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MICROSURGICAL TREATMENT OF UPPER ESOPHAGEAL CARCINOMA (FREE JEJUNAL LOOP TRANSFER)

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ABSTRACT

There are unfortunately a relatively large number of cases of esophageal cancer in Iran as well as other countries, and one of the most difficult problems facing surgeons is the reconstruction of the esophagus and restoration of its function after excision of the tumor. From 1978 to 1987, 20 patients (16 male, 4 female) ranging in age from 22 to 68 years were surgically treated for squamous cell carcinoma of the cervical esophagus using free jejunal loop transfer by microsurgical technique. Patients were followed up for two years postoperatively. The rate of recurrence of primary neoplasm was 50%. We consider free jejunal loop transfer a suitable alternative in the management of upper esophageal carcinoma, especially those complicated by previous reconstructive methods.

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INTRODUCTION

The successful surgical treatment of upper esophageal carcinoma continues to be a difficult problem. In selected cases, free vascularized jejunal transfer offers significant advantages over conventional methods of treatment, since[4,5,7] local recurrence of tumor is less and the physiology of the upper alimentary tract is better preserved than other methods.

PATIENTS AND METHODS

From 1978 to 1987, 20 patients (16 male, 4 female) ranging in age from 22 to 68 years were surgically treated for squamous cell carcinoma of the cervical esophagus, using free jejunal loop transfer. Two cases in whom the trachea was involved underwent laryngectomy and permanent tracheostomy. The size of the transferred jejunal loop in these patients ranged from 15 to 20 cm.

Surgical procedure

Under general anesthesia, excision of tumor was performed through an L-shaped incision (in 4 cases)

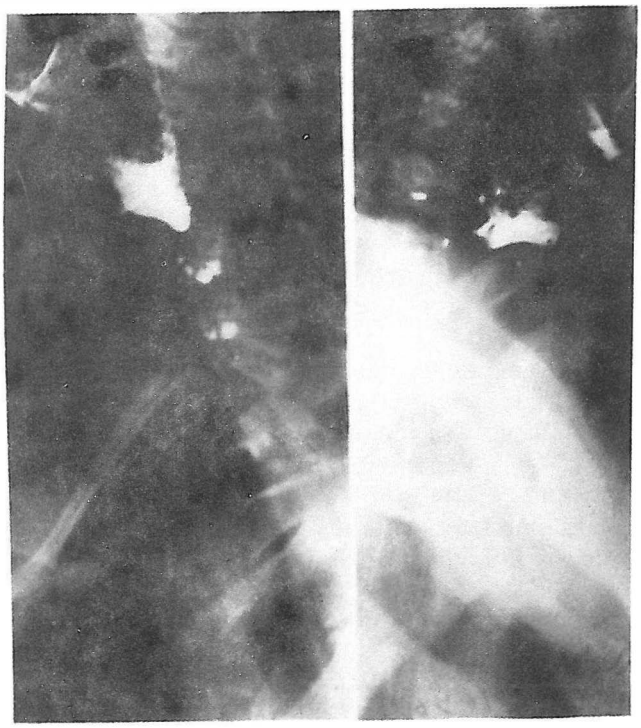

Figure 1. A 43 year old man with complete occlusion of the esophagus due to squamous cell carcinoma.

