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CASE REPORT

Isolated internal jugular vein thrombosis presenting with seizure: a case report

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ABSTRACT

Background: Internal jugular vein thrombosis (IJVT) is an obscure vascular disease that is not often seen, with potentially deadly complications such as sepsis and pulmonary embolism. Spontaneous IJVT is considered when no obvious predisposing causes of thrombosis are present within the vessel.

Case Presentation: A previously healthy, 27-year-old man presented to the emergency department in Al Noor hospital in Makkah complaining of right side neck pain and tonic seizure. Physical examination revealed mild swelling in the right anterior side of the neck with slight tenderness. Both CT scan and ultrasonography of the neck revealed an acute thrombus in the right internal jugular vein. The patient was started on anticoagulants and the neck pain relieved within 3 days.

Results: The patient was discharged on Warfarin with weekly follow up in the clinic for monitoring of INR and PT.

Conclusion: Even though spontaneous IJVT is a rare incidence, physicians should not exclude IJVT even in non-hospitalized patients and without risk factors. If there is a suspicion of IJVT, color Doppler U/S should be performed to exclude the disease.

Keywords: internal jugular, vein thrombosis, vascular disease

Introduction

Deep venous thrombosis (DVT) is an intraluminal thrombotic obstruction that could occur in either upper or lower extremities. Internal jugular vein thrombosis (IJVT) is an obscure vascular disease that is not often seen, with potentially deadly complications such as sepsis and pulmonary embolism [1]. Upper extremity DVT is used to be considered as a rare presentation but now can be seen more frequently, owing to the increased use of central venous catheters for chemotherapy or dialysis [2]. However, an isolated internal jugular vein thrombosis is still considered a rare presentation, especially in the absence of predisposing factors. The objective of this study is to emphasize on the importance of having a high index of suspicion with the use of imaging modality to reach the diagnosis.

Case presentation

A 27-year-old male patient presented to the emergency department in Alnoor hospital in Makkah with right side neck pain and tonic seizure. The pain started suddenly two days ago in the right side of the neck and it was continuous, progressive and spastic in character; the pain was aggravated by neck movement, chewing and swallowing. On the second day, the pain was very severe that the patient asked his mother for a neck massage of the same area that immediately triggered the tonic seizure. The seizure lasted for 10 minutes in which the patient lost his full consciousness with generalized body stiffness and rigidity; it was not associated with spastic movements or loss of urine sphincter. He woke up feeling dizzy with feelings of cold upper extremities. There is no history of fever, central venous catheter, malignancy, surgery, trauma or immobilization. There is no known hereditary thrombophilic disorder. The patient is not a smoker and he denies alcohol intake. His sister had a lower limb DVT at the age of 29 which was treated successfully with no subsequent events. On examination, his heart rate was 120 bpm with a sinus rhythm and the blood pressure was 140/90 mmHg; the patient was conscious and oriented. There was mild swelling in the

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right anterior side of the neck with slight tenderness. His laboratory work up results were normal and as follows: WBC count of 7.18 °— 103/UI, hemoglobin 12.4 mg/dl, RBC count 5.8 °— 106UI, blood glucose 110 mg/dl and sodium 142 mmol/L. Coagulation profile revealed: INR 1.1, PT 13 seconds, PTT 37.3 seconds, all are within normal range however the D-Dimer was high (1.4 mg/L) (normal value 0–0.55 mg/L). We performed Doppler Ultrasound on the neck, which confirmed the diagnosis of an acute thrombus in the right jugular vein; it was about 2.66 × 1.72 cm, persisting from the proximal to distal part and preventing blood flow from going through normally (Figure 1, 2). The C.T. pan scan showed an enlarged right transverse and sigmoid sinuses without filling defects, and an enlarged right internal jugular vein with filling defect seen starting at the level of second cervical vertebrae and extending down to its joining with the subclavian vein, representing thrombosis of the right internal jugular vein (Figure 3). The chest, abdomen and pelvis appeared unremarkable. The patient was started on Heparin Sodium bolus 5000 IU IV infusion then continued on 1200 IU/h. On the next day we stopped Heparin and started Enoxaparin 70 mg SC BID for 5 days and Warfarin 9 mg PO OD with daily monitoring of INR and PT. The patient was discharged 1 week after admission on Warfarin 5 mg PO OD with weekly follow-up in the clinic to monitor INR at a therapeutic level.

