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A Case Report

Management of Mucoepidermoid Carcinoma on the Palate with Loco Regional Metastases : A Case Report

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Abstract:

Introduction: Salivary gland tumours comprise almost 5% of head and neck malignancies with mucoepidermoid carcinoma (MEC) represents 10-15% of salivary neoplasms that characterized by mucous, intermediate and epidermoid cells, collumnar cells, clear cells and oncocytoid features. Surgery is the most common approach for a resectable tumor, various treatment options for metastasis such as chemotherapy, radiotherapy, and immunotherapy have been investigated. Case: This report presented a case of 24-years old woman came in with complaints of a reddish, soft, kidney bean sized mass on the right posterior hard palatum 5x3x2cm in size with that getting enlarged since 8 months ago with Fine Needle Aspiration Biopsy result of minor salivary gland neoplasm suspect low grade of mucoepidermoid carcinoma. Computed tomography exam showed multiple lobulated isodense lesions at levels Ib, IIa, IIb colli bilateral, indicating that there were metastases to the cervical lymph nodes, without intracranial metastases. Abdominal x-ray and ultrasound examination showed no intrapulmonary and intra-abdominal metastases. Case Management: Hemimaxilectomy and radical neck dissection level I, II, II and IV was performed under general anaesthesia. Conclusion:. Malignant salivary gland tumors at hard palate are best removed through surgical resection and has a significant result to inhibit the metastase of cancer.

Keywords: hemimaxilectomy, metastasis, mucoepidermoid carcinoma, palatum.

Introduction

Salivary gland tumors make up nearly 5% of malignancies in the head and neck region. This condition tends to affect women more frequently, with a male-to-female ratio of about 1 to 1.5. Malignant growths are identified in roughly 21.7% of all salivary gland tumors.(1) Mucoepidermoid carcinoma (MEC) constitutes 10-15% of these tumors and is defined by the presence of mucous, intermediate, and epidermoid cells, as well as columnar cells, clear cells, and oncocytoid features.(2) The majority of salivary gland cancers typically appear as a asymptomatic lump, yet in certain cases, patients might notice rapid growth of the mass, invasion into surrounding tissues, difficulty in jaw movement (trismus),

gradual loss of nerve function, discomfort, abnormal sensations (paresthesia), or the emergence of swollen lymph nodes in the neck.

Patient Information

A 24-years old woman came in with complaints of a reddish, soft, kidney bean sized mass on the right posterior hard palatum 5x3x2cm in size with that getting enlarged since 8 months ago with Fine Needle Aspiration Biopsy result of minor salivary gland neoplasm suspect low grade of mucoepidermoid carcinoma. Approximately 8 months before admission to the hospital, the patient noticed a lump the size of a red bean on the right posterior hard palatum, which appeared reddish compared to the surrounding gums, soft, painless, and non-bleeding, but the patient did not seek treatment. About 7 months ago, the patient complained that the lump had grown to the size of a quail egg, and she sought treatment at the Subang District Health Center, then was referred to the Subang Regional General Hospital. About 6 months before admission to the hospital, the patient came to the Subang Regional General Hospital where panoramic X-rays and FNAB examinations were performed, yielding results of a glandular neoplasm of the minor salivary gland with low-grade mucoepidermoid carcinoma, given two types of medication (the patient forgot their names), and then referred to the Oral Surgery Polyclinic at RSHS for further treatment.

About 5 months before admission to the hospital, the patient sought treatment at the oral surgery polyclinic at RSHS, where blood tests and chest X-rays were performed, followed by an incision biopsy operation. Computed tomography exam showed multiple lobulated isodense lesions at levels Ib, IIa, IIb colli bilateral, indicating that there were metastases to the cervical lymph nodes, without intracranial metastases. Abdominal x-ray and ultrasound examination showed no intrapulmonary and intra-abdominal metastases. About 1 month before admission to the hospital, the patient came for a follow-up visit and received anatomical pathology results indicating mucoepidermoid carcinoma, then scheduled for surgery on Friday (10/11/23). Medical history: (+) systemic disease with hormonal abnormalities diagnosed in 2011 at RSHS. Allergy history: (-) drug and food allergies. Surgical history: (+) Incision biopsy in September at RSHS. Routine medication history: (-). Weight loss history: (-).

