Case Report

Parotid tumour presents as acute onset neck pain: a case report

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ABSTRACT

Salivary gland tumors occur in the major and minor salivary glands. Major salivary gland tumors are frequently reported, with those arising in the parotid gland being most common. Patients with parotid tumors may be entirely asymptomatic. Some of the commonly reported symptoms directly related to parotid tumors include painless swelling of the parotid gland, ipsilateral facial palsy, and facial pain. This case report describes a clinically diagnosed parotid tumor presenting as ipsilateral, acute onset neck pain without preceding cervical trauma in the face of normal physical examination, cardiac, and laboratory workup. The common causes of neck pain are highlighted and further discussion suggests a nociceptive mechanism responsible for this report of acute neck pain.

Keywords: Neck pain, Parotid tumour, Nociception

INTRODUCTION

Salivary gland tumours may be classified based on their location, associated with either major or minor salivary glands. The major salivary glands include the parotid, submandibular, and sublingual glands. The majority of salivary gland tumours are located within the parotid gland.¹ According to clinical literature, many patients do not experience any symptoms from a parotid gland tumour. Other patients exhibit symptoms including a painless swelling anatomically localized to the parotid gland and temporally associated facial palsy or facial pain without evidence of tissue enlargement.^{1,2} The spectrum of symptoms is determined by the size and location of the tumour within the parotid gland. Lymphadenopathy of the cervical chain has been described, along with oropharyngeal fullness and ulceration.³

An extensive search of the clinical literature performed by the authors failed to uncover any frequency in reporting of neck or shoulder pain secondary to parotid neoplastic growth. This contrasts the presentation of progressive neck swelling and pain in the setting of acute

parotitis due to infectious and inflammatory etiologies.⁴ Here, we report a case of acute, unilateral neck pain in the setting of ipsilateral parotid tumour discovered on computed tomography (CT) of the neck with intravenous (IV) contrast.

CASE REPORT

An 88-year-old Caucasian female presented with a one-day history of unilateral neck pain. While sitting, the patient experienced the acute onset of pain located along the base of the left anterior triangle of the neck. She described an unrelenting, aching pain that intensified to its maximum over the course of several hours. The pain was severe enough to keep her from sleeping. She denied any similar previous episode of neck pain. The following morning, the patient was taken by ambulance to the local emergency department. Upon arrival, the patient reported pain at 9 out of 10 on the numeric rating scale and defined the location of pain within a 10 x 7 cm oblong area along the anterior aspect of the left C3 and C4 dermatomes. Her pain did not radiate outside this area. Chewing, swallowing, neck movement, and palpation did

not exacerbate the pain. Ibuprofen and an electric heating pad provided no relief. Immediate workup for acute coronary syndrome was negative. Past medical history was significant for medullary carcinoma of the thyroid, treated ten years prior by excision, radiation, and chemotherapy, and hypothyroidism, maintained on levothyroxine. The patient denied any history of musculoskeletal injury. Review of systems was non-contributory. The patient denied weight loss, fever, chills, and night sweats. Vital signs were within normal limits. Physical examination revealed no signs of asymmetry upon inspection and palpation of the head and neck structures. The parotid glands were not tender to palpation. There were no signs of cervical lymphadenopathy or lymphadenitis. Cardiovascular, pulmonary, and abdominal examinations were unremarkable. The patient was neurologically intact and special testing of the cervical spine was without abnormality. Musculoskeletal examination of the cervical region, upper extremities, and thorax showed no signs of tenderness, asymmetry, functional decrement, or tissue texture irregularity. Complete blood count and metabolic profile were within reference ranges. The patient was offered tramadol for analgesia and pain dropped to 3 out of 10 on the numerical rating scale.

CT of the neck with IV contrast showed a hyper-dense mass within the left parotid gland (Figure 1). The mass measured 23mm x 20mm x 26mm (anteroposterior by transverse by craniocaudad) and extended slightly posterior to the left retromandibular vein. No cervical or parotid lymphadenopathy was visualized.

DISCUSSION

Neck pain imparts a significant level of disability on the worldwide population and its causes are extensive. The differential diagnosis of neck pain may be considered based on the location and onset of pain and whether symptoms correlate with the clinically suspected mechanism of disease.^{5,6} Common causes of neck pain involve neurogenic, mechanical, and secondary mechanisms, such as referred pain from a visceral or glandular structure.⁵

This case report describes the acute onset of unilateral neck pain in an 88-year-old female without prior episode. History and physical examination failed to raise clinical suspicion for common causes of acute neck pain, including those causes mediated by mechanical and neurogenic mechanisms. Cardiac and laboratory workup failed to suggest an overlooked diagnostic avenue. Despite an initially negative workup, the acute nature and severity of the patient's neck pain suggested that a clinically detectable abnormality was responsible. Therefore, a CT of the neck with IV contrast was obtained, revealing a parotid mass (Figure 1).

Biopsy is required to definitively diagnose and grade suspected parotid tumors.⁷ Therefore, the patient was

referred for oncologic evaluation. Unfortunately, the patient was lost to follow-up and a definitive diagnosis was not obtained. Radiographic evaluation has shown efficacy in making a clinical diagnosis of both benign and malignant parotid tumors.^{8,9} The interpreting radiologist deemed the CT findings highly suspicious for neoplastic growth, supporting a clinical diagnosis of parotid gland tumor.

Figure 1: Axial CT with IV contrast shows the hyper-dense mass measuring 23 x 20 x 26 mm (anteroposterior by transverse by craniocaudad) within the left parotid gland.

The phenomenon of central sensitization has been studied extensively and the mechanistic hypotheses gained from this research have begun to clarify various pain syndromes described in clinical literature.¹⁰ The pain experienced by patients with head and neck cancer can be categorized as acute or chronic and neuropathic or nociceptive.^{11,12} Mechanical trauma to the cervical structures may cause neck pain with acute onset.⁶ Yet, trauma had not preceded this patient's acute neck pain. The parotid gland tumor observed on CT represents the only objective abnormality discovered during workup of this case. Together, these findings suggest an alternative source of pain. Local invasion of the parotid gland by the tumor likely disrupted the parenchymal architecture, resulting in the release of noxious compounds. Through previously described mechanisms, these compounds attained the necessary threshold concentration to stimulate afferent nociceptive nerve endings investing the parotid gland in the acute time frame described by the patient.¹³ These noxious afferents would have reached the spinal cord and through centrally mediated neuroanatomical networks specific to the patient, allowed the perception of pain referred to a location distant from the inciting source. It has been documented that nociceptive afferents from visceral and glandular structures often refer pain to the anterior aspects of a given dermatome.^{12,13} An equivalent observation is reported here. This case illustrates the importance of

considering the mechanism of referred pain in the workup and differential diagnosis of acute neck pain.

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