

The importance of case reports in general surgery

La importancia del reporte de caso en la cirugía general

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Abstract

Scientific research is a key tool for every health professional. Their main goal is the creation and distribution of new knowledge. It works as an opportunity to develop new skills such as time management, organization, communication, and teamwork. Case reports are at the bottom of the level of the evidence pyramid but they give such important information about specific pathologies like clinical manifestations, diagnostic tools, and new therapeutic alternatives. Case reports give health professionals an opportunity to publish something that cannot be enrolled in another type of article, like clinical research or a cohort study. Case reports are one of the most common type of study in the surgical field and this is because every patient has something different, and this type of article give us a variety of options to explore treatment, diagnosis, and outcomes. This paper describes the main components of a case report and its application to general surgery, its purpose is to provide a guide to new surgeons, residents or medical students interested in improving the quality of their papers.

Keywords: Case report. General surgery. Clinical case. Research. SCARE Guide.

Resumen

La investigación científica es una herramienta clave para todo el profesional de la salud. Su objetivo principal es la creación y la reproducción de nuevo conocimiento. Funciona como una oportunidad para desarrollar habilidades de comunicación, manejo del tiempo, organización y trabajo en equipo. Los reportes de caso clínico son los estudios con el nivel más bajo de evidencia, pero aportan información relevante sobre patologías en específico, como son sus manifestaciones clínicas, métodos diagnósticos y alternativas terapéuticas novedosas, para los que no es posible implementar otro tipo de diseño metodológico. Este tipo de estudio es uno de los más utilizados en la docencia quirúrgica debido a las múltiples particularidades de cada paciente, que permiten valorar distintas opciones terapéuticas no evaluadas anteriormente para la resolución del problema que aqueja al paciente. En este trabajo se describen los componentes principales del reporte de caso clínico y su aplicación en la cirugía general, con el objetivo de proveer una guía a los nuevos cirujanos que estén interesados en mejorar la calidad de sus reportes de caso.

Palabras clave: Reporte de caso. Cirugía general. Caso clínico. Investigación. Guía SCARE.

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Introduction

Reporting a rare or unusual clinical case is probably the oldest form of medical communication. Although the case report is viewed by some practitioners as the lowest level of evidence, it provides preliminary information for future research leading to the practice of evidence-based medicine¹.

The case report is considered the first effort of several physicians to transfer a message to all health care workers, in addition to serving as an exercise in scientific writing, as it expands knowledge about new diseases, the presentation of rare diseases, unusual forms of common diseases, the complications of a common treatment or the effect (beneficial or adverse) of a common treatment or an innovative therapeutic modality with the aim of improving the quality of patient care. It organizes and retells what is presented in the medical history, the progress of the disease, the instituted medical care, or the results obtained².

Clinicians, but especially surgeons, have based their learning and teaching on this type of studies, because they present medical problems of a patient with unique characteristics in detail^{3,4}.

Although case reports have little value in evidence-based medicine, they are considered the first line of evidence⁵. The aim of this work is to provide resident physicians, general practitioners, specialists and medical students with the following tools: ability to know the importance of surgical practice case reports in the current biomedical literature and ability to recognize which clinical case has the characteristics to be published as a case report in a scientific dissemination media.

Historical background

It has been more than 50 years since Fisbein and Pi-Sunyer proposed the case report as “the cornerstone of the medical literature”, and this still holds true today³. Clinical case reports exist in the medical literature since the 16th to the 17th Egyptian dynasties in 1600 BC, when the management of temporomandibular dislocation was first detailed in papyri. Twelve hundred years later (400 B.C.), in Greece, during the time of Hippocrates, case reports appeared with detailed descriptions of relevant clinical findings focusing on the natural progress of the disease. Later, during the II century A.D., reports written in the first person by Claudius Galen (129-299 A.D.) appeared. In the West, during the Middle Ages, clinical medicine fell into a

period of little activity due to the intervention of the Church in the culture, which allowed the Islamist medicine of the East to flourish, with the advent of multiple, meticulously detailed case reports, narrating the importance of the clinical picture for establishing the diagnosis of patients. In the XVII and XVIII centuries, the reports were still based on the galenic style, but the narrative emphasized the subjective components of the patients, so that a more literary than scientific style was observed, especially because of the dramatization used in the writing. It was at this time when this type of articles was at its peak. In the past, reports were not a publication and scientific journals did not exist, but they were used to document findings and share them among colleagues. Finally, from the XIX century to date, this type of articles has been homogenized thanks to the decrease of dramatic or literary resources, employing a scientific language structured by sections, less focused on the subjective aspects of the patient and centered on the clinical and surgical findings of relevance^{1,6,7}.

