

## Superficial Carcinoma of the Esophagus

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**ABSTRACT :** Four cases of esophageal carcinoma in which the invasion is limited to the mucosal layer (m-carcinoma) and 7 cases of it in which the invasion invades the submucosal layer (sm-carcinoma) are studied. In the cases of m-carcinoma, both lymphatic invasion and blood vessel invasion were not found. On the other hand, lymphatic invasion was noted in 4 cases among 7 cases of sm-carcinoma, and in these 4 cases, lymphatic invasion or blood vessel invasion was demonstrated in the primary sites.

Among 4 patients who had lymph node metastasis, 2 died of the recurrence of carcinoma, and the other 2 died of other diseases. The prognosis of patients without lymph node metastasis was satisfactory.

The best way to elevate the prognosis of esophageal carcinoma is to discover it at the stage of m-carcinoma, and in order to achieve it, endoscopic observation combined with the Lugol-staining method is most influential. It is also recommended to perform the esophageal endoscopic examination with patients visiting us with other diseases.

### INTRODUCTION

Superficial carcinoma of the esophagus has been defined in accordance with the "Guide Lines for the Clinical and Pathologic Studies on Carcinoma of the Esophagus"<sup>1)</sup> as an entity caused when carcinoma invasion is limited in the mucosal layer or the mucosal and submucosal layers of the esophageal wall.

In recent years, thanks to the progress of endoscopic inspection, the rate of detection of esophageal carcinoma at the stage of superficial carcinoma has been elevated. Although the postoperative prognosis of superficial carcinoma at the stage of superficial carcinoma has been elevated. Although the postoperative prognosis of superficial carcinoma has been better than that of esophageal carcinoma where

the invasion reaches the adventitia, some cases of superficial carcinoma metastasize at a rather early stage, and the patients would die due the recurrence of carcinoma.

In this paper, the differentiation of pathological findings between patients of superficial carcinoma of the esophagus who followed satisfactory courses and those who had a relapse, is studied, and the necessity of the postoperative adjuvant therapy for those whose prognosis was poor is discussed.

### MATERIALS AND METHODS

During the period for 7 years and 6 months from November 1986 to the end of April 1989, the number of resections of esophageal carcinoma in our division in Oita Medical

College was 87 (71 males and 16 females), including 12 superficial carcinoma. Among these 12 cases, preoperative radiotherapy had been given on 1 case, so that this case was excluded from the study as unfit for histological evaluation, and the remaining 11 cases were made the target for examination. The sex ratio of these 11 cases was 9 males and 2 females, and their ages ranged from 47 to 74 years (the mean being 60.0 years).

The resected esophagi and lymph nodes were pathologically examined according to the "Guide Lines for the Clinical and Pathologic Studies on Carcinoma of the Esophagus",<sup>1)</sup> and were reported.

## RESULTS

The locations of the lesions : the locations of the lesions on the esophagi in 11 cases for the study were as follows ; 1 case of the cervical esophagus (Ce), 3 cases of the upper intrathoracic esophagi (Iu), 2 cases of the middle intra-thoracic esophagi (Im), 4 cases of the lower intrathoracic esophagi (Ei), and 1 case of the abdominal esophagus (Ea). As for the depth of carcinoma invasion, 4 cases out of 11 were limited to the mucosal layer (m-carcinoma), including 3 cases of the carcinoma of the epithelial layer (ep-carcinoma), i.e. carcinoma in situ, while in the remaining 7 cases, the invasion had reached the submucosal layer (sm-carcinoma) (Table 1).

The operation methods : our formulas of esophageal resection and reconstruction for 11 cases of superficial carcinoma were as follows ; For 1 case where carcinoma existed in the Ce-

region, resection of the cervical esophagus, laryngectomy and cervical lymphnode dissection, and the isolated colon segment was transplanted.

For 1 case where the lesion existed in the Im-region, the blunt dissection of the esophagus was performed without thoracotomy due to the strong desire of the patient, pulling up the gastric tube for the substitute through the retrosternal route, and anastomosis was performed with the left cervical esophagus. While in the remaining 9 cases, right thoracotomy and esophageal resection with the upper abdominal median incision were performed, and esophageal replacement was made with the gastric tube.