Clinical Findings

The patient appeared with compos mentis consciousness. Her vital scores were stable; blood pressure (BP) was slightly increased (110/80 mmHg), heart rate (HR) was 84 bpm, respiratory rate (RR) was 18 beats/min, and temperature was 36,2°C. The patient's weight was 74 kg by the time of examination. Figure 1a-c showed the appearance of the patient's preoperative.

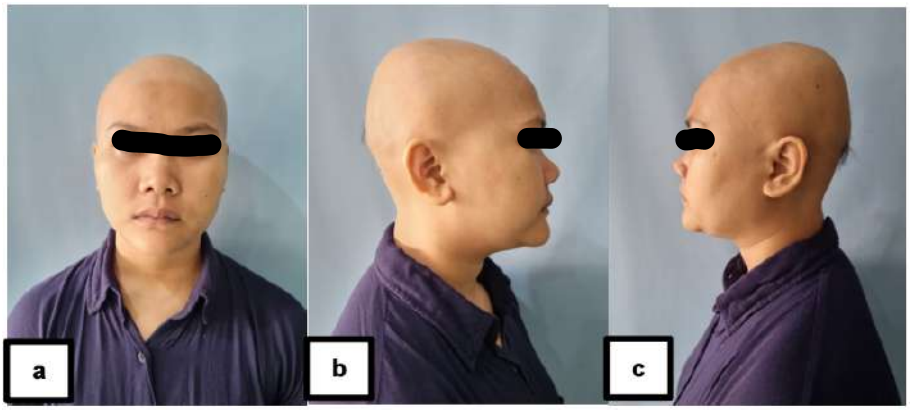

Figure 1a, 1b, and 1c. The patient's appearance

Diagnostic Assessment

FNAB examination was performed on the dextra palate (aspirate mixed with blood). Macroscopically, the biopsy aspirate smear from the right palate consists of spindle-shaped cells clustered together. The cell nuclei are polymorphic, mildly hyperchromatic, with moderate cytoplasm. Some cytoplasm appears eosinophilic. Also observed is a myxoid matrix. Among them are lymphocytic inflammatory cells and PMN cells. The conclusion drawn from the FNAB results is Pleomorphic adenoma suspected right palate with differential diagnosis of low-grade mucoepidermoid carcinoma. FNAB examination suggests further open biopsy.

MSCT/CT scan examination was performed on the neck in axial sections with a slice interval of 2.5 mm. The sections were made parallel to the hard palate. Coronal and sagittal reconstructions were made with a slice interval of 0.5 mm. Scanning was performed without and with contrast media. The examination revealed an isodense mass with well-defined borders, irregular edges, measuring approximately 2.07 x 2.31 x 2.59 cm in the right hard palate. The mass appeared to erode the medial aspect of the right maxillary alveolar process partially. Post-contrast scanning showed heterogeneous enhancement (HU pre: 40-65, post: 70-111). There were also lobulated, multiple, well- defined, regularly edged isodense lesions at levels IB, IIA, IIB of bilateral colli, with the largest measuring approximately 1.17 x 1.41 x 1.82 cm at the level of IIA on the right side. Post-contrast images showed heterogeneous enhancement (HU pre: 48-64, post: 62-80). Soft tissues of the nasopharynx, oropharynx, and hypopharynx appeared normal. The pharyngeal recess and torus tubarius appeared normal. No thickening of the preoccipital soft tissue was observed (N<1.5cm). Bilateral nasal concha thickening was noted. The nasal cavity was within normal limits. The nasal septum was midline. Air columns in the pharynx, larynx, glottis, and trachea appeared normal. The palate, pterygoid plate, and mandible appeared normal. Bilateral parotid and submandibular glands appeared normal. Parapharyngeal space, masticator space, retropharyngeal space, carotid space, bilateral infratemporal fossa were within normal limits. Vascular structures (bilateral common carotid artery and internal jugular vein) appeared normal. The right and left thyroid glands were not enlarged. Thyroid parenchymal contours appeared homogeneous. The larynx and hyoid bone were within normal limits. The epiglottis and vallecula appeared normal. No destruction of the skull base bone or intracranial infiltration was observed. Bilateral

maxillary, ethmoidal, sphenoidal, and frontal sinuses within the scanned range appeared normal. The scanned area of the eyeball and retrobulbar space appeared normal. The sella turcica and juxtasellar regions, as well as the cerebellopontine angle, were within normal limits. Bilateral scanned mastoid air cells appeared normal. The esophagus appeared normal. Cervical vertebral structures appeared normal. Conclusion:

