

ART OF WRITING

Writing Case Reports: Contributing to Practice and Research

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Abstract

Case reports describe a patient with unusual or unexpected features. They represent the oldest type of medical publication. They are about generating a new hypothesis and not about proving a hypothesis. Hence, despite being considered as the lowest level of evidence; they continue to be relevant for clinical practice, research and medical education. This article intends to provide guidance regarding writing a case report to those wishing to make a foray in scientific writing through reporting an interesting case.

A Case Report is generally an account of one case of a disease or disorder, usually with an unexpected presentation, course or outcome.¹ The report typically describes the unusual findings, clinical course, diagnosis, treatment and prognosis of the case and is often accompanied by a review of previously reported similar cases.¹ By documenting and recording scientific observations; case reports serve as a valuable educational tool and a research resource for the future.^{2,3}

Reporting noteworthy individual cases is a time-honored practice in healthcare.⁴ It is probably the oldest type of publication in medicine dating back to pre-Hippocrates period. Early case reports were in the form of personal communications amongst colleagues narrating unique and interesting patients seen and managed in their respective practice. This slowly evolved into a scholarly publication that was used for rapid dissemination of knowledge to a larger medical audience.^{2,5} This became especially popular in the 19th century, when teaching became more clinically oriented and depended less and

less on theory or speculative classifications.⁶ Over the years, significant discoveries were described through the medium of Case Reports.

However, over the years, the case reports have been much maligned and choicest expletives have been used to describe them: Beginning with 'mere anecdotes';⁷ they have been called "inferior form of publication" and "lowest form of intellectual life".^{8,9} They are blamed for being "methodologically weak"¹⁰ and "prone to interpretation",¹⁰ constituting "the weakest level of evidence".^{6,8} They have also been criticized for being anecdotal, uncontrolled, irreproducible and subjectively interpreted⁸ and being futile pieces of writing without a clear clinical message for the reader. It is true that case reports are biased toward reporting positive outcomes and that experience in just one patient cannot decide therapy of a disease. In addition, as the observations are not controlled,

one is not sure if the intervention changed the course of the events or was it the result of some other factor or was it just related to passage of time. But to state that they do not contribute to furthering science, would be stretching things a bit too far. They are a form of study and publication that is not dependent on large resources or infrastructure for research and can be an expedient way of communicating new ideas. Case reports and case series are important for the generation of new hypotheses, spawning research and impacting medical practice.¹¹ They are an initial way of communicating new observations and findings in an interesting and pleasant way for the general reader. Case reports of adverse drug reactions form a fundamental part of pharmacovigilance. They serve as an excellent means for authors to start their "scientific writing" career.¹² They also enliven the otherwise drab medical literature

For certain situations, case reports are the only way out. Not all diseases (especially rare diseases) are suitable for observational or clinical study.¹³ Case report is the only publication type that will help communicate detailed aspects of a clinical observation.¹⁴ Every disease is observed and reported first in the case report format and only subsequently are studies undertaken to identify associations and management strategies.¹⁴

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Box 1: When to write a Case Report^{4,6,12,15,21,23-25}

- To report an unusual, rare or unknown disorder
- To describe unusual or puzzling clinical features
- To describe an atypical etiology of case or unusual disease presentation
- To offer new insights into disease pathogenesis or mechanism
- To share a challenging differential diagnosis
- To describe errors and mistakes in healthcare, their associations and consequences
- To describe a unique diagnostic tool or a unique or improved technical procedure or method
- To illustrate a new clinical hypothesis or support or disconfirm a hypothesis
- To report unusual drug-drug, drug-food, drug-test or drug-nutrient interactions
- To describe unexpected beneficial responses to a treatment
- To report unlabeled or unapproved uses of a medication
- To describe the effect of drugs in pregnancy and lactation
- To describe novel pharmacokinetic or pharmacodynamic principles
- To report therapeutic challenges, controversies or dilemmas
- To uncover barriers to patient adherence
- To describe rare, new or poorly appreciated adverse events of interventions and devices
- To present information that cannot be reproduced due to ethical reasons
- To teach humanistic lessons to the healthcare professionals

