Case Report

Journal of Emergency Medicine Case Reports

A Rare Cause of the Emergency Department Visit: Internal Jugular Vein Thrombosis

Gökhan AKDUR, MD[1], Okan BARDAKCI, MD[1], Okhan AKDUR, MD[1], Murat DAS, MD, Unzile ATALAY, MD[1]

[1]Canakkale Onsekiz Mart University Faculty of Medicine, Departments of Emergency Medicine, Canakkale, TURKEY

Abstract

Introduction: Detection of the internal jugular vein thrombus (IJVT) in the Emergency Department with bedside ultrasonography is not common.

Case Report: A 43 years old male patient was admitted to our emergency department with the complaint of pain, swelling and redness on the left side of the neck, which was noticed after chemotherapy 1 day ago. The swelling and redness of the hand, starting from the left clavicle and extending to the corner of the left mandible, were detected in the physical examination of the patient. The patient underwent bedside ultrasonography imaging by the emergency medicine specialist. Ultrasonography examination of the patient was performed with 5-12 MHz linear probe. After visualization of the vascular structures carotid, vascular structures were observed in the sagittal and longitudinal plane by gradual compression. Hyper echoic thrombus was seen in the incompressible internal jugular vein.

Conclusion: IJVT can lead to complications such as pulmonary embolism, septic embolism, cerebral venous thrombosis. These complications may decrease with early diagnosis and treatment. It is a rare condition in IJVT Emergency Services. The increasing use of bedside ultrasonography by emergency physicians will prevent possible complications that will enable these patients to be easily diagnosed and successful treatments in recent years.

Key words: Doppler Ultrasound Imaging, Emergency Department, Jugular Vein, Venous Thrombosis.

Introduction

Swelling in the neck can be caused by a variety of reasons, although rarely, there may be a complaint to the Emergency Department. Internal jugular vein thrombosis is also one of the rare conditions that can cause swelling in the neck. Deep venous thrombosis localization is common at lower limbs. Swelling and tenderness can be the first symptom especially at younger (2). A retrospective study of 1948 DVT patients demonstrated that jugular venous thrombosis is rare (1.5%) [X]. Vascular ultrasonography, "two-point compression method" are used frequently in emergency services to detect thromboembolic events, especially thrombi in femoral and popliteal veins. Detection of the internal jugular vein thrombus (IJVT) in the Emergency Department with this method is a rare condition. We presented the diagnosis process of a patient with complaints of neck swelling and internal jugular vein thrombosis in bedside ultrasonography imaging with images.

Case Report

A 43 years old male patient was admitted to our emergency department with the complaint of pain, swelling and redness on the left side of the neck, which was noticed after chemotherapy 1 day ago. It was learned that the patient, who was diagnosed with lung cancer (non small cell) about 1 time ago and who received 3 cycles of chemotherapy, had pathological lymph nodes in the left and right supraclavicular region in the ultrasonography imaging performed 15 days ago. He smoked one pack per day 15 years and no alcohol use history. The patient's systolic blood pressure was 116 mmHg, diastolic blood pressure was 66 mmHg, heart rate was 116 / min, oxygen saturation was 98%. The swelling and redness of the hand, starting from the left clavicle and extending to the corner of the left mandible, were detected in the physical examination of the patient. To evaluate lymph adenitis, mass, cellulite or vascular abnormality, the patient underwent bedside ultrasonography imaging by the emergency medicine specialist. It was observed that there was no flow in the internal jugular vein with doppler. Innominate, subclavian axillary veins were open. In the laboratory findings, white blood cell count 6.3 k/µL, platelet count 502 k/µL, hemoglobin level 9.6 g/dL, coagulation studies international normalized ratio (INR) 1.22, prothrombin time (PTZ) 17.1. Basic biochemical blood values were normal. The patient underwent pulmonary computed tomography imaging with suspected pulmonary embolism. No signs of pulmonary thrombus or embolism were seen on tomography imaging.

Corresponding Author: Okan Bardakci **e-mail:** drokanbardakci@gmail.com
Received: 12.01.2021 • **Accepted:** 18.03.2021
DOI: 10.33706/jemcr.859366

The patient was recommended to treat enoxaparin sodium 0.6mL (6000IU AntiXA), 2 times a day for 10 days subcutaneously. After 10 days, the patient's control ultrasonography showed that the IJVT sign regressed completely.

