

7.0 The Clinical Case Report

7.1 What is a case report?

A traditional case report is a brief story of the diagnosis and treatment of a patient with an unusual condition. It focuses on some phenomenon that is rare (or new) and worth knowing. It is often accompanied by photos or figures that give readers the chance to make their own decisions about whether the diagnosis was correct.

Example of a brief case report:

A 42-year-old man was blown 4–5m by the explosion of a lorry tyre [American English: truck tire] that he had cut with a knife. He complained of a small amount of blood on his gums from lacerations 4–5 cm long at the base of the gums bilaterally.

The injuries were probably caused by the 'blast' of the exploding tyre filling his mouth and forcing his cheek away from the gums. We explored the wounds and found full-thickness mucosal lacerations involving the muscle, which were sutured.

Injuries caused by exploding tyres can be classified as direct injuries caused by metal rim fragments, and barotrauma as a result of high pressures

damaging tissues, often in the head and face (as in this case). A range of injuries caused by fragments of the rim have been documented including maxillofacial injuries, long bone fractures and catastrophic head injury. Barotrauma can cause tympanic perforation and eye injury, as well as the more severe documented injuries including oesophageal rupture and pneumomediastinum.

This patient was lucky to escape more serious injury and his case highlights the dangers of pressurised tyres and presumed 'minor' explosions. It also emphasises the need for thorough examination in the accident and emergency department.

Edward John Hannon. (2007) *British Journal of Oral and Maxillofacial Surgery*, 45, 189.

7.1.1 What makes case reports different from other types of journal articles?

1. Length
2. Rarity or novelty
3. Unlike a report on a study, there is no method or experimental results (other than any clinical tests for diagnosis).
4. Unlike a review of cases, not every article on the issue has to be cited (although articles on very similar cases should all be identified and read, and sometimes cited).
5. A case report tells the story of a practitioner's work, including actions and thoughts.
6. Case reports have existed for thousands of years, and across a wide variety of cultures.

7.1.2 Who should write case reports?

Practitioners should write them! Only those who spend their time with patients have the opportunity to observe interesting and unusual cases. This includes many people who don't usually write other kinds of articles for publication. Even if you think, "I am not a researcher," you should still occasionally write clinical case reports.

7.1.3 Why are case reports important?

According to Cohen, case reports have several key functions. Among them:

1. They can draw our attention to as yet unknown diseases.
2. They can identify adverse effects of drugs that were not caught during clinical trials, or effects on groups not tested in trials (such as children or pregnant women).
3. They can describe new surgical or other treatment methods.
4. They can describe interesting errors, device malfunctions, or patient difficulties with adherence, so that the medical community can try to solve these problems.

Example case report

The following example describes the health problems of a patient after having a particular device (the DES) implanted in a coronary artery. The DES is better than previous devices in some ways. However, because of this patient's health problems, the author is questioning whether the DES is safe. The case report is divided into sections to demonstrate its structure.