But, it is also true that many case reports do not add significantly to the body of knowledge. They consume valuable page space, are infrequently cited and have a “pull-down” effect on the journal’s impact factor^{12,15,16} and belong to the lowest level in the hierarchy of evidence. Not surprisingly, many scientific journals stopped publishing case reports.¹⁷ A few others have moved them to “Correspondence” section or to online version. However, of late the trend seems to be reversing a bit; as can be seen from the fact that in 2013, over 56000 case reports were published in English language medical journals indexed in PubMed.¹⁸ The rise of online journals that are not constrained for space could be one factor responsible. In fact, now we have a few journals that are dedicated to publishing case reports.

Case reports will never replace well-designed randomized clinical trials in testing new therapeutics. In the era of evidence-based medicine, physician intuition and serendipity are often overlooked.¹³ However, it must be remembered that all science is rooted in observations; and case reports will continue to have their little space for reporting new observations for generating new hypotheses.

Who Should Write a Case Report and When?

Which cases should be reported, is a tricky question. The issue becomes clear when we understand the basic purposes of reporting a case: to put forth a new observation or idea and to inform and educate practitioners.^{19,20} Case reports and series have a high sensitivity for detecting novelty. They are a keystone of medical progress, as they provide many new ideas in medicine.²⁰ At the same time, educational value, rather than extreme rarity, is the main attribute that makes a case worthy of reporting.^{6,21} Reporting the occurrence of an infectious disease in a particular geographical area could be a signal for an impending epidemic⁹ and is useful in alerting the physicians in the area and is of public health importance. Cases that document diagnostic or therapeutic successes or near-misses and mishaps have educational value, too.²² At the same time, case reports that describe current practice strategies and provide an extensive review of literature; are being increasingly discouraged from publication. Although they may have some educational value; they often do not provide new knowledge or insights.¹² Obviously,

cases that simply report the mundane or expected, those which simply describe exotica,⁸ those that denigrate or mock the patients or those which seem partly designed to titillate the reader do not warrant publication.⁸ Some of the reasons for reporting a case are listed in Box 1.

Every practitioner should attempt to publish a reportable case, as this exercise is beneficial to both authors and readers. In fact, even undergraduate students can attempt this feat with the help of mentors.²⁵ Through this attempt, authors learn to perform a focused literature search, explain history, demonstrate analytical skills, provide rational explanations for the findings⁷ and put forth arguments logically to support the hypothesis.

How to Write a Case Report

Postgraduate students and faculty regularly prepare and present interesting cases at academic meetings; they rarely write them up and submit for publication. The common barriers for students include lack of motivation, inadequate writing skills, lack of information about relevant journals, being intimidated by the publication process,² inability to perceive career benefit and lack of confidence.²⁶ Teachers cite lack of time and lack of interest on the part of students as common barriers.²⁶

Once the case is determined to be reportable on the basis of novelty and educational value,^{6,21} the first step is to identify the right audience and reader for the message:⁶ e.g. is the case of interest to family physicians, to generalists or to specialists? The authors should decide what the message is, consider who the message is aimed at and then select a journal whose readership will include the target audience.²⁵ Having zeroed down on the journal, they should then read the journal to find out the kind of cases it has published

and refer to its “instructions to authors”. In addition, the authors could use the guidance provided by CARE consensus guidelines and checklists provided by various authors.^{6,12,19,21,23,27-29}

It is a good policy to seek patient’s permission to publish the report even if the short-listed journal does not insist on it. Many journals provide standard consent form for recording patient consent. If a patient refuses to allow the information to be published, the authors are obliged to respect the patient’s wishes.¹² The authors should remove all the identifying information from the manuscript to ensure that the patient’s privacy is protected.³⁰ If advised by the journal, the authors should seek an approval from the Institutional Review Board to publish the case.

