

**Case Report****Ultrasonic Diagnosis of Internal Jugular Vein Intramural Hematoma: A Case Report****Mengmeng Nan¹, Weihua Ye² and Xueli Wang³**¹Department of ultrasonic, The Fourth Hospital of Hebei Medical University, shijiazhuang, Hebei, China²Department of ultrasonic, The Fourth Hospital of Hebei Medical University, shijiazhuang, Hebei, China³Department of ultrasonic, The Fourth Hospital of Hebei Medical University, shijiazhuang, Hebei, China**Received:** November 11, 2022; **Published:** December 02, 2022***Corresponding author:** Mengmeng Nan, Department of ultrasonic, The Fourth Hospital of Hebei Medical University, shijiazhuang, Hebei, China**Copyright:** © 2022 Mengmeng Nan, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.**Abstract****Objective:** There are many complications after internal jugular vein (IJV) cannulation, but intramural hematoma is rare.**Materials and Methods:** We present a case report is the first ultrasound diagnosis of intramural hematoma of IJV, a rare complication after IJV cannulation, but the prognosis is good.**Conclusion:** Ultrasound-guided IJV cannulation has been relatively mature, and the cannulation process can be dynamically observed in real time. Therefore, ultrasound-guided IJV cannulation is recommended to reduce postoperative complications.**Abbreviations:** Internal Jugular Vein= IJV**Key Words:** Ultrasound; Internal Jugular Vein Cannulation; Intramural Hematoma**Introduction**

Central venous catheterization has been widely used in clinical treatment, especially in cancer and critically ill patients. At present, IJV cannulation is often performed by clinicians according to the anatomical markers of the body surface. The common complications are phlebitis, catheter-related infection, thrombosis, etc. This case report is a rare case of intramural hematoma after IJV cannulation.

Case Report

46 - Old female patient was visited our hospital for abdominal discomfort for more than 3 years and aggravation for more than 2 months. Outside hospital's gastroscopy and biopsy pathology showed: poorly differentiated adenocarcinoma. Therefore, the patient was admitted to hospital with gastric cancer. Blood test results showed: Prothrombin time (12.9s), thrombin time (16.7s) and D-dimer (0.496 mg/L) were increased. Fibrinogen (2.16g/L), white blood cell count ($2.77 \times 10^9/L$), neutrophil count ($1.67 \times 10^9/L$), red blood cell count ($3.41 \times 10^{12}/L$) and hemoglobin (69.0g/L) were decreased. Therefore, Clinical consideration of slow bleeding in patient. Nutritional assessment was: NRS2002 score: 4, PG-SGA score: 5. Clinical diagnosis: 1, gastric cancer with bleeding, 2, moderate anemia, 3, moderate malnutrition, 4, after cesarean section. Two days after hospitalization to strengthen nutrition and blood transfusion treatment. Clinical physicians performed right IJV cannulation according to the body surface anatomic marks. Check ultrasound on the day, ultrasound described as: Right IJV cannulation postoperative, gradual thickening of the internal jugular vein cannulation wall from the insertion of the central venous catheter to the proximal end. Length about 4.3 cm, thicker place about 0.75 cm, low echo, linear high echo visible

inside. Ultrasonographic diagnosis: After IJV cannulation, Wall thickening of middle and lower IJV (considering intramural hematoma). See Figure 1. After 2 days of observation, the ultrasound showed that the lesion area of the right IJV wall was significantly reduced, and only the proximal wall was slightly thicker; See Figure 2.

Discussion

IJV cannulation has been widely used in the treatment of critically ill patients and cancer patients. It is also an effective way to monitor central venous pressure and transfusion during perioperative period. The common complications were phlebitis, thrombosis, catheter-related infection, hemothorax, pneumothorax, etc. The incidence of intramural hematoma was rare. With the increase of age and other factors, the wall compliance decreased, vascular elasticity becomes poor, there is a risk of intramural hematoma after puncture, in most cases can be self-healing, emergent treatment required for obvious clinical symptoms. This case was caused by right IJV cannulation after vascular wall injury rupture, blood flow from the crevasse, secondary intramural hematoma formation. It should be mainly distinguished from mural thrombus. The latter refers to the solid mass formed by coagulation of blood or coagulation of some components in blood adhered to the vascular wall, which is mainly related to venous wall injury, slow blood flow and hypercoagulable state of blood. Ultrasound visible intimal is not smooth, wall thickening, lumen widened, visible high, low range of thrombus echo, easy to form thromboembolism after shedding, need thrombolysis, anticoagulation and other treatment, difficult to heal in a short time. It has been reported [1] that puncture of the IJV according to the anatomical markers of the body surface can easily damage the carotid artery to form hematoma, and cause hemothorax and pneumothorax. Ultrasound can accurately locate blood

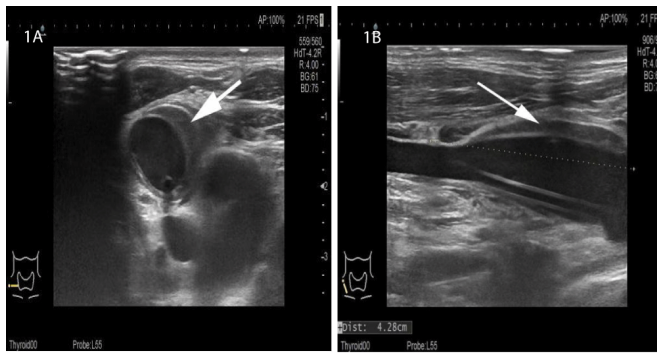


Figure 1: Ultrasound after catheterization (A: Sagittal plane, B:coronal plane):from the center of the middle of the right internal jugular vein to the wall of the root of the neck wall thickening, low echo, low echo can be seen in a membrane-like high echo (the arrow shows the lesion)

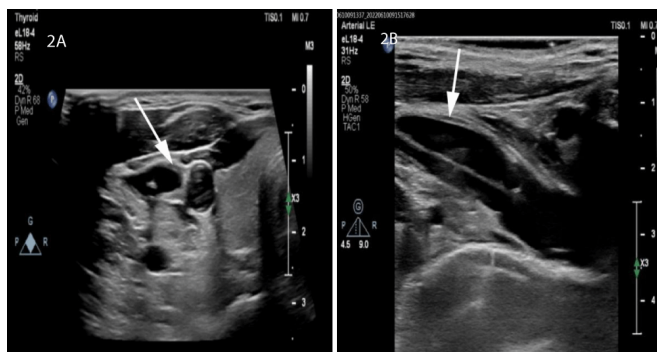


Figure 2: Ultrasound after observation (A: Sagittal plane, B: coronal plane): right internal jugular vein proximal wall slightly thickened (lesion site indicated by arrow)

vessels [2] studies have shown that ultrasound-guided IJV cannulation can significantly improve the success rate, shorten the puncture time and reduce postoperative complications compared with the anatomical markers on the body surface [3]. showed that none of the 1605 patients with ultrasound-guided IJV cannulation had internal jugular vein intramural hematoma and no serious complications. Although the patient had internal jugular of IJV after IJV cannulation, but there was no obvious discomfort and the prognosis was good. But ultrasound - guided IJV cannulation is still recommended to reduce postoperative complications.

Reference

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