- Solid mass approximately 2.07 x 2.31 x 2.59 cm in size in the right hard palate. The mass appeared to erode the medial aspect of the right maxillary alveolar process partially. Accompanied by multiple lymph node enlargements at levels IB, IA, IIB of bilateral colli, with the largest measuring approximately 1.17 x 1.41 x 1.82 cm at the level of IIA on the right side → T4aN2M0 stage IVA according to AJCC 2018 (if the anatomical pathology results confirm malignancy).
- Bilateral nasal concha hypertrophy.
- No intracranial metastasis observed.

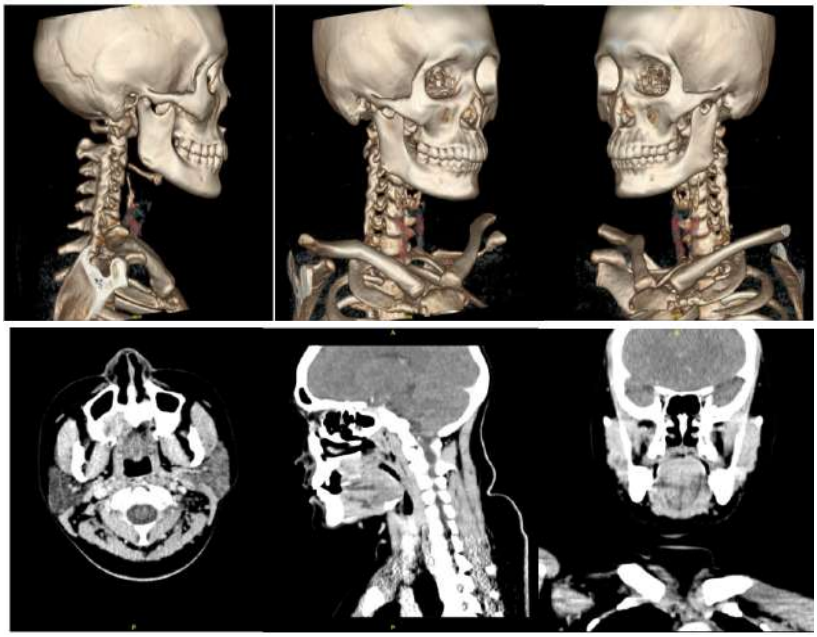

Figure 2: MST/CT scan examination

The open biopsy examination revealed tissue fragments weighing 1.2 grams, whitish-brown, and elastic in consistency. Microscopic analysis showed a tumor mass consisting of squamoid, intermediate, and mucoid components composed of round to spindle-shaped cells growing hyperplastically, densely, and clustered together. The cell nuclei were pleomorphic, hyperchromatic, with mitosis present. Some cytoplasm was vacuolated, while some were clear. The fibrocollagenous stromal tissue exhibited hyalinization, interspersed with lymphocytic inflammatory cells. The conclusion drawn from the open biopsy examination is intermediate-grade Mucoepidermoid carcinoma suspected in the palate.

The results of the second biopsy examination macroscopically revealed four pieces of tissue, some of which were bone-like, with the largest measuring 5 x 4 x 2.1 cm and the smallest measuring 1.5 x 0.7 x 0.5 cm, whitish-brown and elastic, and some were hard. On the sectioning of the largest tissue, a dull white solid mass measuring 4 x 3 x 2 cm was observed, surrounded by bone. In the other tissue sections, they appeared solid, whitish-brown.

On abdominal ultrasound examination, the liver appeared normal in size, with sharp angles, a smooth surface, homogeneous parenchymal texture, normal thickness of the capsule, and no hypoechoic lesions/masses observed. The portal vein and hepatic veins were not dilated. No fluid collections were seen around the liver. The gallbladder appeared normal in size with a normal wall. Intra/extrahepatic bile ducts were not dilated, and no hyperechoic shadows with acoustic shadows were observed. The spleen was of normal size, with homogeneous parenchymal texture and no nodules/masses. The splenic vein was not dilated, and no fluid collections were observed around it. The pancreas appeared normal in size, with normal contour and homogeneous parenchymal texture, and no masses/calcifications were seen. The pancreatic duct was not dilated. Both kidneys were normal in size, with normal contour, normal parenchyma, and normal echo intensity. The parenchymal texture border with central echocomplex was normal. No hyperechoic images with acoustic shadows were seen. The pelvocalyceal system appeared normal. The proximal ureter was not visualized. The urinary bladder was adequately filled, with no thickening of the wall, and no hyperechoic shadows with acoustic shadow/mass were observed. The impression from the abdominal ultrasound examination showed no enlargement of the

