ABSTRACT

Carcinoma ex pleomorphic adenoma (CXPA) is a rare parotid malignancy and its prognosis is poorer than other parotid malignancies. Invasive tumours tend to behave in a more aggressive fashion. These tumours are seen in patients in the sixth to seventh decades of their life. We present a 38-year-old male with a right-sided parotid gland swelling, which was present for the past 3 to 4 years and gradually increasing in size, with a solitary pulmonary nodule in the left upper lobe. On Fine Needle Aspiration Cytology (FNAC) of the parotid gland, a diagnosis of CXPA was given. This was confirmed by histopathology as CXPA with the malignant component of mucoepidermoid carcinoma and ductal carcinoma and with comedo pattern of necrosis.

KEYWORDS: Pleomorphic adenoma, Mucoepidermoid carcinoma, Ductal carcinoma, Vascular emboli, Invasion, Metastasis

INTRODUCTION

The carcinoma ex pleomorphic adenoma (CXPA) was first described by Beahrs et al.[1] in 1957. It is defined as a carcinoma that arises in the epithelial and or myoepithelial component of a pleomorphic adenoma. In most instances (75%), the luminal epithelial cells undergo malignant change. It constitutes 99% of all the cases of malignant mixed tumours. It develops in 6% of all pleomorphic adenomas. It constitutes 3.6-4% of all salivary gland tumours and 12% of all malignant salivary gland tumours[2,3].

The CXPA is commonly seen in patients in the sixth to seventh decades of their life[1]. The average median age at onset is 61-67 years; this median age at onset is 10-20 years older than the median age of patients with pleomorphic adenoma, lending support to the view that long-standing tumours are more prone to malignant change[1,4]. It more commonly occurs in the major salivary glands than in the minor salivary glands.

The CXPA is most frequently seen in the parotid gland (67%), whereas the submandibular gland is less frequently involved (15%). The sublingual gland is involved in only 1% of the cases[2].

Fine-needle aspiration is generally one of the first steps taken in diagnosing a salivary gland mass. It is interesting to note that CXPA tends to occur in the deep lobe of the parotid gland, in contrast to most pleomorphic adenomas, which tend to occur in the superficial lobe. This fact may account for the low preoperative diagnostic accuracy and sensitivity of fine-needle aspiration in diagnosing CXPA. It has the highest false-negative rate of 35.3% of all malignant salivary gland tumours[5]. The patient usually presents with a history of a slowly growing, painless mass[6] that suddenly or over a short period enlarges rapidly. Patients usually present with symptoms and signs suggesting malignancy, e.g. fixation to surrounding structures[4], occasional pain, skin infiltration, trismus, facial nerve weakness or palsy. Facial nerve weakness

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or palsy has been detected in approximately 23-40% of cases.

The CXPAs vary considerably in size; sizes may range from 1 cm to greater than 20 cm. Macroscopic features that suggest malignant transformation in pleomorphic adenoma include poorly defined and/or infiltrative tumour margins[2], the presence of foci of haemorrhage and necrosis. However, some malignant tumours are well-circumscribed[6] (e.g. non-invasive or minimally invasive varieties). Tumours that invade beyond the capsule into the surrounding tissue by less than 1.5 cm are considered minimally invasive; overall, patients with this form of disease have an excellent prognosis. Those tumours that invade beyond 1.5 cm are considered invasive; with such tumours, prognosis varies in accordance with tumour stage, grade, histological type and the proliferative index[7]. Tumours should be carefully evaluated with regard to the degree of invasion of tumour, because treatment will vary accordingly.

Perineural[6] and angiovascular invasion are commonly encountered in the invasive types; necrosis is prominent in the high-grade types.

Tumours in the invasive category tend to behave in a more aggressive fashion; up to 25-50% of the patients experience recurrence[2] and up to 60-70% of the patients develop local or distant metastasis[2]. Metastatic sites[8] include lymph nodes, bone (especially vertebral bodies) and the brain. Malignant transformation[1,4] may occur up to 50 years after a pleomorphic adenoma is first diagnosed; the average period before malignant transformation is 20 years. The exact aetiologic factors associated with malignant transformation are largely ill-defined; however, exposure to radiation is thought to be a factor. It is also thought that malignant change may result from the development and accumulation of genetic instabilities within the tumour. Interestingly, the rate of occurrence seems to increase with increase in the period during which the pleomorphic adenoma is left untreated[4]. According to some investigators, the rate of malignant change is 1.5% in the first year in which the adenoma goes untreated; it increases to 9.5% after 15 years.

