

Surgery for a₃ Esophageal Carcinomas

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To enhance the operative radicality for a₃ esophageal carcinomas, eight patients who underwent combined resection of the esophagus with the aorta were evaluated in terms of operative indication and the outcome. As a result, the surgical outcome was not satisfactory despite a complete resection. It was defined that early appearance of distant metastasis failed to prevent, even though a complete resection had been accomplished. Elimination of surgical stress should be made in maintaining immunological defence of a host to help staged operation.

Introduction

It is not rare that thoracic esophageal carcinomas involves the wall of the thoracic aorta. However, combined resection with the aortic wall has certain restriction to perform. A few reports are available in Japan.¹⁻³⁾ It is still unknown as to whether combined resection promise a better prognosis or not and also what kind of patients is a candidate for this operation.

The purpose of this study is to clarify the validity of a combined resection of the esophagus with the aorta in terms of the operative indication and their prognoses.

Patients and results

The combined resections of the esophagus with the aorta were evaluated in 8 patients with esophageal cancer. The patients' ages ranged from 46 to 65 with an average of 59. The tumors were located in the middle of the esophagus. Histology revealed squamous cell carcinoma in 7 and adenocarcinoma in one. Nodal involvement was seen except for one, including n₂ in 2, n₃ in 3 and n₄ in 2, respectively.

During the past 25 years from January 1968 to December 1992, 53 patients with a₃ esophageal carcinomas underwent surgery. Among them the aorta was involved in 28

(52.8%), the trachea and bronchus in 23 (43.4%), the lung 8 (15.1%) and 14 (26.4%), respectively. In these a₃ esophageal carcinomas the adventitia of involved aorta were dissected without a circumferential resection of the aorta.

In this study, the surgical outcome of the patients with circumferential resection was analyzed. The operative procedures were one stage operation in all. The operative approach was left thoracotomy in 6 and bilateral thoracotomy in 2. The reconstruction of the esophagus was conducted by using gastric tubes and also the aorta was reconstructed by means of permanent bypass in 4 and replacement of the aorta in 4. Temporary bypass was applied for three and biopump was used in the remaining one.

The postoperative complications were thrombus formation of the axillar artery in one, anastomotic insufficiency in two, acute cholecystitis, intraabdominal abscess, pyothorax, intrabronchial bleeding in one, respectively (Table 1). These were grave complications, reflecting the severe insult of operative stress.

Table 1. Postoperative complications

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| Thrombus formation in the left brachiocephalic artery |
| Anastomosis insufficiency acute cholecystitis intraabdominal abscess |
| Pyothorax intratracheal bleeding |

The surgical outcome were not necessarily satisfactory. All died within 6 months after surgery (Fig. 1) because of cancer recurrence. Needless to say, all were far advanced cancer patients. It was assumed that surgery alone failed to overcome enhancement of curability.

Discussion

Recently, it has been considered that the improvement of surgical outcome for a₃ esophageal carcinomas is manda-

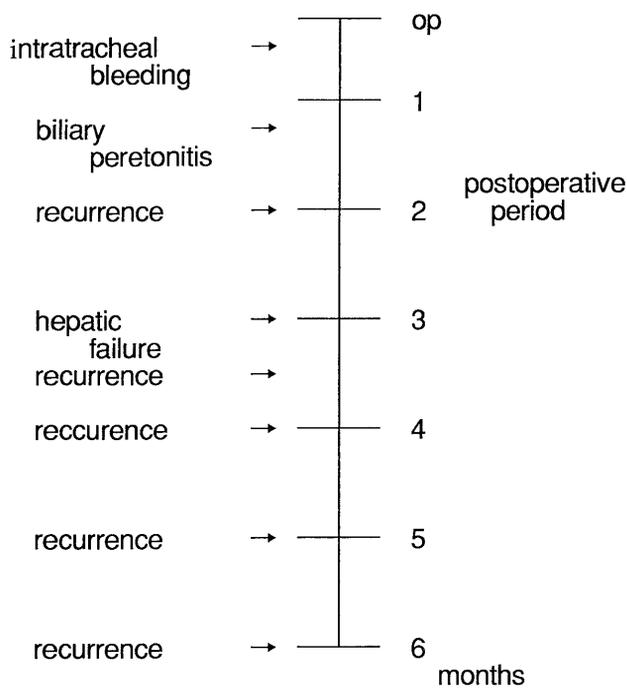


Fig. 1. Outcome in 8 patients

tory for complete resection. Therefore, even a₃ esophageal carcinomas should be a candidate for surgical indication. The surgical stress of combined resection of the esophagus with the aorta is a serious insult. To overcome difficulty in combined resection, surgical experiences were evaluated in terms of selection of patients, prevention of operative complications and improvement of surgical results.

The operative procedure of staged operation is helpful for elimination of surgical risk. Grave operative stress results in immunodepression of a host which must be a trigger of postoperative infection, followed by multiple organ failure directly related to operative death. Next, it is considered how to determine the surgical approaches for preoperatively predicted combined resection with the aorta. Left thoracotomy is the most common approach. However, it is not necessarily easy to remove with involved adjacent organs. If necessarily, bilateral thoracotomy is selected.