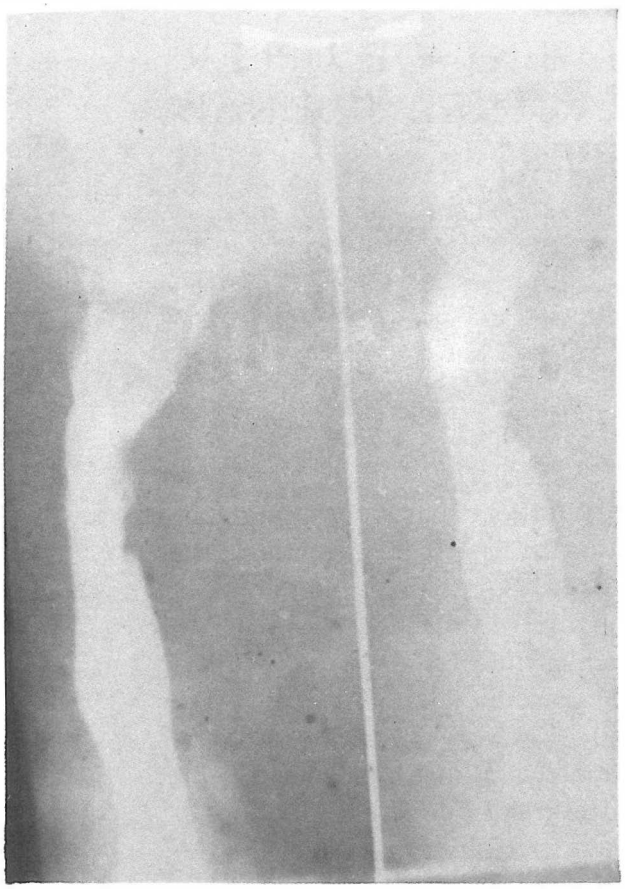

Figure 2. A 37 year old man with partial obstruction of the esophagus due to squamous cell carcinoma.

Figure 3. The loop of jejunum (15 cm length) with its vascular pedicle.

made in the cervical region by one surgical team while a second team was preparing the loop of jejunum (40 cm distal to the ligament of Treitz) through a midline incision with a vascular pedicle including one artery and two veins. The free jejunal loop with a vascular pedicle was transferred to the cervical region. The first end-to-end anastomosis was made between the external jugular vein and the vein of the pedicle in eight interrupted sutures with 10-0 nylon and under magnification (x20).

The second anastomosis was made between the thyroid artery and the artery of the pedicle. Before the vascular clamp was removed from the jejunal loop artery, 5000 IU heparin was infused into the patient's circulation. Peristalsis of the transferred jejunal loop started immediately after the vascular clamp was removed, and circulation in both ends of the loop was reestablished.

Anastomosis of the bowel was performed in one layer with 3-0 silk using Gambi method, after which the abdominal layers were closed. A nasogastric tube was inserted and anastomosis of the transferred loop ends was made with 3-0 silk suture. A corrugated drain was inserted and the skin was closed. The operation took three to four hours to complete. The nasogastric tube was removed five days later and oral diet was initiated seven to ten days after the operation.

RESULTS

20 patients, (16 male, 4 female) were surgically treated for upper esophageal carcinoma using free jejunal loop transfer. Two cases involved the trachea, in whom laryngectomy and permanent tracheostomy were performed. One hospital mortality occurred on the 5th postoperative day due to leakage of the distal end anastomosis of transferred loop and upper mediastinitis. 19 cases were discharged on the 10th day of operation in good general condition. The patients were followed for two years postoperatively. The rate of recurrence of the primary tumor was 50%. No vascular anastomotic complication, either early or late, was encountered.

DISCUSSION

Parallel to the development of microvascular surgery, reconstruction of the cervical esophagus,

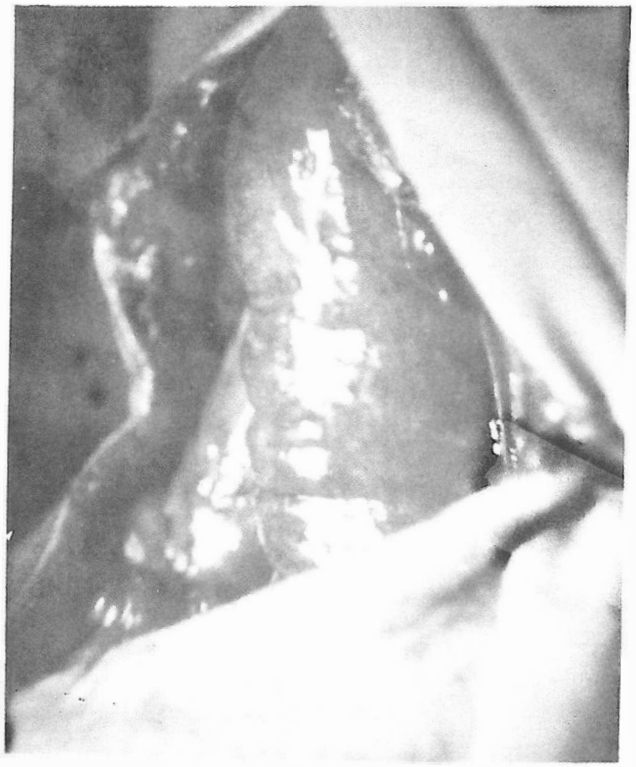

Figure 4. The loop of jejunum is transferred to the neck region.

