

Google's Ventricular Tachycardia

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ABSTRACT

Wide access to information and images on the internet and social networks has been considered an important source of research and understanding of the most varied clinical pathologies. As a result, the term “doctor Google” was coined to draw attention to the growing interest of the general population in this alternative source of research. The aim of this case report was to emphasize that physicians should be aware of the fact that complementary exams available on the internet can be a confounding factor and a source of information or images that can interfere with the diagnostic analysis and potentially with the clinical management of patients.

KEYWORDS: Diagnostic errors; Medical informatics; Patient participation; Tachycardia, ventricular; Catheter ablation.

INTRODUCTION

The emerging use of the internet for searching health information, commonly referred to as Dr Google, was entering into the picture as an invisible part of the patient's solution strategy.

Medical professionals need to have awareness of misconceptions that interfere with medical decision making and be prepared to actively discuss this during clinical encounters.

The aim of this case report was to emphasize that physicians should know complementary exams available on the internet can be a confounding factor and a source of information or images that can interfere with the diagnostic analysis and potentially with the clinical management of patients.

CASE REPORT

A 41-year-old woman recently underwent atrioventricular (AV) nodal reentry tachycardia catheter ablation and was admitted in an emergency service of another hospital with chest pain, palpitation, and dyspnea. She came to our service after her discharge with a cell phone electrocardiogram (ECG) strap photography showing a wide QRS regular tachycardia, compatible with a left ventricular tachycardia (VT) (Fig. 1a). At this time, she presented a normal physical examination, ECG, and echocardiogram.

Considering the incompatibility between the VT and the patient's clinical profile, a *false* ECG (extracted from the internet) was considered. With a brief search at “Image” section of Google web site using the word “tachycardia”, the

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same ECG record (Fig. 1b) was identified¹. We tried to reassure the patient about her real clinical situation and asked about the origin of the record, without obtaining a proper explanation.

The patient remains asymptomatic after two years of clinical follow-up.

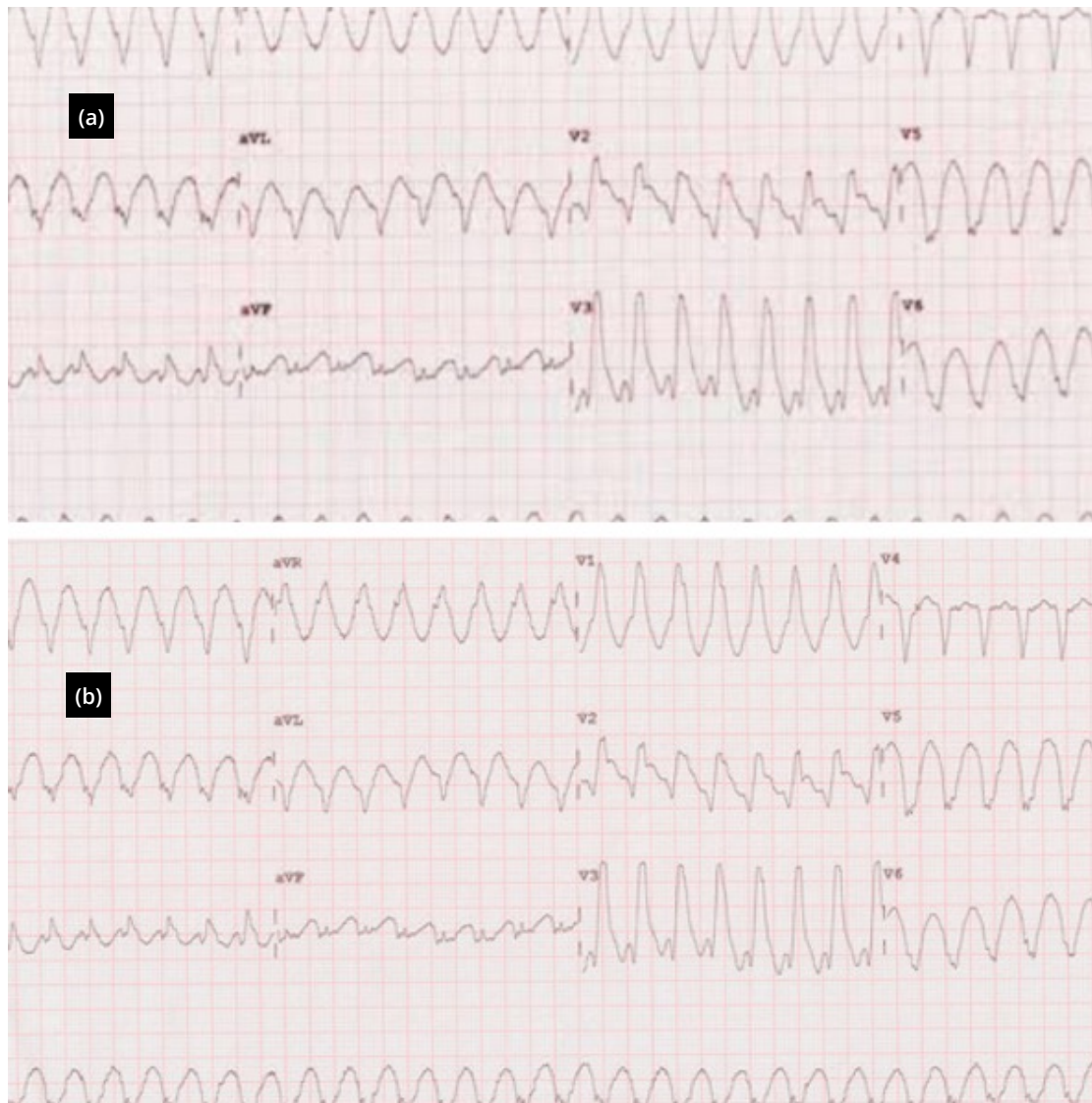


Figure 1 Electrocardiogram tracings. (a) Photo of electrocardiogram on the patient cell phone presented in the emergency department; (b) Photo of tachycardia localized with a brief search at “Image” section of Google web site using the word “tachycardia”.