Case reports in general surgery

For more than 100 years, the teaching of the general surgeon has been based on the traditional model proposed by Bernhard von Langenbeck in Germany and perfected by William Halsted in North America. This model is based on the acquisition of surgical competencies in the medical residency, during which the physician is gradually assigned responsibility for patient care over 4 years of training. In this model, the learning process is directly proportional to the time invested in clinical practice. This process often lacks a complete and well-developed theoretical and pedagogical framework to support it. Therefore, its results are unpredictable: the best surgeons have trained under this model, but also the worst^{4,8,9}. This is where the importance of research emerges, specifically case reports, as these are the only means of describing rare clinical events. There are two types of case reports: those related to diagnosis which address a new clinical condition or an unusual presentation of a known disease¹⁰, and those related to treatment which show a new, original, or improved therapeutic approach, or the appearance of new or unusual adverse effects. These reports can illustrate a new principle, support, or refute a current theory, and thus stimulate further research. They are useful in clinical situations that cannot be reproduced for ethical reasons and suggest opportunities for education^{4,11}.

Classification of case reports

1. Diagnostic

- New or unusual disease
- Unusual presentation of a known disease
- New diagnostic methods
- New or unusual etiology
- Unexpected association among diseases or symptoms

2. Therapeutic

- New or improved treatment
- New, rare effects, or complications of treatment

Figure 1. Classification of case reports. (Retrieved from: Peh WCG, Ng KH. Effective medical writing. Pointers to getting your article published. Singapore Med J. 2010;51:10-4.).

Clinical case reports help surgeons develop four characteristics fundamental to their practice: 1) technical/surgical competence, 2) commitment to quality and teamwork, 3) professional integrity, and 4) focus on the betterment of society. Surgery, as an eminently practical and action-oriented medical discipline, requires the close interaction of effective teaching and research processes¹²⁻¹⁴.

Learning through research is an active, constructive, and self-directed process, where the learner builds their own internal representations according to their experience and scientific knowledge, giving them the ability to make decisions about their patients. Analyzed in this way, this type of scientific articles is of great importance in surgical teaching, because it allows testing, supporting, and guiding the construction of knowledge; and it also allows and promotes the deployment of previously unused technical-surgical activities, thus fostering the development of surgery in current clinical research¹²⁻¹⁵.

How do you know what is worth publishing?

The basic characteristic one should keep in mind when selecting a case for publication is that it should be unique in some respect¹⁶. Despite the fact that with each passing day it is more and more difficult to find a completely original pathology, there are still several within two types: diagnostic and therapeutic (Fig. 1). Subtypes of diagnostic-type reports may be, for example, a new method for diagnosing acute abdomen in patients with neurological impairment, or an intestinal perforation secondary to infection by a pathogen with which there was no previous association. The association among pathologies or symptoms can be reported, particularly if it has

not been previously described. The therapeutic subtype may address, for example, a new approach in the open abdomen secondary to acute pancreatitis, or a modification in a recognized hernioplasty technique that decreases the risk of recurrence. Any case that can contribute to new knowledge, ideally by raising a hypothesis that leads to further investigation, whether diagnostic or treatment, is worth publishing^{11,17}.

SCARE Guide (*Surgical CAse REport*) for standardization of surgical clinical case reports

Case reports should be short and focused on the pathology, with a limited number of figures and references. The structure of case reports is composed of a short abstract (not mandatory), an introduction presenting only the most relevant information about the pathology, and finally a discussion addressing the relevance of the current case in relation to the background¹⁸. There is a wide variety of guidelines for the preparation of different types of scientific studies, such as the *Consolidated Standards of Reporting Trials* (CONSORT) for randomized clinical trials¹⁹ and the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) for observational studies²⁰. However, there were no guidelines for case reporting until 2013, when the CARE group (*CAse REport*) published the CARE guidelines, which worked as guidelines for all types of case reports^{1,6,21,22}. Furthermore, in 2016, SCARE guidelines were published for the first time, which provided a structure for surgical case reports. SCARE guidelines were updated in 2018 and for the last time in 2020 (Table 1)²³.

Since their creation, the SCARE guidelines have been a useful tool for writing case reports. Studies on their implementation have shown a statistically significant improvement of 10% in case reports using them²⁴.