On histopathologic examination, the malignancy has an epithelial appearance. It may be a well-recognised variant of salivary gland carcinomas, such as mucoepidermoid carcinoma and adenoid cystic carcinoma, but this had rarely been the case in the experience of others[2].

In the series of Tortoledo et al.[9], the malign counterpart was classified as salivary duct carcinoma in 13 cases, undifferentiated carcinoma in 10, terminal duct carcinoma in 3 and unclassified in 2 cases.

Most of the tumours have a poorly differentiated appearance. As a matter of fact, whenever there is a high-grade adenocarcinoma that is difficult to classify and is found in the salivary gland, the possibility of it having risen from a benign mixed turn should be considered.

**CASE REPORT**

A 38-year-old male complained of swelling in front of the right ear. It was present for the past 3-4 years and was gradually increasing in size, but was not associated with pain. All the routine investigations were within normal limits. The X-ray of the chest showed a solitary pulmonary nodule of 2 cm size in the left upper lobe, which was suggestive of tuberculoma radiologically.

On examination, there was a single irregular swelling on the right side of the angle of the mandible measuring 6 x 5 cm. It was firm, fixed and non-tender. Skin over-swelling was normal. A clinical diagnosis of pleomorphic adenoma was made.

FNAC was done and the smears from the aspirated blood mixed mucoid and myxoid material showed sheets of discohesively scattered duct epithelial cells, along with few ovoid plasmacytoid cells, with the mucoid and myxoid areas in a haemorrhagic background. A large number of duct epithelial cells showed marked pleomorphism and atypia. Features were in favour of pleomorphic adenoma. However,
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Figure 1: Cytology smears showing features of Pleomorphic Adenoma

Figure 2: Cytology smears showing features of malignancy.

Figure 3: Grossly showing irregular grey-brown friable mass along with solid lobulated areas.

Figure 4: Histopathological Examination (HPE) showing features of pleomorphic adenoma.

Figure 5: Histopathological Examination (HPE) showing lymph node with secondary deposit.

Figure 6: Histopathological Examination (HPE) showing features of mucoepidermoid carcinoma and comedo type of duct cell carcinoma.
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In view of the loose discohesive cells with marked pleomorphism and atypia, an excision biopsy was advised to rule out malignancy.

Following parotidectomy, a single irregular grey-white to grey-brown friable soft tissue mass measuring 5 x 4 x 3 cm was received. The surface was nodular with areas of haemorrhage and necrosis. The cut surface was grey-white with mucoid areas, areas of haemorrhage and necrosis, with cystic areas along with normal salivary gland tissue at the periphery.

Multiple sections from the tumour tissue studied showed acini of normal salivary gland, mononuclear inflammatory infiltrate, mucoid, myxoid and chondroid areas along with sheets of benign duct epithelial cells, suggestive of Pleomorphic adenoma. Tumour tissue also showed cells arranged in sheets, clusters and as small ducts. The individual cells were highly pleomorphic, with marked atypia, anaplasia and with abnormal mitoses. Some cells had clear cytoplasm, while some cells had squamoid differentiation. In many areas a comedo pattern of necrosis was observed. The tumour tissue is seen infiltrating into the acini of the normal salivary gland. The features were suggestive of malignancy along with features of Pleomorphic Adenoma. There were vascular tumour emboli and the intraparotid lymph node showed tumour deposit. The pulmonary lesion was reviewed and was thought to be a distant metastatic lesion.

Hence, it was concluded that CXPA can occur at a younger age without recurrent pleomorphic adenoma and a conclusive diagnosis can be made on FNAC, which can be later confirmed by histopathology.

ACKNOWLEDGEMENT

We are grateful to our Professor Dr. P. Jijiya Bai (HOD) and Professor Dr. O. Shravan Kumar for their guidance, Ms Shoba Rani, Histotechnician, and Mr. Francis Xavier, Cytotechnician, for their assistance.

REFERENCES


