

Adenocarcinoma of the submandibular gland with positive serum and tissue immunohistochemical staining for both CEA and CA 125: report of a case

YOSHIO KASUGA*‡, ATSUSHI NAKAI*, YUJI MATSUNAGA*, MAKOTO TOI*, HIROHISA GOTO*‡,
YOSHINORI NIMURA*‡, RYUHEI KURASAWA*, SHIN-ICHI MORIYAMA†

Abstract

A rare case of adenocarcinoma of the submandibular gland with positive serum measurements and tissue immunohistochemical stainings for both CEA and CA 125 is presented.

Key words: Submandibular gland neoplasms; Adenocarcinoma; Immunohistochemistry

Introduction

Carcinoembryonic antigen (CEA) and carbohydrate antigen (CA) 125 are widely used as monitors for the detection, staging and checking the recurrence of carcinoma of the digestive tract (Gold and Freedman, 1965 a, b; Tabuchi *et al.*, 1988) or for carcinoma of the ovary and the endometrium (Bast *et al.*, 1981; Jacobs and Bast, 1989), respectively. We report a rare case of a patient who had a carcinoma of the submandibular gland with positive serum measurements, and tissue immunohistochemical stainings, for both CEA and CA 125.

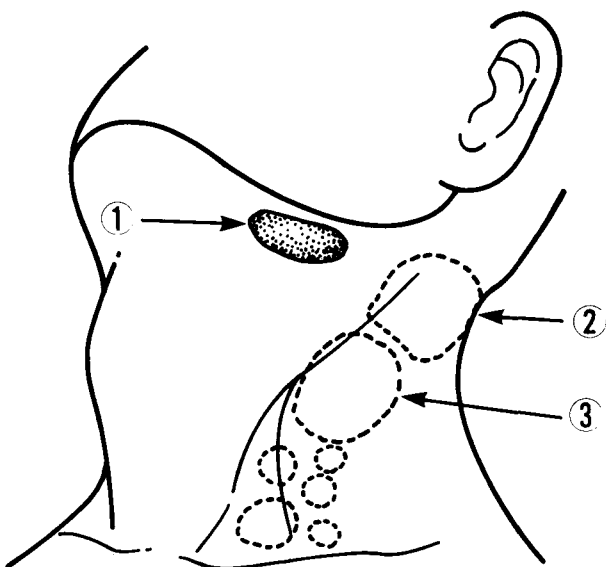


FIG. 1

Result of pre-operative examination. The size of the left submandibular gland with the tumour is approximately 30 × 20 mm (1); the sizes of the large regional lymph nodes are approximately 50 × 30 mm (2) and 60 × 25 mm (3).

Case report

A 51-year-old man was admitted to the Asama General Hospital in August 1991 with a firm, fixed, mass on the left submandibular gland and multiple enlarged regional lymph nodes. On examination, the size of the left submandibular gland mass was found to be approximately 30 × 20 mm. In addition, the sizes of large regional lymph nodes were found to be about 50 × 30 mm and 60 × 25 mm (Figure 1). A CT examination with sialography showed a low density area indicating a tumour (Figure 2). Carcinoma cells were detected in both the submandibular tumour and the lymph nodes by aspiration biopsy cytology. Distant metastases were not demonstrable. However, high levels of serum CEA and CA 125 were demonstrated pre-operatively, i.e. CEA and CA 125 values were 3.9 ng/ml (normal range: <2.5 ng/ml) and 330 μ/ml (normal range: <50 μ/ml), respectively. After pre-operative diagnosis of carcinoma of the left submandibular gland with multiple lymph node metastases, we carried out an



FIG. 2

CT scan showing a low density area in the left submandibular gland.

From the Department of Surgery*, the Department of Pathology†, Asama General Hospital, Saku, and the Department of Surgery‡, Shinshu University School of Medicine, Matsumoto, Japan.

Accepted for publication: 10 February 1994.



