Determination of Absence of Right Internal Jugular Vein During Ultrasonographic Guided Central Venous Cannulation

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Dear Editor,

Performing ultrasonography (USG)-guided central venous cannulation (CVC) provides visualisation of anatomic variations and the needle during cannulation, independently the location. Thus, shorter catheterisation time, lesser number of attempts and complications are provided (1).

The rate of developmental venous anomalies in the head and neck vary between 0.05% and 0.25%, but high rates of up to 20% can also be observed (2). The rate of anatomic variations in the internal jugular vein (IJV) was reported to be 2.5% and this negatively affects CVC (3).

We aimed to report that determination of the absence of right IJV with real time USG guided cannulation in a patient who is undergoing liver transplantation.

Written informed consent was obtained from the patient for sharing his clinical condition in a scientific journal. The 53-year-old male patient (weight 78 kg) was going to undergo liver transplantation from a living donor because of end-stage liver failure. His history revealed that he had cirrhosis for 1 year and had thrombus in his portal vein. He was admitted into the operating room and underwent induction after standard monitoring. A cannula was inserted into the left radial artery, and invasive arterial pressure was monitored. A central catheter was planned to be inserted into the right IJV under USG guidance. The table was set in the Trendelenburg position and the patients head was slightly turned to the left side. The patient was covered in a sterile way and 9-L linear probe of USG (5.0–13.0 MHz, multi-frequency, broadband) was sterilised and placed in the right neck region, but the right IJV was not visible. While the right carotid artery could be clearly observed using colour Doppler, the right IJV was not detected (Figure 1). Although the right neck was thoroughly examined via USG, the right IJV was absent. The left IJV was evaluated through USG and it was easily viewed (Figure 2). A central venous catheter was inserted into the left IJV without any problem.

Central venous cannulation used commonly is an invasive procedure. Although it has been used in anaesthesia practice for a long time, its complication rates are still high.

Internal jugular vein cannulation can be performed using anatomic landmarks. However, the IJV can be present in an unexpected area and it can be smaller than expected. Moreover, IJV agenesis and variations have also been reported (4, 5). In 5.5% cases, the anatomic location of IJV cannot be pre-

Figure 1. Doppler ultrasonography image of the right neck region. The right carotid artery is visible, but the right internal jugular vein is not present.
dicted based on anatomic landmarks (3). This increases the rate of complications.

It has been reported that USG-guided CVC decreases infections and thrombotic complications to a great extent. In difficult cases, such as obese and paediatric patients, USG-guided CVC elevates the success rate of catheterisation and decreases catheter-related complications (1, 2). With USG guidance, venous anatomic changes, anomalies and agenesis can be detected before cannulation.

In our case, before cannulation, abnormalities in the central veins were easily recognised by USG image, inessential interventions and potential complications were prevented.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.


**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**References**