Limitations of case reports

Although most authors agree that case reports are the type of study with the lowest level of scientific support, they are considered the first line of evidence in medical research. The main disadvantage of case reports is that, being descriptive studies, they do not allow for statistical associations due to the absence of a comparison group²⁵. Another weakness of case reports today is that they have been losing their place in journals due to their low scientific rigor, their low level of general application in medical practice and

Table 1. SCARE Guide. (Retrieved from: Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A. The SCARE 2020 Guideline: updating Consensus Surgical Case report (SCARE) guidelines. Int J Surg. 2020;84:226-30)

Title
– The words “case report” should appear. The title should also describe the area of focus (e.g., clinical presentation, population, diagnosis, surgical management, or result).
Keywords
– Include at least six keywords that address what is presented in the case report (e.g., population, diagnosis, or surgical management). – Include the word “case report” as one of the keywords.
Abstract
– Introduction and relevance: • Describe the most important, what makes it unique or its educational component and its relevance in the surgical literature.
– Case presentation: • It presents clinical and demographic details, as well as the patient's complaints and concerns.
– Clinical findings and approach: • Clinical findings, diagnostic approach, differential diagnoses, and subsequent diagnoses.
– Interventions and results: • Describe the analysis performed to arrive at that management and describe the end result.
– Relevance and implications: • Describe the lesson learned from this presentation and the potential implications for clinical practice (minimum three).
Introduction
Background: - Brief description of the area of focus and background relevant to the case. Rationale: - Describe why this case is different and why it is important to report it. - Is the case rare or interesting because it occurs in a specific health center, population, or country, or is it applicable globally? Guides and literature: - Make reference to the most current surgical literature, as well as standardized guidelines for current management.
Patient information
– Demographic details: • Include patient demographic details (e.g., age, sex, ethnicity, occupation). • If possible, add relevant information (e.g., body mass index, dominant hand, income, education level, marital status).
– Presentation: • Describe the patient's complaint. • Include the relevant medical history. • Describe the means of presentation to the service (e.g., self-presentation, ambulance or referred by family or institution).
– Medical and surgical history: • Include relevant background information and results.
– History of medication use and allergies: • Specify current and previous medications the patient is taking or has taken. • Include allergies and adverse drug effects.
– Family history: • Relevant information on first-degree relatives and potentially hereditary conditions.
– Social background: • History of smoking, alcoholism, or drug addiction. • Degree of social independence, current housing status and housing characteristics.
– Other relevant background information: • Any other relevant information found outside of the directed questioning.
Clinical findings
– Describe the general and relevant clinical findings based on the initial inspection and physical examination.
Schedule
– Relate the sequence of events leading up to the patient's presentation: • Report delays in diagnosis or management. • Use tables or illustrated figures from the timeline if necessary.
Diagnostic approach and interpretation
– Diagnostic support: • Bedside (e.g., urine test, electrocardiogram, echocardiogram).

(Continues)

Table 1. SCARE Guide. (Retrieved from: Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A. The SCARE 2020 Guideline: updating Consensus Surgical Case report (SCARE) guidelines. Int J Surg. 2020;84:226-30) (continued)

- Laboratory (e.g., biochemical, hematological, immunological, microbiological, histopathological).
- Imaging (e.g., ultrasound, radiography, computed tomography, magnetic resonance imaging, positron emission tomography).
- Invasive (e.g., endoscopy, biopsy).
- Diagnostic difficulties:
 - Report whether there were challenges at the time of diagnosis (e.g., access, financial, cultural).
- Diagnostic reasoning:
 - Describe the differential diagnoses, why they were considered and why they were excluded.
- Forecast values:
 - Include if applicable in the case (e.g., tumor stage).

Intervention

- Preoperative optimization of the patient:
 - Lifestyle (e.g., weight loss).
 - Physician (e.g., drug history, treatment of pre-existing medical conditions).
 - Procedures (e.g., enema).
 - Others (e.g., psychological support).
- Surgical interventions:
 - Describe the types of interventions used (e.g., pharmacological, surgical, physiotherapeutic, psychological, preventive).
 - Describe all current treatments (e.g., antibiotic, analgesia, antiemetics, thromboprophylaxis).
 - For medical devices, the model and brand should be mentioned.
- Specific details of the interventions:
 - Describe the reason behind the treatment given, how it was performed and the timing of the intervention.
 - Include details of surgical procedures (e.g., anesthesia, patient position, preparation used, use of special equipment, sutures, surgical stage).
 - Mention the degree of novelty of the surgical technique/equipment (e.g., "the first in humans").
 - For pharmacological therapies, include information on formulation, dosage, route of administration, duration, and strength of effect.
- Details of the operator and the site of the intervention:
 - Where applicable, mention the operator's experience and position on the learning curve, as well as previous training and degree of specialization (e.g., fellow with 3 years of surgical training in laparoscopy).
 - Where the intervention took place (e.g., regional hospital, national medical center).
- Deviation from the initial management plan:
 - Specify whether there were any changes in the planned management and describe why they were decided (e.g., due to delayed intervention).