FIG. 3

Tumour excised from the submandibular gland (15 × 15 × 10 mm). It is seen to be a solid invasive mass.

extensive left total submandibular resection with radical neck lymph nodes dissection in September 1991.

The tumour of the submandibular gland was an invasive, solid, mass measuring 15 × 15 × 10 mm after surgical removal (Figure 3). Histological examination confirmed adenocarcinoma of the submandibular gland with multiple regional lymph node metastases (Figure 4).

Tissue immunohistochemical staining for CEA and CA 125 in both carcinoma of the submandibular gland and metastatic lymph nodes was positive (Figures 5 and 6).

The post-operative course was uneventful and the patient was discharged two weeks after surgical treatment. Post-operative serum CEA and CA 125 values were normal within one month after the operation. The patient is alive (1993) without evidence of recurrence or metastases.

Discussion

We experienced an interesting case of advanced adenocarcinoma of the submandibular gland with high serum CEA and CA 125 values pre-operatively.

In the past CEA and CA 125 have been especially related to carcinoma of the ovary or endometrium in both serum measurements and tissue immunohistochemical staining. We measured several serum tumour markers including CEA and CA 125 to attempt to determine the origin of the multiple lymph node swellings of the neck when this patient was first examined. It is of interest that the values for serum CEA and CA 125 correlated with the response to surgical treatment i.e. the high serum CEA and CA 125 values before the operation fell to values within the

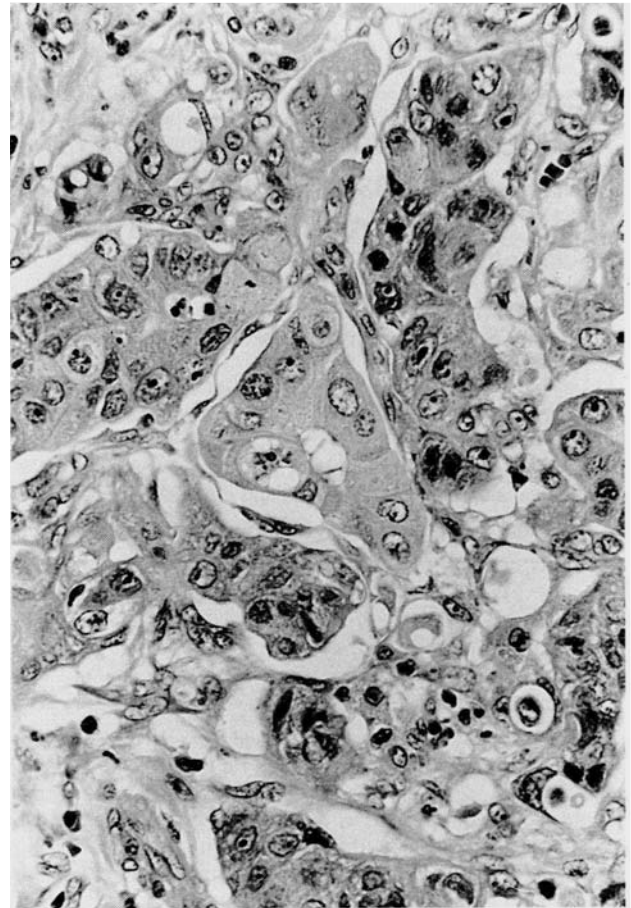
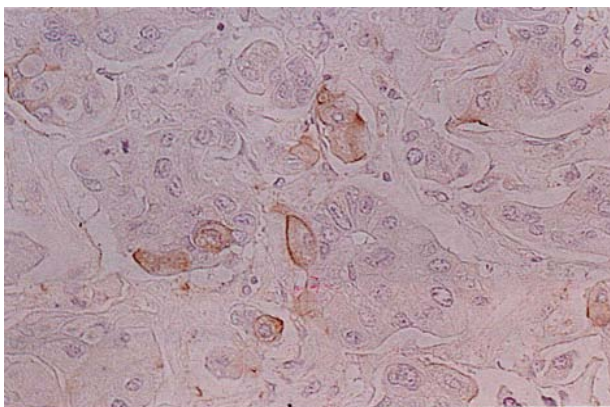


FIG. 4

High power photomicrograph showing cells from the adenocarcinoma. (H & E; × 100).

normal range rapidly after the operation. Therefore, tissue immunohistochemical staining for both CEA and CA 125 were performed to determine whether CEA and CA 125 originated from the carcinoma of the submandibular gland. The positive findings confirmed this suspicion.

