

Institutional protocol and retrospective analysis of 23 cases of palatal pleomorphic adenoma at a Nigerian tertiary hospital

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Abstract

Background: Pleomorphic adenoma (PA) of the minor salivary gland is the most common benign tumour of the minor salivary glands as majority of the tumours of the minor salivary gland are malignant. The most common site of occurrence of PA of the minor salivary gland is the palate. The major challenges in the surgical management of these cases include management of associated primary haemorrhage and prevention of recurrence. This study documents the experiences gained from management of 23 cases at a Nigerian tertiary hospital.

Methods: A retrospective review of patients who had surgical excision of histologically diagnosed PA of the palate was conducted amongst patients attending maxillofacial outpatient clinic over a 5-year period (January 2012–December 2016). The information retrieved from the patients' case files included the sociodemographics as well as clinical characteristics. The data were analysed using the Statistical package for the Social Sciences (SPSS) software version 15.0 (SPSS Inc., Chicago, IL, USA).

Results: A total of 23 cases of PA were operated in 23 patients. Fourteen of these were female, while 9 were male, giving a gender ratio of 1:1.5 (m:f). Ages of the patients ranged from 19 to 51 years, with a mean age (standard deviation) at 33 (7.1) years. Clinical symptoms varied from painless asymptomatic palatal swelling to complaints of mild discomfort. The sizes of the lesions ranged from 2 cm to 10 cm in the widest diameter (mean 4.6 ± 3.2 cm). The duration of hospital stay ranged from 7 days to 14 days (mean 5 ± 4.1 days) which was counted from the date of admission to the date of discharge. Surgical treatment in all cases was excision with a margin of grossly intact tissue as well as overlying mucosa.

Conclusion: PA of minor salivary glands of the palate can be complicated by an eventful primary haemorrhage and tumour recurrence. Ligation of related vasculature and complete surgical excision will guarantee cure and uneventful surgery.

Keywords: Experience, minor salivary gland, palate, pleomorphic adenoma

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INTRODUCTION

Pleomorphic adenoma (PA) represents a variety of mixed salivary gland tumours, which are known to commonly occur in the parotid and submandibular salivary glands.¹⁻⁴ PA of the palate is classically found between the junction of the hard and soft palates, usually starting as an asymptomatic lesion.

Majority of these lesions are benign, often presenting with a history of dysarthria or general discomfort related to the presence of a swelling in the palate. The symptoms of a malignant variant include pain, ulceration and other features related to systemic dissemination (which may include cough, bone pain and weight loss). Other clinical signs, which reflect long-standing lesions, include loss of periodontal support of associated teeth resulting in mobility of such teeth and radiographic evidence of bone destruction. The malignant tumour is an important differential that should be excluded.

Surgical management of these tumours is often challenging due to poor surgical access, which may affect attempts at haemostasis and tumour clearance. This may result in significant blood loss, residual tumour or even tumour recurrence in inexperienced hands. These lesions can be managed under local anaesthesia or general anaesthesia depending on the amount of posterior extent, size of tumour, presence of existing comorbidities, skill of the surgeon and patients' preference.

This article presents a management protocol and documents the experiences gained from the management of 23 cases of palatal PA at our institution.

PATIENTS AND METHODS

A retrospective review of patients who had surgical excision of histologically diagnosed PA of the palate was conducted amongst patients attending Maxillofacial Outpatient Clinic of Aminu Kano Teaching Hospital, Kano, over a 5-year period (January 2012–December 2016). The information retrieved from the patients' case files included sociodemographic as well as clinical characteristics such as the anatomical site, presenting features, onset of symptoms and type of treatment carried out as well as treatment outcome. Individuals with missing or incomplete data were excluded, and also excluded were recurrent cases of palatal PA.

The data were analysed using the Statistical Package for the Social Sciences (SPSS) software version 15.0 (SPSS Inc.,

Chicago, IL, USA). Absolute numbers and simple percentages were used to describe categorical variables. Quantitative variables were described using measures of central tendency (mean, median) and measures of dispersion (range, standard deviation) as appropriate. No tests of significance were done.

