Gaming: a 21\textsuperscript{st} century variant of seated immobility thromboembolism

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Recognition of prolonged seated immobility as a risk factor for venous thromboembolism (VTE) has important clinical implications, as this may lead to a diagnosis of provoked rather than idiopathic venous VTE. We describe the case of a man who developed VTE after prolonged online computer gaming.

Case report
A 44-year-old man presented to hospital with a two-week history of progressive left leg swelling and discomfort. Five days before presentation, he developed increasing breathlessness and right pleuritic chest pain. He was referred after a community ultrasound showed an extensive left femoral vein thrombosis. On examination his weight was 156 kg, heart rate 90 beats per minute, oxygen saturation 95\% on room air, BP 127/78, chest was clear to auscultation and his left leg was markedly swollen. There was no right heart strain on the ECG, the hs-troponin T was <5ng/L (N=0 to 13) and pro-BNP 16pmol/L (N=0 to 34). A CTPA showed a near-completely occlusive thrombus at the bifurcation of the right main pulmonary artery, extending into the lobar artery and segmental arteries in the right upper lobe (Figure 1) and right subpleural pulmonary infarction.

\textbf{Figure 1:} CTPA, axial image, shows near-completely occlusive thrombus (circled) at the bifurcation of the right main pulmonary.
With respect to possible causes of the VTE, there was no personal or family history of this, and no recent surgery, illness or long-distance travel. A thrombophilia screen completed on cessation of warfarin was negative. He smoked 20 cigarettes per day and had a BMI of 48.4kg/m² despite previous gastric bypass surgery. Medications included escitalopram 20mg and amitriptyline 300mg noce for depression. Specific questioning identified that his office-based work involved sitting for up to five hours at a time for most of his eight to 12 hour shifts. His main hobby was online gaming and three days prior to the onset of symptoms he was ‘online’ continuously for a 36-hour period, sitting for up to 12 hours at a desk without getting up. The longest period he had ever done this was 44 hours continuously. He also enjoyed “binge watching” television, eg, a box set of 24 episodes in one sitting, while in a Lay-Z-boy chair. While recognising the multifactorial causation of VTE, we considered that the main risk factor was his repeated episodes of prolonged seated immobility.

He was treated for a provoked VTE, with a six-month course of warfarin with initial bridging low molecular weight heparin. Following this he was prescribed aspirin. He was advised about smoking cessation, weight loss and to avoid prolonged seated immobility (eg, setting a timer for one hour periods at work, avoiding prolonged TV watching sessions). At follow up, he had reduced his gaming sessions to 24 hours. Four years later he has not re-presented with VTE.

Discussion

The role of prolonged seated immobility as a risk factor for VTE was first recognised in 1940 with a report of people developing fatal pulmonary embolism following prolonged periods of sitting in deck chairs in air-raid shelters during the London blitz in World War II. The role of prolonged seated immobility associated with long-distance air and car travel was then recognised. Subsequently, prolonged seated immobility working at a computer was recognised as an important risk factor for VTE, (also called ‘e-thrombosis’) and now gaming has been recognised as the latest variant of the sedentary 21st century lifestyle which increases the risk of VTE.

This case further demonstrates the extraordinarily long periods a person may sit without getting up, and also the different work and recreational situations in which prolonged seated immobility may occur in an individual.

We do acknowledge the multi-causal nature of venous thrombosis and that there were a number of risk factors in this man. While the mechanism is unclear, there is a recognised association between antidepressant use and increased risk of VTE. Obesity is also a moderate risk factor for VTE and it is well recognised that it can interact with other risk factors in VTE development and recurrence. Thus this case also highlights the fact that VTE is a disease that often involves more than one risk factor.

We propose that the term seated immobility thromboembolism (SIT) is used to encompass all cases of VTE in which prolonged seated immobility is a provoking factor. We suggest that recognition of SIT may lead to a diagnosis of provoked rather than idiopathic VTE, which would influence the duration of anticoagulant therapy and recommendations for lifestyle changes to reduce the risk of recurrence.
REFERENCES:


