

# The history of the case report: a selective review

Trygve Nissen<sup>1,2</sup> and Rolf Wynn<sup>1,3</sup>

<sup>1</sup>Department of Clinical Medicine, University of Tromsø, N-9038 Tromsø, Norway

<sup>2</sup>Division of General Psychiatry, University Hospital of North Norway, N-9291 Tromsø, Norway

<sup>3</sup>Division of Addictions and Specialized Psychiatry, University Hospital of North Norway, N-9291 Tromsø, Norway

**Corresponding author:** Rolf Wynn. Email: rolf.wynn@gmail.com

## Summary

The clinical case report is a popular genre in medical writing. While authors and editors have debated the justification for the clinical case report, few have attempted to examine the long history of this genre in medical literature. By reviewing selected literature and presenting and discussing excerpts of clinical case reports from Egyptian antiquity to the 20th century, we illustrate the presence of the genre in medical science and how its form developed. Central features of the clinical case report in different time periods are discussed, including its main components, structure, style and author presence.

## Keywords

clinical case report, Galen, genre, Hippocrates, medical history

## Background

Medical writing comes in various forms.<sup>1</sup> The clinical case report has for millennia been a hard-wearing species among the different genres in medical literature. In the second half of the 20th century its significance as a type of research article was downgraded due to new and more advanced methods of medical research. It was given a low ranking on the evidence hierarchy. Some feared its extinction.<sup>2</sup> However, it still seems to be thriving.<sup>3</sup> An understanding of medicine can be enhanced by studying its history. The aim of this study is to describe the development and some of the vicissitudes of the clinical case report genre in a historical perspective, from Egyptian antiquity to the 20th century.

## Methods

PubMed and Google Scholar were searched using the terms ‘medical/clinical case report/s’, ‘medical/clinical case series report/s’, ‘case study/-ies’, in combination with ‘history of medicine’, ‘medical history’, the designation of the various historical ages (‘Greek antiquity’, ‘The Middle Ages’, ‘Medieval’, etc.), ‘anecdotal’, ‘review’. We identified further references from

those found in the relevant electronic searches. Also, some textbooks of medical history and electronic internet-based library compilations of original medical writings (e.g. Hippocrates, Galen) were consulted.

Finally, we did a subjective selection of sources before structuring and writing this review.

## Select illustrative cases

Probably the oldest example of preserved medical literature containing clinical cases is a text from an Egyptian antiquity papyrus.<sup>4</sup> The Edwin Smith Papyrus dates from the 16th to 17th dynasty, circa 1600 BC, but was probably rewritten from texts some centuries before that time. Among these there are 48 cases discussing injuries or disorders of the head and upper torso. In the title of each of them there is a word that denotes ‘knowledge gained from practical experience’. These are not individual case histories but typical ones. One of the cases reads as follows:<sup>4</sup>

### CASE 25. A DISLOCATED JAWBONE (9, 2–6) TITLE

Practices for a dislocation in his jaw.

### EXAMINATION AND PROGNOSIS

If you treat a man with a dislocation in his jaw, and you find his mouth open and unable to close, you have to put your thumb under the end of the rami of the jaw inside his mouth, with your two forefingers under his chin. Then you push them into their place. Then you say about him: “One who has a dislocation of his jaw: an ailment I will handle.”

### TREATMENT

You have to bandage him with alum and honey every day until he gets well.

Excerpted from *The Art of Medicine in Egypt*.

Copyright © 2005 by The Metropolitan Museum of Art. New York. Reprinted by permission.

Apart from the bandaging with alum and honey, this is in essence the same maneuver that a skilled doctor will employ today. Physicians were trained in both

practical medicine as in the above example and in magic.<sup>4</sup> Various magical spells were used against non-surgical conditions, including mental disorders.<sup>4</sup>

From the Hippocratic Corpus, probably written around 400 BC, we have several case histories from *Of the Epidemic*.<sup>5</sup> These were mainly concerned with physical diseases although the author was not ignorant as to the mental aspects of the patients' illnesses. This was nicely illustrated in this case from Book 2 in the *Epidemics*:<sup>5</sup>

Case i. In Thasus, a woman, of a melancholic turn of mind, from some accidental cause of sorrow, while still going about, became affected with loss of sleep, aversion to food, and had thirst and nausea. She lived near the Pylates, upon the Plain. On the first, at the commencement of night, frights, much talking, despondency, slight fever; in the morning, frequent spasms, and when they ceased, she was incoherent and talked obscurely; pains frequent, great and continued. On the second, in the same state; had no sleep; fever more acute. On the third, the spasms left her; but coma, and disposition to sleep, and again awaked, started up, and could not contain herself; much incoherence; acute fever; on that night a copious sweat all over; apyrexia, slept, quite collected; had a crisis. About the third day, the urine black, thin, substances floating in it generally round, did not fall to the bottom; about the crisis a copious menstruation.