DISCUSSION

The present case draws attention to how the easy access to web tools full of medical data, including electrocardiographic records, could compromise the diagnosis and clinical management of patients.

The rapid explosion of digital health care data has resulted in more people searching on the internet for topics related to health care, making it a key source for fast and comprehensive information gathering. Scientific contents tailored for lay people can broadly be disseminated using wikis, social networks, and web pages in an effective and affordable approach that overcomes knowledge barriers^{2,3}.

More than five billion people access the internet and health information on the internet has become important in medical care. Patients who use the internet to inform themselves about health are considered “e-patients”^{4,5}.

In this context, “Dr. Google” was entering into the picture as an invisible part of the patient’s solution strategy⁶.

In an era of user involvement, consumer empowerment, and the wide dissemination of information on health and health services, it is important that healthcare professionals identify who the consumers of online health information are, what their information needs are, and understand why and how they seek information online⁷.

This new moment has impacted the relationships between health care consumers and health care professionals over recent decades. From the traditional one-way information transfer approach, education and communication between health care consumers and health care professionals are now a two-way exchange^{8,9}. The real-life scenario is based on the assumption that patients or relatives perform searches before and after clinical consultation, to obtain more information and make their own decision on the therapeutic indication^{2,10}.

At first, we must understand this new scenario as an advance towards shared decision making in the doctor-patient relationship. In fact, the rise in number of patients going online to seek information for the “vital decisions” they make in their lives can be viewed as a positive trend¹¹. What patients find in the unfettered, unregulated environs of the global web, however, will continue to vary in quality and reliability¹¹.

What can we say about what the physician can expect from the information that patients carry when seeking medical care? This case seeks to list a new possibility, suggest greater attention, add a new aspect that increases the complexity of the bilateral handling of information and images available on the internet.

There are many reasons that patients search for health information on the internet, including saving time finding new information, anonymity when obtaining information about diagnoses or symptoms of socially stigmatized conditions, obtaining a better understanding of medical problems, frustration about patient–doctor encounters, seeking a second opinion online, self-empowerment for future encounters, or reading about what has been discussed with the doctor. In addition, social media seems to be important for patients with chronic medical conditions⁵.

Nonetheless, the “Doctor Google” phenomenon has raised concerns about the patient self-diagnosis contributing to misdiagnosis by the physician; disruption of the patient-doctor relationship; increased health anxiety, with very rare malignant diseases frequently linked to banal symptoms; and the exploitative actions of “commerce without conscience”^{3,9,12,13}.

An analysis of the survey form of the non-medical public is that they usually start their quest for online health information with a general search engine rather than visiting a specific health portal and searching from there. Secondly, the keywords used as search terms were found during the reading of the case records; the fact that these records were written by specialists may strongly influence the selection of search terms and thereby the success of the search¹⁰.

In general, these search engines use various algorithms to display results with the top search items often reflecting the most popular sites, or those that have paid to appear at the top of the list³.

In the present case, the use of the “tachycardia” key led to a window with several possibilities, among them the so-called “ventricular” one, in which the first tracing corresponds to the one presented by the patient.

In the context of emergency medicine, previous studies found that among emergency department (ED) patients with internet access estimated rates of internet searches prior to ED presentation varied from 15.1% to more than 50%, and again, the correlation between search and ED diagnosis was poor. When patients did search for a specific diagnosis, only 29% searched for the diagnosis they eventually received¹⁴.

As said before, some researchers have postulated that for individuals with stigmatized conditions, including mental health disorders (e.g., depression and anxiety), the internet may provide a specific advantage as an information source, as it can be accessed anonymously¹³.

Everyone has cognitive biases, which are systematic patterns that deviate from the norm and interfere with their ability to make rational decisions³. In this subgroup of patients, Powell and Clarke propose that “the internet is ranked higher as a source to use than a source to trust”¹⁵.

As early as 1918 dr. Robert Keith expressed his views on this fundamental issue on “case taking”, pointing out that “a patient may give a diagnosis of his own, but you must never accept this without making full examination; on the other hand, you should listen patiently to what he has to say; you should ever be kind and sympathetic if you wish to gain and retain a patient’s confidence”¹².

If physicians and medical professionals are to continue to help patients and parents achieve the best health outcomes, then they will need to evolve. This evolution begins by appreciating the various types of misinformation that impacts medical decision making and developing approaches to address this during individual clinical encounters³.

CONCLUSION

This case draws attention to a new fact in clinical practice, the need to confront the clinical information of the patients, something previously known, added to the possibility of easy access to the registration of complementary exams, in this case an ECG tracing, with the findings likely related to the underlying disease or intervention performed.

CONFLICT OF INTEREST

Nothing to declare.

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Not applicable.

DATA AVAILABILITY STATEMENT

All the data will be available upon request.

AUTHORS' CONTRIBUTION

Conceptualization, Formal Analysis: Elias Neto J; **Methodology, Writing – original draft:** Elias Neto J, Silva MA; **Writing – review & editing:** Elias Neto J, Silva MA.

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