Follow-up and results

- Specific details of the follow-up:
 - When (e.g., duration of follow-up after discharge, frequency, maximum duration between assessments).
 - Where (e.g., at home via videoconference, first-level, or second-level clinic).
 - How (e.g., telephone consultation, clinical examination, laboratory, or imaging tests).
 - Equipment used for long-term monitoring (e.g., regional lymph node ultrasound for skin cancer).
 - Post-operative instructions (e.g., postoperative medications, physiotherapy, psychological therapy).
- Patient adherence to management and follow-up:
 - When relevant, mention how well the patient followed the recommendations (e.g., avoidance of heavy lifting after abdominal surgery, tolerance to pharmacological agents).
 - Explain how adherence and tolerance were measured.
- Results:
 - The results obtained versus the expected results; refer to the literature on the expected results.
 - When appropriate, include patient-reported measures (e.g., quality of life questionnaires).
- Complications and adverse effects:
 - Precautionary measures to avoid complications (e.g., antibiotic or thromboprophylaxis).
 - All complications and adverse or unexpected effects should be described in detail and ideally categorized according to Clavien-Dindo's classification (e.g., blood loss, length of surgical time, wound complications, re-exploration, or reoperation).
 - Was the complication reported to the national epidemiological surveillance system or to the pharmaceutical company?
 - Report the period of time between the end of the procedure and discharge, and specify if this was as expected (if not, why?).
 - If applicable, specify 30-day postoperative and long-term morbidity and mortality.
- Report if there were no complications or adverse effects.

Discussion

- Strengths:
 - Describe the relevant strengths of the case.
 - Detail multidisciplinary management and its relevance.

(Continues)

Table 1. SCARE Guide. (Retrieved from: Agha RA, Franchi T, Sohrabi C, Mathew G, Kerwan A. The SCARE 2020 Guideline: updating Consensus Surgical Case report (SCARE) guidelines. Int J Surg. 2020;84:226-30) (continued)

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- Weaknesses and limitations:
 - Describe the weaknesses or limitations of the case.
 - For novel techniques or devices, mention all contraindications and alternatives, potential risks and possible complications if applied to a larger population.
 - Relevant literature:
 - Include a discussion of the relevant literature and, if appropriate, similar previously published cases.
 - Describe the implications for clinical practice guidelines and the hypotheses generated.
 - Provide the reasoning for the conclusion of the case.
 - Takeaways:
 - Highlight the key educational points of the case report.
 - Discuss the differences in the diagnostic approach or management with the objective that they can be applied in future similar cases.
-

Patient perspective

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- When appropriate, the patient should be given the opportunity to share their perspective on the interventions they have received (e.g., sharing excerpts from an anonymous interview, with prior consent).
-

Informed consent

-
- Attach evidence of informed consent when necessary, or if requested by the journal.
 - Refer to the consent form at the end of the article (e.g., verbal or written).
 - If there is no patient consent, explain why (e.g., death and consent given by family member). If the patient or family members were not traceable, document the effort made to find them.
-

Additional information

-
- Authorship contributions, acknowledgments, conflicts of interest, sources of financing, institutional registration, acceptance by the ethics committee.
 - State whether it has been previously presented at a conference or regional meeting.
-

Clinical images and videos

-
- When available and relevant to the case, include images that help demonstrate the clinical status before, during and after the intervention (e.g., radiologic, histological, patient photographs, intraoperative images).
 - Where relevant, include a link (e.g., Google Drive, YouTube) leading to the narrative video with key points of the technique or surgical findings.
 - Ensure that all attachments are properly identified and easy to interpret.
-

Refer the use of SCARE guidelines

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- Include the reference to the SCARE 2020 guidelines using the following statement: “This case report has been reported according to SCARE criteria [attach citation]” at the end of the introduction.
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because in most cases they are published to add volume to a personal *curriculum vitae* with no intention of expanding scientific knowledge. This results in case reports not being cited and, therefore, journals reject this type of work in order to protect their impact factor, which has significantly demeaned this type of work²⁴.

Conclusions

The case report is a type of scientific publication that, despite the positioning of evidence-based medicine, still has great educational, clinical, and scientific value in the training of general surgeons. These types of studies are excellent and vital in surgical training, since a good surgeon is the result of a well-coordinated effort of educational processes, integrated not only in teaching-learning systems, but also in a constant update in the

scientific field throughout their professional life. Reflecting on effective case reports and their application in daily clinical and surgical practice would represent a better level of care for our community. It is important to remember that each case report has a characteristic for which it is published, and based on this unique condition, it should generate a message with educational value for the reader and, in addition, it should generate a hypothesis or raise concerns to be subsequently studied by more complex methods.

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Protection of people and animals. The authors declare that no experiments were carried out on humans or animals for this research.

Data confidentiality. The authors state that the use of patient data was not required for this investigation.

Right to privacy and informed consent. The authors state that the use of informed consent was not required for this research since no patients were involved in this study.

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