

COMPARATIVE STUDY OF RADICAL TREATMENT OF ESOPHAGEAL CARDIAC CANCER BY ESOPHAGOGASTROSTOMY

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Digestive tract reconstruction could be completed with 3 anastomotic methods as anti-reflux method, manual end-to-end method or instrumental method. The patients were checked 2 weeks and 1 year postoperatively. The first method achieved the best result in preventing anastomotic leakage, stenosis or reflux esophagitis.

Key words: Anti-reflux anastomosis, Anastomotic leakage, Anastomotic stenosis, Reflux esophagitis.

Esophagogastrostomy for esophageal cardiac cancer has been always complicated by anastomotic leakage, stenosis and reflux-esophagitis. The anti-reflux anastomosis was used in 136 cases of esophageal and cardiac cancer since Jun, 1988 to June, 1995, and end-to-end manual anastomosis or instrumental anastomosis was chosen in another 258 cases as control group. The short-term complications and over-one-year reexamination results were compared among the three groups in this report.

CLINICAL MATERIALS

394 patients, 259 males and 135 females, were divided into 3 groups, 136 cases in anti-reflux group (group A), 127 cases in manual group (group B) and the other 131 cases in instrumental group (group C).

Of the 394 cases, 272 cases were followed up over one year with the follow-up rate of 69.04%, in which 93 cases in group A, 89 in group B and 90 in group C. The results and postoperative complications were shown in Table 1, 2, 3, 4.

METHODS

After resecting tumor, a 3 cm long muscular layer of the stripped esophagus in 5 cm long was removed from the posterior wall, preserving mucosal layer. The residual stomach was sutured, and a 3-4 cm incision was made at 2 cm from the suture into seromuscular layer. The second parallar incision was made at 3 cm below the first incision. A tunnel was made from the first incision to the second incision between the muscular and the mucosal layer. Seromuscular was sutured at 0.5 cm upper from the resected end of posterior wall of esophagus to the seromuscular at 0.5 cm upper from the first incision. The end of esophagus was led to the second incision via the tunnel from the first incision. The upper seromuscular layer of tunnel was sutured with the anterior wall of esophagus for closing the upper incision. Incise the mucosa at the second incision, and suture the mucosa of posterior wall of esophagus and the mucosa of tunnel to complete anti-reflux valve. The anterior wall of esophagus was sutured directly to the anterior wall of stomach at the site of anastomosis. And the anastomotic anterior wall was covered by the edge of tunnel seromuscular layer.

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RESULTS AND DISCUSSION

Anastomotic Leakage

It is the most common and severe complication and the main cause of death in the early stage after operation.¹ Of the 8 patients with anastomotic leakage, 5 were in group B, 3 in group C but none in group A. There is no obvious difference among these 3 groups ($P>0.05$). The comparative study

should involve more patients later. The reason why no leakage occurred in group A was as follows. The 3 cm long esophagus was in the tunnel. The anastomotic posterior wall was constituted by two-faced mucosas which provided a rich blood supply. The contact of two coarse surfaces helped to finish the inflammation period and get into hyperplastic period as soon as possible. Fan et al.² reported this method could shorten the healing time. Therefore, the anti-reflux method could reduce even prevent anastomotic leakage.

Table 1. Comparison of pH value at inferior esophagus one year after operation

pH value	Group A		Group B		Group C	
	Empty stomach	After meal	Empty stomach	After meal	Empty stomach	After meal
4.5-	-	-	8	12	4	7
5.0-	-	1	19	26	23	22
5.5-	1	2	25	29	24	27
6.0-	19	21	24	10	19	25
6.5-	51	54	10	7	18	8
7.0-	22	15	3	4	1	1
7.5-	-	-	-	1	1	-

Table 2. Comparison of inflammation by esophageal mucosa biopsy (Menin's)

Inflammation degree	0	I	II	III
Group A	92	1	-	-
Group B	19	31	24	15
Group C	29	28	22	11

Anastomotic Stenosis

Of the 394 operated patients who underwent barium meal examination in 2 weeks postoperatively, 272 patients were examined again by the same method 1 year later. The reports showed group A had great obvious difference with the other 2 groups ($P<0.01$) and there was obvious difference between group B and group C ($P<0.05$). The patients with anastomotic stoma smaller than 1.0 cm was found dysphagia in the reexamination and the X-ray examination showed obvious esophagectasis. Those with anastomotic

stoma of 1.0 to 1.5 cm had swallowing difficulty in different degrees. Stenosis most often occurred in group C and merely occurred in group A. Only 2 cases in group A happened to have swallowing obstruction when taking hard food. Since the tunnel was made wide enough in operation to content esophagus freely, and the posterior wall of tunnel constituted two mucosas which had strong contractility, anastomotic stenosis could be prevented in group A.

Reflux Esophagitis

Reflux esophagitis was found through histological examination in 75% of operated patients in over one year postoperatively.³ As the raising of diagnostic rate of early esophageal cancer, more and more patients could survive for long time after the operation. Reflux esophagitis, the common complication, which was difficult to treat with conservative method, was studied by more and more researchers. In the reexamination one year later, liquid in inferior

esophagus was taken before and after meal to determined pH value. Biopsy of esophagus mucosa was taken at upper site of anastomosis through endoscopy and divided into different degrees according to Menin method.⁴ Group A had great difference with the other groups ($P<0.01$). Group B

and group C had no obvious difference ($P>0.05$). The mechanism of anti-reflux method was the 3 cm long esophagus contented by gastric wall could increase pressure on inferior esophagus as well as prevent reflux with one-conducted mucosal flap at posterior wall of anastomosis.

Table 3. Comparison of anastomotic width

Width (cm)	Group A		Group B		Group C	
	15 days	1 year	15 days	1 year	15 days	1 year
<1.0	-	-	28	24	50	35
1.0-1.5	19	9	68	39	61	42
>1.5	117	84	31	26	20	13

Table 4. Comparison of numbers of swallowing difficulty one year after operation

Symptom	Without symptom			Happen to have symptom			Continuous to have symptom		
	Liquid diet	Semiliquid diet	Hard food	Liquid diet	Semiliquid diet	Hard food	Liquid diet	Semiliquid diet	Hard food
Group A	-	-	91	-	-	2	-	-	-
Group B	3	11	23	4	9	15	3	10	11
Group C	5	13	2	8	10	17	8	13	14

The authors believed the anti-reflux method was rapid in healing, well in dilatancy and effective in anti-reflux. This new, easy and effective method could be used in the treatment of esophageal and cardiac cancer.

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