Venous malformation in the infratemporal fossa diagnosed by CT-guided core needle biopsy

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DESCRIPTION

A 77-year-old woman presented at the otorhinolaryngology department with left maxillary sinusitis. She reported having discomfort in her throat with no other symptoms. Her medical history included Parkinson's disease, breast cancer, kidney stones but no vascular malformations. Her regular medications were biperiden (2 mg/day) and levodopa (150 mg/day). There was neither palpable endobuccal mass nor paresthesia. CT revealed an incidental 23-mm-diameter mass, a mild lesion, at the right temporal fossa (figure 1A,B). The mass at the right temporal fossa was low in T1-weighted MRIs, high in short tau inversion recovery images, with gradual contrast effect in T1 dynamic contrast-enhanced images (figure 1C,D).

Differential diagnoses included malignant lymphoma, neurogenic tumour and salivary gland tumour. CT-guided core needle biopsy (CNB) was performed because the lesion was impalpable and visualisation of the acoustic window by ultrasound was limited. An interventional radiologist performed a CNB with an 18-gauge semiautomatic needle (FINECORE, Japan) under local anaesthesia (figure 2A,B). Since a slight haematoma was observed immediately after the puncture, the puncture site was pressed, so that it should not deteriorate. The patient was discharged the next day. Histological examination revealed vascular

Figure 2 CT-guided core needle biopsy (CNB) for the lesion in the infratemporal fossa. (A) Confirmation of needle insertion with CT. (B) The actual condition of the procedure of CT-guided CNB. (C) Histopathology findings for sample tissue obtained by CNB. Vascular hypertrophy and luminal accumulation of red blood cells without any noticeable endothelial cell atypia.

hypertrophy and luminal accumulation of red blood cells (figure 2C). The diagnosis of cavernous haemangioma without any noticeable endothelial cell atypia was made. The patient was followed up without surgery because there were no symptoms associated with the tumour. One year after diagnosis, no obvious symptoms were observed.

CT-guided CNB is a general diagnostic method primarily used for respiratory and digestive organs but can be used on any part of the body such as the head and neck.¹ CT-guided CNB can accurately approach deep lesions, which are difficult to view with ultrasonography, such as lesions in the deep lobe of the parotid gland, parapharyngeal space and infratemporal fossa.

CNB collects a sufficient amount of tissue compared with fine-needle aspiration cytology and enables immunohistochemical staining, which can diagnose the tumour. CNB helps in the diagnosis of malignant lymphomas, bone and soft tissue tumours, neurogenic tumours and salivary gland tumours. According to a meta-analysis of CNB of head and neck lesions, the most common complication was haematoma (1%, 13 of 1291 procedures); however, no nerve injuries were reported.² In another systematic review, crude estimates suggested 0.0011% tumour seeding after CNB.³

In the present case, we diagnosed a venous malformation at the infratemporal fossa using a CT-guided CNB. The International Society for the Study of Vascular Anomalies updated in 2014, classified venous malformation as a vascular malformation and a localised abnormality of

Figure 1 CT and MRI images. (A) CT axial view: a mass with a well-defined border and density equal to that of muscles. (B) CT coronal view: a mass with a well-defined border and density equal to that of muscles. (C) MRI (short tau inversion recovery) axial view: a high-intensity mass visible in the infratemporal fossa. (D) MRI (enhanced T1) axial view: gradual contrast effect in the mass. The asterisk marks the lesion in the infratemporal fossa.

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morphogenesis. Vascular malformation in the infratemporal fossa is an extremely rare benign tumour.⁴ When diagnosing vascular malformations, it is important to collect the current medical history and perform ultrasonography and MRI. If the diagnosis is difficult, tissue examination is required. The lesion in the infratemporal fossa was an impalpable tumour, and its boundaries and surrounding tissue were difficult to observe via ultrasonography.

Learning points

- Deep lesions of the head and neck can be difficult to diagnose due to difficulties in the collection of the tissue sample.
- CT-guided core needle biopsy (CNB) can be used on any part of the head and neck area to confirm a diagnosis.
- The lesion in the infratemporal fossa, which is difficult to view with ultrasonography, was diagnosed as a venous malformation using CT-guided CNB without an open biopsy.

CT-guided CNB is very useful in diagnosing lesions of the infratemporal fossa.

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