carcinoma

Verrucous carcinoma—achalasia, diverticula(slow grow, less metastasis)

Spindle cell carcinoma—carcinosarcoma, pseudosarcoma(rarely invade deep wall)

Small cell carcinoma—invade nature(poor prognosis)

Variants of adenocarcinoma

adenosquamous cell carcinoma

adenoacanthoma- ectopic gastric epithelium (poor prognosis)

choriocarcinoma(extremely rare)

(2) Tumor evaluation

a. Tumor extent

:related to tumor size, depth of invasion, extraesophageal spread, longitudinal invasion

b. Tumor size

:determined by barium swallow radiograph or esophagoscopy and CT scan

* no significance in considering curative versus palliative treatment but guides choice of incision site

; Rosenberg

5cm or less -40% localized, 25% extended beyond esophagus,

35% unresectable

5cm longer- 10% localized, 15% extended beyond esophagus,

75% unresectable

c. Depth of invasion

* degree of invasion

mucosa(T1a, Tm), muscularis propria(T1b, Tmp), adventia(T2, Ta1), extend beyond esophagus(T3, Ta2-3)

* wall penetration- full length axis view of esophagus:helpful in predicting wall penetration straight PA and lateral chest X ray with esophagus filled with barium

* acute angulation of esophagus

highly suspicious of fixation of tumor mass

outside esophageal wall(70%)

d. Longitudinal invasion - infiltrate, localized

(3) Metastasis

Lymph node - biopsy of any palpable lymph node

CT of neck, chest, abdomen: performed in every case

3) Selection of therapy

(1) not demonstrate any evidence of systemic metastasis, full thickness invasion, multiple enlarged lymph node

- prospects for cure(45% of patients with symptomatic disease)

(2) no systemic metastasis, finding to wall penetration:equivocal

- still considered potentially curable candidate

(3) T1 or T2, W0 or W1, N0, N1

- treated by attempt curative surgery

(4) M1 or high probability of T3 or W2N2

- no curable, palliation

*palliation of symptom

a. palliative surgical resection

permanent relief of dysphagia, prolongs life somewhat by reducing or eliminating regional disease

b. surgical bypass

c. radiation therapy

d. chemotherapy, laser destruction, intubation

- not expected to prolong life

4) Selecting the Operative Procedure

Approach to the patient is structured by the answers to four clinical question.

1. Is the tumor curable?

2. If it is not curable,does the patient have enough dysphagia to require palliation?

3. If palliation is indicated,can the tumor be resected?

4. If the tumor is not resectable, what other method of palliation is available?

5) Resection for potentially curable esophageal cancer

(!) Treatment of early esophageal carcinoma

Recognition-Awareness of early symptom
(retrosternal discomfort)

Identification of high risk subjects

Diagnosis

Treatment

resection - tx of choice

(2) Surgery for curable squamous cell carcinoma

a. selection of patients

based on outcome of extensive preoperative staging and evaluation of condition (limited pulmonary function, symptomatic angina pectoris, liver cirrhosis, extensive weight loss)

b. preoperative cancer staging

primary tumor limited to esophagus, no systemic metastasis

* Principles of treatment

no single operation

1. Resection

objectives of resection

- ① to extirpate the primary tumor and involved lymphatic drainage
- ② to obtain adequate resection margin
- ③ to remove any adjacent expendable soft tissue

2. Bypass procedure

* Methods of operation

a. En bloc resection for esophageal carcinoma (Skinner)

b. Transhiatal esophagectomy without thoracotomy

contraindication- tracheobronchial invasion, distant metastasis,

fixation to adjacent tissue (at palpation through hiatus)

c. Abdominal and right posterolateral thoracotomy (Ivor-Lewis operation)

* Three different kinds of esophagectomy

total esophagectomy-3 operative approach

subtotal esophagectomy-2 operative approach

partial esophagectomy - left approach

(3) Curative management of esophageal cancer in the distal 2cm of esophagus

(arising in abdominal portion of esophagus

below phrenoesophageal membrane) treated with en bloc resection of mediastinum through left thoracotomy, total gastrectomy with or without laparotomy (partial gastrectomy with esophagogastrostomy or total gastrectomy or extended resection and colon or jejunal interposition)

(4) Curative treatment for cervical esophageal cancer

primary tumor

level of cricopharyngeus or proximal esophagus at or above clavicle

* bilateral neck dissection: early lymphatic spread is lateral to either side of neck

① tumor at or within a centimeter or two of cricopharyngeus

: require laryngectomy with cricoid cartilage, total thyroidectomy (to avoid permanent hypoparathyroidism)

② tumor arising just at thoracic inlet or level of clavicle

: satisfactory exposure for curative resection - partial or median sternotomy is preferred

5. Palliation for advanced esophageal cancer

1) palliation

: survival following surgical treatment and relief from complications of primary tumor - dysphagia, malnutrition, aspiration pneumonia, hemorrhage, sepsis, risk of airway fistula, most dreaded of all complications

* kinds of palliation

resection and reconstruction, bypass, radiotherapy, chemotherapy

2) palliative resection

* purpose of palliative surgery

① relieve dysphagia, aspiration secondary to obstruction, hemorrhage from ulcerating tumor and resulting anemia, septic intoxication from infected fungating ulcer

② reduce risk of airway fistula and permit radiation therapy for residual tumor in trachea or bronchus without risk of fistula, postir-

adiation stenosis

3) bypass surgery

primary tumor is unresectable owing to transmural spread and extension to local organs such as aorta, spine, liver, or major air passage

: bypass procedure- offer temporary relief of dysphagia and aspiration, not eliminate risk of

hemorrhage, sepsis, airway fistula

4) palliation for malignant tracheoesophageal fistula- bypass procedure

5) alternative methods of palliation

1. laser resection
2. dilatation and intubation
3. feeding stoma