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There are many pathologic conditions which occur in the maxillofacial region. Some are rare with only isolated case reports in the literature. In order to get a general picture of such lesions, it is common practice to gather information described in the literature, analyze the data, and write systematic reviews. This is of great importance because it provides information that can improve diagnostic accuracy and could help pathologists and surgeons to make informed decisions and refine the treatment plan to optimize the clinical outcome. However, with systematic reviews there are issues of missing data, wrong diagnosis, lack of histopathological information, and lack of follow-up.
Missing data are a relatively common problem in almost all research and can have a significant effect on the conclusions that can be drawn from the data and it can present problems.\(^1\) These include\(^2\): (1) the absence of data which reduces statistical power, which refers to the probability that the test will reject the null hypothesis when it is false; (2) bias in the estimation of parameters; (3) reduced representativeness of samples; and (4) it may complicate the analysis of the study. Each of these distortions may threaten the validity of the trials and can lead to invalid conclusions.

There are several statistical approaches that deal with the problem of missing data, e.g. multiple imputation, replace missing values with the mean or median, use of linear regression to fill in the blanks, replace missing values with the value before it, ignore cases with missing data, or weight the complete cases, fill in the blank areas with zeros, among others. These approaches do not come without limitations. That is why it is so important that the report of new cases in the literature are well written, with detailed information on as many clinical, radiological and histopathological features as possible. It would be useful to elaborate some guidelines for the report of pathologic cases in the literature, in the same way that happens for observational studies (the STROBE statement), for randomized trials (the CONSORT statement), and for systematic reviews and meta-analyses (the PRISMA statement).

Accurate diagnosis is essential to initiate appropriate treatment. Some cases in the literature have been reported with the wrong diagnosis. In others, the health team involved in the care of the patient is performing treatments based solely on a clinical impression of the diagnosis, without an adequate histologic confirmation. Some reviews published on pathological conditions have erroneously used the wrong methods of selecting cases for the inclusion in their analyses. Some researchers may not thoroughly assess the clinical, radiological, and histological features of reported cases in order to confirm the diagnosis of these lesions. As a result, inappropriate cases might be
included in these reviews, even though the title of the publication may carry the name of the condition of interest.

Not performing a careful systematic search of the literature (and therefore ignoring some publications) is another important point for consideration, leading to the “exclusion” of articles that were not “found”. Systematic reviews are insufficiently informative if they do not include all available current evidence. This failure to rigorously amalgamate all relevant evidence may have a detrimental effect on treatment decisions and future research planning. Authors not making use of rigorous methods to not only search the cases in the literature, but also to properly judge whether the reported case is in fact the condition in focus for the systematic review, are providing misleading information to their peers.

Another problem is the considerable proportion of reported cases in which no follow-up is informed, identified in several recently published oral pathology systematic reviews (Table 1). Patients may drop out from studies because of the side effects associated with treatment, lack of interest, thinking that the treatment is complete after surgery, problems with transportation, work and/or child responsibilities, financial issues, among others.

Moreover, authors might be in a hurry to get a paper published. Some authors might want to share their experiences with their peers, but others may only want to boost their h-index or CV. Many researchers are not only driven by new findings, but also by the competition for the highest amount of publications and the competition for the highest amount of research funding. Some clinical cases are really interesting and might add new important information on a condition, which makes the case worth publishing. However, the lack of follow-up information after treatment limits the value of these case reports when it comes to treatment effectiveness. Depending on the pathology it can sometimes take years before one can say that a certain therapy was effective. A
short follow-up could lead to an underestimation of actual recurrence rates. However, it is hard to define what it would be considered a short follow-up period to evaluate the recurrence of many conditions.

Missing data, the lack of histopathological and follow-up information, and to do not perform a thoroughly assessment of case reports, resulting in the inclusion of cases with the wrong diagnosis, not only limit the precision of the statistical analyses, but also can lead to invalid conclusions. If all case reports would provide information on several clinical, radiological and histopathological variables, including (preferably) a long-term follow-up, regression analyses, among others types of analyses, could be performed without the limitation of methods created to deal with missing data.

REFERENCES

Table 1. Number of publications included/excluded and the percentage of cases with follow-up information, from recently published oral pathology systematic reviews.

<table>
<thead>
<tr>
<th>Study</th>
<th>Publications included / total&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Publications excluded / total&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Cases included</th>
<th>Cases with follow-up information</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGCL&lt;sup&gt;5&lt;/sup&gt;</td>
<td>365/510 (71.6%)</td>
<td>145/510 (28.4%)</td>
<td>2270</td>
<td>852 (37.5%)</td>
</tr>
<tr>
<td>PGCG&lt;sup&gt;6&lt;/sup&gt;</td>
<td>165/199 (82.1%)</td>
<td>34/199 (17.1%)</td>
<td>2824</td>
<td>267 (9.5%)</td>
</tr>
<tr>
<td>AOT&lt;sup&gt;7&lt;/sup&gt;</td>
<td>436/490 (89.0%)</td>
<td>54/490 (11.0%)</td>
<td>1558</td>
<td>352 (22.6%)</td>
</tr>
<tr>
<td>AF/AFS&lt;sup&gt;8&lt;/sup&gt;</td>
<td>244/349 (69.1%)</td>
<td>105/349 (30.1%)</td>
<td>289 AF</td>
<td>187 AF (64.7%)</td>
</tr>
<tr>
<td>OM&lt;sup&gt;9&lt;/sup&gt;</td>
<td>377/448 (84.2%)</td>
<td>71/448 (15.8%)</td>
<td>1692</td>
<td>426 (25.2%)</td>
</tr>
</tbody>
</table>

CGCL - central giant cell lesion, PGCG - peripheral giant cell granuloma, AOT - adenomatoid odontogenic tumor, AF/AFS - ameloblastic fibroma / ameloblastic fibrosarcoma, OM - Odontogenic myxoma

<sup>a</sup> Total number of publications = included + excluded publications

<sup>b</sup> The studies did not have enough clinical, radiological and histological information to confirm the diagnosis, or the authors misdiagnosed the case.