Sentence and Discourse Features of Case Reports From a Stylistic Perspective

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Abstract: A case report is a detailed report of the symptoms, signs, diagnosis, treatment, and follow-up of an individual patient. Belonging to the genre of science and technology, case reports, also as a sort of medical text, possesses its own unique characteristics in terms of style. This article conducts a stylistic analysis of the joint case report (Case 25-2022) published by the University of Washington, Massachusetts General Hospital, and Harvard Medical School in The New England Journal of Medicine, focusing on sentence and discourse characteristics, in order to identify the writing particularities of case reports. Regarding sentences, different sections of case reports project different tendencies in language styles. The section presenting the patient's condition predominantly utilizes active voice sentences, while the examination section and differential diagnosis section mainly employs passive voice sentences. Also, case reports tend to utilize the third-person perspective via objective subject. In terms of discourse, case reports emphasize coherence between preceding and subsequent text, precise professional vocabulary, and accurate tense usage.

Keywords: Case report; Medical English; Stylistic analysis; Genre

1. Introduction

Building a global health community is an essential approach for countries to collaborate in addressing global health issues and safeguarding the health of their populations. Against this backdrop, medical exchanges are increasing internationally, with medical discourse serving as a bridge for international medical communication and cooperation. Clinical practice is an indispensable component of medical process, where physicians, based on patients' clinical presentations, integrate research on the etiology, pathogenesis, and pathological processes to establish diagnoses. Case reports are beneficial for treating similar diseases and are among the reports most closely followed by physicians, pharmacists, and other groups in international medical exchanges.

To built a global community of health for all, publishing clinical medical achievements from various countries overseas is crucial. This places certain requirements on the quality of English case reports. In addition to the academic level of the report itself, whether the presentation conforms to the standards of medical English also determines whether the case report can reach overseas audiences. Therefore, it is crucial to conduct stylistic analyses of case reports with high academic standards and then guide related writing.

2. Sentence Features

According to Halliday (1976), register is "the linguistic features which are typically associated with a configuration of situational features—with particular values of the field, mode and tenor." Therefore, in the register of case reports, the field is characterized by discussing cases, the tenor is to convey information primarily to fellow physicians, and the mode requires scientific precision, logical coherence, and objectivity. Field, tenor, and mode collectively determine the stylistic features of case reports, which primarily manifest in sentence structures: i) a mixture of active and passive voices; ii) a tendency towards the use of third-person perspective. Medical professionals should be mindful of these characteristics when writing, avoiding an informal style or formal yet unsuitable one.

2.1 Simultaneous use of active and passive voice

Generally, in technical English, the passive voice is often preferred. However, technical English itself can be classified into various styles, encompassing multiple registers. Lin Zhengjun (2020: 8) suggests that "the choice of voice in English are constrained by specific registers, and there are differences in the use of voice in different registers." In the register of medical case reports, there is no

apparent preference for the passive voice; instead, different sections of the report exhibit varying tendencies in voice usage.

2.1.1 The section of patient's condition prefers active voice

Case-presentation part primarily involves physicians introducing patient's condition development, past illness history, medication history, and examination results. Among these, the first three belong to patient's condition, where active voice is often employed in case reports.

Example 1: Six weeks before this admission, the patient <u>began</u> to have headaches that were not characteristic of her previous migraines. She <u>described</u> these headaches as discomfort in the middle of her head that was associated with photophobia, phonophobia, and tinnitus. She <u>reported</u> that she was occasionally <u>awakened</u> from sleep because of headache and that the headache was always present on awakening in the morning. The headache was worse with coughing and <u>abated</u> with standing; treatment with ibuprofen did not <u>reduce</u> the discomfort. (NEJM, VOL. 387 NO. 7: P641)

This passage is from the presentation of patient's condition by Dr. Victoria Clark, consisting of four sentences and containing six main verbs (underlined, excluding copular verbs and non-finite verbs). However, only one of these verbs is passive voice. "Narration" serves as a fundamental function of language, and in this part, the primary goal in describing patient's condition development, past illness history, medication history is to efficiently convey essential information to other medical professionals. Using the active voice can make sentences more transparent, concise, and the article clearer. Although this section also demands objectivity and accuracy, these requirements are already met through the selection of vocabulary.

Lin Zhengjun (2020: 9) points out the different cognitive images reflected in active and passive expressions in English, which lead to different connotations. Therefore, the author's varied writing intentions result in a preference for different voice usages. In the presentation of patient's condition, although spoken by a physician, it merely serves as a conduit for the patient's non-professional descriptions. Hence, it is necessary to establish in the reader's mind the cognitive image of that the patient is conveying his/her condition during the consultation. Therefore, in this section, the author tends to use the active voice to emphasize the agent of the action. By repeatedly mentioning the patient, readers are reminded that although this part appears objective and accurate in form, its authenticity still needs to be verified due to the non-professional nature of the action's agent.

