ejpmr, 2017,4(2), 573-577

SJIF Impact Factor 4.161

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

PERSPECTIVES AND IMPLICATIONS ON 'HOW TO REPORT AN ANATOMICAL VARIATION?'

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Article Received on 01/12/2016 **Article Revised on 21/12/2016** **Article Accepted on 11/01/2017**

ABSTRACT

Anatomical variations have its significance in the medical literature. Many variations remain unreported due to lack of knowledge about the reporting methodology. Present study was designed to provide perspectives and implications of reporting the anatomical variations. Web-based searches were carried out with key words such as anatomical variations, case reports, scientific writing, limitations, case series, medical education, authorship, etc. The reviewed articles and their cross references were referred to formulate the guidelines for reporting the anatomical variations. Using the reviewed articles, the criteria for the write-up of the various sections such as title, abstract, introduction, case presentation, discussion and reference styling was framed. In addition to this, authorship criteria, limitations, patient privacy and confidentiality were also discussed. These guidelines will be helpful for authors who wish to report the anatomical variations. Over a period, it will increase reporting of unreported cases which will be useful for statistical calculations such as incidence of variations.

KEYWORDS: scientific writing, case report, variation.

1. INTRODUCTION

A case report is a scientific or research article under the category of the technical document. It has significant experimental, theoretical or observational role in the extension of the current knowledge. Case reports can be traced back to ancient Egyptian history.[1] During routine anatomy dissection, a researcher may encounter unusual findings. These findings are important and should be reported in scientific forums as a case report. These reports form the first line of evidence in the literature.[2-4]

Case report writing provides a platform for the students or new researchers to begin the career of scientific writing. Although many journals restrict the number of case reports to be published per issue due to lack of space, publishing an anatomical variation is not difficult. The acceptance of anatomical variation entirely depends on the topic and its write-up. The present article discusses reasons for publishing anatomical variations, the pathway for writing a report and its limitations. Guideline roadmap (Table 3) supports the way of writing an anatomical variation report. Proper presentation of anatomical variation is vital for its publication in peer reviewed prestigious journals. The aim of this article is to make it easy for the new and experienced authors to write the report on anatomical variation in a scientific manner.

2. MATERIAL AND METHODS

Due to continuous change in the science and reporting methodology, it was needed to provide the guidelines to the authors of anatomic variations. For the current article, we have searched different search engines like PubMed, Google in the month of Oct 2016. The keywords for the search were: anatomical variations, case reports, scientific writing, limitations, case series, medical education, authorship, MeSH and keywords. Relevant articles were reviewed and related cross-references also retrieved. This literature review is used as tools to formulate the scientific knowledge and information for authors reporting anatomical variations.

3. DISCUSSION

3.1 Need to report an anatomical variation?

Case reports provide the information which expands the existing knowledge.[2] Many times it is not possible to involve large sample size due to unavailability of the cadaver or due to time constraints. If you are observing the single case, try to report it. We cannot calculate the incidence of particular findings at the point of report, but over a period a total number of cases reported can be counted and classified as rare, very rare or common finding. Though the case reports have the lowest recognition in the scientific literature, they have capacity to change the existing knowledge over a period.[5-9] Case reports bring in the notice to the scientific forum about new facts or neglected facts. The presentation also helps

in the professional growth and provides an opportunity to learn the topic in details and communicate on justifications to the forum.

3.2 Study Designs for anatomical variations

There are two types of anatomical variation report. One is retrospective, and another one is prospective.[10] The retrospective variations are classified in to simple ontogenic arrest and atavism or progonism. Simple ontogenic arrest indicates the arrested natural course of development of an individual. It gives reasoning of an ancestral history and critical period in individual development. Atavism or progonism have the direct relation to ancestral history of the individual rather than the arrest in the development. In atavism, individual shows the organ with the feature of an ancestral organism, e.g., brain like an ape. Prospective or prophetic variation are known as epigonism. Unlike retrospective variations, they cannot be correlated to the developmental or ancestral stages.[10] Prospective case reports give new insight to literature on associated conditions. This may help the clinician to plan treatment in a better way.

3.3 Limitations of an anatomical variation Reports

There are many limitations of the case reports though it is having a particular position in literature. The finding of one case cannot be generalised or cannot be concluded to apply for all.[11-12] For these reasons, the author can plan study on same topic or region to give more detailed data on percentage, measurements with standard deviation and so on. While reporting the cadaveric findings, many times data or history like the cause of death, duration of diseases leading to death, occupation, etc. may not be available.[13] Due to unavailability of accurate records, the author cannot conclude many facts.

3.4 Authorship criteria

The authorship is important as it affects academic progress. Hence, to determine who should be the author and in what order. For the authorship, criteria suggested by international committee of medical journal editors (Table 2).[14] A single case report should have only a few authors may be one to four else justify the role of the authors. The authorship criteria are mentioned in the table. The author should have contributed as one of the specified criteria. It is always better to sit and discuss on order of the authorship. The person who does not meet the authorship criteria, for example, funding agency, departmental or institutional head, technical staff should be acknowledged with their permission.