Reprinted with permission from the Internet Classics Archive.

We have not found in the literature any clear indication of which contemporary diagnosis matches the case here described by Hippocrates. The Hippocratic case histories, assumed to have been written by Hippocratic physicians, were retrospective accounts emphasizing accurate descriptions of only clinically relevant findings.<sup>6</sup> There was a chronological sequence with meticulous documentation of time intervals between changes in the clinical status, e.g. the frequently occurring crises.<sup>6</sup> The physician-narrator most often had the role of observer not participating in the story.<sup>6</sup> The aetiology of the diseases was not believed to be supernatural (i.e. due to demonological or divine forces). The hallmark of the case histories was their focus on an objective description of findings and observation of the course. Both mental and physical findings were described, although with less emphasis on the former. The patient's own version of his complaints was for the most part absent.

From the second century AD, we have the Galenic case reports. Claudius Galen (129–circa 200 AD)

wrote extensively and his texts are preserved for posterity. What appeared to be new in his writings is a more conversational tone.<sup>6</sup> Galen places himself in the text in the first person, being an active agent in the case description.<sup>7</sup> In an illustrative case history from *On Prognosis*,<sup>8</sup> Galen describes how he was summoned to examine a woman who had problems with sleeplessness. Having found that the woman did not have a fever, he then 'made a detailed inquiry into everything that had happened to her, especially such factors as we know to cause insomnia'. Galen concluded that she suffered from either 'a melancholy dependent on black bile, or else trouble about something she was unwilling to confess'.

Galen has been credited for not being anonymous in his case reports.<sup>6</sup> Actually, he is very much present, describing his working day, his doubts, his tentative diagnoses and his interaction with other physicians as the disease unfolds.<sup>6</sup> As pointed out by Brian Hurwitz,<sup>6</sup> he does not shy away from presenting his autobiographic case history when he on one occasion had abdominal pain.

In the Western Middle Ages clinical medicine lay dormant. Islamic medicine seemed to prosper with an efflorescence of medical literature. Apart from Avicenna's (980–1037 AD) contributions that were mainly theoretical, Rhazes (865–929 AD), whose full name was Abu Bakr Muhamed Ibn Zakariya al-Razi, left a large collection of case reports.<sup>7</sup> Nizar Souayah and Jeffrey I. Greenstein<sup>9</sup> have translated one of the cases in Rhazes' 25-volume medical encyclopedia *Kitab al-Hawi*, or *Liber Continens*, from Arabic to English. A man who had fallen from his horse and injured his neck lost sensation in his two and a half ulnar fingers. This clinical sign led Rhazes to locate the lesion to the 'nerve located after the seventh vertebra' (i.e. the eighth and last cervical nerve) as 'the last cervical nerve innervates the little finger, the ring finger including the cutaneous area surrounding them as well as half of the skin covering the middle finger'.

This short report is very similar to the case histories of both Hippocrates and Galen as concerns the astute clinical observations. The inference from clinical signs to topical lesion is impressive. A contemporary neurologist could hardly have done better.

Taking a great leap forward in time, Hurwitz<sup>6</sup> demonstrates how the case report in the 17th and 18th centuries still adheres to the conversational tone of the Galenic case reports, but puts even more emphasis on patients' subjective experiences (p.236). Furthermore, physician-authors now 'employ dramatic devices to delay the moment of diagnosis or the outcome of a story, in order to heighten narrative tension and degrees of physician

involvement with suffering subjects'.<sup>6</sup> Case titles are more appealing. To exemplify: 'A Girl, three Years old, who remained a quarter of an Hour under Water without drowning' appeared as a case report in *Philosophical Transactions* in 1739.<sup>6</sup> *The Royal Society of London for the Improvement of Natural Knowledge* had pointed to the importance of plain speech fearing that the linguistic trend could be a threat 'to the reporting of scientific observations'.<sup>6</sup>

