Decompression of Odontogenic Cystic Lesions: Past, Present, and Future

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Tumors and cystic lesions of the jawbones have been described since the late 1600s and it took another 200 years for classification systems to appear in the medical, surgical, and dental literatures. In the late 1800s, Carl Partsch introduced cystostomy, a method by which the cyst is converted into a pouch by suturing its lining to the mucosa of the oral cavity. The purpose of this article is to analyze the history, present, and future of cystic conditions of the jaws and decompression, a modality of treatment that during the past few years has regained the attention of oral and maxillofacial surgeons and pathologists owing to its relative simplicity and effectiveness compared with other conservative options.

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The history of cystic conditions of the jawbones and decompression (also known as *marsupialization* or *exteriorization*)[1] as a treatment modality is intimately related to the birth of oral and maxillofacial pathology. Odontogenic cysts and tumors were noted long before oral pathology was recognized as a specialty of dentistry by the American Dental Association in 1950, just 2 years after the founding of the American Academy of Oral Pathology.

Certainly, oral and maxillofacial pathology as currently understood began during the 1930s and 1940s, an epoch when the world was shaken by the Second World War and whose end led to a flourishing in virtually all fields of knowledge. Textbooks on oral pathology, such as those written by Russell Welford Bunting[2] and Kurt Hermann Thoma,[3] and the first issues of the *Archives of Clinical Oral Pathology* in 1937 and *Oral Surgery, Oral Medicine, Oral Pathology* in 1948 greatly contributed to the consolidation of the specialty.

The purpose of this article is to analyze the history, present, and future of cystic conditions of the jaws and decompression, a modality of treatment that during the past few years has regained the attention of oral and maxillofacial surgeons and pathologists owing to its relative simplicity and effectiveness compared with other conservative options.

Early Descriptions of Odontogenic Entities

The texts by Bunting[2] and Thoma,[3] published in 1929 and 1941, respectively, were the epitome of work that had started 3 centuries previously, mostly with French and British doctors. For example, in 1671 Iean Scultet[4] described cysts of the jaws as "liquid tumors." The idea that a cyst was capable of exerting enough pressure to cause bony expansion was formed at that time.[5] In 1746 Pierre Fauchard[6] provided the first accurate description of an odontoma. In 1774 John Hunter[7] described what seems to be the case of a patient with an odontogenic cyst. Four years later, Anselm Louis Bernard Bréchillet Jourdain[8], on page 19 of his *Traité des maladies et des opérations réellement chirurgicales de la bouche, et des parties qui y correspondent*, described 3 cases that appear to be dentigerous cysts.

During the following decades, dentists, pathologists, and surgeons started to describe with greater regularity cystic lesions and other entities of the maxillary bones. It seems that the first efforts to identify the

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many entities of the oral and maxillofacial region started in approximately 1840, thanks to the release of the *American Journal of Dental Science* (*AJDS*) in 1839, in which such pathologies were available for the dental community to be studied, debated, and characterized. One must not forget that all this happened during the time that is known in history as the *Golden Age of Dentistry* (1835 to 1860).

The first volume of the *AJDS* contained a report of an odontogenic tumor (OT) that currently would be diagnosed as "cementoblastoma."[9] The "periapical cyst" (sac) was described in 1839 by Brown[10] and the dentigerous cyst (distended capsule, osseous cyst, serous cyst) in 1842, although it seems it had been described in France in 1778. The "keratocystic odontogenic tumor" (KCOT; encysted tumor, cyst, cystic carcinoma) was reported in 1844.[5] The following years witnessed an explosion of articles related to oral pathology in the *AJDS* that helped dentists, surgeons, and physicians understand the complex pathologic processes that take place in the mouth and jaws.

It was the famous British pathologist James Paget[11] who in 1853 coined the term *dentigerous cyst* to refer to any cystic condition of dental origin. Other pathologists used many other terms to refer to unilocular cysts. For example, what Emile Magitot called the "radicular cyst" was the same entity Amédée Forget knew as the "periosteal cyst" and Louis-Charles Malassez knew as the "radiculo-dental cyst."

Classifying Odontogenic Tumors

Owing to the increased activity in research and the wide variety of reports on the subject in Europe and the Americas, in 1869 Paul Pierre Broca[12] published *Traité des tumeurs*, where he suggested the first classification of OTs:

- I. Ordinary odontomas
  - 1. Embryoplastic period
    - Embryoplastic odontomas
      - Fibroplastic
      - Fibrous
  - 2. Odonto-plastic period
    - Odonto-plastic odontomas
      - Cemental
      - Bulbar
  - 3. Crown formation period
    - Coronal odontomas
      - Cemental
      - Pulpal or dentinal
  - 4. Root formation period
    - Radicular odontomas
      - Cemental
      - Dentinal
- II. Composed odontomas
- III. Heterotopic odontomas

Broca used the term *odontoma* for any tumor arising from the formative dental tissues and classified them according to the stage of tooth development when abnormal growth started. In 1885 Malassez[13] made slight modifications that did not gain much attention. Three years later, in 1888, John Bland-Sutton[14] cleverly classified OTs based on the nature of the cells from which the malignancy arose. In this system, he included odontogenic cysts and fibrous odontogenic entities, but the term *odontoma* remained as the usual designation for OTs.[15]

In 1885 Poulet and Bousquet proposed the term *unilocular*[13] to designate single-cavity lesions. The first mention of a "simple cyst" was by the American pathologist Charles Freeman Geschickter. In an article published in 1935, Geschickter[16] mentioned the "simple follicular cyst," which meant that the entity originated from simple (primitive) odontogenic tissues.

Classification of Odontogenic Cysts

At the beginning of the 20th century, a myriad of tooth-related cystic conditions had been described and a classification system was urgently needed.[17] In his 1937 oral diagnosis and treatment planning textbook, Thoma[18] subdivided the classification of the follicular cyst in the following manner:

1. Simple (without tooth formation)
2. Dentigerous
3. With odontoma

In 1949 he added a fourth category, the multiple cyst.[19]

Also in 1937, Hamilton Robinson,[20] one of the most influential early oral pathologists in addition to Thoma and William Shafer, subdivided dentigerous cysts into 4 categories:

1. Simple
2. Compound
3. Eruption
4. Heterotropic

Eight years later (in 1945), Robinson[21] proposed another classification for the cysts of the jawbones.

1. Developmental cysts from odontogenetic tissue
   - 1.1. Periodontal
   - 1.2. Dentigerous
   - 1.3. Primordial
2. Developmental cysts of non-dental origin
   - 2.1. Median
   - 2.2. Globulomaxillary
   - 2.3. Incisive canal cysts
3. Ameloblastomas

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