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How to write a case report: from clinical observation to scientific report

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ABSTRACT

Case reports have always played a fundamental role in the advancement of medicine, serving as a starting point for the generation of new hypotheses. However, the quality and completeness of these reports vary widely, which has led to the creation of international guidelines, such as the CARE Guidelines (CAse REport), that propose a standardized framework to ensure ethics, transparency, and reproducibility. The objective of this editorial is to guide authors, reviewers, and young researchers on how to produce high-quality case reports in the field of mastology. The editorial presents the 13 items of the CARE Guidelines adapted to the reality of mastology, illustrating each step with published cases and discussing ethical, structural, and narrative aspects. Writing a case report is more than just recording a rare clinical event; it is about transforming individual experience into shared knowledge. Mastology encourages the submission of well-structured reports that illustrate complex therapeutic decisions, innovative conducts, surgical techniques and ethical reflections, contributing to the improvement of practice and the training of new generations of specialists.

KEYWORDS: breast neoplasms; case reports; scientific writing.

INTRODUCTION

For decades, clinical reports were published in a free format, varying enormously in quality and completeness. This lack of standardization compromised the transparency, reproducibility, and educational value of the published observations. The CARE Statement, initially published in 2013 and updated in 2017, was the result of an international consensus involving editors, clinicians, and methodologists from different areas of medicine[1,2]. Its objective was to create a universal checklist that would ensure transparency, consistency, and clinical utility for published reports. Since then, it has been recommended by more than 200 scientific journals[2].

Two case reports published in this issue of Mastology inspired this editorial. In "Fertility preservation in a young woman with Li-Fraumeni syndrome: a case report," we observed the complex and multidisciplinary decisions involved in the care of extremely young cancer patients[3]. In turn, the article "Multidisciplinary management of breast fibromatosis with chest wall resection and reconstruction: a case report" presents a dramatic case requiring breast and chest reconstruction[4]. However, more than just clinical and surgical narratives, these texts fulfill the role of a well-structured case report, in accordance with the international guidelines of the CARE Guidelines (CAse REport Guidelines)[1].

The CARE Guidelines propose a sequence of 13 essential items that form the framework of modern scientific reporting. Recent studies show that adherence to these standards is still limited: in a review of one hundred clinical reports published in high-impact journals, the average compliance with the CARE items was less than 50%, indicating that a large proportion of reports continue to be written intuitively, without following established guidelines[5]. These data reinforce the need for educational editorials that guide authors and reviewers on how to structure case reports in a didactic, ethical, and methodologically sound manner.

The aim of this editorial is to guide authors, reviewers, and young researchers on how to prepare quality case reports by reviewing the 13 essential items (Table 1).

The categories and essential items of a case report

In general, the cases can be grouped into four broad categories:

- Unlikely or challenging diagnosis, when the value of the report lies in the clinical reasoning that led to the correct identification of a rare or atypical condition;
- Complex therapeutic decision, when there is a dilemma between possible courses of action and the case illustrates the decision-making process;

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- An unexpected outcome, whether favorable or adverse, which questions paradigms and generates new research hypotheses; and
- Innovative surgical technique or procedure, describing novel and reproducible technical modifications or approaches.

Although CARE does not classify the types of case reports, it is easy to see that each one requires different emphases on the CARE items, for example, diagnostic reasoning, therapeutic discussion, technical detail, or long-term follow-up.

Title

The title should include the main condition and the expression "case report." The title should also describe the area of focus, e.g., presentation, diagnosis, test, technique, or outcome. The manuscripts "Fertility preservation in a young woman with Li-Fraumeni syndrome: a case report" and "Multidisciplinary management of breast fibromatosis with chest wall resection and reconstruction: a case report" fully meet this criterio[3,4]. They are informative, accurate, and easily retrievable in databases, reflecting the central content of the article.

Some other examples of good titles are:

- "*Clinical Activity of Pembrolizumab in a Patient With Metastatic Triple-Negative Breast Cancer Without Tumor Programmed Death-Ligand 1 Expression: A Case Report and Correlative Biomarker Analysis*"[6];
- "*From lung to breast: a rare case of metastatic lung adenocarcinoma presenting as a breast lump in a male patient*"[7];
- "*Dynamic Changes in Breast Cancer Receptor Status: A Case Report Highlighting the Importance of Repeat Biopsies in Guiding Treatment Strategies*"[8].