Macroscopic findings of the resected specimens : the macroscopic type of 4 cases of m-carcinoma belonged to the superficial and flat type (Fig. 1, 2). Among 7 cases of sm-carcinoma, 1 case belonged to the excavated

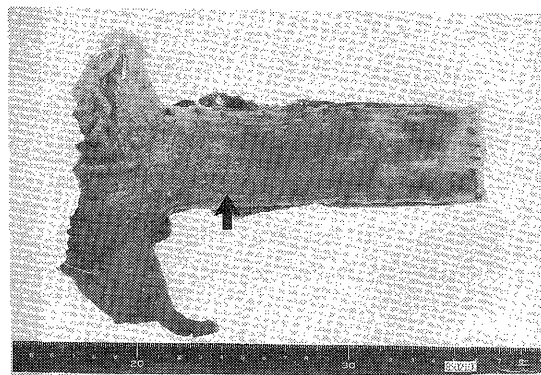


Fig. 1. A case of ep-carcinoma (Ei) without lymphnode metastasis. Superficial and flat type

Table 1. Location of superficial carcinoma of the esophagus

Depth of the invasion	Location of the main lesion					Total
	Ce	Iu	Im	Ei	Ea	
ep		1		1	1	3
mm			1			1
sm	1	2	3	1		7
Total	1	3	4	2	1	11

ep : epithelial layer    mm : Lamina muscularis mucosae  
sm : submucosal layer

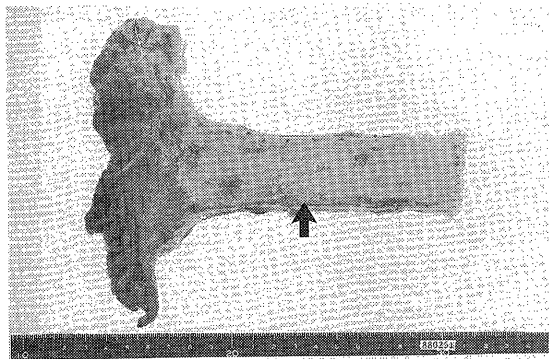


Fig. 2. A case of mm-carcinoma (Im) without lymph node metastasis. Superficial and flat type

type (Fig. 3), and 2 cases out of the remaining 6 belonged to the superficial and protruded type, and 1 to the slightly elevated type, while 3 cases possessed both the superficial and protruded type and the slightly depressed type as well (Fig. 4) (Table 2).

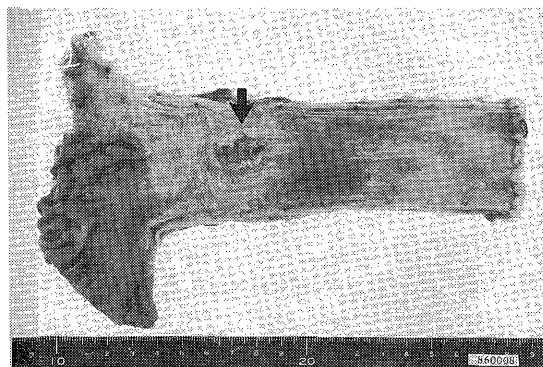


Fig. 3. A case of sm-carcinoma (Ei) with lymph node metastasis. Excavated type

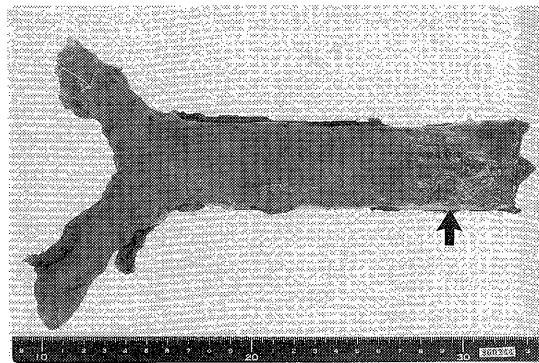


Fig. 4. A case of sm-carcinoma (Iu) with lymph node metastasis. Mixed type

Histological findings : four cases of m-carcinoma were histologically squamous cell carcinoma. Among 7 cases of sm-carcinoma, 6 were squamous cell carcinoma, and the remaining 1 was undifferentiated one. Out of 7 cases of sm-carcinoma, lymphatic invasion (ly) was noted in the submucosal layer in 3 cases, and blood vessel invasion (v) was found in 2 cases.

