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Introduction

To ensure safe placement of a central venous catheter (CVC), the potential accidents that may occur due to inadvertent arterial puncture through the internal jugular vein (IJV), should be carefully considered. A previous review study has described the manner in which mispuncturing of the common carotid arteries (CCAs) or subclavian arteries during IJV catheterization can be avoided. Moreover, arterial punctures can be avoided during arterial cannulation by using a tube manometer to verify venous access [1]. Studies investigating the relationships between the CCAs and IJVs indicated that these vessels overlapped in 70–90% of cases [2-6]. Neck rotation increases overlapping ratio between the CCA and IJV [7]. erefore, prior to performing IJV punctures, it is essential to assess the overlapping of these arteries using ultrasonography.

Only limited information on the puncture of IJV or subclavian veins has been mentioned in reports related to arterial trauma during CVC insertion [8,9]. However, studies have reported on the presence of small arteries such as the vertebral artery [10,11], thyrocervical trunk [12,13], suprascapular artery, transverse cervical artery [14-18], and inferior thyroid artery [19], that are occasionally located just behind the IJV [11,13].

We performed an extensive literature search through PubMed,

Surgical repair was required in 12 of the 22 cases. In a case of a pseudoaneurysm of the thyrocervical trunk, the pseudoaneurysm was resected and the arterial branch was ligated [12]. In a case of a vertebral artery, a large amount of associated hematoma was removed, and a lacerated vertebral artery was tied o [21]. In a case of vertebral artery pseudoaneurysm, the site of hemorrhage was sutured [22]. In another case of vertebral and subclavian artery pseudoaneurysm, the pseudoaneurysms were resected [23]. Moreover, in a case of vertebral arteriovenous stula, multiple small communicating veins draining into the vertebral vein, and a single communication between the vertebral artery and vein were ligated and divided [25]; therea er, the vertebral arteriovenous stula was excised. In another case of vertebral arteriovenous stula, the anastomosis was completed using the triangulation technique [26].

Furthermore, in a case of a massive hemothorax, the right subclavian artery was found to be lacerated at its origin from the brachiocephalic artery [28]; the subclavian artery was disconnected from the internal carotid, and then re-anastomosed. In another case of hemothorax and subclavian artery laceration, a right thoracotomy and sternotomy was performed, and more than 2 L of clotted blood was removed [29]. In a case of subclavian artery injury, 2 L of blood was removed via a thoracotomy; in addition, a puncture in the rst part of the subclavian artery was identi ed and repaired by suturing [30]. In a case of hemomediastinum, 1.5 L of clotted blood was removed and 5-mm laceration of subclavian artery was repaired [31]. Moreover, in a case of subclavian arteriovenous stula, a 7.5 French hemodialysis catheter was removed and the subclavian artery was successfully repaired [32]. Removal of a 12-gauge double lumen catheter and subclavian artery repair were done successfully [33].

Discussion

rough our search of the PubMed and other database, we identi ed 22 cases of inadvertent arterial punctures that did not involve the CCA during IJV cannulation, which were noted primarily in adults. In 12 cases with severe injury, surgical interventions were required. erefore, we believe that the presence of small arteries, other than the

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