	<p>Letter to the Editor: In-stent thrombosis after discontinuation of antiplatelet therapy 2 years after DES implantation: A case report</p>
Background information	<p>To the Editor:</p> <p>The recent introduction of drug-eluting stents (DES) has revolutionized the percutaneous treatment of coronary artery disease. In fact, the local release of antiproliferative drug has significantly reduced the incidence of in-stent restenosis [1,2].</p>
Statement of the problem	<p>However, despite large randomized trials have been conducted on DES, several concerns have emerged on their long-term safety profile. In fact, due to the delayed re-endothelization, the benefits in terms of restenosis might be seriously threatened and counterbalanced by a higher risk of in-stent thrombosis, particularly after discontinuation of oral antiplatelet therapy.</p>
Main topic	<p>We describe a case of a patient transferred to our hospital for anterior STEMI.</p>
Patient history	<p>Two years before hospitalization he underwent PCI of LAD with multiple DES implantation (Cypher® stent (Cordis/Johnson & Johnson, USA) 3.0– 18 mm in the proximal segment, and TAXUS®Liberté™ stent (Boston Scientific, USA) 2.5–20 mm in the mid segment). Double antiplatelet therapy was stopped 1 year after the procedure. He reported discontinuation of aspirin, due to epigastric burning, 7 days before hospital admission.</p>
Test results Diagnosis	<p>Coronary angiography showed a thrombotic occlusion located at the proximal edge of the TAXUS stent (black arrow, Fig. 1A).</p>
Treatment	<p>After crossing the occlusion with 0.014 wire, TIMI 3 flow was restored, showing diffuse in-stent thrombosis (black arrow, Fig. 1B). After initial balloon inflation, an additional bare metal stent was implanted (Liberté 2.5–20 mm) proximally to the TAXUS stent to cover a residual dissection.</p>
Patient outcome	<p>TIMI 3 flow was restored, without evidence of distal embolization (Fig. 1C). Echocardiographic examination showed a large apical akinesia with a large enzymatic infarct size (peak CK of 3500 U/L, and peak CKMB of 452 U/L). The patient was discharged 4 days after the procedure without any postprocedural complication.</p>
Connection to the literature	<p>This case report further supports recent concerns [that have] emerged [about] the new disease (“late in-stent thrombosis”) after the introduction of DES [3–5].</p>
Clinical application	<p>All interventional cardiologists must be aware of the long-term dependence of patients from antiplatelet therapy even longer than 1 year after DES implantation. We should seriously reconsider the concept that a “benign restenosis” [is] not worth a “malignant in-stent thrombosis”.</p>

De Luca G, Carbone G, Maione A, Gregorio G. (2007) *International Journal of Cardiology*, 116, 399–400.

7.3.1 What should be included in the main section of the case report?

Here's a simple list of recommended parts of a case report. This list was written as a guide for medical students writing case reports for medical school (Kogan & Shea, 2003), but the same components could be used in a published case report.

History

- chief complaint
- chronological history
- symptom characterisation
- pertinent positives/negatives
- past medical history
- family/social history
- review of systems

Physical examination

- patient description
- pertinent positive/negative examination findings

Assessment

- summary statement
- problem list
- differential diagnosis with clinical reasoning
- diagnostic/therapeutic plan

Kogan JR and Shea JA. (2003). An assessment measure to evaluate case write-ups in a medicine core clerkship. *Med Educ.* 37(11):1035-6.

Content That Should Not Be Included

(Cohen, 2006)

According to Cohen, the following should NOT be included in a case report:

1. Information that may identify the patient:
 - A. Initials, date of birth (year is enough)
 - B. Specific dates, e.g., hospital admission date
 - C. Also, blackout identifying features in photos
2. Routine information that does not contribute to the diagnosis
 - A. Daily vital signs
 - B. Transfer from one hospital department to another
3. Extensive literature review
 - A. Don't include exhaustive review of normal cases
 - B. Do include review of all similar (unusual) cases
 - C. Do include selective review of cases that can be contrasted with yours

Content That Should Be Included

(Cohen, 2006)

Almost all case reports should include enough information for readers to make their own diagnosis. For example, if a patient presents with a skin problem after taking a particular medication, the reader may wonder whether the skin problem actually had another cause, such as a food allergy or exposure to a chemical at work. Therefore, include the following information:

1. Patient history
2. Drug allergies and use, including traditional and non-prescription medicine
3. Occupation, diet, and other information (when cause of condition is unknown)
4. Photos and other figures presenting the most interesting results of physical examination

- and lab tests
5. Limitations of the clinical assessment

In addition, as in all biomedical research reports, the text should mention that the patient has given consent for photos and other data to be published.

7.3.2 Variations of a traditional case report

Besides the basic report on a single patient, there may be many possible variations of a case study. In the following abstract from a longer case study, two cases are presented. The goal is to compare very mild and very severe cases of the same condition, and compare their treatments and outcomes. The abstract describes how the disease complicated each woman's experience with childbirth. I have underlined key points.

