Radiology Case Reports 18 (2023) 1244–1247

Available online at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/radcr

Case Report

Oncocytic carcinoma of parotid gland ☆

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ARTICLE INFO

Article history:
Received 11 December 2022
Revised 21 December 2022
Accepted 27 December 2022

Keywords:
Parotid gland
Oncocytic carcinoma
Ultrasound
Computed tomography

ABSTRACT

Of 0.5% all epithelial salivary gland malignancies are oncocytic cancers, a rare kind of parotid gland cancer. Clinical signs include discomfort and swelling in the cheek region, and the facial nerve is occasionally affected, leading to unilateral facial paralysis. Currently, surgery is the preferred choice of therapy. In this paper, we aimed to provide a case of an 84-year-old male who had an oncocytic carcinoma in the right parotid gland. A heterogeneous, poorly defined hypoechogenic lesion with minor vascular proliferation was seen by Doppler ultrasonography in the superficial lobe of the right parotid gland. On a computed tomography (CT) with contrast agent, an ill-defined mass filling the right parotid gland was evident. With the aid of the CT results of a heterogeneous enhancing mass with poorly defined boundary and expansion of adjacent lymph nodes, it may be able to differentiate between malignant lesions and benign parotid tumors.

Introduction

Less than 5% of head and neck neoplasms are salivary gland neoplasms [1]. The parotid gland was the most typical location [2]. Oncocytic carcinoma, which makes up just 0.5% of all epithelial salivary gland malignancies despite the fact that the bulk of tumors are of epithelial origin, is incredibly uncommon [3]. Based on capsular, vascular, or brain invasion with or without signs of metastasis, the definitive criteria for malignancy are established. For oncocytic carcinomas, like the majority of parotid gland carcinomas, surgery is the favored option of treatment. In this article, we aimed to introduce a rare instance of right parotid gland oncocytic carcinoma in this paper.

Case description

An 84-year-old Vietnamese male's right cheek swelled and hurt for almost 3 months was admitted to our hospital. Phys-

☆ Competing Interests: The authors have no conflicts of interest to declare.
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https://doi.org/10.1016/j.radcr.2022.12.058

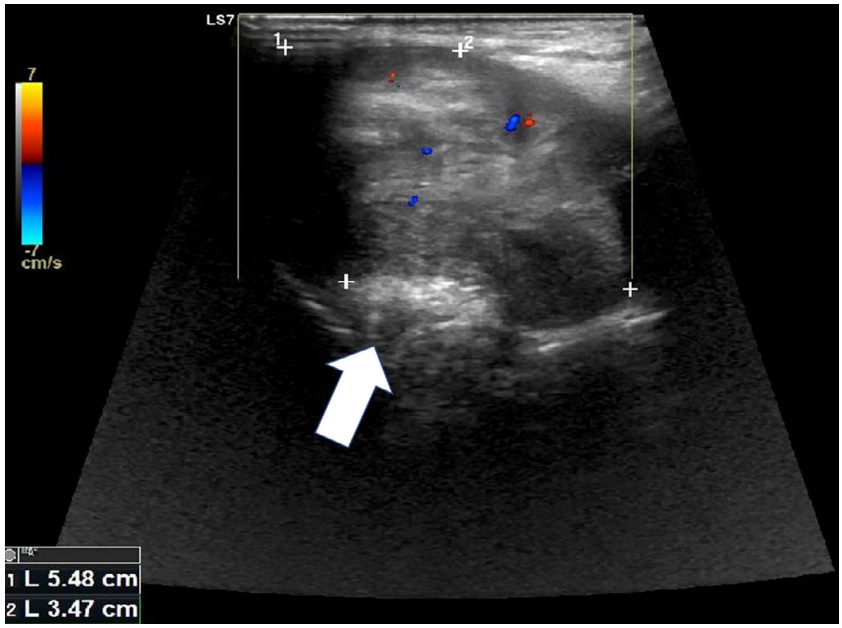

Fig. 1 – A hypoechoic mass with an ill-defined border was seen on color-Doppler mode ultrasonography in the right parotid gland (arrow).

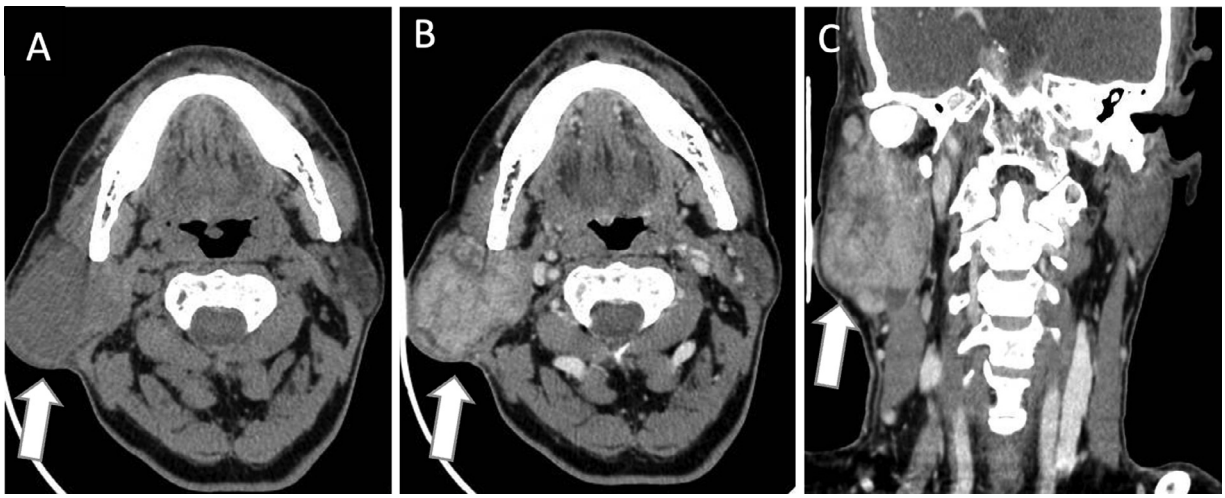

Fig. 2 – Axial CT image without contrast agent (A), axial (B), and coronal (C) CT images with contrast agent showed a heterogeneous enhancing mass (arrow) with an ill-defined boundary in the right parotid gland's superficial and deep lobes.

