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REVIEW ARTICLE

Clinical Presentation of Dentigerous Cysts: Systematic Review

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Abstract

Objective: *To determine the principal features of dentigerous cysts by a systematic review.*
Materials and Methods: *The relevant literature was identified by searching electronic databases, hand-searching key journals, and reference list harvesting. The principal selection criterion was that the study should represent a complete collection of cases.*
Results: *Searches using Medical Subject Heading terms identified more than 80% of systematic review–included reports, but required review of nearly 10,000 Medline abstracts. Although the specific term 'dentigerous cyst' had the highest 'precision' of 1.48%, the non-specific term 'odontogenic cyst' had the highest 'recall' of 58.62%. Some reports displayed a fundamental misunderstanding of the taxonomy and/or histology of dentigerous cyst, even as recently as the 1980s. Five systematic review–included reports were identified by hand-searching relevant journals or by harvesting the reference lists of relevant reports. Thirty published series, covering 4324 cases, were included in the systematic review; 48% were not in the English language. The reports generally included little more than sex, mean age, age range, and site. The 'number of cases of dentigerous cysts per hospital per year' was significantly greater for Asians and Caucasians than for black Africans. The mean ages, given in 3 reports, were significantly older for Caucasians than for black South Africans. The mean age was 28.6 years. There was a 58:42 predilection for men and a 64:36 predilection for the mandible. For the latter, this predilection was significantly greater for Caucasians than for Asians. Among Asians, Chinese people had a significantly greater predilection for the maxilla. Three reports included clinical details and 3 reports included radiological details. Only 1 article reported pain and swelling; dentigerous cysts occurred as an incidental finding in 24% of reports.*
Conclusions: *Medical Subject Heading searches should include a mix of specific and more general terms, and should be used in addition to hand-searches and reference list harvesting. Non-English language reports substantially contribute to the number of cases. There are significant differences in prevalence of various features between ethnic groups. Nevertheless, both lack of detailed reporting and the confusion about nomenclature and histology, until relatively recently, was unexpected for this hitherto supposedly well-understood lesion. The radiology component of the systematic review–included reports is almost non-existent in comparison to systematic reviews conducted for other lesions.*

Key words: Dentigerous cyst, Odontogenic cysts, Odontogenic tumors, Radiography, dental

Introduction

Dentigerous cyst (DC) is a benign cyst. The definition of DC according to the World Health Organization (WHO) is: "A cyst which encloses the crown and is attached to the neck of an unerupted tooth."[1] A dentigerous cyst develops from an accumulation of fluid between the reduced enamel epithelium and the crown, or between the layers of the reduced enamel epithelium. The term 'follicular cyst' has been recognised by the WHO as a synonym,[1] but does not always imply a DC; the term has been used as a

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classifier for both 'primordial' and DCs[2] or a subset of 'primordial cysts'.[3] Furthermore, the term DC was applied to any cyst surrounding the crown of an unerupted tooth, regardless of whether it exhibited keratinisation. Even though Hjorting-Hansen et al clarified the terminology in 1969,[4] reports still use incorrect terminology 2 decades later, even describing the primordial cyst as a DC without relationship to calcified teeth.[5] Once diagnosed, DC is generally easily treated. However, not only is DC a differential diagnosis for more serious lesions such as the ameloblastoma,[6] but these lesions can also be misdiagnosed as DCs. Wang reported that 16.3% of lesions clinically diagnosed as DCs were cystic ameloblastomas.[7]

The aim of this study was to determine the principal features of consecutive cases of DCs by systematic review (SR).

Materials and Methods

The overall aim of the SR was to include as many pertinent studies as possible. Therefore, the 'selection criteria' were those of central importance to the study. There were 2 principle inclusion criteria and 3 exclusion criteria.

Inclusion Criteria

Criterion 1 was that the study should be consistent with the WHO histological classification of odontogenic tumours.[1,8] This is important because some lesions have clinical and radiological features similar to DCs. Studies, particularly those performed prior to or at the same time as the publication of the first edition,[8] could be included if their definition was consistent with the WHO definition or if they quoted a consistent publication.

Criterion 2 was that the study should represent a complete collection of cases of DC occurring in the reporters' case-load. Reports that were merely a selection of cases, such as case reports, and studies that were primarily concerned with specific investigations or a discrete age group, such as children or a particular jaw, were excluded. For the sake of brevity, only reports that could not be readily identified from their title or abstract will be discussed and cited.

Exclusion Criteria

Criterion A excluded reports whose data have already been reported and included in the review.

Criterion B excluded reports that include eruption cysts, which may be considered as a peripheral form of DC, if the details could not be identified and excluded, and if they exceeded 5% of the cases.

Criterion C excluded reports that included referred cases if their details could not be identified and excluded, and if they exceeded 5% of the cases.

Electronic Database Interrogation

The PubMed interface of Medline was searched using the following keywords: 'dentigerous cyst', 'follicular cyst', 'odontogenic tumor', and 'odontogenic cyst'. The search was limited to human studies. This search was supplemented by a hand-search of journals relating to medical and dental radiology, otolaryngology, maxillofacial surgery, oral surgery, and oral pathology. This strategy was further augmented by consulting the bibliographies (or citation lists) of all reports identified by Medline or by hand-searching. The analogue or digital versions of the journals that were hand-searched are shown in Table 1.

The number of years was calculated on the assumption that the study began in the January of the beginning year and ended in the December of the closing year, unless stated otherwise in the text.

The 'number of DCs per hospital per year' reflected the number of hospitals contributing to the report and the number of years from which the reported series was derived.[9] Unless it was otherwise clear in the report, the study period at each hospital in a multi-centre report was assumed to be the same. The advantage of assessing the number of DCs per hospital per year was the ease of comparison of the number of lesions diagnosed as DCs in each hospital (or the average hospital in a multi-centre report) in the course of the average year. Of course, the number of DCs diagnosed may increase during the study period owing to increased expertise, accessibility, and referral to that hospital, but this would also apply to the 'relative period prevalence'. Furthermore, unlike the relative period prevalence, the number of