In the 19th century the texts became more sober with fewer literary and dramatic devices. Case reports dealt less with the patients' subjective accounts of their illnesses. The focus was on clinical findings that were described in technical terms. Authors used various distancing devices. They avoided descriptions of patients' responses and common-sense evaluative expressions that were felt to be 'unscientific'. The texts were organized into sections, e.g. demographic details of the patient, outline of clinical course of events and finally a presentation of autopsy findings. Medical terminology became more prominent. A case of myxedema described by Sir William Whitey Gull (1816–1890) shows some of these features:<sup>10</sup>

Miss B., after the cessation of the catamenial period, became insensibly more and more languid, with general increase in bulk. This change went on from year to year, her face altered from oval to round, much like the full moon rising. With a complexion soft and fair, the skin presenting a peculiarly smooth and fine texture was almost porcelainous in aspect, the cheeks tinted of a delicate rose-purple, the cellular tissue under the eyes being loose and folded, and that under the jaws and in the neck becomes heavy, thickened, and folded. The lips large and of a rose-purple, alae nasi thick, cornea and pupil of the eyes normal ... (...) The tongue broad and thick, voice guttural, and the pronunciation as if the tongue were too large for the mouth (cretionoid). (...) Urine normal. Heart's action and sounds normal. Pulse, 72; breathing, 18.

Such is a general outline of the state to which I wish to call attention. (...)

Excerpted from *Source Book of Medical History*.

Copyright © 1942 by Dover Publications.

Reprinted by permission.

## The sociocultural context

The presented excerpts of old case reports were carefully selected to give a glimpse of the art of medicine at key historical moments. Ancient Egyptian medicine is illustrative of a civilization where 'medicine was organized hierarchically, with practitioners

working under a chief of physicians'.<sup>4</sup> Some disorders had observable, objective causes while others had supernatural causes. The interventions – to fit with this medical model – often combined the practical (as in treating injuries) with the magical (e.g. by magical spells and prayers). Thus, the physician in ancient Egypt had to be both a medical doctor and a priest.

In what way was Hippocratic medicine different? In Ancient Greek society, medicine and philosophy were closely related domains.<sup>11</sup> The Greek society, not being dominated by a priesthood protecting dogmas, was conducive to the acquisition of empirical knowledge. It was a climate for competition among various contributors to new ideas and observations. As already mentioned, diseases were not caused by supernatural forces. Diseases were thought of as part of nature and thus had natural causes. Nature was both the cause of and 'healer' of diseases. The physician's role was to a large extent to help nature do its job. This explains, partly at least, the conservative, non-interventionist, approach to most medical conditions.

The case histories and the clinical experience gained from clinical work contributed to the generalizations formulated in the Hippocratic Corpus. The *Aphorisms*, being a part of the Corpus, is a fascinating and – today – entertaining compilation of these generalizations formulated as short statements about both physical and mental disorders. Few of them reflect current medical knowledge, e.g. aphorism no. 21 from *Aphorisms*, Section VI: 'In maniacal affections, if varices or hemorrhoids come on, they remove the mania'.<sup>12</sup> There are, however, some aphorisms that are not that far fetched judged by today's standards. This is exemplified by aphorism no. 23 from the same section of *Aphorisms*: 'Si metus et tristitia multo tempore perseverant, melancholicum hoc ipsum'<sup>13</sup> or in English 'If a fright or despondency lasts for a long time, it is a melancholic condition'.<sup>12</sup>

Galen practised in Rome in the second century AD, i.e. six centuries after the Hippocratic school's achievements in Greece. Galen elaborated on the Hippocratic Corpus. According to medical historian Vivian Nutton,<sup>14</sup> he was a follower of Hippocratic medicine (the humoral theory) (p.234), but added significantly, especially with clinical, anatomical and physiological knowledge.<sup>15</sup> Brock<sup>15</sup> depicts him as an 'encyclopaedist, in whose works we may find the essentials of the whole development of medicine from the times of Hippocrates to his own. (...) The finished product was Greek medicine *à la* Galen, which thereafter held undisputed sway in the medical world for over twelve centuries' (pp.24–25).