On the other hand, "*Lasofoxifene Monotherapy Induces Durable Complete Remission in a Patient with Estrogen Receptor-Positive,*

Table 1. Essential elements of a case report in mastology.

Item	Brief description according to CARE.	Practical adaptation for mastology
1. Title	It should contain the phrase "*Case Report*" and the main topic.	Specify the critical subtype or dilemma (presentation, decision, technique, or outcome)
2. Keywords	Two to five relevant terms (MeSH/DeCS).	Include: *Breast Neoplasms, Surgical Oncology, Genetic Predisposition, Breast Reconstruction* etc.
3. Abstract	Structured: introduction, case, intervention, and outcome.	Highlight the clinical learning point and whether the case suggests a change in treatment.
4. Introduction	Three paragraphs: context, gap, objective.	Contextualize the problem and justify the relevance of the case.
5. Patient information	Age, genderd, history, risk factors, and symptoms.	Describe family history, known genetic mutations, hormone use, and previous screening.
6. Clinical findings	Characterize clinical and imaging findings.	Physical examination, mammography findings, ultrasound and/or breast MRI.
7. Timeline	Chronological summary of clinical events.	Include dates of diagnosis, examinations, surgeries, adjuvant therapies, and follow-up. Represent graphically when possible.
8. Diagnostic evaluation	Methods used to confirm the diagnosis.	Describe biopsy, immunohistochemistry, markers (ER, PR, HER2, Ki-67), genetic testing, and potential diagnostic challenges.
9. Therapeutic intervention	Clinical or surgical treatment administered.	Detail surgical technique (e.g., quadrantectomy, mastectomy, axillary surgery, reconstruction), chemotherapy/hormonal regimen, radiotherapy, and justifications
10. Outcome and follow-up	Clinical results and evolution.	Report margins, pathological response, toxicities, complications, and follow-up time.
11. Discussion	Interpretation of the findings and comparison with the literature.	Contextualize with current literature and guidelines (e.g., NCCN, ASCO, SBM), and point out practical implications or future hypotheses.
12. Patient perspective	Patient's opinion or account of the process.	Include, if possible, a first-person account from the patient regarding diagnosis, treatment, fertility, or reconstruction.
13. Informed consent	Patient authorization statement and ethics committee approval.	Mention the approval number on the Brazil Platform.

Source: adaptado do CARE Guidelines[2].
MeSH/DeCS: Medical Subject Headings/Descritores em Ciências da Saúde; NCCN: National Comprehensive Cancer Network; ASCO: American Society of Clinical Oncology; SBM: Sociedade Brasileira de Mastologia.

Metastatic Breast Cancer with an ESR1 Mutation" The article does not contain the word "case report" in its title[9]. This may seem like a minor detail, but it has a direct impact on its visibility and scientific dissemination. Search engines and indexers, such as PubMed, Scopus, and Google Scholar, use this literal expression to automatically classify the type of article, which means that reports that do not include it may not appear in specific filters used by readers, reviewers, and researchers interested in clinical cases.

Keywords

The title and keywords are the gateway to any case report; they determine whether the reader, indexer, and researcher will find the article and understand its clinical focus.

The CARE guideline recommends two to five keywords that identify the areas covered and that "case report" be included as one of the keywords[2]. Words that do not follow the standardized descriptors (MeSH/DeCS) make it difficult to retrieve the work in reviews and systematic searches.

The report "*Fertility preservation in a young woman with Li-Fraumeni syndrome...*" uses three well-indexed terms: Li-Fraumeni syndrome, breast neoplasm, and fertility preservation[3]. It could have used "case reports" as a fourth descriptor.

Abstract

The abstract is the scientific showcase of the case report. Often, it is the only passage read in its entirety by reviewers, researchers, and clinicians seeking practical evidence. A good abstract should be structured, concise, and self-explanatory, allowing the reader to understand the essentials of the case without needing to refer to the full text. A well-written abstract anticipates the clinical reasoning, expresses the originality of the report, and makes clear why that case deserves to be remembered.

