TRANSHIATAL ESOPHAGECTOMY IN BENIGN DISEASES: STUDY OF SIX CASES

FATMA ATALAY TATAR*
TUGRUL TANSUG*
EROL KAYMAK*
ALI GALIP DENECLI*
MUSTAFA NERMI OZER*

SUMMARY: Esophagectomy without thoracotomy was performed on six patients with benign esophageal diseases. In all but one case the gastrointestinal continuity was maintained by esophagogastrostomy, a colonic interposition was performed on a patient with severe corrosive esophagogastric injury. The average duration of the operation was 225 minutes, the average blood loss was estimated to be 515 ml. There was no mortality among the patients. Complications included pneumothorax (four cases), pleural effusion (one case), stenosis (one case), wound infection (one case). There was no anastomotic leak or recurrent nerve injury. Transhiatal esophagectomy is a preferable procedure for benign diseases as well as for esophageal carcinomas, as it is a simpler and safer method with lower pulmonary and septic complications than esophagectomy via thoracic route.

Key Words: Transhiatal esophagectomy, esophagectomy in benign diseases.

INTRODUCTION

Transhiatal esophagectomy was first described by Levy about a hundred years ago. In 1913, Denk first performed transhiatal esophagectomy experimentally. Turner in 1982, performed transhiatal esophagectomy on a patient with cancer of the esophagus and reported his first series in 1936. Le Quesne and Ranger in 1966, Akiyama in 1975 and 1982, Krespi *et al.* in 1985, and Orringer reporting their successful results, popularized the operation. In Turkey, late in seventies Gürkan *et al.* reported a 60 cases of transhiatal esophagectomy series (1,4,7,11, 13,14). In Izmir State Hospital, Third Surgical Clinic transhiatal esophagectomy has been performed for cancers and benign diseases of the esophagus since 1986.

Successful reports have stimulated interest in the transhiatal approach. In recent years, in many centers, blunt esophagectomy without thoracotomy has been performed successfully as a safe, physiologically better tolerated operation which can be completed in a relatively short time, for esophageal resection and reconstruction both for malignant and benign diseases, with low mortality (0-30.8%) and morbidity rates (4,6,11,13).

In this study, we reviewed six cases of transhiatal esophagectomy performed for benign esophageal diseases.

MATERIALS AND METHODS

Case 1: S.K., a 19 year-old woman, had ingested caustic material one year before admission. She had lost 20 kg during that period. Upper gastrointestinal series revealed diffuse narrowing of the esophagus. The stomach was found to be normal. Endoscopic biopsy and histopathological examination showed chronic esophagitis. The patient underwent transhiatal esophagectomy, esophagogastrostomy with one layer interrupted suture anastomosis. A pyloroplasty was performed. Postoperative chest radiogram revealed pneumothorax on the left

* From ŸIzmir State Hospital, Third Surgical Clinic, ŸIzmir, Türkiye.

side. A chest tube which remained for two days was inserted. She was given a liquid diet on the fifth postoperative day. She left the hospital on the fourteenth postoperative day without any complication. On controls, she could swallow without any difficulty and had gained weight.

Case 2: R.S., a 35 year-old woman, had been operated on three times for achalasia elsewhere. In admission she could swallow neither solid foods nor liquids. On radiograms, a 5 cm segment of the lower esophagus was narrow, while thoracic esophagus was dilated. Endoscopy and biopsy showed benign stricture. During laparotomy stricture and fibrosis of the lower esophagus due to previous operations necessitated esophageal replacement. Transhiatal esophagestomy was performed. The stomach was placed in the original esophageal bed without a pyloroplasty. Both pleural cavities were entered during esophageal dissection and chest tubes were inserted bilaterally. A minimal pleural effusion developed on the fourth postoperative day, required thoracocenteses. A liquid diet was started on the fifth postoperative day. She left the hospital after a postoperative period of fourteen days. She had some difficulties in swallowing solid food, but could swallow sufficiently after four dilatations.

Case 3: H.Y., a 36 year-old man, ingested caustic liquids six months prior to admission. He had difficulty in swallowing and weight loss. A stricture in thoracic esophagus without malignant change was observed preoperatively. A tanshiatal esophagectomy and gastric replacement with pyloroplasty was performed. Insertion of chest tubes was required for bilateral pneumothorax. The patient could ingest a liquid diet on the seventh postoperative day and was discharged from the hospital on the twentieth day.

Case 4: E.C., a 38 year-old woman, was admitted to the hospital 3 months after having udergone a laparotomy and feeding jejunostomy for caustic injury of both esophagus and the stomach. She underwent transhiatal esophagectomy and colonic interposition. The left colon was used for reconstruction of the upper digestive tract. She was fed orally on the fifth postoperative day. On the abdominal incision, wound infection developed. She left the hospital on the twenty ninth postoperative day without any difficulty in swallowing.

Case 5: M.A.A, a 62 year-old man, had had a disphagia for six years. Radiologic examination with barium meal showed a stricture in the lower esophagus. Endoscopic and histopathological examination revealed stricture due to reflux esophagitis. He underwent transhiatal esophagectomy and gastric replacement without pyloroplasty, by using an intraluminal stapler. He was fed orally on the third postoperative day and discharged from the hospital on the tenth postoperative day, uneventfully.

Case 6: K.K.A, a 60 year-old woman was transferred from the department of gastroenterology with diffuse esophageal spasm. She had not responded to the medical treatment. She underwent a transhiatal esophagectomy and gastric replacement without pyloroplasty. During the postoperative period, a left pneumothorax developed and subsided by insertion of a chest tube. She was given a liquid diet on the fourth postoperative day and she left the hospital on the seventeenth day after an uneventful course.