Institutional protocol for management of palatal pleomorphic adenoma

These surgeries are routinely carried out under general anaesthesia. Routine baseline investigations are done to prepare the patient for general anaesthesia, and additional investigations such as standard upper occlusal radiographs, fine-needle aspiration cytology (FNAC) and clotting profile are done.

Upper occlusal radiographs are mainly used to determine bone involvement such as palatal fenestrations or destruction of dentoalveolar segments which may warrant alveolectomies or extraction of teeth. FNAC is done to determine the histological status of the lesion. Malignant lesions are managed differently and often entail more aggressive surgery as well as other adjunctive treatment measures. Clotting profile is done to establish patient's haemostatic status as surgery is often associated with minimal suturing at the hard palatal area which is essentially mucoperiosteum, thus intact haemostatic mechanism is required to prevent an eventful surgery.

The choice of route of intubation differs among surgeons. In unilateral palatal involvement, nasotracheal intubation through the contralateral nostril is preferred as this directs the tube away from the operative site. In cases of bilateral palatal involvement, any nostril will suffice. Extra care should be taken to prevent sectioning the endotracheal tube when nasotracheal intubation is utilised, especially in cases with large bone dehiscence.

Other measures to ensure relative ease of surgery include the use of self-retentive mouth gag (Dingman) as shown in Figure 1, and a sand bag placed beneath the shoulder blades to bring the palate into visibility. Use of intraoperative prophylactic antibiotics and steroids varies between surgeons.

Sound underlying the palatal bone may be determined with a radiograph as well as with the aid of a hypodermic needle which is pierced perilesionally from the periphery towards the lesion to determine where to place the resection margin. This should be done with caution to prevent inadvertent dissemination of tumour.

The tumour excision is carried out on sound tissue margin with a diathermy from the periphery in a circumferential manner. The entire lesion is excised *en masse* along with the overlying mucosa [Figure 2]. Periosteal elevator is used to raise the full thickness of the lesion from the bone. Effort is made to visualise the greater palatine artery and ligate it to prevent excessive blood loss. This artery is ligated at two positions and transected away from the points of ligation with diathermy before it retracts into the bone through the greater palatine foramen.

Our experience shows that it is important to place purse-string sutures with vicryl sutures [Figure 2] around the defect to minimise the defect. This helps to arrest bleeders within the soft palate that could result in oropharyngeal haematoma which could be fatal. We also apply bone wax on the exposed bare bone to further aid haemostasis. A tie-over dressing which is composed of rolled pieces of gauze impregnated with liquid paraffin and 10% povidone-iodine solution (Betadine®) is held with nylon stitches anchored on the standing teeth. This pack is removed after 48–72 h and the patient is encouraged to continue with warm saline rinses.

A modification of this basic protocol is employed in patients with destruction of part of the alveolar bone resulting in loss of periodontal support of teeth with gross tooth mobility. The modification entails excision of the lesion, extraction of involved molar and/or premolar teeth and then mobilisation of pedicled buccal fat pad which is sutured on the mobilised free margins of the cut and used to line the bed. This is an alveolectomy with extraction of associated teeth.

RESULTS

A total of 25 cases of PA were operated in 25 patients. Two cases were excluded on account of incomplete data. Of the

remaining 23 patients, 14 were female, while 9 were male, giving a gender ratio of 1:1.5 (m:f). Ages of the patients ranged from 19 to 51 years (mean 33 ± 7.1 years). The age distribution of the patients is shown in Table 1.

Documented clinical appearance of lesion included a unilobulated or multilobulated mass with an intact overlying mucosa. Clinical symptoms varied from painless asymptomatic palatal swelling to complaints of mild discomfort. The sizes of the lesions ranged from 2 cm to 10 cm in the widest diameter (mean 4.6 ± 3.2 cm).