The CARE Guidelines recommend that the abstract contain four fundamental elements: a brief introduction that situates the relevance of the case; a description of the main clinical findings; the therapeutic management adopted; and a reflective conclusion highlighting the lessons learned[2]. Common errors include the use of generic phrases ("rare and interesting case") and the omission of outcomes or the main message.

Introduction

The introduction of a case report should follow the same argumentative logic as original articles or longer reviews. In both, scientific reasoning can be quickly organized into three paragraphs: (1) context — concisely present what is already known about the topic, with epidemiological or pathophysiological data that situate the reader; (2) gap — explain what is not yet known, what is rare, or what represents a practical dilemma, justifying why the case is relevant; and (3) therefore — conclude with the sentence that defines the objective of the report. This model was proposed by John Swales (1990) in the book *Genre Analysis: English in Academic and Research Settings* and describes the classic rhetorical structure of scientific article introductions: establish a territory>establish a gap>fill the gap[10].

In "Fertility preservation in a young woman with Li-Fraumeni syndrome...", the first and third elements are well represented—the context and the case description. The "gap," however, could be better explored, emphasizing, for example, the scarcity of national protocols on fertility preservation in hereditary cancer.

Patient information

We will now move on to the body of the case report, which covers items 5 to 10 of the CARE framework. This body is the narrative and scientific core of the article, where the reader should find the logical sequence of clinical observation, from patient's presentation to the outcome. These items function as the "method and results" of an observational study: they describe who the patient is (demographic information and background), what was found (clinical and imaging findings), what was done (diagnostic evaluation and interventions), and what happened (follow-up and outcomes).

According to CARE, this section should include demographic data, medical and family history[2]. The report describes in detail age, gynecological history, family history of neoplasms (including in a table), contraceptive use, and lifestyle habits. It is a model of completeness and contextualization.

Clinical findings

In the clinical findings section, the author should describe, in an objective and orderly manner, what was found in the physical examination, the initial signs and symptoms, and the relevant complementary findings, always distinguishing what is common from what is exceptional to the case. This part should not be a simple inventory of data, but an interpretative synthesis that helps the reader understand the plausibility of the diagnosis and the subsequent reasoning.

Timeline

CARE recommends that the narrative be chronological, objective, and verifiable, preferably accompanied by a visual timeline summarizing the main events[2]. By incorporating a visual timeline, a report ceases to be merely narrative and becomes a tool for clinical reasoning. The timeline has the same function as the graph in a comparative study and the forest plot in a meta-analysis.

The report "Lasofoxifene monotherapy induces durable complete remission..." is exemplary in the way it presents the timeline[9]. The article synthesizes 16 years of clinical evolution, from the initial diagnosis in 2007 to the complete and sustained response in 2023, precisely indicating the phases of adjuvant chemotherapy, hormone therapy, metastatic relapse, initiation of the letrozole+palbociclib combination, and subsequent entry into the ELAINE-1 study[9].

This organization facilitates the visualization of the patient's ***clinical and biological trajectory***. In the case of "*Fertility preservation in a young woman with Li-Fraumeni syndrome...*", a similar graph (2024 and 2025, including cryopreservation, chemotherapy, and surgery) would make the report more didactic and useful for oncofertility protocols[3]. The absence of a visual timeline limits the didactic potential, especially for readers who wish to quickly understand the sequence of oncological and reproductive procedures. A timeline can be easily constructed using simple text or image editor features (Figure 1).

Diagnostic assessment

The diagnostic evaluation section is one of the most valuable parts of a case report, as it reveals the author's clinical reasoning, the path from initial suspicion to diagnostic confirmation. The CARE Guidelines recommend that the author describe not only the methods used (physical, laboratory, imaging, histopathological, or genetic examinations), but also the challenges faced, the differential hypotheses considered, and the justifications for the diagnostic choices. In other words, the reader should be able to understand how the diagnosis was constructed.

Therapeutic intervention

The description of the therapeutic intervention is the technical heart of a case report, the moment when the reader understands how the diagnostic reasoning was translated into clinical conduct. According to the CARE Guidelines, the author must report the type of intervention, its duration, dose and sequence, as well as any changes in strategy and the reasons that motivated them[2].

