Nasal Adenocarcinoma in a Taiwan Macaque


Although a variety of neoplasms have been reported in nonhuman primates [5], tumors of the nasopharyngeal region are rare. Ameloblastic odontomas have been found in the Celebes [2] and Rhesus monkeys [6]; oral soft tissue tumors have been found in the spider monkey [4], and bone neoplasms of the cranial-facial region of Rhesus monkeys [3]. We report a nasal cavity adenocarcinoma with metastasis to the lung in a Taiwan monkey, Macaca cyclopis.

The macaque was a 10-year-old male that had been housed with 20–25 healthy monkeys in a primate holding room. The other monkeys were used for trachoma virus studies in Taiwan. The macaque had not been used in any study for 18 months prior to discovery of the tumor.

A mass about 3 centimeters in diameter was found in the left nasal cavity causing swelling in the left maxilla. Biopsy of the lesion showed it to be a papillary adenocarcinoma. The tumor continued to grow to about 6 centimeters in diameter and eventually ulcerated through the nasal dermis.

The mass was surgically removed and the face reconstructed by plastic surgery. Three months later the mass reappeared and was again removed (fig. 1). Because malignant nasal tumors are common in Asians, virologists at the College of Medicine, National Taiwan University, requested that the disease be allowed to progress for several months in order to attempt virus isolation from the tumor. These studies were unfruitful. Thoracic radiographs showed pulmonary metastasis. After erosion of facial bone had become extensive the animal was killed.

The tumor had ulcerated through half the facial dermis and was encroaching upon the bony orbit of the left eye. The protruding tumor was gray-tan and friable. In addition, the tumor had replaced the anterior half of the hard palate including the associated dental arcade. Cutting was easy in this area. All lobes of the lung contained foci of various sized metastatic tumors which were harder to cut than was the primary focus. There were no metastasis in other organs or structures.

The biopsy (fig. 2) taken about a year before the macaque was killed showed papillary adenocarcinoma of interconnecting fronds and islands of neoplastic cells. Mitotic figures were numerous. The neoplastic foci in the lungs tended to be solitary adenocarcinomatous nodules (fig. 3) with numerous mitotic figures. Special stains showed mucin in some areas.

Since the history on this monkey included exposure to the trachoma virus only and since it had not been exposed to any other experimentation, speculation on
possible causes cannot be made. We found no reports in the literature suggesting that trachoma virus has carcinogenic properties in primates. Furthermore, many monkeys had been used in trachoma virus studies at our laboratory in Taipei and this was the only one to develop the condition. Thoracic radiographs were taken
every 3 months during the progress of disease in this animal and metastatic foci did not appear in the lungs until a year after the diagnosis was made. This growth pattern is similar to that of nasopharyngeal adenocarcinomas in man in which growth at the primary site continues for a prolonged period with late metastases [1].

We were unable to identify the exact origin of this tumor, but it is likely that it arose from either the respiratory mucosa, minor salivary glands, or mucoserous glands in the nose.

References


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