

Authors' contributions

- AG: Wrote and designed the manuscript,
- CC: Made corrections,
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18 June 2018

<https://doi.org/10.1016/j.ajem.2018.06.061>

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The social media diagnosis of Superior Vena Cava Syndrome: A case report☆



Social media is becoming increasingly popular among the public. In 2017, Facebook had 2.2 Billion monthly active users [1]. Applications of social media in healthcare are growing. This includes utilization of social media in disaster preparedness, disease support forums, and research recruitment [2–5]. There has been limited research evaluating

patients utilizing social media and crowdsourcing to aid in the diagnosis and treatment of their medical conditions [6]. Here, we report a case of a patient who turned to social media when she had recurrent syncope and facial swelling.

A 59-year-old female with a history of COPD, hypertension, and atrial fibrillation initially presented to the first Emergency Department (ED) with syncope and facial swelling. During her visit she had a normal workup which included a CT scan of the head and neck, chest X-ray, ECG, laboratories, urinalysis, and orthostatic vital signs. She was discharged with instructions to follow up with her primary care physician. She then had an outpatient carotid duplex and thyroid ultrasound which were normal.

She subsequently experienced two additional syncopal episodes which prompted her to visit a different ED. Again, her chest X-ray, ECG, and laboratories in the ED were unremarkable. She was then admitted to the hospital for further workup. During her admission she was seen by a cardiologist and a neurologist. Her inpatient workup included MRI of her brain, EEG, pulmonary function testing, bilateral upper extremity duplex, and formal tilt table test. All of her workup was normal except for her tilt table test. She was discharged with plans for a Holter monitor, an outpatient stress test, and home oxygen as she had experienced several episodes of hypoxia while in the hospital. She was discharged home with loop diuretics and steroids.

Her daughter, noticing her frustration, took it upon herself to turn to social media for answers. She published two pictures of her mother on Facebook. One of the pictures was more recent and one from the previous year. She then asked anyone if they could help figure out what was wrong with her mother. A family friend who is a pulmonologist replied and raised concern for Superior Vena Cava Syndrome (SVC).

The patient returned to the ED for the third time. She additionally complained of a sense of fullness in her head and stated that the steroids and diuretic had not improved her symptoms. She also mentioned the pulmonologist on Facebook raising concern for SVC. Suspecting SVC a contrast enhanced CT scan of her chest was obtained (Fig. 1) and showed a right hilar/paratracheal mass highly concerning for bronchogenic malignancy with encasement and vascular invasion involving the SVC and azygos vein. She was diagnosed with SVC and admitted. Mediastinoscopy with biopsy diagnosed small cell lung cancer. She then underwent chemotherapy and radiation therapy and as of this writing is in remission.

Social media utilization has become widespread. In Emergency Medicine, many academic professors have turned to social media to reach a larger audience. Also, residents and medical students have also started to use social media as a means of staying up to date on topics and current literature. This avenue has been coined “Free Open Access Medical education” (FOAM) and has become a prominent way medical education is both consumed and distributed [7]. The use of social media in healthcare has also become popular with 60% of state health departments now using at least one application [8]. With increased utilization in the medical and academic community, applications for clinical practice have started to emerge.

There has been limited research documenting the utilization of social media in the clinical realm. Mittal et al. reported on a case where they used social media to evaluate a patient's facial asymmetry. The patient had recent pictures on her Facebook page that allowed the neurologist to identify that her ptosis was new [9]. This represents an opportunity for physicians to potentially use their patients' social media profiles for a “last known normal” time when treating stroke symptoms.

There has been a paucity of literature that investigated the crowdsourcing of diagnosing medical conditions. One Danish study looked at a series of six uncomplicated cases posted to Facebook and found that the correct diagnosis was suggested in 5 of the 6 cases and was done so in less than 10 min [6]. Other small studies have looked at more complex diagnoses being made on sites specific for medical crowdsourcing, like CrowdMed, however the Danish study appears to stand alone with respect to using Facebook [6].

☆ Conflicts of interest: None.

