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Management of a recurrent odontogenic keratocyst in the zygoma using piezoelectric instruments

KEYWORDS
Odontogenic keratocysts;
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Piezoelectric instruments

Odontogenic keratocysts (OKCs) are benign but locally aggressive cystic lesions arising from remnants of the dental lamina or tooth follicles. While their occurrence in the maxillofacial region is relatively common, OKCs occurring solely within the zygoma are exceedingly rare, posing significant diagnostic and therapeutic challenges.[1] The zygoma, being a key component of the midface, consists of dense cortical bone, making the development of cystic lesions particularly uncommon. The rarity of OKCs in this region underscores the need for further investigation into their clinical characteristics, diagnostic modalities, and management strategies.

Previous studies have highlighted the diagnostic complexities associated with OKCs in the zygoma, as they often present with subtle or atypical clinical features that mimic other more common maxillofacial pathologies.[2] Surgical excision remains the cornerstone of treatment, aiming to achieve complete removal of the lesion while preserving surrounding vital structures.[3] The utilization of advanced surgical techniques, such as piezoelectric instruments, offers precise and minimally invasive approaches, ensuring optimal outcomes with reduced postoperative complications.

A 65-year-old man presented with a 4-month history of right cheek pain and swelling. The patient initially visited the Infectious Diseases department for fistula formation and presence of purulent discharge near the right lower eyelid. After long-term administration of systemic antibiotics and local debridement by an ophthalmologist, the symptoms improved but recurred upon cessation of the antibiotics, prompting referral to the oral and maxillofacial surgery department. On clinical examination, the fistula over the lower eyelid remained, although no active discharge was noted. Mild tender swelling over the right zygoma with facial asymmetry was observed.

A computed tomography (CT) of the facial bones revealed a solitary, expansile, multilocular bone lesion over the right zygoma, with extension posteriorly through the cortex. The right maxillary sinus remained unaffected. Tumor excision via the Keen approach was performed under general anesthesia. The piezoelectric instrument (Misonix®, Farmingdale, NY, USA) was utilized to perform precise bone removal, facilitating access to the posterior compartment of the lesion (Fig. 1). This allowed for meticulous dissection and complete removal of the cystic lesion. At the 6-month follow-up, cone beam CT showed progressive bone regeneration in the right zygoma, with no signs of recurrence, and the fistula had completely resolved.

The occurrence of OKCs confined to the zygoma is an exceedingly rare phenomenon.[4] The use of piezoelectric instruments in such cases provides significant advantages,

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Figure 1 Intraoperative clinical photograph and the specimen of the odontogenic keratocyst lesion. A: Through the anterior cortical wall and septum, the lesions from anterior and posterior compartment were excised. The base of the cavity revealed the temporalis muscle. B: The lesions from the anterior and posterior compartments were removed separately.

including precision in bone cutting with minimal damage to adjacent soft tissues and vital structures.[5] This is particularly beneficial in delicate anatomical regions like the zygoma, where proximity to critical structures such as the orbit requires careful manipulation. Furthermore, piezoelectric devices minimize intraoperative bleeding, allowing for a clearer operative field and enhanced visualization. This case highlights the utility of piezoelectric instruments in improving surgical outcomes in complex maxillofacial procedures, particularly in rare clinical entities such as OKCs of the zygoma.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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