Ultrasonography technique and findings

Vascular ultrasonography evaluations can be performed in emergency services with the help of high frequency transducers and linear probes. In particular, the lack of full compression of the arterial vessels in the horizontal section provides the distinction from other vascular structures. Detection of the arterial vascular structure helps to identify its adjacent anatomical structures. However, excessive manipulation and pressure can also cause undesired disintegration of an existing thrombus. The use of color doppler also helps to define blood flow. Especially in the evaluation of the internal jugular vein, evaluation should be made from the clavicle to the skull base. The possibility of incompressible structures such as lymph node etc. should not be forgotten. Sonographically reactive lymph nodes can be detected with oval hypoechogenic hilus and low doppler appearance[1].

Ultrasonography examination of the patient was performed with Samsung HS70A machine and 5-12 MHz linear probe. After visualization of the vascular structures carotid, vascular structures were observed in the sagittal and longitudinal plane by gradual compression. Hyperechoic thrombus was seen in the incompressible internal jugular vein (Figure 1 (A-B)). After 10 days, the patient's control ultrasonography showed that the IJVT sign regressed completely (Figure 2 (A-B)).

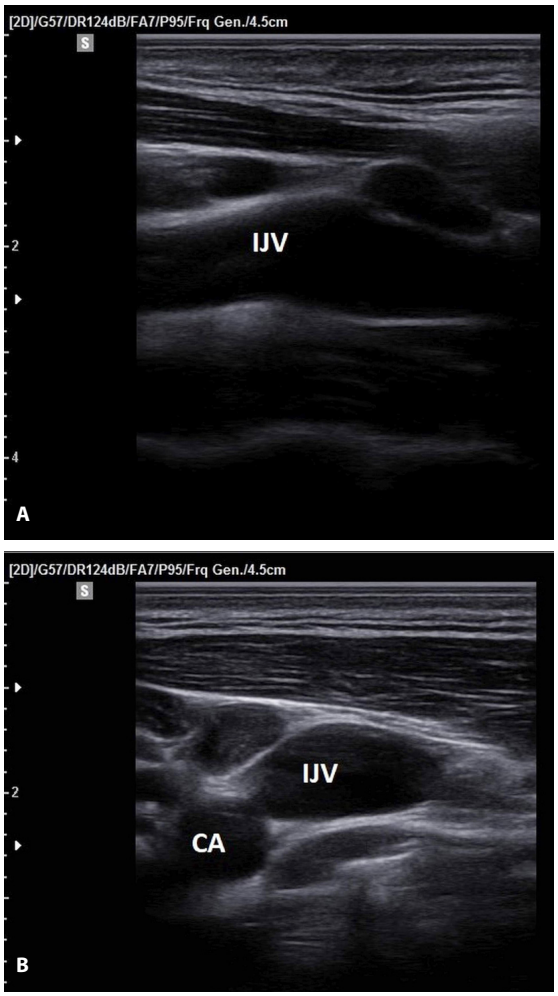

Figure 2: Longitudinal (**A**) and transverse (**B**) ultrasonography image of the internal jugular vein and carotid artery after treatments.

Discussion

The deep vein thromboses are frequently seen in the lower extremities. IJVT accounts for about 1.5% of all deep vein thrombosis in emergency services[2]. IJVT cancer can be monitored due to central venous catheter and ovarian hyper stimulation syndrome. Behçet's disease, middle ear, sinus or oropharyngeal infections, neck abscesses are other detectable etiologies[3,4,5]. It is stated that malignancy is the most common cause that triggers IJVT, especially in cases with cervical metastasis in the analyses[6]. Cancer patients are mostly patients with hypercoagulability. Venous thromboembolism is a clinical condition observed in approximately 15% of these patients, especially in patients receiving chemotherapy[6]. Approximately 20% of patients with symptomatic deep vein thrombosis have a known active malignancy[7]. Therefore, it should be considered that IJVT may be the first sign of malignancy. These cases, like our case, often refer to the hospital with painful and sensitive swelling in the neck[6]. Also in literature a heavy weight lifter nutritional supplementary (calcium fructopyranose borate) admitted emergency department complaining headache ,neck and arm diagnosed JVD, was described. This case report complet blood count(CBC) parameters was abnormal elevated; hemoglobine (18.1 g/dl), hematocrit (52.3 percent). Our case CBC parameters was decrased[11].

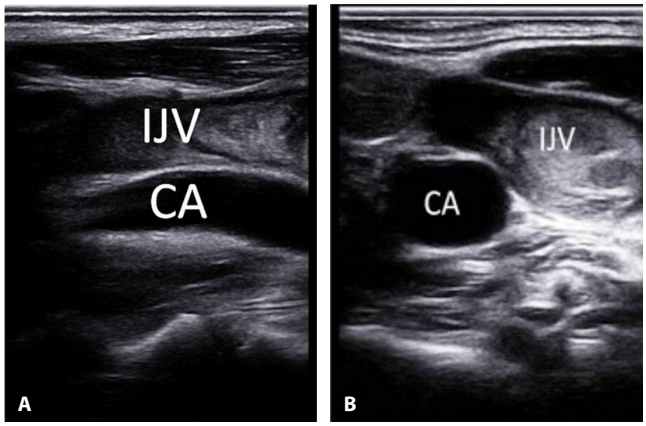

Figure 1: Longitudinal (**A**) and transverse (**B**) ultrasonography image of the internal jugular vein thrombus with the carotid artery.

