Introduction

Dental follicle is a component of a tooth germ, which is responsible to give rise of periodontal structures such as cementum, periodontal ligament and surrounding bone. Under the influence of pathologic changes, however, dental follicles that possess reduced epithelium can proliferate into stratified squamous epithelium as far as to dental cysts. The most common cysts, such as dentigerous cysts (DC), keratocystic odontogenic tumours (KCOT) and calcifying odontogenic cysts (COC), and the possibility of tumours such as ameloblastoma, epidermoid carcinoma, and odontogenic carcinoma, arising from impacted molar teeth, have been stressed as an indication for prophylactic removal of impacted third molars. Severe impaction of a mandibular third molar is reported to be a predisposing factor for cyst development, and most cystic changes were found in patients between 20 and 25 years. The authors concluded that age may be used as an indication for surgical removal of impacted lower third molars, as the risk of surgical morbidity also increases with the increasing age.

We report a 53-year-old female with a DC, KCOT and odontogenic myxoma originating from dental follicles (DF) of bilateral impacted lower third molars and a lower canine tooth.

Case Report

A 53-year-old edentulous woman was referred to our department with a complaint of pain and swelling in the left mandible. Extraoral examination showed no asymmetry in the face, but submandibular lymphadenopathy in the right side. On intraoral examination, the mucosa on the right edentulous area was hyperaemic and swelling was evident. On panoramic radiograph, bilaterally upper canines and left upper premolar were impacted in the maxilla, with no pathology. In the mandible, bilaterally third molars and right lower canine were impacted with follicular enlargements, which showed radiolucent lesions with radiopaque borders (Fig. 1).

Under local anaesthesia, all impacted teeth were extracted and follicles around the teeth were carefully removed for histopathological diagnosis. Histopathology confirmed as following: (1) dentigerous cyst in the region of the lower right impacted molar, which showed heavy chronic inflammatory cells infiltrate in the cystic wall (Fig. 2); (2) odontogenic myxoma in the region of the lower impacted canine, which showed stellate and spindle-shaped cells embedded in a richly myxoid extracellular matrix (Fig. 3); (3) keratocystic odontogenic tumour in the region of the left lower impacted tooth, which showed a thin, band-like lining of stratified squamous epithelium and corrugated keratinized lining (Fig. 4).

No recurrence was found after a 2-year follow up (Fig. 5).
Discussion

Impacted third molars are known to be associated with the risk of different disorders and complications. There are well-established indications for the removal of impacted third molars\textsuperscript{1,3,6,7}. Prophylactic removal of asymptomatic unerupted or impacted third molars constitutes a large proportion of oral operations and the appropriateness of removal is still debated\textsuperscript{3}, although the highest frequency of infection is the reason why prophylactic extraction seems to be clinically justified, and that it should be done before the age of 20\textsuperscript{6}. Studies on DFs of impacted teeth for defining the potential of pathological transformation showed more pathologies observed by using histological and immunohistochemical methods than that can be seen radiographically alone\textsuperscript{1,2}. Histopathologically, the differentiation potential of DF of impacted teeth has been changed from squamous epithelium to various forms of metaplasia and degeneration. Mucous cells, ciliated cells, para and/or ortho-hyperkeratinization and formation of hyaline bodies have also been observed\textsuperscript{10}. In the immunohistochemical studies, the cells of DF can be actively proliferating
and cysts and tumours can develop from these tissue cells. Therefore, the increase in proliferation rates of these cells may play a central role in the development of pathologies.2

KCOT is a unique cystic lesion because of its locally aggressive behaviour, high recurrence rate and characteristic histological appearance. In 2005, WHO Working Group considered the para-keratinizing variant to be a cystic neoplasm and recommended the more descriptive term “keratocystic odontogenic tumour” (KCOT) based on its active epithelial proliferation, prostaglandin-induced bone resorption via interleukins (ILs) and tumour necrosis factors, and active collagenases in the fibrous cystic wall. Odontogenic myxoma is thought to be derived from mesenchyme of a developing tooth or from the periodontal ligament; when occurs peri-coronal to the impacted tooth, it can also present as a cyst-like unilocular lesion. This fact points to a possible difficulty when trying to arrive at a proper diagnosis.11

DCs, KCOTs and odontogenic myxomas in separate cases are well documented in the literature. However multiple cysts in patients without a syndrome is less common. Multiple cysts characterize certain syndromes, such as Maroteaux-Lawy syndrome, Hunter’s syndrome (Mucopolysaccharidosis, type 6), cleidocranial dysplasia, basal cell nevus syndrome, Gardner’s syndrome.5,8 However, to the best of our knowledge, there are no reports that include DC, KCOT and odontogenic myxoma together in a non-syndrome patient. Multiple cysts and tumour that developed from DF of impacted teeth in the non-syndrome patient might be an essential point from the view of pathological differentiations of this tissue, and should be considered while discussions on prophylactic removal of impacted teeth.

Acknowledgments: We thank Prof. Sedat Çoğlu for histological examinations and preparation of figures.

References


Correspondence and request for offprints to:

Nurhan Güler
Yeditepe University, Faculty of Dentistry
Bagdat Cad. No: 238 Goztepe, Istanbul
Email: nguler@dr.com