2.1.2 The section of examination reports and differential diagnosis prefers passive voice

The section of examination reports and differential diagnosis emphasizes objective facts, differential methods, diagnostic processes, etc. Its content is often explanatory or argumentative, aiming to avoid first or second-person descriptions and subjective impressions. Therefore, in such section, passive voice is frequently employed to highlight the focal points of discussion at the beginning of sentences, showcasing the academic nature of medical English.

Example 2: Once <u>the microbiologic diagnosis</u> was <u>established</u>, <u>empirical treatment with antibiotic agents</u> was <u>discontinued</u>, and <u>treatment with liposomal amphotericin B and flucytosine</u> was <u>initiated</u>. <u>Published clinical data</u> to inform the treatment of chronic candida meningitis are <u>limited</u> to case series, and much of <u>the reported experience</u> <u>involves</u> treatment with amphotericin B. <u>Flucytosine</u> is often <u>added</u> to amphotericin B because <u>it</u> <u>achieves</u> high levels in the CSF and <u>acts</u> synergistically with amphotericin B in vitro. (NEJM, VOL. 387 NO. 7: P647)

This paragraph is from the examination reports of Dr. Allyson K. Bloom's management discussion, including eight main verbs (underlined, excluding copular verbs and other non-finite verbs), with five of them being passive voice. Taking the first sentence as an example, the focus of the sentence is on the specific treatment after diagnosis. The individuals who made the diagnosis and determined the treatment plan are secondary factors. Therefore, the author omits the initiator of the action and instead shifts the focus (double underlined) to be the subject of the sentence, that is, "utilizing grammatical techniques—thematic fronting—to elevate this previously non-theme element to be the theme, and this process we call it as thematization" (Fang Mengzhi, 2011: 82). Then, the author accomplished the task of expressing objectivity in writing.

In contrast to the presentation of patient's condition, the agents of examination reports and differential diagnosis are the author or other relevant physicians. In order to demonstrate their authority and objectivity, it is necessary to downplay the role of agents and thematize recipients. Therefore, in the examination reports and differential diagnosis section, the author often tends to use the passive voice. Meanwhile, the contrasting tendencies in voice usage form a clear distinction in the case report—despite the passive voice lowering or directly omitting the agent, it still, to some extent, indicates the responsibilities of the individuals involved in the actual treatment.

2.2 Impersonal tendency

Lian Shuneng (2010: 118) pointed out that "the passive voice promotes a tendency towards impersonality." In case reports, the use of the passive voice also leads to an impersonal tendency, wherein objects serve as the subject of sentences.

2.2.1 Use of inanimate subjects

One specific manifestation of the impersonal tendency is the widespread use of inanimate subjects. Taking Example 2 as illustration, out of a total of 7 sentences comprising main and subordinate clauses, 6 sentences have subjects represented by inanimate nouns (subjects are double underlined), while 1 sentence has a pronoun as the subject (the pronoun still refers to an inanimate noun). According to Jesperson (1951: 167), using inanimate nouns as subjects implies the author is communicating with readers from an outsider perspective, hiding behind an impersonal style. Consistent with the previous section, by concealing the author's identity and emphasizing the object, inanimate subjects, coupled with the passive voice, collectively distance the text from the reader, presenting an objective and impartial viewpoint.

2.2.2 Nominalization

Another specific manifestation of the impersonal tendency is nominalization, which refers to "the transformation of words into nouns. These nouns can function as nouns themselves and can express the content conveyed by verbs or adjectives. They are often accompanied by modifiers or additional elements, and then form nominalized structures" (Fang Mengzhi, 2011: 65).

The selection of nominalization structures is closely linked to register. Halliday (1985: 91) suggests that the arising tendency towards nominalization in formal writing is because that formal articles tend to perceive experiences and phenomena in the real world as objects, thus preferring the use of nouns. One of the manifestations of the relationship between nominalization structures and register is that nominal phrases increase lexical density. Lexical density refers to the average number of content words in a clause and can be used to distinguish the formality of a register, with higher lexical density indicating greater formality. Yang Xinzhang (1995: 16) proposes that "the reason for the high lexical density in formal registers is the tendency towards nominalization." Medical English, particularly in case reports, is inherently a formal register characterized by high lexical density. Therefore, it naturally employs nominalization structures frequently to convey a large amount of information about experiences and phenomena.