The IJVT was detected in 61 of 210 patients with upper vein deep vein thrombosis in a retrospective study. Only 21

DOI: 10.33706/jemcr.859366
Journal of Emergency Medicine Case Reports 2021; 12(3): 68-70

patients with isolated IJVT were detected in the same study. This clinical condition was more common in women[7]. There was no other vein thrombosis accompanying IJVT In our case.

As IJVT complication, pulmonary embolism can be seen in approximately 10% of cases[8]. Apart from this, it can also cause post-thrombotic syndrome. Septic embolism may also develop following infected thrombophlebitis[9]. Failure to detect or properly treat deep vein thrombosis may result in cerebral venous thrombosis, increased intracranial pressure, and severe morbidity and mortality with cerebral edema[10].

There are no defined guidelines for IJVT treatment. It is treated like other deep vein thromboses. It is generally recommended to start treatment with low molecular weight heparin and to continue anticoagulant treatment with vitamin K antagonists. It is recommended that anticoagulant use should not exceed 3 months. Primarily 3-6 months anticoagulant use, thrombolysis, thrombectomy and vena cava superior filter are applied in selected case[2].

Conclusion

It is a rare condition in IJVT Emergency Services. Especially, patients with malignancy and neck swelling, pain, etc. should be evaluated in terms of internal jugular vein thrombosis by considering possible complications. However, in cases where IJVT is detected, other possible etiologies should be kept in mind. The increasing use of bedside ultrasonography by emergency physicians will prevent possible complications that will enable these patients to be easily diagnosed and successful treatments in recent years.

Funding

None.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

Conflicts of interests

The authors declare that they have no competing interests.

The funders had no role in the design, conduct, analysis, or interpretation of data or in writing the manuscript.

Contributors

AG wrote the first draft of this paper. All authors approved the final version.

References

1. Hahn J, Nordmann-Kleiner M, Hoffmann TK, Greve J. Thrombosis of the internal jugular vein in the ENT-department-Prevalence, causes and therapy: A retrospective analysis. Auris Nasus Larynx 2019; 46: 624-629.
2. Gbaguidi, A. Janvresse, J. Benichou, N. Cailleux, H. Levesque, I. Marie. Internal jugular vein thrombosis: outcome and risk factors. QJM 2011; 104: 209-219.
3. Gritzmann N, Hollerweger A, Macheiner P, Rettenbacher T. Sonography of soft tissue masses of the neck. J Clin Ultrasound 2002; 30 :356–373.
4. Bilici M, Pehlivan Y, Kimyon G, Kisacik B. Internal jugular vein thrombosis in Behcet's disease: a rare complication. BMJ Case Rep 2014;2014:bcr2013200261.
5. Schubert AD, Hotz MA, Caversaccio MD, Arnold A. Septic thrombosis of the internal jugular vein: Lemierre's syndrome revisited. Laryngoscope 2015; 125: 863–8.
6. Boedeker CC, Ridder GJ, Weerda N, Maier W, Klenzner T, Schipper J. Etiology and therapy of the internal jugular vein thrombosis. Laryngorhinootologie 2004; 83: 743–9.
7. Ascher E, Salles-Cunha S, Hingorani A. Morbidity and mortality associated with internal jugular vein thromboses. Vasc Endovascular Surg 2005; 39: 335-9.
8. Javier C, Villanueva G. A case study of deep vein thrombosis of the right internal jugular vein in a healthy 21-year-old male. Case Rep Hematol 2016; 2016: 7654749.
9. Gbaguidi X, Janvresse A, Benichou J, Cailleux N, Levesque H, Marie I. Internal jugular vein thrombosis: outcome and risk factors. QJM 2011; 104: 209–19.
10. Schubert AD, Hotz MA, Caversaccio MD, Arnold A. Septic thrombosis of the internal jugular vein: Lemierre's syndrome revisited. Laryngoscope 2015; 125: 863–8.
11. Girard DE, Reuler JB, Mayer BS, Nardone DA, Jendrzejewski J. Cerebral venous sinus thrombosis due to indwelling transvenous pacemaker catheter. Arch Neurol 1980; 37: 113-114.