This section should place the greatest emphasis on a report documenting an exceptional surgical technique or procedure, such as "*Multidisciplinary management of breast fibromatosis with chest wall resection...*"[4]. Surgical technique reports can be considered a legitimate variant of the case report, as long as they maintain the central purpose of the genre: to document an individual clinical experience that generates reproducible learning. In this format, the focus shifts from diagnosis or therapeutic response to technical innovation, modification of an existing procedure, or the solution of an intraoperative challenge. Do not describe the surgery in bullet points, as if copying from the medical record. For greater fluency, transform it into a narrative paragraph. In surgical case reports, it is highly valued when authors highlight the challenging and exceptional aspect of the surgery. In "*Multidisciplinary management of breast fibromatosis with chest wall resection...*", the differentiating factor was the extensive chest wall resection with multidisciplinary reconstruction[4]. The risks involved, such as in this case: chest instability, pleural injury, chronic pain, failure to obtain neoplasia-free margins, etc., should also be reported. Add high-quality photos and mention the presence of figures in the text.

Follow-up and outcome

The outcome and follow-up section (Item 10 of the CARE Guidelines) represents the narrative climax of the report: it is where the author shows the concrete results of the intervention and the impact of the treatment on the patient's life. CARE recommends that the outcome include both objective clinical results, such as tumor response, complications, recurrence, or survival, and subjective aspects, such as adherence, tolerability, and quality of life[2].

Discussion

The discussion is the moment when the case report ceases to be just a description to become a critical interpretation. The discussion of a case report is very similar to that of a larger clinical study, and should address three fundamental dimensions: the strengths and limitations of the case (what it shows and what it does not allow us to conclude), the comparison with the scientific literature (how the case fits into current knowledge), and the clinical or scientific implications of the finding (what changes in practice, in research, or medical training).

Patient perspective

Among the 13 items in the CARE Guidelines, the most neglected component is the "patient perspective" — the inclusion of a personal, first-person account of the impact of the diagnosis, treatment, and/or recovery. In a review of the quality of case reports published in high-impact journals, only 1% of the reports evaluated contained the patient's direct voice, revealing this to be the least fulfilled CARE item[5].

In the case of "*Fertility preservation in a young woman with Li-Fraumeni syndrome...*", this dimension could be enriched by including, for example, a brief testimony about the decision to

Figure 1. Example of a timeline.

preserve fertility and what this represented for the patient as a young woman with hereditary cancer. For example: "*When I received the diagnosis at age 26, I immediately thought of my dream of being a mother one day. The news of the mutation in the TP53 gene scared me, and I was deeply torn between fighting the cancer and preserving my fertility. The medical team explained that ovarian stimulation was possible, and this decision gave me hope*".

You can ask the patient (with specific consent for this citation) to write or authorize this section. This inclusion greatly improves the humanistic dimension of the report and brings it closer to the CARE recommendation.

Informed consent

Every case report must respect the fundamental principles of confidentiality, autonomy, and ethics in research. The CARE Guidelines establish that the patient's express authorization is mandatory, even when data is anonymized — the decision to disclose clinical information ultimately belongs to the patient[2]. The text must include an explicit statement of consent, confirming that the patient (or their legal guardian) has authorized the publication of the data and images. All figures must be carefully anonymized, avoiding any element that allows the patient to be identified (face, tattoos, dates, medical records, institution).

According to Brazilian legislation, case reports must be submitted to the Research Ethics Committee (CEP/CONEP). The patient's consent must be obtained before the proposal is submitted on Plataforma Brasil.

CONCLUSION

In conclusion, reporting a clinical case is more than recording a rare event; it's participating in the scientific tradition of transforming experience into shared knowledge. The CARE Guidelines provide the framework for this transformation to occur ethically, transparently, and reproducibly. A well-written report has the power to teach, inspire new hypotheses, and even influence institutional practices. Mastology invites authors, residents, and researchers to share their clinical experiences through well-structured case reports that combine careful observation, scientific rigor, and human value. Cases illustrating complex therapeutic decisions, innovative approaches, surgical techniques, and ethical reflections are especially welcome. By submitting their report to Mastology, the author not only discloses a case but also participates in the collective construction of knowledge in mastology, contributing to the improvement of practice and the training of new generations of specialists.

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