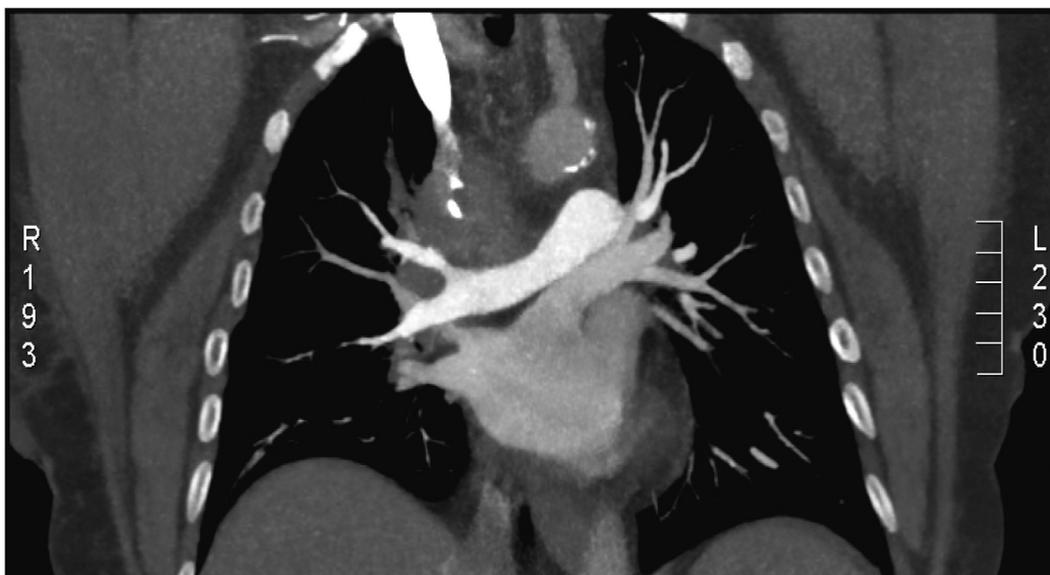


Fig. 1. CT with IV contrast of the chest demonstrating a right hilar/paratracheal mass highly concerning for bronchogenic malignancy with encasement and vascular invasion involving the Superior Vena Cava and azygos vein.

In conclusion, we present a patient who used Facebook to help diagnose her condition after traditional means were unsuccessful. This case is an example of how social media can be used through crowdsourcing to allow patients to access a large pool of users to aid in diagnosis when traditional medical avenues fail them.

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20 June 2018

<https://doi.org/10.1016/j.ajem.2018.06.063>

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Validating the LUCAS® mechanical chest compression fit specifications



1. Introduction

Annually, more than 350,000 out-of-hospital cardiac arrests (OHCA) occur in the United States, with nearly 90% of cases being fatal [1]. One critical factor impacting cardiac arrest survival is timely and continuous high-quality cardiopulmonary resuscitation (CPR) [2]. High-quality CPR is defined as compressions delivered with a depth of 5 to 6 cm, at a rate of 100–102 compressions a minute [2–5].

Providing high-quality manual CPR for prolonged periods can be difficult because it is physically demanding [4, 6–10]. Mechanical CPR devices address this challenge by offering continuous hands-free-high-quality chest compressions throughout the cardiac arrest [4, 10, 11].

One challenge in designing a mechanical CPR device is for it to fit the myriad of human body shapes and sizes. In response to this challenge, the vendor designed their LUCAS® Chest Compression System with an adjustable piston to accommodate different sternum heights [12]. Current research such as the PARAMEDIC trial (2015), LINC trial (2014), and a pilot study conducted by Yost et al. (2010) confirms that the LUCAS® has a universal adaptation mechanism, as the results from these studies show the LUCAS® fit 95–98.2% of cardiac arrest patients [11, 13, 14]. However, during a broader evaluation process completed by the authors, some Emergency Medical Service (EMS) and hospital personnel being trained to use the LUCAS® challenged that the LUCAS® would fit the majority of the patients, contending that their patient population has been growing physically larger over time (LUCAS® clinical trainer, personal communications, 2014–2017). These concerns are supported by recent