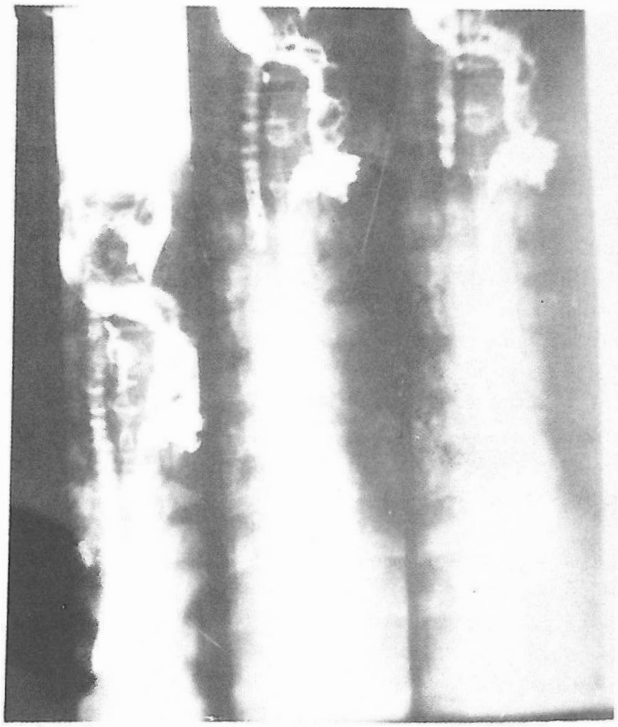

Figure 6. Barium swallow, 10 days after the operation in the patient shown in Figure 1.

Figure 5. After completion of the vascular anastomosis and anastomosis of the two ends of the jejunal loop to the pharynx and thoracic esophagus.

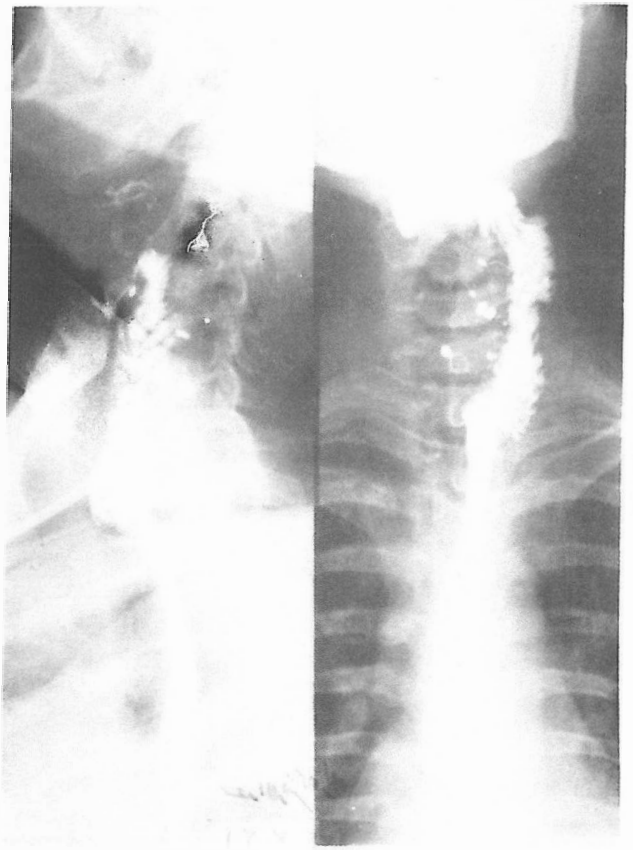

Figure 7. Barium swallow, 10 days after operation in the patient shown in Figure 2.

hypopharynx, and oral cavity using free jejunal loop transfer has developed.[1,2,4,7,8] This method is superior to other methods for the following reasons:

1. The operation is performed in one stage.[3,5]
2. Reconstruction of the hypopharynx and cervical esophagus is possible.
3. Local recurrence of tumor is less than other methods, and
4. Physiology of the upper alimentary tract is better preserved.[3,5] With regard to the above-mentioned advantages, this is the choice method in cases of:

1. Massive resection[5] of the lower nasopharynx and laryngopharyngeal tumors with widespread involvement of the esophagus.
2. Irradiation failure,[5,6] in which laryngopharyngoesophagectomy is required.
3. Secondary reconstruction of the hypopharynx or cervical esophagus when other methods have failed because of flap necrosis or irradiation.[5]
4. Hypopharyngoesophageal stricture that has failed to dilate in primary pharyngoesophageal closure or irradiation, and
5. When large areas of oral lining have been lost.[5]

It is believed that the rate of success by this method will be 95 to 98%.

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