At the same operative field, simultaneous resection requires isolation of the anastomotic sites with wrapping.⁴⁾

During the clamp-time of the aorta, assisted circulation is clinically necessary for replacement (Fig. 2). To the best of our knowledge, since biopump is developed, it has become predominant in use. There is an advantage of less destruction of blood component and no use of heparin to support circulation. Recent development of medical instruments contributed to improve surgical results with easy and simple techniques. Nevertheless, the surgical outcome has not necessarily been improved and does not encourage surgeons to extend the surgical indication. In fact, combined resection is of great value to accomplish a com-

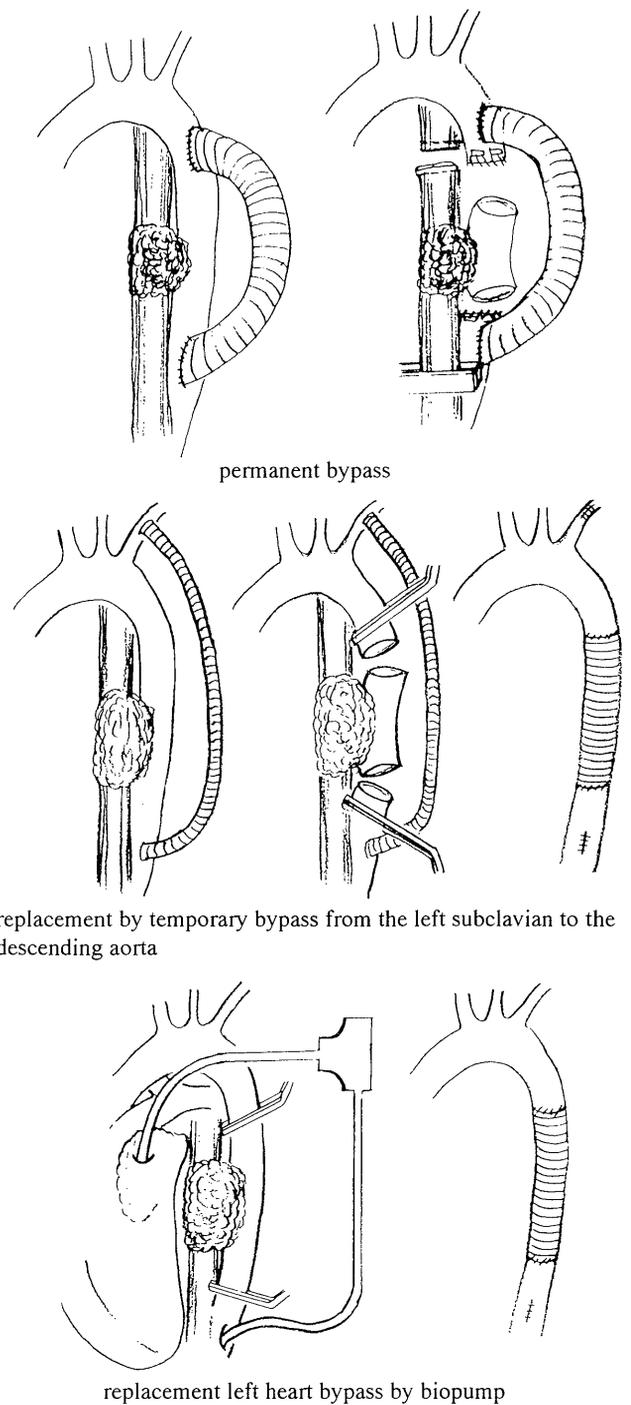


Fig. 2. Types of circulatory support

plete resection. Complete resection failed to reflect the surgical validity of postoperative survival rates. It is in part due to grave surgical insult for a host sufficient for eliminating immuno-defensive mechanism. Buinauskas⁵⁾ reported that the survival rates of tumor-bearing rats were shortened under a 45 minute laparoscopy of general anesthesia as compared with not tumor-bearing one. On the

other hand, it is accepted that lymphocyte function is associated with the severity of surgical stress.⁶⁾ In esophageal carcinomas, the function of lymphocytes was depressed two months after surgery in contrast to one month in gastric cancers.⁷⁾ It is emphasized that a complete resection does not relate directly to a better result. Surgical immunodepression is a most important factor affecting the surgical prognosis. It is well known that activated macrophages by surgical stress are of great value in promoting wound healing, but in contrast they inhibits the function of lymphocytes in the respect of a drawback.⁸⁾ The mechanism is explained by the fact that monocytes release prostaglandin and induce suppressor T.⁹⁾ Needless to say, main causes of damage to a host immunity is attributable to protein and calorie malnutrition.¹⁰⁾ Lymphoblastogenetic reactions to ConA and PHA are inhibited by undernutrition.¹¹⁾ As the indicator of nutritional states, Ching¹²⁾ reported the serum albumin levels are best. And also it is said NK activity is closely correlated with nutritional states.¹³⁾

On the other hand, grave surgery requires massive blood transfusion which inhibits NK activity and PHA blastogenesis.¹⁴⁾ In the present, it is defined that a complete resection does not necessarily lead to improvement of surgical result. Elimination of surgical stress is one of the most valuable means to predict a better surgical result.

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