Advancement of medical knowledge seemed to stagnate during the Middle Ages in Europe, partly

due to the negative attitude of the Catholic Church to autopsies and dissections of the human body. Medieval Islamic medicine took the lead, so to speak. A large amount of Arabic medical literature, both treatises and collections of case histories, has been preserved.<sup>7</sup> Both Avicenna (Ibn Sina) and Rhazes were prolific writers.<sup>9,16</sup> The medical historian Cristina Álvarez Millán<sup>16</sup> has pointed to a discrepancy between the advocated practice in theoretical texts and the physicians' actual medical performance as described in their case histories (p.306). Although it is tempting to assume that the more valid information can be found in the case histories and not in the theoretical treatises, we cannot be sure. Case histories, as part of medical texts, obviously served several purposes. First, they were saved as the physicians' private collection of experiences. Second, they were didactic tools for students and physicians.<sup>17</sup> Third, they represented part of the medical knowledge-base of their historical era. And last, but not least, medical literature could be valuable as tools for self-assertion and promotion.<sup>17</sup> Also worth mentioning, the ruling elite funded learned medical literature as this could be used for political propaganda.<sup>17</sup> Despite the advances, Medieval Islamic medicine was essentially an elaboration of Greco-Roman medicine and has thus been labeled 'Arabized Galenism'.<sup>16</sup>

During the Renaissance and the Enlightenment in Europe, medicine regained momentum. Autopsies and dissections of the human body were gradually allowed.<sup>18</sup> This led to major achievements in the study of anatomy and physiology. Case reports now often included findings from the autopsies.<sup>18</sup> A text analysis of older volumes of the *Edinburgh Medical Journal* from 1735 to 1985 found that by the end of the 18th century (more precisely 1775) the case narratives had become conventionalized according to the content structure shown below.<sup>19</sup>

1. GENERAL PATIENT INFORMATION (+ COMPLAINT STATEMENT): (name), sex, (age), occupation/socioeconomic status, (body build or physical constitution), (immediate complaints)
2. (PAST HISTORY/ORIGIN-OF-COMPLAINTS DISCUSSION – usually occurs prior to point in narrative where author is called to see patient)
3. DETAILS OF AUTHOR'S ORIGINAL EXAMINATION OF PATIENT
4. INITIAL TREATMENT REGIMEN AND ITS IMMEDIATE EFFECTS
5. (SECOND TREATMENT REGIMEN AND EFFECTS – when initial treatment had no, or negative, effects, or there were unexpected complications)
6. SUBSEQUENT COURSE OF ILLNESS/CONDITION – often given in short or minimal paragraphs with date headings
7. MINIMAL NOTICE OF OUTCOME OF ILLNESS/CONDITION.
 

Excerpted from *The evolution of medical research writing from 1735 to 1985: The case of the Edinburgh Medical Journal. Applied Linguistics.* Copyright © 1992 by Oxford University Press. Reprinted by permission.

The parentheses were optional elements.

In the 18th century the most common medical article in the *Edinburgh Medical Journal* was the case report, 'the one genre of medical research writing which has been the common stock-in-trade of doctors over the centuries', according to Atkinson.<sup>19</sup>

During the 19th century, i.e. from 1820 onwards, case reports became more organized into sections, often with an emphasis on pathological anatomy and at the end a 'Remarks' section.

At the end of the 19th century, Sigmund Freud started authoring extended case histories based on the selected patients being treated in his private practice. These case studies deviated from the traditional medical case reports in several ways. They were long and elaborate descriptions of the course of the psychoanalytic treatment with his reflections and hypotheses interwoven with the patients' accounts of their suffering and the psychoanalytic dialogue. *Studies on Hysteria*, written in collaboration with his colleague Joseph Breuer was published in 1895.<sup>20</sup> Freud revealed self-doubt and anticipated critique before the publication of the case studies. In discussing the last case, referred to as Fräulein Elisabeth von R., he confessed: 'it still strikes me myself as strange that the case histories I write should read like short stories and that, as one might say, they lack the serious stamp of science'.<sup>20</sup> Although liable to criticism of many kinds, Freud's case studies, in combination with his theoretical contributions, were foundational for the development of psychoanalytic theory and practice, which again had a major impact not only on medicine and psychology but also on Western society and culture in general.