Radiographic findings in all the patients revealed varying sizes of comparatively reduced opacity of the palatal bone except in one case where there was an extensive area of radiolucency with significant widening of the periodontal ligament space in relation to three upper molars. None of the patients had a computed tomographic (CT) scan. The duration of hospital stay ranged from 7 to 14 days with a mean of 5 ± 4.1 days which was counted from the time of admission preoperatively to the time of discharge.

All the patients had classical excision of the palatal mass with resultant exposed bare bone except in one case who had extraction of three molar teeth with obturation of defect with pedicled buccal fat pad. None of the patients had prosthetic rehabilitation. All patients developed

Table 1: Age distribution of patients

Age (years)	Frequency		Total, n (%)
	Male, n (%)	Female, n (%)	
11-20	-	2	2 (8.70)
21-30	3	3	6 (26.09)
31-40	4	6	10 (43.48)
41-50	2	2	4 (17.39)
51-60	-	1	1 (4.35)
>61	-	-	-
Total	9	14	23 (100)

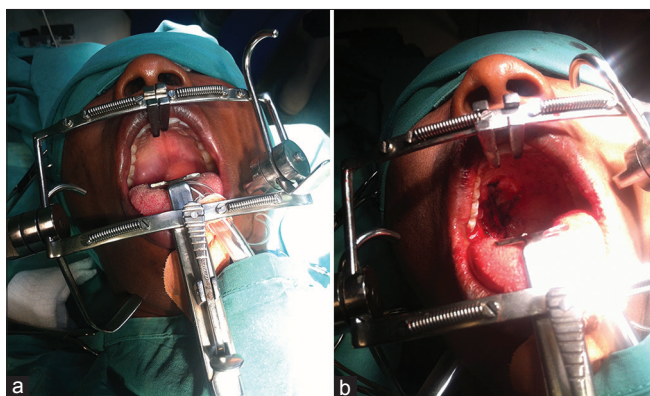


Figure 1: (a and b) Pre-operative and immediate post-operative photograph of a 42-year-old man who had excision of a palatal pleomorphic adenoma

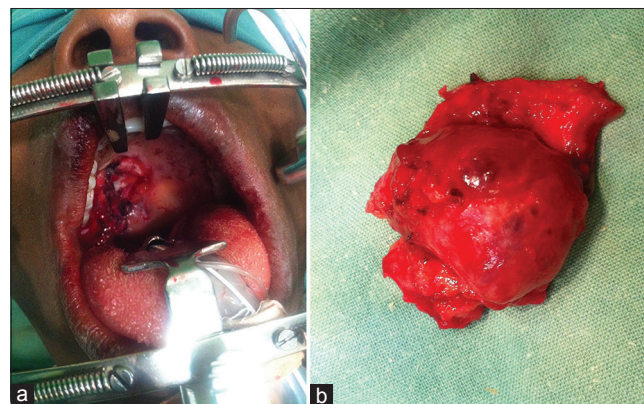


Figure 2: (a and b) Photograph of the patient in Figure 1b after suturing of the margins of the residual soft palate with vicryl sutures; also the excised tissue specimen with its overlying mucosa is shown on the left

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healthy granulation tissue formation at the time of discharge. The follow-up period ranged from 6 months to 5 years, all the patients healed satisfactorily with no recurrence.

DISCUSSION

In the oral cavity, the most common sites of PA are the minor salivary glands of the palate followed by the lip, buccal mucosa, floor of the mouth and tongue.^{3,4} Although PA of the minor salivary glands is known to exist as a painless submucosal swelling, it has been documented to be associated with symptoms when it is relatively large in size.¹ These associated symptoms often include dysarthria or pain from mucosal ulceration. In addition, the ones in the parapharyngeal region are also known to be associated with otalgia, neuralgia, palsies of the 9th, 10th or 11th cranial nerves and trismus.^{5,6}