Metastasis to lymph nodes : in all 4 cases of m-carcinoma, none showed lymph node metastasis. Among 7 cases of sm-carcinoma, lymph node metastasis was demonstrated in 4 cases, including one case of undifferentiated sm-carcinoma. In these 4 cases where lymph node metastasis was demonstrated, lymphatic invasion was evidenced at the primary sites in 3 cases. Furthermore, in these 4 cases where lymph node metastasis was found, ulcerative regions were observed macroscopically at the lesions (Table 2).

Recurrence of carcinoma : in 4 cases of m-

Table 2. Macroscopic classification of superficial carcinoma of the esophagus

Macroscopic type *	Depth of the invasion			Total
	ep	mm	sm	
Superficial and flat type	3	1		4
Superficial and protruded type			2	2
Slightly elevated type			1 (1)	1 (1)
Excavated type			1 (1)	1 (1)
Mixed type including depressed type			3 (2)	3 (2)
Total	3	1	7 (4)	11 (4)

( ) : the cases with lymph node metastasis

\* : according to the "Endoscopic classification of superficial esophageal cancer" by ENDO<sup>2)</sup>

carcinoma, in 2 cases where lymph node metastasis was not noted out of 7 cases of sm-carcinoma, plus 1 case where blunt dissection was performed (total 7 cases), no sign of relapse was indicated, and so the patients are enjoying good health. Out of 4 patients with sm-carcinoma in whom lymph node metastasis occurred, 2 patients, including 1 with undifferentiated carcinoma, died of metastasis to the lung within 2 years after operation. The remaining 2 patients died of some disease other than carcinoma.

## DISCUSSION

A case of carcinoma where the depth of it on the esophageal wall is limited to the mucosal layer or the mucosal and submucosal layers has been defined as the superficial carcinoma of the esophagus in the "Guide for the Clinical and Pathologic Studies on Carcinoma of the Esophagus".<sup>1)</sup>

According to the national statistics (1984) made by Mitomi et al., the rate of five-year survival after surgery was 69% in the cases where the invasion reached the submucosal layer (sm-carcinoma), 85% in the cases limited to the tunica muscularis propria, and 100% in the cases where it remained only to the epithelial layer (ep-carcinoma), and thus it is well-known that wide variations are shown according to the depth of invasion.

ENDO et al.<sup>2)</sup> reported that the rate of 5-year survival of superficial carcinoma of the esophagus was 100% in patients with m-carcinoma, and 49% in patients with sm-carcinoma, but that it was as poor as 22% in patients with sm-carcinoma involved with lymph node metastasis, and it was 71% even in patients with sm-carcinoma without lymph node metastasis, pointing out that even in patients with sm-carcinoma might possibly suffer relapse of carcinoma. It was found in the results obtained by the authors, that the prognosis was poor in sm-carcinoma having lymph node metastasis as well as in the cases where lymphatic invasion was found in the submucosal layer.

Speaking endoscopically, m-carcinoma belongs to the superficial and flat type or to the

erosive type, while those clearly show polypoid, elevation or excavation will mostly invade the submucosal layer or beyond it.<sup>3)</sup> According to ENDO et al.,<sup>2)</sup> sm-carcinoma of the elevated type involved with erosion will mostly be involved with lymph node metastasis.

In the results of the authors' own, we macroscopically noted lymph node metastasis in some cases where ulcerative depression existed in a part of the lesion. Accordingly, it can be considered the best way to elevate the post-operative prognosis to detect the stage of superficial carcinoma not involved with lymph node metastasis. It is necessary for this purpose to discover carcinoma of the esophagus of the superficial and flat type endoscopically. For doing so, endoscopic observation with the Lugol-staining method<sup>4)</sup> and brushing cytology with the capsule<sup>5)</sup> are influential methods.

It is also possible for us to give the above methods twice a year to patients visiting our hospital with other diseases and perform endoscopic examination in order to find carcinoma of the superficial and flat type.<sup>6)</sup>

Some kind of the postoperative adjuvant chemotherapy must be given to sm-carcinoma in which lymphatic invasion or blood vessel invasion were demonstrated in resected specimen, or to sm-carcinoma in which lymph node metastasis was demonstrated.

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