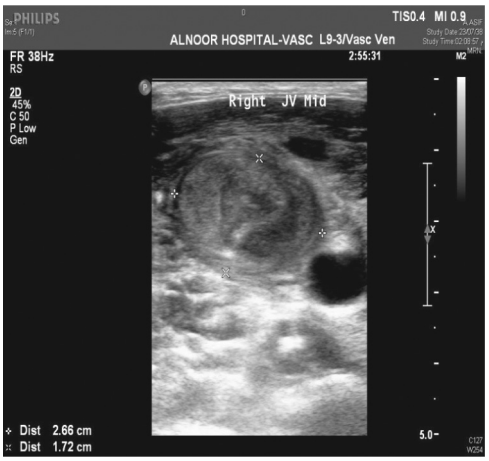

Figure 1. *U/S of the neck showing a mass 2.6 cm × 1.7 cm in the right internal jugular vein, this image is consistent with IJVT.*

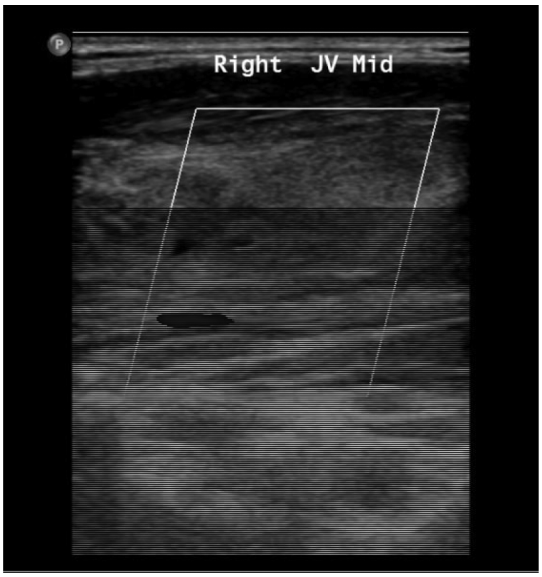

Figure 2. *Color Doppler U/S showing an obstructed flow of the IJVT.*

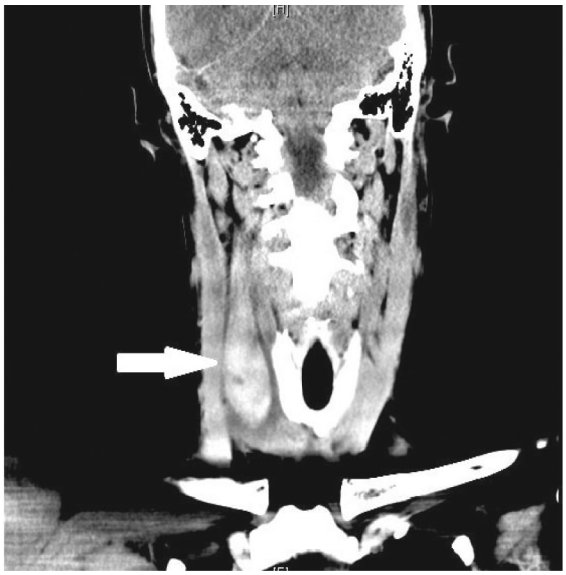

Figure 3. *CT scan of the neck showing a thrombus in the right internal jugular vein.*

Discussion

Upper extremity DVT represents only 9.7% of DVT cases, in which IJVT makes only 2.1% of those cases, and the others include subclavian and axillary veins [3]. IJVT could be divided into primary or secondary [4]. IJVT is considered primary in the absence of underlying causes or risk factors. The most common causes of secondary IJVT are central venous catheter and malignancy [3]. Virchow's triad explains the pathogenesis behind central venous catheter induced thrombosis. Most common symptoms of IJVT include Fever (83%), leukocytosis (78%), mass or neck swelling (72%), cervical pain (66%), cord sign (39%), sepsis syndrome (39%), pleuropulmonary complications (28%) [4]. Seizures are not a common associated symptom and there's no clear explanation for it; however, it may be contributed to increased intracranial pressure as some of the cases reported in literature of increased intracranial pressure associated with IJVT [8,9]. The most important complications include pulmonary embolism (PE), subclavian vein thrombosis, superior sagittal sinus thrombosis, superior vena cava syndrome, idiopathic intracranial hypertension, and laryngeal and lowerairway edema [7]. The site of DVT in the upper extremity doesn't seem to affect the mortality rate or the incidence of pulmonary embolism; according to a study that was based on dividing the patients with upper extremity DVT into three groups, group 1 with DVT in subclavian/ axillary vein, group 2 with isolated internal jugular vein and group 3 with concomitant subclavian/axillary with internal jugular vein. The statistical results showed no difference in either mortality rate or the incidence of pulmonary embolism among the 3 groups [8].

Conclusion

Though most patients with IJVT are hospitalized patients with obvious underlying cause, some may present to the ER with no risk factors at all. Physicians should have a high index of suspicion for IJVT based on the history and presentation. Bedside ultrasonography is a quick and non-invasive method which remains the best initial imaging modality for assessing IJVT; the sensitivity for IJVT is 98% and can go up to 100% if color flow Doppler is used, and the specificity is 93% [9]. CT can also be used with an advantage of detecting pulmonary embolism as well as IJVT. Anticoagulation is the mainstay of treatment; it helps to maintain the patency of venous collaterals and prevents subsequent thrombus propagation [2]. There are few indications for surgical intervention and they're usually reserved for more complicated cases.

Conflict of Interest
None

Funding
None

Consent for publication
Informed consent was taken from the patient to publish this case in a medical journal.

Ethical considerations
The permission from the ethical committee of the institute was taken.

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Authors' contribution
FHK conceived the idea of the case report. MAS and SHH wrote the manuscript. LIF carried out the investigations.

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