paraaortic/parailiac lymph nodes. Visualization of the liver, spleen, gallbladder, pancreas, bilateral kidneys, and urinary bladder revealed no abnormalities. The abdominal ultrasound results are shown in the image On chest X-ray examination (PA view), the image appeared asymmetric with adequate inspiration. The skeletal and soft tissues visualized were within normal limits. The trachea was in the midline. The mediastinum was not widened. The heart was not enlarged. The sinuses and diaphragm were within normal limits. In the lung area, the hilum was within normal limits, the bronchovascular markings were partially increased, and no nodular opacities were observed in both lung fields. The impression from the chest X-ray examination showed no intrapulmonary metastasis and no cardiomegaly.

Therapeutic Intervention

In this patient, informed consent was taken with the family regarding the surgical procedure, anesthesia, and the risk of death for the patient. The first step in performing surgery is to prepare the room, equipment, and operator. Then, patient entered the operating room and vital sign monitors were attached. The patient was sedated with inhalation and given an injection of anesthesia. Next, the patient was intubated, a skin test was performed, and a urinary catheter was inserted. The patient was given prophylactic antibiotics with a 1-gram injection of cefazolin. The patient's eyes were covered with hypafix. Extraoral and intraoral asepsis was performed, followed by covering the patient's body with a sterile drape. Oropharyngeal gauze and an IV line in the leg were inserted. The patient was injected with anesthetic in the maxilla region. An incision was made with a No. 15 blade and cautery. Tissue dissection was performed with a raspatorium on the retro area. Next, tissue extraction and cutting of the right maxilla bone were done using a saw, chisel, and mallet. Bleeding was controlled, and the bone was smoothed. Spooling and irrigation of the operation area were performed. Iodoform gauze was placed on the right maxilla region. Muscle suturing was done in the maxilla region with Vicryl 4.0. Then, intraoral mucosa suturing was performed in the maxilla region. Extraoral and intraoral cleaning was carried out. Oropharyngeal gauze, hypafix on the eyes, and a sterile drape were removed. The patient was extubated. The operation was completed.

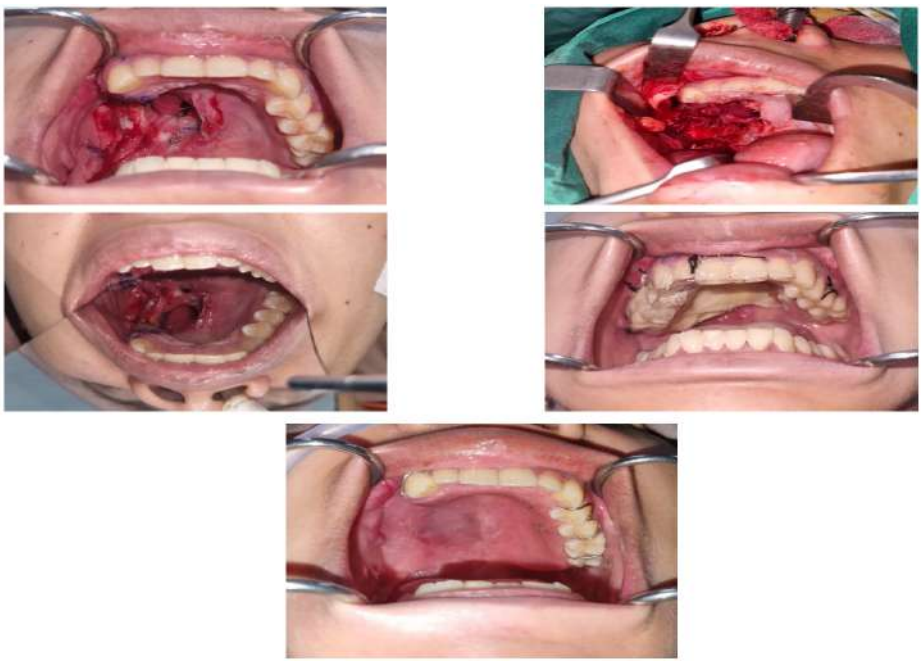

Figure 3: Intraoperation.

