

Letter

Acute transient thyroid swelling after catheterization of the subclavian veinR Arthur Bouwman¹, Martijn R Meijerink² and Albertus Beishuizen³¹Department of Anesthesiology, VU University Medical Center, Amsterdam, the Netherlands²Department of Radiology, VU University Medical Center, Amsterdam, the Netherlands³Department of Intensive Care, VU University Medical Center, Amsterdam, the NetherlandsCorresponding author: R Arthur Bouwman, a.bouwman@vumc.nl

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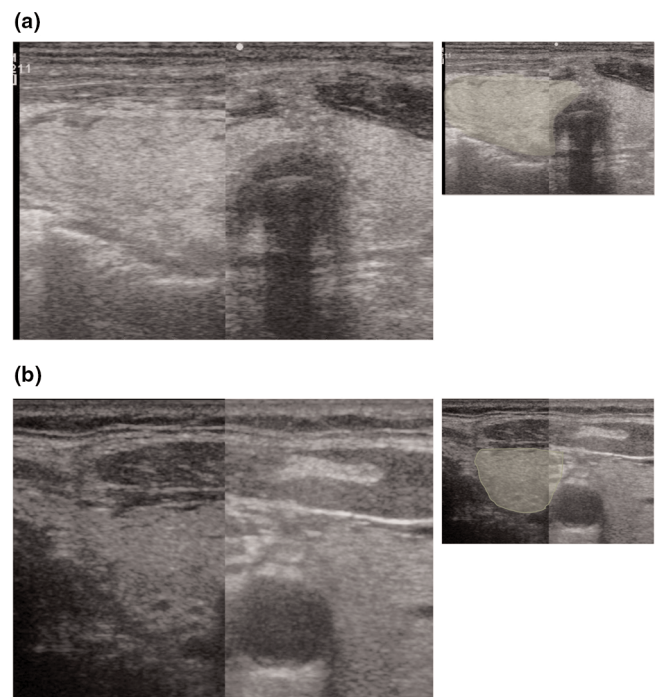
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Complications after central venous catheterization occur in more than 15% of the patients undergoing it [1]. In this report, we present a remarkable case of acute swelling of the thyroid gland as an unexpected and rare complication after subclavian vein catheterization.

A 69-year-old male was admitted to our ICU for epileptic seizure activity and was treated for status epilepticus. Hemodynamic instability prompted us to insert a central venous catheter. The subclavian vein was the preferred site because the enlarged thyroid gland was clinically judged to interfere with the internal jugular vein approach. Fifteen minutes after multiple unsuccessful attempts, progressive diffuse swelling of the neck was noticed. Auscultation revealed bilateral vesicular breathing sounds and chest X-ray revealed clear lung fields without evidence of pneumo- or hemothorax. Palpation revealed a diffuse swollen thyroid gland without evidence of bleeding or crepitations, which was confirmed by ultrasound (Figure 1a). Thyroid hormone levels remained in the normal range and the swelling spontaneously resolved within 4 hours (Figure 1b).

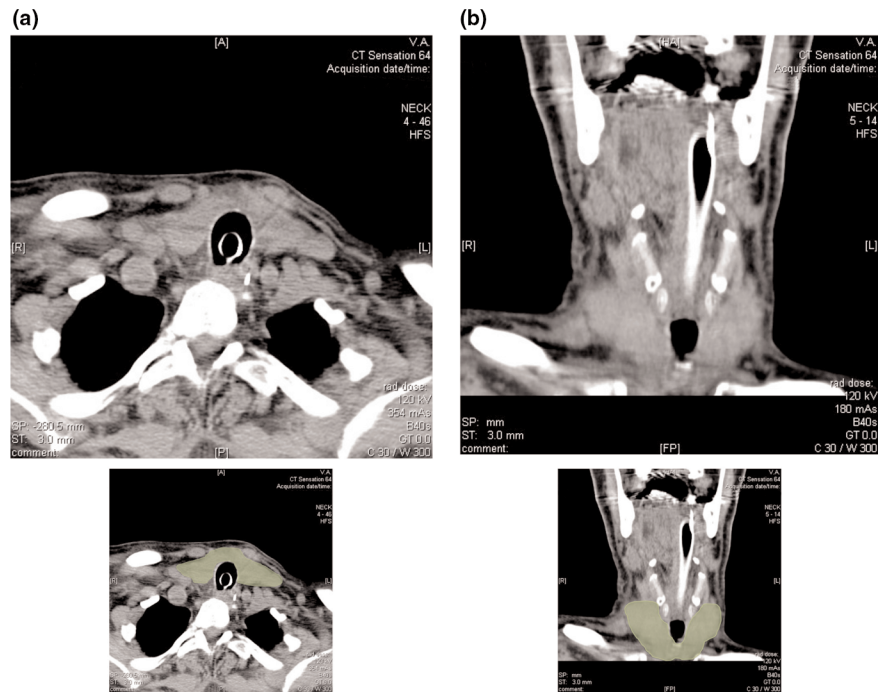
Acute swelling of the thyroid gland is very rare, but a 1.5- to 3-fold increase in volume has been reported to occur after diagnostic fine-needle aspiration [2-4]. In these reports, the episode started with acute thyroid swelling within minutes after puncture and completely resolved after a few hours, similar to our case. We highly suspect that the thyroid gland had been inadvertently punctured during the attempted catheterization. In the case of normal anatomy, it is unlikely that the thyroid gland can be reached during subclavian vein puncture [5]. However, the thyroid gland of our patient was enlarged, demonstrated by computed tomography imaging of the neck (Figure 2), which in combination with a too cephalad needle direction may have contributed to an advertent needle pass into the thyroid gland. The mechanism of acute thyroid gland swelling remains speculative, but Bruel and colleagues

Figure 1

Acute generalized thyroid swelling that (a) developed shortly after a subclavian vein catheterization attempt and (b) spontaneously resolved after a few hours.

suggested that acute release of vaso-active substances, such as calcitonin gene-related peptide, leads to acute edema formation through vasodilation and capillary leak [4]. Previous reports have described thyroid swelling as being terrifying, but airway obstruction was not reported. We could not establish whether in our case swelling of the thyroid would have led to airway obstruction, as the patient's airway was secured.

Figure 2



Computed tomography imaging of the neck. (a) Transverse and (b) reconstructed coronal computed tomography images of the thyroid gland showing the anatomical relationship between the enlarged thyroid and the puncture trajectory for subclavian vein catheterization. This suggests that inadvertent puncture of the thyroid gland could have occurred during subclavian vein catheterization.

In summary, we present a case of acute swelling of the thyroid gland as an unexpected complication after attempted subclavian vein catheterization. The extent of swelling was impressive, but resolved within hours without intervention.

Competing interests

The authors declare that they have no competing interests.

Acknowledgements

Written consent for publication was obtained from the patient's relatives.

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