The authors should undertake a comprehensive literature search to confirm that the case is reportable and to collect information for writing the manuscript. Although there could be some variability in the way case reports are published in the journals; most journals have the following sections for the case reports that they publish: title, abstract, introduction, case description, discussion and references.

Title

The title is the first thing that editors, reviewers and readers read. Hence, it should give the readers an idea about what the manuscript is about. It should be accurate, relevant, concise, eloquent, interesting and perhaps catchy.^{6,12,15,23,25} If it is too full, readers may feel that it has said all that is there to know in the report.²⁵ Some journals require a subtitle specifying that the manuscript is a case report.^{6,25} It is a good policy to select the title after the whole text has been written, because the authors then can choose the title on the basis of predominant issue discussed¹⁴ in the manuscript.

Many techniques are used in writing case report’s title. Some use the term ‘case report’¹⁴ and some use the diagnosis and epidemiology characteristics (e.g. dermatomyositis in a young child) or salient manifestations of the case in the title. There are examples, wherein authors choose a title that will kindle readers’ curiosity drawing them to the article (e.g.: “a case of a forgotten address”,³¹ “a souvenir from the Canary islands”³¹ or “a 21-year old girl with recurrent abdominal pain after a robbery”).³³ However, some journals do not prefer these titles, as they do not indicate what the report is about.¹²

Abstract

Abstract helps readers recognize their interest in the case report¹⁵ and indexing agencies store title and abstract, for facilitating literature search.¹² Not all journals require an abstract to be written. It represents the summary of the manuscript and journals usually allow for 100-150 words. Although many journals want an unstructured abstract (without section headings), it is prudent to prepare an abstract in a structured manner consisting of clinical question or diagnostic problem, description of the event, key outcomes and learning point.^{6,12,17,23}

Introduction

Introduction describes the purpose of publishing the case report.^{12,15,23} It allows the author to describe the context (disease incidence, mortality, morbidity, health problem), refer to similar cases reported earlier, define terminologies used, and explain the objective behind reporting the case.^{6,12,19,23} It should be brief consisting of one (maximum two) paragraph of 100-150 words.¹⁵ Although a few important references need to be quoted, detailed review should be reserved for the ‘discussion’ section.⁶ Some journals do not have ‘introduction’

section for case reports and the body of the article starts directly with description of the case.¹⁵

Case Description

This section describes the patient, presentation, outcome measures, assessment protocols and treatment, as applicable.¹² It is variously labeled as case presentation, case report or methods and results by different journals. In this section, the demographic features, history, examination findings and investigations need to be described adequately. The events are generally provided in a chronological order,^{12,23} but there are times when one needs to be flexible in this regard.¹⁷ The aim is to provide enough information from clinical assessment and investigation reports to support the diagnosis and to exclude alternative diagnoses.¹⁷ The unconventional treatment employed should be described in great detail. The overall case description should be sufficiently detailed, to enable readers to make their own assessments regarding the correctness of diagnosis, associations and causality suggested.¹⁷ However, the need to provide enough information should be balanced with the need to be concise. Authors should include only the information needed to convey the case and should refrain from providing unnecessary and superfluous data, so as to not lose the narrative.^{12,23,34} Wherever necessary the description may be supplemented by up to a couple of figures (radiographs, CT or MRI scans, photomicrographs or clinical photograph)⁶ and if the data warrants, tables and flow charts may also be used.²

