

## The management and prognosis of peripheral ameloblastoma: a systematic review

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### **Abstract:**

**Objectives:** The aim of this study is to highlight the management and prognosis, whether there is a treatment protocol of peripheral ameloblastoma with consideration of the following aspects, the outcome of long term follow up period, recurrence rate and complications such as malignant transformation

**Materials and methods:** A systematic review was carried out from 2005 – 2014 using computerized search in pubmed data base, Chohrane library databases Using specific words such as peripheral ameloblastoma or extraosseous ameloblastoma written in English.

**Inclusion criteria:** all published papers on peripheral ameloblastoma (2005 – 2014).

**Exclusion criteria:** all other types of ameloblastoma have been excluded.

**Result:** during initial search about 53 articles were identified between 2005 -2014, but only 21 articles related to the management and prognosis of peripheral ameloblastoma were included after reading the abstract. Most of these articles were case reports and case series

**Conclusion:** We recommended the long term follow up for at least 10 years using a randomized controlled trials with large samples to evaluate precisely the recurrence rate and the complications.

**Keywords:** Peripheral ameloblastoma, extraosseous ameloblastoma, soft tissue ameloblastoma.

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### **I. Introduction:**

Ameloblastoma usually occurs centrally within jaw bones, but tumors characterized by similar histological features have been reported in extraosseous tissues such as gingiva (1). The peripheral ameloblastoma (PA) is a rare variant, representing approximately 2% to 10% of all ameloblastomas. In particular, it occurs in a significantly higher age group than does intraosseous ameloblastoma, being a rarity in adolescence (2,3). The peripheral ameloblastoma is usually painless, firm neoplasm with exophytic growth. Size ranges from 0.3 to 4.5 cm in diameter with a mean of 1.3 cm. The surface is usually smooth but in several cases it has been described as “granular” or with a papillary or warty appearance. This type of ameloblastoma cannot extend beyond the gingival mucosa into the alveolar bone. Although in some cases larger tumors may cause mild saucerization of adjacent bone, but bone involvement usually is not significant (4). The proposed diagnostic criteria for peripheral ameloblastoma include, origin from overlying epithelium, presence of odontogenic epithelial islands in the lesion, lack of potential to bone infiltration. To date, less than 200 cases of peripheral ameloblastoma have been reported in literature (5,6). Peripheral ameloblastomas usually occur in the mandible (7,7), especially the lingual gingiva in the premolar region followed by the anterior region (2,3). In the maxilla, the most common site is the soft palatal tissue of the tuberosity area (8). The pathogenesis of peripheral ameloblastoma is still controversial. The two main hypotheses have been suggested. Some tumors which were embedded in the gingival connective tissue were believed to be derived from the “Serre’s pearl” which represent the extraosseous residuals of the dental lamina (9,10). Other cases of peripheral ameloblastoma present themselves in close relation with the surface epithelium. Ide et al described a case of PA in which multiple sectioning failed to detect any epithelial nests in the submucosa, this seems to provide a remarkable evidence that at least some cases of PA take origin from the surface epithelial layer (11,12).

The microscopic features of PA is characterized by ameloblastic growth within a squamous epithelial layer, the tumor is composed of nests of loosely connected cells (13). Another interesting issue about the histology of PA lies in its similarity with basal cell carcinoma (BCC).

Apart from basal cell carcinoma, the differential diagnosis for PA may include mucosal and submucosal lesions that may occur in the oral cavity, such as pyogenic granuloma, peripheral ossifying fibroma, peripheral giant cell granuloma, odontogenic gingival epithelial hamartoma. Hyperplastic responses to ill-fitting dentures and post-inflammatory lesions like fissuratum epulis and inflammatory papillary hyperplasia also have to be considered. PA showing continuity with surface epithelium should as well be differentiated from epithelial neoplasms such as squamous cell carcinoma or verrucous carcinoma (14).

## **II. Objectives:**

The aim of this study is to highlight the management and prognosis, whether there is a treatment protocol of peripheral ameloblastoma with consideration of the following aspects, the outcome of long term follow up period, recurrence rate and complications such as malignant transformation.

## **III. Materials and methods:**

A systematic review was carried out from 2005 – 2014 was performed using pubmed, and the Cochrane Library Databases.

Only articles relating to the management and prognosis of peripheral ameloblastoma, written in English were included.

Inclusion criteria: all published papers on peripheral ameloblastoma (2005 – 2014).

Exclusion criteria: all other types of ameloblastoma have been excluded.

## **IV. Result**

During initial search about 53 articles were identified between 2005 -2014, but only 21 articles related to the management and prognosis of peripheral ameloblastoma were included after reading the abstract. Most of these articles were case reports and case series.

## **V. Discussion:**

All published papers of the management and prognosis of peripheral ameloblastoma were case reports. No randomized controlled trials have been published in pubmed to compare the different techniques, and there is evident lack of long term follow up in most studies to predict the prognosis.

The treatment of choice for PA is the surgical excision with proper disease-free margins (15,16). No extensive radical treatment is usually required. Although the role of radiation therapy in the treatment of ameloblastomas has been investigated (17), the low occurrence and the peculiar non-aggressive behavior of peripheral ameloblastoma (PA) seem to discourage this treatment option. According to Philipsen et al (18) the biological evolutionary behavior of peripheral ameloblastoma (PA) is characterized by a frequent tendency to recurrence [16%-20%], however inferior to the recurrence rate of intraosseous ameloblastoma (18). It is not clear whether the recurrence rate is an actual feature of the lesion or is rather to be due to incomplete removal of the primary mass. The current treatment of choice is conservative supra periosteal surgical excision with adequate disease-free margins, continuous follow up is necessary as late recurrence is also reported (18).

Literature describes a few cases of peripheral ameloblastoma (PA) with malignant characteristics (19). These cases presented either with primary and metastatic differentiated benign-appearing lesions or with dedifferentiated lesions. Long-term follow-up is therefore mandatory (20). Peripheral ameloblastoma (PA) is usually a benign, slow-growing tumor with no invasive potential. Buchner and Sciubba (21) reported 9% of recurrence following treatment. Though malignant transformation is rare, metastasis has also been reported (21).

## **VI. Conclusion**

We recommended the long term follow up for at least 10 years using a randomized controlled trials with large samples to evaluate precisely the recurrence rate and the complications.

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Table :showing the names of authors , year of publication,and type of study

Author	year	Type of study
Buchner et al	1987	Case report
Baden et al	1993	Case report
Wettan et al	2001	Case report
Philipsen e al	2001	Retrospective study
Lopez etal	2005	Case report
Jones et al	2006	Retrospective study
Kishino et al	2007	Case report
Yamanishi et al	2007	Case report
Vanoven et al	2008	Case report
Pogrel et al	2009	Case report
Jordan et al	2009	Retrospective study
Ide et al	2009	Case report
Ide et al	2010	Case report
Ebzener et al	2010	Cross sectional study
Koukourakis et al	2011	Case report
Tsuneki et al	2012	Experimental study
Siar et al	2012	Retrospective study
Nonaka et al	2013	Case report
Giacomo et al	2014	Analytic study of a case