Treatment of the benign variants of these tumours is essentially surgical; although the tumour is said to be well encapsulated, they have been documented to exhibit microscopic pseudopod-like extensions into the surrounding tissues as well as into the overlying mucosa due to 'dehiscence' of the false capsule.⁷ Surgical excision entails resection with an adequate margin of grossly normal tissue along with the overlying mucosa to prevent tumour recurrence. The preferred modality of anaesthesia is general as most of these lesions are posteriorly located, usually around the junction of the hard and soft palates such that even excision of a very small-sized lesion may be associated with difficulty in achieving haemostasis. Furthermore, manipulation around that posterior region of the oropharynx may stimulate the lesser palatine nerve, resulting in retching and poor patient co-operation if local anaesthesia is attempted.

The preference of FNAC to tissue biopsy in salivary gland tumours has been well researched. While experts agree that tissue biopsy may lead to seeding in a pseudo-encapsulated tumour such as PA, FNAC suffices for appropriate treatment planning in most of the cases.

CT scan may be considered superior to plain radiograph in the management of PA as it will show a better determination of extent of the lesion and local spread. Contrast enhancement may also be seen in vascular and neurogenic tumours, and also the presence of intact planes in a CT scan may help to distinguish benign from malignant tumours.⁸ The use of plain radiographs in the present study is essentially related to availability and affordability. Furthermore, the benign nature of the lesion suggests

that there may be no further extent of the lesion beyond the palatal mass. This may possibly obviate the need for a CT scan.

Nasotracheal intubation using a cuffed armoured tube is considered an important safety precaution in this operation as passing the tube through the nasal cavity directs it away from the operative field. Orotracheal intubation in cases where self-retentive mouth gags such as Dingman are utilised also helps in directing the tube away from the operation field as the blade of the mouth gag rests on the endotracheal tube to depress the tongue. In cases where a non-reinforced tube is used, efforts must be made to release the blade of the mouth gag intermittently to prevent total constriction and limited delivery of anaesthetic gases. The use of a cuff which may be complemented with a throat pack will prevent seepage of blood into the airway. Techniques that ensure adequate haemostasis in this operation include the utilisation of diathermy, prior ligation of the greater palatine artery before complete delivery of tumour and an institution of an antiseptic-impregnated tie-over pack.

One of the most common complications of excisional biopsies of PA of the palate is tumour recurrence. Spiro¹ reported a recurrence rate of 7% of 1342 patients with benign parotid neoplasm and a 6% of patients with benign minor salivary gland tumours. Omeje *et al.*⁹ opined that the high risk of recurrence may be related to its unique features which include incomplete capsule and its heterogeneous histology. Measures taken to limit tumour recurrence include and not limited to excision of lesion with a wide margin of grossly normal tissue, incorporation of overlying mucosa in the excision and thorough curettage with irrigation of the residual bed.

Another possible complication that may occur following surgical excision for PA of the palate is the development of an oroantral communication. This should be considered prior to surgery so that the patient can be counselled appropriately. The use of pedicled buccal pad of fat in the management of an oroantral fistula was first reported by Egydi¹⁰ in 1977; Tideman¹¹ in 1986 also further reported its use in the correction of buccal and maxillary defects. Buccal pad of fat is said to have derived its vascularisation from buccal, pterygoid, superficial and deep temporal arteries.¹⁰ Although buccal pad of fat demonstrates excellent versatility, its use is often limited to small- and medium-sized defects.

We also reported the possible use of buccal fat pad for coverage where significant bony destruction has occurred

from the tumour. To make use of the buccal pad of fat in these cases, there must be a sacrifice of the related dentoalveolar complex for mobilisation of the graft. In the cases presented where this was an option, the associated teeth were periodontally involved and of poor prognosis. The graft is an option in these cases because tumour excision was complete due to destruction of dentoalveolar segments by the large tumour mass.

The study is limited by its retrospective nature and also by an inconsistent follow-up by the patients.

CONCLUSION

A methodical approach to surgical management of palatal PA has been presented. Adherence to this protocol may enhance safety and reduce complications in the management of palatal PAs.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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