SUMMARY. Charcot-Marie-Tooth disease is a rare hereditary motor and sensory demyelinating polyneuropathy with potentially severe and debilitating peripheral symptoms. Respiratory muscles and vertebral anatomy can be affected, both of which may have significant impact on any planned or unplanned anaesthetic intervention during labour. We describe two cases at opposite ends of a wide spectrum of disease severity. The first case illustrates an approach to the management of a mildly affected patient who was permitted to labour normally, but nevertheless needed a detailed antenatal plan in order to allay

her anxiety and prepare for potentially complicated labour analgesia and operative delivery. Spontaneous delivery of a healthy infant did not require anaesthetic intervention during labour. The second woman had severe scoliosis and marked respiratory impairment and required non-invasive ventilatory support for one week before scheduled caesarean section. A single-shot spinal anaesthetic was used as a spinal catheter could not be sited. This produced a high block for which a brief period of respiratory assistance was required. Perioperative management and subsequent high dependency care are discussed.

J. J. Greenwood, W. E. Scott. (2007) Charcot-Marie-Tooth disease: peripartum management of two contrasting clinical cases. *International Journal of Obstetric Anesthesia*, 16, 149–154.

7.4 Choosing a Topic for a Case Report

(excerpted from Cohen, 2006)

In addition to contrasting two cases, there are many other variations of case reports. Cohen has provided a list of topic ideas. Although a few are specific to the field of pharmacy, most are relevant to all clinicians.

According to Cohen, "Publishable patient case reports include cases that:

- Advance medical science and spawn research;
- Describe rare, perplexing, or novel diagnostic features of a disease state;
- Report therapeutic challenges, controversies, or dilemmas;
- Describe a new surgical procedure;
- Report how a drug can enhance a surgical procedure;
- Teach humanistic lessons to the health care professional;
- Review a unique job description of a health care professional that improves patient care;
- Report new medical errors or medication errors;
- Discover a device malfunction that results in patient harm;
- Describe adverse effects and patient toxicity of a radiopaque agent;
- Describe life-threatening adverse events;
- Describe dangerous and predictable adverse effects that are poorly appreciated and rarely recognized;
- Describe rare or novel adverse drug reactions;
- Describe a therapeutic failure or a lack of therapeutic efficacy;
- Describe rare or novel drug–drug, drug–food, or drug–nutrient interactions;
- Report unlabeled or unapproved uses of a medication;
- Explore the use of pharmacogenomics to manage diseases;
- Use life-saving techniques not previously documented;
- Use pharmacoeconomic principles that improve patient care;
- Uncover barriers to patient adherence;
- Discover an interaction between a drug and a

laboratory test that yields a false-positive or false-negative result;
• Describe the effect of drugs in pregnancy and lactation;

- Detect novel pharmacokinetic or pharmacodynamic principles; and
- Use technology to improve patient outcomes.”

Cohen, H. (2006). How to write a patient case report. *Am J Health-Syst Pharm.* 63,1888-92.

Tip

Steps to publishing a case report (adapted from Brodell, 2000)

1. A patient with an interesting condition presents to your practice.
2. Identify a "take-home" message or teaching point from the case. Why is this case important?
3. Choose a journal appropriate for publishing the case report.
4. Obtain the journal's "guidelines for authors."
5. Enlist a colleague to help share the workload.
6. Perform a literature search of journals, textbooks, and electronic media.
7. Compile all source articles in a file.
8. Write up the case and discussion in the required format using citations to identify sources of information.
9. Email or upload your manuscript with cover letter to the journal.
10. Obtain reviewers' comments and advice for revision.
11. Revise paper using reviewers' comments.
12. If the article is not accepted by the journal, submit article to a second journal.

Brodell, RT. (2000). Do more than discuss that unusual case. Write it up! *Postgraduate Medicine*, 108(2).