A marginal resection has been performed in the right maxilla region with a mass approximately 5 x 4 x 4 cm in size. The right maxilla bone mass included soft tissue, with clean anterior and posterior margins of approximately 1 cm, localized to the hard palate.

Figure 4: Surgical specimen.

Follow-up and Outcomes

Post-surgery, the patient is observed for vital signs, contractions, bleeding, and urine output. The patient also given ringer lactate was administered IV at a rate of 20 drops per minute/24 hours for maintanace. The patient was also instructed to fast until fully conscious. Additionally, the patient was advised to follow a high-calorie and high-protein liquid diet of 2200 Kcal/day, and to continue the previously prescribed therapy.

Discussion

Salivary gland tumors (SGT) are a rare and diverse group of neoplasms with complex histology, found in the parotid, submandibular, and sublingual glands, as well as the minor salivary glands in the upper aerodigestive tract. This disease more often attacks women with a male to female ratio of 1 to 1.5.(1) Most SGT are benign, with around 70% originating in the major glands and approximately 25% in the minor glands. In contrast, over half of the tumors in the minor glands (such as those in the palate, tongue, floor of the mouth, retromolar region, and lips) are likely to be malignant.(3) Malignant SGTs make up about 5% of all head and neck malignancies, with 15–35% of parotid gland tumors, 41– 45% of submandibular gland tumors, and 70–90% of sublingual gland tumors being malignant.(1, 3) The most common malignant tumor was mucoepidermoid carcinoma, making up 26% of malignant diagnoses, followed by adenoid cystic carcinoma and polymorphous adenocarcinoma.(3)

Mucoepidermoid carcinoma is a malignant glandular epithelial neoplasm characterized by the presence of mucous, intermediate, and epidermoid cells, as well as columnar, clear cell, and oncocytoid features.(2) Most mucoepidermoid carcinomas primarily affect the minor glands, with involvement also seen in the parotid gland, submandibular glands, and sublingual glands. Within the minor glands, 60% of mucoepidermoid carcinomas were observed in the palate. In most centers, mucoepidermoid carcinoma was the most prevalent malignant tumor. The sole exception was in Africa, where adenoid cystic carcinoma was the most frequently encountered tumor.(4) The most common etiologic factor in the development of mucoepidermoid carcinoma is exposure to radiation. The history of mucoepidermoid carcinoma typically involves a slow-growing, firm mass that is clinically indistinguishable from a pleomorphic adenoma. These tumors can be classified into low-grade (well-differentiated), intermediate, and high-grade (poorly differentiated) mucoepidermoid carcinomas.

However, regardless of the histological grade of differentiation, any

mucoepidermoid carcinoma has the potential to metastasize.(5)

The standard treatment for resectable carcinomas of the major and minor salivary glands is surgical excision. Postoperative radiotherapy is recommended for selected patients.(6) Post-operative radiotherapy is recommended for advanced tumor stages, high-grade tumors, perineural or lymphovascular invasion, close or positive resection margins, extra-parotid extension, or lymph node involvement.(2) The most common treatment for mucoepidermoid carcinoma is surgical removal, which often results in large defects in the soft and hard palate, causing oro-antral or oro-nasal communication. A hemimaxillectomy can lead to loss of facial aesthetics, difficulties with swallowing and speech, and a decreased quality of life.(7) The use of chemo-radiation (CRT) is associated with significantly better local control compared to radiotherapy alone, though it does not improve overall survival. Chemotherapy has been considered for salivary gland carcinomas, but currently, its role is limited to palliation.(2)

Salivary gland malignancies exhibit a wide range of prognoses due to their diverse histologies. Generally, the prognosis for salivary malignancies is more favorable in children and adolescents compared to adults, as they experience lower rates of cervical metastasis, lack local soft tissue invasion, and have more differentiated histologies.(1) The most crucial predictors of survival related to tumors are tumor stage, histology, grading, lymphovascular invasion, facial nerve paralysis, extraparotid tumor extension, and cervical node involvement, all of which can affect treatment outcomes.(6)

In this case report, we present data on a rare case of a mucoepidermoid carcinoma of salivary gland that performed hemimaxillectomy and a radical neck dissection at levels I, II, III, and IV.

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