Example 3: In this patient, the placement of a lumbar drain or the performance of a lumbar puncture would not allow for drainage of the lateral cerebral ventricles because the anatomical obstruction of CSF was located at a more distal site. (NEJM, VOL. 387 NO. 7: P647)

In Example 3, abstract nouns are underlined (totaling four instances). These abstract nouns are all verbal nexus-words, derived from verbs (Jespersen, 1951: 136). As case reports often relate to actions, the preference in using abstract nouns leans towards verbal nexus-words rather than predictive nexus-words.

The use of abstract nouns has three effects.

Firstly, it underscores the objectivity of the text. Wei Wei (2015) points out that nominalization is a variant of passive structures, and the passive voice itself is a common way in technical writing to convey objectivity. Apart from this, another reason nominalization appears more objective is that using abstract nouns increases the abstraction of the text, and "the prominent features of logic and rationality are abstraction" (Lian Shuneng, 2010: 160). In Example 3, the four originally concrete actions—place, perform, drain, and obstruct—are all abstracted into noun forms, highlighting the relevant concepts and presenting a tone of objectivity and calmness.

Secondly, it underscores the conciseness of the text. Nominalized structures can omit verbs and tense, succinctly encapsulating the essence of things, making the expression more compact and avoiding repetition. In Example 3, if all nominalized structures were reverted to verbs, the sentence would read as follows: "In this patient, placing a lumbar drain or performing a lumbar puncture would not allow doctors to drain liquid in lateral cerebral ventricles because the place where CSF was obstructed and doctors anatomized was located at a more distal site." Not only does this require the unnecessary inclusion of the action subject "doctors," but it also necessitates the use of a relative clause within the subordinate clause, making the text cumbersome and less conducive to readers obtaining the main information.

Jespersen refers to the syntactic change induced by nominalization structures as "rankshift." This can be illustrated using the adverbial clause in Example 3:

a. Nominalization structure: because the anatomical (III) obstruction (II) of CSF (I) was located at a more distal site

b. Non-nominalization structure: because the place (I) where CSF (II) was obstructed (III) and doctors (II) need (III) to anatomize (IV) was located at a more distal site

Table 1: Rankshift in the Adverbial Clause of Example 3

Sentence a	Sentence b
CSF (I)	CSF (II)
obstruction (II)	obstructed (III)
anatomical (III)	anatomize (IV)

From Table 1, it can be observed that when the CSF in (b) ascends from Rank II position to Rank I position in (a), other constituents also undergo corresponding adjustments in rank. Jespersen (1951: 136) further points out that this nominalization structure "avoids many verbose expressions because it conveys the meaning that would originally require a clause."

Thirdly, it emphasizes important parts. In nominalized structures, noun phrases often appear in the form of "the" + abstract noun + "of" + one or more modifiers, creating a visual background effect. Hei Yuqin (2011: 38) suggests that academic discourse often contains longer sentence structures, and nominalization structures "can serve as a linguistic signal to alert readers to key information or points... reflecting the author's concern for the reader's reading and comprehension needs, as well as interaction with the reader." The four instances of abstract nouns in Example 3 are precisely the main carriers of information in the sentence, making it self-evident and easy to understand at a glance.

3. Discourse Features

Discourse, also known as text, is comprised of a set of interconnected sentences. When writing medical cases in English, authors should pay particular attention to the coherence of their discourse. Unlike Chinese, English is a synthetic language, where cohesion must be made explicit and cannot be hidden within sentences. This section will analyze coherence from three perspectives: vocabulary collocation, sentence connection, and tense.

3.1 Vocabulary collocation

The coherence of vocabulary collocation refers to the connection between words or entities that frequently appear together in language. It involves a series of words or terms that help listeners better understand the speaker's intended message. The following three sentences will serve as an example:

Example 4: Dexamethasone therapy was discontinued, and treatment with intravenous vancomycin and ceftriaxone was initiated. (NEJM, VOL. 387 NO. 7: P644)

Example 5: Treatment with intravenous acetazolamide and oral dexamethasone was initiated. (NEJM, VOL. 387 NO. 7: P644)

Example 6: Once the microbiologic diagnosis was established, empirical treatment with antibiotic agents was discontinued, and treatment with liposomal amphotericin B and flucytosine was initiated. (NEJM, VOL. 387 NO. 7: P647)

Example 4, Example 5, and Example 6 appear in different paragraphs within the case report. It is quite apparent that "treatment/ therapy" and "discontinue/initiate" often occur together. Although there may not be an obvious connection between these verbs initially, they are frequently paired in case reports, particularly in the section on differential diagnosis. This frequent pairing creates an expectation for readers familiar with case reports. This kind of vocabulary collocation forms a network, connects each other in the discourse, and further strengthens the cohesion of the discourse. As Xu Lixin (2001: 29) also points out, "as long as any two words have a connection in the language system and appear adjacent in the discourse, they can play a cohesive role in the coherence of the discourse."