3.5 Patient Privacy, Confidentiality and Ethics

In reporting, anatomical variation, care must be taken to avoid disclosing patient's name, hospital record registration number, the exact date of admission, and so forth that may reveals the identity of the individual. If it is necessary to disclose some facts, then written consent should be obtained before submission of the manuscript for the publication. Sometimes the disclosure of any fact like charges for the procedure may become objectionable on Institute perspective. Hence, in such cases author should get permission from the institute where he works.[15-16] Like time series case reports, if author wants to conduct clinical tests on the living individual; it should be approved by the institutional ethical committee.[17]

3.6 Length of anatomic reports

It varies from journal to journal between 500-2000 words. The author should follow the journals 'instructions to the author' before submitting an article.

3.7 Parts of Anatomical variation as case report

The case reports should consist of six essential components: 1. an abstract; 2. an introduction with the review of literature in support of aim and objectives; 3. a case presentation with material and method; 4. a discussion providing probable reasons for the finding; 5. a conclusion; and 6. a list of the references. These sections should be supported by tables, figures, illustrations and graphs wherever necessary.[5]

3.7.1 Title

The title should be self-explanatory, and it should be indicative of the main finding of the case report. It should be indicative of the case report rather than misleading for the study of the group of patients. It should not be an artistic.[3]

3.7.2 Abstract

It is a summative indicator of the case report. It gives the brief, organised idea which highlights the case. Information on the abstracts and titles are useful for the researchers as they are included in the computer databases and indexes.[3] Most of the journals ask for non-structured abstracts for the case reports. Abstract should be precise enough with word limit of 50-250 words.[3] Many journals prefer structured abstracts as it gives weightage to all sections of the case report.[18] The structured abstract usually includes introduction, case report, discussion, and conclusion.

3.7.3 Keywords

The keywords are very essential and to be selected carefully. To facilitate online article searches, most of the journals accept three to eight keywords. Some journals often specifically request keywords to draw from the United States National Library of Medicine's collection of Medical Subject Headings (MeSH).[19] The use of MeSH terms aims that a standard vocabulary to be applied for indexing the biomedical content and facilitating literature searches. A journal may suggest that keywords that should not be used as words which are already included in manuscript's title.

3.7.4 Introduction/ background

It gives background information depending on the review of the literature and previously published data on the same topic. If possible, the author should mention the incidence of the variations, the number of previously

provided cases, unilaterality or bilaterally of the reported variations in such a way that the need for reporting the present variation should be justified. It should be written on taking into consideration to the new reader. Hence, in the beginning of the introduction, the author should describe the usual facts from the standard reference book of Anatomy such as Grey's Anatomy. It should provide abbreviation with its meaning. It should explain or define new or unusual terms in brief. e.g. 'A case of Erb's palsy was having…….' In this situation, author should explain 'Erb's paralysis' in the introduction.

3.7.5 Case report/ presentation (methods and results)

In the case report section, here the author has to describe the material, methods and results together. For describing the standard dissection steps, the author can give reference of Cunningham's dissection manual. If the author is deviating from it, he has to explain the dissection steps in brief. The given steps of the protocol should be described in such a way that it can be useful for the readers. If the variation is reported from a cadaver, then mention the age and sex of the cadaver. Other demographic details such as height, weight, race and occupation can be included if it is related to the main finding of the case report.[3] If the cause of death is known and related to the main result then only it should be mentioned. The side (right or left) or bilaterally should be mentioned. The findings should be supported by appropriate photographs or schematic diagrams or sometimes with tables. Repetition of the data explained in the table should be avoided in the text. The identity of the individual should not be revealed by any means. Hence, a special care should be taken while taking the photographs. If necessary, the author can include data or photographs of the investigations such as radiographs, CT, or MRI, angiographs, etc. All the descriptions should be done using anatomical positions of the organ or viscera. Only anatomical terms such as medial or lateral, superficial or deep, anterior or posterior, etc. should be used. The author should avoid the use of general terms such as far away, very thick, not thin, etc. It is better to measure the distance and mention in metric system e.g. mm, cm, micrometre, etc. Negative findings, i.e., the absence of a particular thing should be restricted to those that are unavoidable and directly related to the main finding of the case report.[20] Inferences should not be included in this section as they have to be involved in the discussion section. The table and figure number should be added at the end of the appropriate line. Author should avoid furnishing unnecessary data such as colour, weight of organ if it is within the normal limits or can be shown in photographs.