It has been generally accepted that the determination of CEA or CA 125 is used primarily as an index for detection, staging, checking recurrence and following response to therapy in patients with carcinoma of the digestive tract (Gold and Freedman, 1965 a, b; Tabuchi *et al.*, 1988), or with carcinoma of the ovary or endometrium (Bast *et al.*, 1981; Jacobs and Bast, 1989), respectively. Although Alfaro and Carrozza (1990)

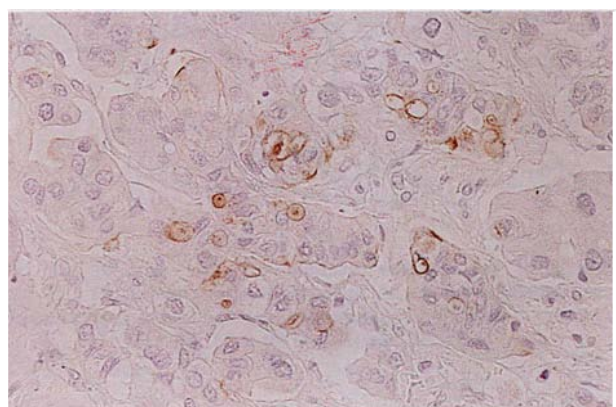


FIG. 5 and FIG. 6

Immunohistochemical staining of the carcinoma tissues, using CEA (Figure 5) and CA 125 (Figure 6), showing positive findings. (CEA; × 100); (CA 125; × 100).

reported that CEA was not a reliable marker for differentiation between benign and malignant salivary gland tumours, the findings in this case suggest that both CEA and CA 125 might be useful as monitors for checking recurrence or metastases in cases similar to the patient described in this report.

It is nevertheless necessary to carry out further studies, on a large number of cases of tumour of the submandibular gland, in order to determine how useful CEA or CA 125 can be as tumour markers.

Acknowledgement

We thank Professor Robert Volpé, University of Toronto, Canada, for his help in reviewing this manuscript.

References

- Alfaro, M., Carrozza, M. (1990) Immunohistochemical localization of carcinoembryonic antigen (CEA) in salivary gland tumours. *Oral Surgery, Oral Medicine and Oral Pathology* **69**: 479–482.
- Bast, R. C. Jr., Feeney, M., Lazarus, H. (1981) Reactivity of a monoclonal antibody with human ovarium carcinoma. *Journal of Clinical Investigation* **68**: 1331–1337.
- Gold, P., Freedman, S. O. (1965 a) Demonstration of tumour-specific antigens in human colonic carcinoma by immunological tolerance and absorption technique. *Journal of Experimental Medicine* **121**: 439–462.
- Gold, P., Freedman, S. O. (1965 b) Specific CEA of human digestive system. *Journal of Experimental Medicine* **122**: 467–481.
- Tabuchi, Y., Deguchi, H., Saitoh, Y. (1988) Carcinoembryonic antigen and carbohydrate antigen 19–9 levels of peripheral and draining venous blood in colorectal cancer patients. *Cancer* **62**: 1605–1613.
- Yacobs, I., Bast, R. C. Jr. (1989) The CA 125 tumour associated antigen: a review of the literature. *Human Reproduction* **4**: 1–12.

Address for correspondence:

Dr Yoshio Kasuga,
Department of Surgery,
Shinshu University School of Medicine,
3-1-1 Asahi,
Matsumoto 390,
Japan.

Fax: 81-263-32-9548