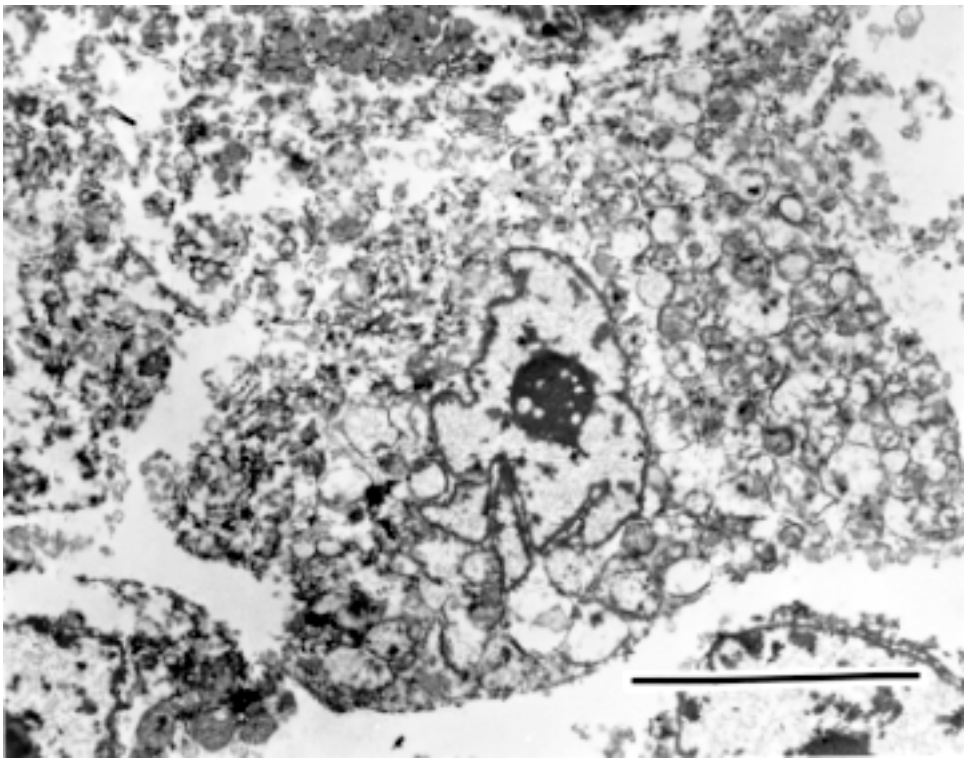

Fig. 4. Ultrastructure features of the tumor cells. The tumor cell is rich in mitochondria. × 3900. Scale bar = 1 μm.

mitochondria (Fig. 4). The present findings were almost the same as in the previous histological features, but the number of clear cells was higher in 1992. The final diagnosis of the specimen was malignant oncocytoma with metastasis of the cervical lymph nodes. The postoperative course was uneventful, with no additional chemotherapy or irradiation administered. The patient's recovery has been followed up for 6 years with no signs of recurrence.

Discussion

The oncocyte is a large eosinophilic granular cell which can be seen in the glandular tissue, especially in the major salivary gland. It is thought that the oncocyte increases with age in the parotid gland. A benign oncocytic tumor is called an oncocytoma, or mitochondrioma due to electron-microscopic features. Oncocytomas of the salivary glands are rare benign tumors, comprising less than 1% of all salivary tumors (Ellis et al., 1996). Further, malignant oncocytomas in the head and neck region are much rarer, reported in only about 50 cases in the literature. To date, 34 cases of malignant oncocytoma in the parotid gland were reported since the first report by Bauer and Bauer (1953). Nakada et al. (1998) reviewed in detail the literature on malignant oncocytomas except for those in the parotid gland: those tumors have been found in the submandibular gland, palate, maxillar sinus, ethmoid sinus, nasal cavity, kidneys, thyroid, mediastrinum and lungs.

There are several criteria fot determining the histological features of malignant oncocytoma: i) scattered mitoses and a focal cellular pleomorphism with local extension outside the capsule into adjacent soft tissue, bone or paraparotid lymph nodes; ii) perineural, lymphatic or intravascular invasion and iii) regional or

distant metastases (Gray et al., 1976). In the present case, absence of encapsulation, perineural and intravascular invasion, and metastases to the cervical lymph nodes were the criteria in establishing a diagnosis of malignant oncocytoma. In our case, though considering retrospectively, histological findings in 1992 and 1995 were the same as our results, but clear cells in the tumor cells were more frequent in 1992. The cervical lymph-node mass treated in 1992 was possibly based on a parotid gland malignant oncocytoma, which was not yet a proven discovery in 1992.

In the 34 cases of malignant oncocytoma of the parotid gland, the age of the affected patients ranged from 30 to 91 years with a mean of 58 years, and the male to female ratio was 2:1 (Mahnke et al., 1998). Ardekian et al. (1999) reported that the main clinical symptom of malignant oncocytoma in the salivary gland was pain in 82.9% of the cases.

Sugimoto et al. (1993) reported that oncocytomas commonly presented as a parotid mass and pain as well as facial nerve paralysis, and that such symptoms were involved with 1/3 of the patients. The present patient's main symptom was a slowly progressive cervical mass with no pain and no facial nerve paralysis.

Except for histological examinations, no characteristic features have been reported on examinations by CT, MRI and echography. Scintigraphy with technetium showed an uptake ratio similar to benign oncocytoma and other malignant tumors in the head and neck (Kawamoto et al., 2000). Histological examination by needle aspiration biopsy is thought to be useful for diagnosis (Laforga et al., 1994; Rajan et al., 1994).

Almost all the patients have been treated with surgery because other therapies such as irradiation and chemotherapy are thought to produce poor effects. Date et al. (1999) reported recurrent cases in which surgical resection and irradiation were performed: additional surgical neck dissections were needed.

Recurrences occurred in 25% to 52% of the cases (Mahnke et al., 1996). Intervals between surgery and recurrence ranged from 10 months to 10 years (Sugimoto et al., 1993). Distant metastases into the lungs, liver and brain occurred in several patients who suffered fatalities (Date et al., 1999). Ardekian et al. (1999) asserted that malignant oncocytomas appear to be good in short-term survival, but poor in long-term survival because of distant metastasis. Therefore, we determined that total parotidectomy and neck dissection were necessary in treating the malignant oncocytoma in the parotid gland with neck metastasis. Irradiation and chemotherapy are thought to cause poor effects at present. Long observation is necessary after therapy, because the long-term survival rate is poor. In the present patient, parotidectomy and neck dissection were carried out, and he has had no evidence of recurrence for 6 years.

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