Furthermore, Freud's case studies, with their literary style, prepared the field again for the inclusion of the narrative, both with regard to form and content. In the following quote from *Doctors' Stories*, Kathryn Montgomery Hunter described not only S. Freud's narratives but also those of A. R. Luria and O. Sachs: 'They were conceived as antidotes and supplements to the standard case history so as to embody the authors' enrichment and extension of their medical fields'.<sup>21</sup> However, the general trend of the

standard medical case report in the 20th century was towards neutralization of the authors and conventionalization of the textural structure.<sup>22</sup> According to the convention, the report starts with an introduction (usually without a heading), followed by the ‘case report’ and the ‘discussion’ sections. This standardization seemed to be an equivalent to the development of the IMRAD-norm for the quantitative research articles.<sup>23</sup>

Despite losing its central position in medical journals in the 20th century the case report still appears to be viable and necessary in the medical community.<sup>3</sup>

#### Declarations

**Competing interests:** None declared

**Funding:** None declared

**Ethical approval:** Not applicable

**Guarantor:** TN

**Contributorship:** Both authors contributed to the conception, writing and revision of the paper.

**Provenance:** Not commissioned; peer-reviewed by Cristina Álvarez Millán

**Acknowledgements:** We thank the publishers for granting permission to quote the longer excerpts.

#### References

- Dib EG, Kidd MR and Saltman DC. Case reports and the fight against cancer [Editorial]. *J Med Case Rep* 2008; 2: 39.
- Mason RA. The case report – an endangered species? [Editorial]. *Anesthesia* 2001; 56: 99–102.
- Nissen T and Wynn R. The recent history of the clinical case report: a narrative review. *J R Soc Med Short Rep* 2012; 3: 87.
- Allen JP. *The art of medicine in ancient Egypt. The Metropolitan Museum of Art, New York*. New Haven and London: Yale University Press, 2005.
- The Internet Classics Archive, <http://classics.mit.edu/Hippocrates/epidemics.2.ii.html> (accessed 26 April 2012).
- Hurwitz B. Form and representation in clinical case reports. *Lit Med* 2006; 24: 216–240.
- Álvarez Millán C. Graeco-Roman case histories and their influence on Medieval Islamic clinical accounts. *Soc Hist Med* 1999; 12: 19–43.
- Galen C. On prognosis. In: Brock AJ (trans.) *Greek medicine*. London: J. M. Dent and Sons [J. M. Dent and Sons is now a division of The Orion Publishing Group], 1929, pp.200–220.
- Souayah N and Greenstein JI. Insights into neurological localization by Rhazes, a medieval Islamic physician. *Neurology* 2005; 65: 125–128.
- Source Book of Medical History*. Compiled with notes by Logan Clendening. New York: Dover Publications, 1942. [Reprinted from the Tr. Clin. Soc. London, 7:180, 1873 by the New Sydenham Society, 1894].
- Eriksen TB. Streiftog i antikkens medisin [Wanderings through ancient medicine]. *Tidsskr Nor Legefor* 1993; 113: 3029–3032.
- The Internet Classics Archive, <http://classics.mit.edu/Hippocrates.apothorisms.html> (accessed 12 June 2012).
- Hippocrates, Verhoofd L and Marks E. *The aphorisms of Hippocrates*. New York: Collins & Co, 1817, <http://www.archive.org/details/aphorismsofhippo00hipp> (accessed 12 June 2012).
- Nutton V. *Ancient medicine*. London: Routledge, 2004.
- Brock AJ. Introduction. In: Brock AJ (trans.) *Greek medicine*. London: J. M. Dent and Sons, 1929, pp.1–34.
- Álvarez Millán C. Practice versus theory: tenth-century case histories from Islamic Middle East. *Soc Hist Med* 2000; 13: 293–306.
- Álvarez Millán C. The case history in medieval Islamic medical literature: *Tajarib* and *Mujarrabat* as source. *Med Hist* 2010; 54: 195–214.
- King LS and Meehan MC. A history of autopsy. A review. *Am J Pathol* 1973; 73: 514–544.
- Atkinson D. The evolution of medical research writing from 1735 to 1985: the case of the Edinburgh Medical Journal. *Appl Linguist* 1992; 13: 337–374.
- Breuer J and Freud S. Studies on hysteria. In: Strachey J, et al. (eds) *The standard edition of the complete psychological works of Sigmund Freud*. Vol 2, London: Hogarth, 1955.
- Hunter KM. *Doctors' stories. The narrative structure of medical knowledge*. Princeton: Princeton University Press, 1991.
- Taavitsainen I and Pahta P. Conventions of professional writing. The medical case report in a historical perspective. *J Engl Linguist* 2000; 28: 60–76.
- Sollaci LB and Pereira MG. The introduction, methods, results, and discussion (IMRAD) structure: a fifty-year survey. *J Med Libr Assoc* 2004; 92: 364–367.