ical examination indicated facial asymmetry, right-sided facial edema, and a 6 cm well-defined tumor above the right parotid gland. When examined, ipsilateral peripheral facial nerve palsy was also discovered. On the same side of the neck, lymph nodes were touched.

Doppler ultrasonography revealed a 55 × 35 mm hypoechogenic lesion, heterogeneous, poorly defined with modest vascular proliferation, in the lower part of the superficial lobe of right parotid gland (Fig. 1). A poorly defined mass (41 × 48 × 71 mm^3) occupying the right parotid gland was visible on a computed tomography (CT) with contrast agent. Hounsfield units of mass before and after the of injection contrast agent were 35 and 103, respectively (Fig. 2). There were also several internal jugular and inferior right periparotid lymph nodes in the cervical region, all of which showed uniform high enhancement and well-defined borders.

During surgery, the surgeon discovered that the tumor had completely engulfed the right facial nerve. The ipsilateral facial nerve was removed during the right complete parotidectomy. Dissection of the right cervical lymph nodes was also conducted. According to histopathologic analysis, the tumor cells have moderate to abundant eosinophilic cytoplasm and big round nuclei with conspicuous nucleoli. Histopathological findings were appropriate with an oncocytic carcinoma.

Metastatic nodes were confirmed in the internal jugular and inferior right periparotid nodes.

Discussion

The parotid gland is anatomically situated in the fossa behind the jaw, forward of the ear, and in front of the sternocleidomastoid muscle. The facial nerve and its branches pass via a plane that divides the structure's superficial and deep lobes. The deep lobe cannot be seen with ultrasound because of the mandible; however, the superficial lobe may be seen with ease [1–3].

Oncocytes are epithelial cells with big spherical nuclei in the center of the cell and a low nucleus-cytoplasmic ratio. The cytoplasm is eosinophilic, granular, and includes numerous mitochondria of different sizes [4]. The thyroid gland, parathyroid glands, pituitary gland, nasal cavity, sinuses, lacrimal glands, oral mucosa, eustachian tubes, larynx, esophagus, liver, pancreas, and kidney are among the organs that contain these cells [5]. An uncommon kind of malignancy of the parotid gland is oncocytic carcinoma derived from oncocytes. The average age of onset is between 50 and 60 years old, and two-thirds of cases are in male [4]. Clinical signs include discomfort and swelling in the cheek region, and the facial nerve is occasionally affected, leading to unilateral facial paralysis. Our case is older than others in the literature, yet it has the same clinical symptoms. By infiltration, such as capsule, vascular, or neurological invasion, or by metastasis to other organs, the tumor's malignancy is identified. Additional traits include the lack of an envelope, proliferation, and necrosis [6].

Due to the duplication of images of lesions, including both benign and malignant lesions of the parotid gland, imaging in the diagnosis of oncocytic carcinoma is vague. Imaging, on the other hand, can spot prospective cancers such as local invasion, regional lymph node metastasis, or distant metastases. The irregular shape and surrounding invasion of parotid gland cancers, which may be observed on CT and magnetic resonance imaging, are typical characteristics [7].

Parotid oncocytic carcinoma observed on ultrasonography is very uncommon and has a nodular and cystic appearance [8,9]. Since deep lobes and other structures that surround the parotid gland may be seen, CT and magnetic resonance imaging are helpful in preoperative planning by providing a panoramic image of the parotid gland. Oncocytic carcinoma has varied CT imaging characteristics. The parotid gland may develop lesions in the form of nodules or masses with ill-defined borders and heterogeneous attenuation. On CT, it is very simple to spot cancerous signs, such as infiltration of nearby muscles and cervical lymph nodes that are malignant [10]. The diagnostic pictures for our instance are entirely consistent with earlier research.

Currently, surgery is the first-choice therapy [11,12]. Additionally, radiation may be crucial following resection. Numerous case studies highlighted the beneficial effects of postoperative radiation [13–15].

Conclusion

An uncommon cancer of the parotid glands is oncocytic carcinoma. CT is also useful for preoperative planning and showing a panoramic image of the parotid gland. It may be possible to distinguish malignant lesions from benign parotid tumors using the CT findings of a heterogeneous enhancing mass with poorly defined border and enlargement of nearby lymph nodes.

Authors' contribution

Ho Xuan Tuan and Nguyen Minh Duc contributed to write original draft. Cao Minh Tri and Nguyen Minh Duc contributed to undergo diagnostic procedure, collect, and interpret the imaging. Cao Minh Tri and Nguyen Minh Duc made substantial contributions to collect patient data and clinical data analysis. All authors have read, revised, and approved the final published version of the manuscript. All authors were responsible for submission of our study for publication.

Statement of ethics

Ethical approval was not necessary for the preparation of this article.

Data availability statement

All data generated or analyzed during this study are included in this article and/or its online supplementary material files. Further enquiries can be directed to the corresponding author.

Patient consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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