Discussion

This is a crucial section of the manuscript. Some journals prefer to label it as “comment” and is the selling point of a case report which justifies why the article

worth publishing.^{4,14} This section should be used to explain the case, put forth and justify their opinion and make recommendations. It should evaluate the case for accuracy, validity and uniqueness.²⁴ Generally, authors begin by providing a summary of the case and rationale for reporting it, followed by comparison with similar cases reported earlier. There is no need to provide details of each and every citation and temptation to provide comprehensive literature review should be resisted.²⁵ The differences need to be explained and differential diagnosis, diagnostic evaluation undertaken and therapeutic interventions employed, justified. The authors then state why the case is unusual or unique and proceed to enumerate the limitations of the case and their impact. This section needs to be supported by statements from published literature, especially original articles. It is advisable to present information in table format, if extensive material needs to be exhibited.^{23,24} The authors should also enlist learning points, explain new knowledge generated and elucidate and justify the proposed hypothesis and make appropriate and justifiable suggestions.¹² The recommendations regarding clinical practice and research should be specific and based on the kind and quantum of evidence provided by the report. Given the nature and level of evidence that can be generated through case reports, it is prudent to be circumspect while providing recommendations and avoid making sweeping generalizations.^{6,12,17,19,25} Some journals prefer to have a separate "conclusion" section, to summarize recommendations in a single paragraph.^{12,23}

References

This section lists the articles that authors have used for comparison with published cases, and used for supporting their thoughts, arguments and

recommendations.^{4,25} As journals expect only a focused review, generally 10-15 references are considered adequate. References should be drawn from peer-reviewed journals and credible online sources and authors should prefer to cite recently published original work to others. The references should be cited as per the style and methods recommended by the Journal in its instructions to authors.

Common Pitfalls and How to Circumvent Them

Inexperience: When clinicians decide to report their first case, they have not had any prior training in scientific writing. This inexperience should not dissuade clinicians from reporting the case. It can be tackled by reading reports in literature and seeking help from mentors and experienced colleagues.⁴

Insufficient Documentation: For a case to be reportable the diagnosis (or experience to be reported) must be definite and the documentation required for this purpose is much more extensive and rigorous than that required in everyday practice.⁴ If certain tests are required to be carried out for the purpose of documentation (and not for patient care), it is wise to obtain a specific consent for such tests and ensure that the patient is not made to bear the expenses for these non-essential tests.³⁰ The authors must ensure that requisite documentation has been done.

Inappropriate Format: The journals require authors to submit the case in the prescribed format. The authors should familiarize themselves with the required format through 'instructions to authors' provided by the journal and by reading case reports published in that journal. Fullest compliance with this requirement is necessary to ensure expeditious editorial and peer review.

Ineffective Illustrations: Many cases depend on the illustrative

material such as chest radiographs, ventilator waveforms, or photomicrographs to make their main points. Unclear and ineffective illustrations weaken the manuscript.⁴ If necessary, authors should take professional help and submit illustrations of standard quality and clarity.

Poor Writing: Journals expect the report to be accurate, brief and clear.⁶ Although, bad writing generally does not lead to outright rejection, it may tip the balance unfavorably, if the manuscript has other inadequacies.⁴ Poor writing does delay the review process, for sure. The handicap of bad writing can be overcome by consulting published sources⁴ and requesting experienced colleagues to offer comments and critique regarding inconsistencies, clarity, grammar and syntax before the draft is finalized.^{4,6,25}

Authorship: When a study is to be published, the investigators associated with the study and their roles are well identified. However, when a case report is to be published every single doctor who has managed the patient, could lay a claim to authorship. Hence, the issue of authorship could become a contentious one and it is better settled even before writing of the case report begins.⁴ The authorship should be restricted to those who have made substantial intellectual contributions to the manuscript and this could include clinicians who participated in patient diagnosis and management sufficiently to take public responsibility, provided they also contribute to the manuscript writing and review. The ICMJE criteria³⁵ can serve as a basic guideline for deciding authorship. As the manuscript is about a single case, journals do not expect that a large team of providers are associated with its management and some actively restrict the number of authors permitted to two to four.^{4,15}

To summarize, case reports are a time-honored integral part

of medical literature. They have a vital role to play in generating new hypothesis and in educating practitioners, among other functions. While writing case reports, authors should ensure that the description is accurate, arguments well-supported and recommendations practical and rational

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