3.7.6 DISCUSSION

A discussion is the part of the case report where author draws inferences from his report, explain and justify the findings. In the case of anatomical variations, the author has to explain the probable reason behind the variation. Explanation on normal embryological development, genes involved in development can give an idea or put insight into likely reasons. The author can compare findings with earlier reported cases from the literature. Some of the findings may be partly similar to the previous reports. Author if explains the similarity, it indicates unbiased review of the literature. If there are differences from earlier reported cases, then the author has to give justifications. Before starting the discussion writing, the author should do thorough the search of the literature. If the author has selected some different approach for the dissection other than usual described method, the explanation may be given for the particular approach, for example, posterior approach to the kidney. Limitation of the findings can be mentioned with their significance.[3] The author should provide the clinical importance of the report. He can enlist the surgical or diagnostic procedures involving the related structures. He can focus on the probable worst outcome on the negligence of this report. The author should suggest a topic of future research which will promote a specific directive for ultimate patient care. Authors write this section by integrating what they have learned from the case and the literature that is reviewed to prepare the manuscript.

3.7.7 CONCLUSION

This section should include the purpose of the report with brief description of facts understood from the present report. If should not contain generalised and exaggerated facts.[3]

3.7.8 ACKNOWLEDGEMENTS

It should provide acknowledgement of the funding agency, higher departmental or institutional authorities who provided permission and infrastructures for the study. The author can acknowledge a colleague who does not fulfil authorship criteria like the proof-reader, technical assistant. Many journals ask written consent before the individual name to appear in print.

3.7.9 REFERENCES

The author should use most recent references as much as possible except for indicating the history of the variation or anatomical fact. Old reference should be kept minimum. Only published research articles, academic books, and educational websites should be used for reference. Unpublished data, newspaper articles, magazines should not be cited. Adequate references should be cited to justify the report. But, many journals restrict the total number of references.[2-3] Every journal has its styling of reference. Hence, instructions to the author must be read carefully.

3.7.10 Figures / Photographs / Schematic diagrams

Self-explaining dissection photographs can best explain anatomical variations. Hand drawn schematic diagrams can further support these pictures. The captions for the picture should be written in such a way that there should be no need to refer the text for understanding. Care should be taken so that the identity of an individual should not be revealed. If necessary to disclose the

identity, written permission should be obtained by the author. If authors wish to use previously published photographs or illustrations, permission must be granted by the publishing company of the material, and it is the author's responsibility to receive this permission before submitting a manuscript to a journal. Different journals ask different types of soft copy of figures like .jpg, .tft, etc. The author should go through the instructions to author at journal website.[6]

3.7.11 Tables

Numerical information can be represented in the form of the table rather than including it in the text as a paragraph. Avoid repetition of whole tabular data in the text. Only a few significant findings can be rewritten in the text. The table should be titled correctly to make it self-explanatory. Abbreviations used in the table should be explained in the footnote of the table. Some journals restricts the number of the table to 2-4. [20] If authors wish to use previously published tables, the publishing company of the original material must grant permission to do so, and it is the authors' responsibility to receive this approval before submitting the manuscript to a journal.

4. CONCLUSION

The guidelines given in the present study will be helpful for authors who wish to report the anatomical variations. Over a period, it will increase reporting of unreported cases that may be useful for statistical calculations such as incidence of variations

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Table 1: Reasons for easy acceptance of an anatomical variation for publication

Point	Probable reason
Subject/ Title	Topic of broad interest, relevant to the scope of journal
Novelty	Rare to very rare variation New variation or new insight in the discussion
Relevancy	Aim and objective are supported by the specific conclusion
Method	Clear and reproducible
Figure / Table	Self-explanatory and relevant
Conclusion	Adding more information in existing knowledge Non exaggerated

Table 2: Vancouver guidelines for authorship.[14]

Authorship goes to following contributions:
1. Contribution to conception, designing, analysis and interpretation of data 2. Contributing intellectually for drafting the manuscript or revising it critically 3. Approving final version for publication
For the content and conclusion of article, all authors are responsible.

Table 3: Path for the preparation of report on an anatomical variation.

Title	Abstract	Introduction	Case presentation	Discussion	Conclusions	References
1. Mention main content or finding. 2. Make it simple, short and attractive for readers.	1. Summarise main content and findings of the article. 2. Short and simple 3. Don't explain in details.	1. Answer –why did you start? 2. State the known basic facts. 3. State the known relevant advance knowledge. 4. Introduce your topic. 5. State the need for the report.	1. Answer – What did you do? What did you find? 2. Explain used method and material. 3. State the findings. 4. Describe the facts like who, what, when, how and why? 5. The method should be reproducible.	1. Answer – What does it mean? 2. Give inferences of your findings. 3. Support the inferences based on the review of the literature. 4. Enlist discrepancies with other's research. 5. Defend your findings. 6. State limitations. 7. Suggest a topic for further research.	1. Answer – what is your message? 2. State main fact and its implication in developing new knowledge.	1. Answer- Who else has done important work in your field? 2. Prepare the list of related reviewed literature. 3. Arrange then according to Journal's guidelines.

These are general guidelines. Please go through the detailed guidelines for the specific journal (available on the journal's website) before writing a report on anatomical variation.

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