RESULTS

The duration of the operation was 225 minutes. The estimated average blood loss was 515 ml. There was no mortality. The complications included pneumothorax in four patients, wound infection in one patient, pleural effusion in one patient, and stenosis in one patient. Pneumothorax was corrected by inserting a chest tube into the pleural cavity and the pleural effusion yielded by thoracocentesis.

The patients were begun feeding orally in the fourth to seventh postoperative days and they could swallow sufficiently on discharge, except the one who needed dilations.

DISCUSSION

The most common indications for esophageal substitution in benign disease are; stricture (resulting form gastroesophageal reflux, caustic injury, prior antireflux operations, prolonged emesis, prolonged nasogastric intubation, radiation therapy, idiopathic fibrosis, prior laryngopharyngectomy, infection, sclerotherapy), neuromotor disfunction (achalasia, spasm, scleroderma), perforation, caustic injury, recurrent reflux not responding to medical or other surgical treatment, congenital atresia, and severe esophageal infection (1, 9, 10, 13).

Corrosive burns of esophagus is mostly accompanied by the corrosive injury of the stomach as well. As a result of contact with caustic agent, badly injured esophagus becomes a septic focus, also there is a 0.8-4 percent risk of carcinoma development. Hwang *et al.* observed that non-thoracotomy esophagectomy plus total gastrectomy saved 71.4 percent of patients with corrosive esophagitis and gastric perforation (5,8). Once necrosis of the esophagus has occurred, thee is usually associated periesophagitis and mediastinitis.

To eradicate the septic focus, esophagectomy should be performed, but it should be remembered that by thoracal route operative risk and postoperative pulmonary complications are always higher (8).

Transhiatal esophagectomy, especially in patients with advanced age, malnutrition, pulmonary disease has been preferred to thoracal route. By this method, septic, pulmonary complications are minimal, anastomotic leaks can be managed more easily at the neck (14).

After esophagectomy, either the stomach or colon may be used as a substitute. Some authors prefer colonic interposition as they suggest, reflux and recurrent stricture formation is lesser (5,9). However, Orringer *et al.* needed revision of cologastric anastomoses in two of their patients because redundancy and tortuosity of colon was observed. Even when the colonic graft is used in isoperistalitic fashion, regurgitation of retained colonic contents was observed (12). With colonic grafts, fecal bacterial colonisation may lead to steatorrhea and malabsorbtion. Although mouth organisms predominated the cultures, enteric bacteria was also found (9). No difference in swallowing ability between patients with isoperistaltic and patients with anisoperistaltic interposition was found. Regurgitation was slightly higher in antiperistaltic colonic transposition (12).

We performed a left colonic interposition on a patient with severe corrosive esophagogastric injury. She only suffered from a wound infection and left the hospital with sufficient swallowing.

We too prefer stomach as a substitute in esophagectomies when possible. Orringer *et al.* suggest, stomach is a better functional substitute than the colon. They observed that the stomach is superior to colon with its technical ease and less complication rate. The patients can eat well, whether their stomach is in the abdomen or in the thorax (12). Bender *et al.* suggest that esophagogastrostomy, despite operative technical ease and simplicity, has higher postoperative stricture incidence (2). When stricture ensues, dilatations are easy in esophagogastric anastomoses while colon is more prone to perforation. In cervical esophageal anastomoses, gastroesophageal reflux is seldom observed as cricoesophageal sphincter remains intact (10).

Although some authors perform a pyloroplasty on all gastric substitutes to avoid poor gastric emptying (6,9,12). Cheung *et al.* in a prospective randomized controlled study on patients transhiatally esophagectomised and whole stomach was used for reconstruction, observed that symptoms of incomplete emptying was not statistically significant between patients with or without pyloroplasty. Since no complications developed due to pyloroplasty, they suggest to perform a pylroplasty in all cases (3). Andicen on the other hand, performed a pyloroplasty on neither of their patients (1). Some authors believe that the gastric substitute may shorten with pyloroplasty, and without pyloroplasty no stasis occurs (1). We performed a pyloroplasty in some of the cases. We observed no complaint from the patients with or without a pyloroplasty.

Although pneumothorax was seen in four patients out of six (66.6%) in our series the incidence is not considered high, compared with the previous reports. Pneumothorax is the most common complication in performing transhiatal esophagectomy but is easily managed by inserting chest tubes (6,10,13). Blood loss during transhiatal esophagectomy is less than 1000 ml in most series, and is about 515 ml in our study (10,11,13). Massive hemorrhage necessitating thoractomoy is not common (12,14). Stenosis reguiring dilatations was observed in only one patient (16.6%). Among patients with esophageal neuromotor dysfunction, after esophagectomy 38 percent needed postoperative dilatations in Orring's series (10). We observed no leakage or vocal cord paralysis, and no ductus thoracicus or tracheabronchial tree lesions. We have no mortality in our small series. The mortality rate in different reports of transhiatal esophagectomy for benign lesions is less than ten percent (2,12).

We consider transhiatal esophagectomy to be a simple, quick, radical intervention with low mortality and complication rates and better results.

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Correspondence
Fatma Atalay Tatar
ÝIzmir Devlet Hastanesi
Üçüncü Cerrahi Klinigi
Basinsitesi, 35360,
ÝIzmir, TURKIYE.