On a broader level, in medical English, such vocabulary collocation is not exclusive to a particular report or paper but is rather a default writing convention across the entire domain of medical English. While these pairs may not be directly related to medical

Table 2: Frequency of Conjunctions in Case-25-2022

Connections	Conjunctions	Frequency	Account
Additive	and	137	3.71%
	also	12	0.33%
	or	16	0.43%
	similarly	1	0.03%
Adversative	but	11	0.3%
	despite	2	0.06%
	however	5	0.14%
	though	1	0.03%
	while	1	0.03%
Causal	therefore	1	0.03%
	consequently	1	0.03%
	thus	1	0.03%
Temporal	when	4	0.12%

terminology, they still form a barrier of professional jargon, reflecting the specialized nature of the text. If authors fail to pay attention to this aspect when writing, they may inadvertently appear less knowledgeable in their field.

3.2 Sentence cohesion

Conjunctions are words that connect words, phrases, and sentences. Halliday and Hassan (1976: 226) propose that these conjunctions do not connect directly through themselves but indirectly through their specific meanings. Conjunctions can be categorized into four types: additive, adversative, causal, and temporal. The frequency of each type of conjunction in this medical case report is as follows:

From Table 1, it is evident that the most commonly used conjunction type in the case report is additive, while adversative, causal, and temporal conjunctions are less frequently employed. The most frequently used word in additive relationships is "and," which serves to coordinate elements in a structure, connecting a series of points contributing to the main topic and providing a certain retrospective effect, thereby offering clues for understanding subsequent words, phrases, or sentences.

3.3 Tense

Wang Dongfeng (2007: 68) points out that in addition to explicit construction through grammatical cohesion, discourse coherence is also implicitly constructed through the inter-sentential tense relationships, completing the discourse function of sentence-to-sentence cohesion in the dimension of time. Each verb with a tense payload not only serves its own semantic function but also acts as a temporal coordinate point within the entire discourse's time axis, connecting with other coordinate points in this axis to form a discourse's temporal cohesive network.

The case report genre is used to objectively describe the patient's condition, depict the examination process, diagnostic analysis, and the patient's status. The discussions and descriptions therein typically possess generality, frequency, and characteristic features. Therefore, in such a genre, the sentence structure is predominantly declarative, and the predicate verbs primarily use the simple present tense. As case reports are typically completed after diagnosis, the main tense used in the text is the simple past tense, while the simple present tense is employed when discussing objective medical facts unrelated to the patient's condition.

Example 7: Given the patient's endoscopic third ventriculostomy success score, which is calculated on the basis of the age of the patient and the cause and type of hydrocephalus, endoscopic third ventriculostomy was determined to be a reasonable first choice as a potential sustainable therapy. (NEJM, VOL. 387 NO. 7: P644)

In this sentence, the standards for the Endoscopic Third Ventriculostomy Success Score are introduced in a non-restrictive relative clause format, which presents an objective medical fact. Hence, the simple present tense is used. The main clause, on the other hand, is used to explain the diagnostic condition at the time to determine whether to perform an endoscopic third ventriculostomy. Therefore, the simple past tense is used.

4. Conclusion

This article uses the Case 25-2022 case report published by NEJM in August as an example to conduct a stylistic analysis and discussion from two perspectives: syntax and discourse. It summarizes some characteristics of writing medical case reports.

At the syntactic level, authors should pay attention to the use of active and passive voice and prioritize the tendency towards impersonality. At the discourse level, authors should focus on connecting preceding and following text, maintain professional vocabulary collocations, and use tenses appropriately.

In addition to syntax and discourse, vocabulary and non-word expression, which are not discussed in this essay, should also be paid attention to: in terms of vocabulary, authors should accurately use terminology and maintain precision, ambiguity-free, and emotionless characteristics when using non-technical terms; and when it comes to non-word expression, even for non-experimental data, numbers in medical texts (such as "2 years") are often presented using Arabic numerals. This primarily serves an identification purpose, facilitating readers in quickly identifying relevant information.

Together, these characteristics contribute to the appropriateness, accuracy, objectivity, logic, coherence, conciseness, and standardization of case reports. Such reports will help disseminate clinical medical achievements from different countries to the global stage.

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