CASE REPORT

An Organizing Hematoma in the Parapharyngeal Space

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Organizing hematomas occur in many locations and simulate neoplasms. They all have similar structure, with a central mass of blood, a wall of granulation tissue, and dense, fibrous tissue at the periphery. There have been sporadic reports of organizing hematoma not only in soft tissue but also in brain, adrenal gland, lung and maxillary sinus. We report a case of nontraumatic head and neck organizing hematoma—one that occurred in the parapharyngeal space (PPS), a site that has not been previously reported. By doing so, since idiopathic organizing hematoma may occur, we hope to promote awareness and consideration of organizing hematoma in the differential diagnosis of tumor in the post-styloid compartment of the PPS, especially in patients with history of trauma or bleeding tendency. [*J Chin Med Assoc* 2009;72(2):94–97]

Key Words: organizing hematoma, parapharyngeal space tumor, post-styloid compartment

Introduction

The parapharyngeal space (PPS) is a potential space shaped like an inverted pyramid. The temporal bone comprises the base of the pyramid and extends inferiorly, tapering to the apex of the pyramid, represented by the great cornu of the hyoid bone.[1] PPS lesions are rare, comprising only 0.5% of head and neck neoplasms. Eighty percent of parapharyngeal space neoplasms are benign and 20% are malignant.[2] Tumors arising in the PPS can be silent clinically for a long period of time. Physical findings like dislocation of the pharyngeal wall or cervical swelling are often recognized by chance. Mostly, PPS masses originate from salivary glands (40–50%). The second most common tumors in the PPS are neurogenic tumors (17–25%). Paragangliomas are the third most common group of parapharyngeal lesions (10–15%). A mixed group of lesions such as branchial cleft cysts, lymph nodes and hematogenic tumors represent the remaining part of PPS masses.[3]

Although most hematomas resolve without causing notable clinical problems, some may persist and appear as slowly expanding lesions that simulate neoplasms. Persistent hematoma occurring in soft tissues has been described as chronic expanding hematoma. The pathology of organizing hematoma of the PPS is similar to the previously reported chronic expanding hematomas at other anatomic locations.[4] The word "organizing" explains the histologic findings such as fibrous tissue, neovascularization, and extravasated red blood cells. The formation of a fibrous capsule around the hematoma prevents its absorption and allows for recurrent intracapsular bleeding and progressive expansion.[5] This organizing process reflects the clinical feature of the expanding behavior. In this article, we report the first case of an organizing hematoma appearing as a huge PPS tumor.

Case Report

A 72-year-old man presented with slurred speech of 2 weeks' duration, without any history of blunt trauma. He went to a local clinic for help, and oral tumor was incidentally found there. Thus, he was referred to our outpatient department for assistance. Physical examination showed a huge bulging tumor with smooth surface over the right parapharyngeal area. Also, bilateral vocal

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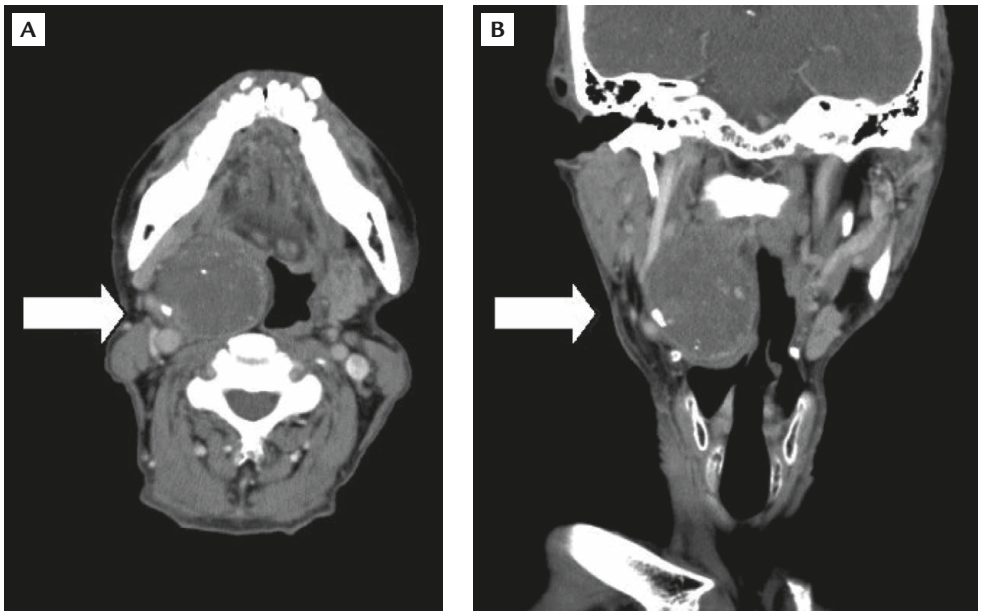

Figure 1. A well-defined mass lesion manifesting calcification and heterogeneous enhancement involving the right lateral oropharynx, parapharyngeal space and adjacent right carotid space, with downward extension to the epiglottis and right pyriform sinus area, measuring about 5 × 3.8 × 5.4 cm in size.

cord movement was normal, without any lesions. Laboratory data including platelet number, prothrombin time (PT) and activated partial thromboplastin time (aPTT) were within normal limits. Computed tomography (CT) revealed a well-defined mass lesion manifesting calcification and heterogeneous enhancement involving the right lateral oropharynx, PPS and adjacent right carotid space with downward extension to the epiglottis and right pyriform sinus area, measuring about 5 × 3.8 × 5.4 cm in size (Figure 1). Intraoral biopsy was performed, but frozen section report and final pathology result both showed necrosis. The patient was advised to undergo total excision.

The whole parapharyngeal tumor was excised smoothly with intact capsule via a transcervical approach (Figure 2). On gross examination, the specimen was well encapsulated and lobulated, with amorphous chocolate-brown muddy material inside (Figure 3). It measured 5.6 × 4.8 × 4.2 cm. Microscopic examination revealed a picture of necrosis, extravasated red blood cells, fibrin deposits and inflammatory cell infiltrate in the central portion (Figure 4). The granulation tissue and dense fibrous tissue were in the peripheral portion (Figure 5A). Fibrosis and angiogenesis were organized in hematoma background (Figure 5B). The tumor was pathologically diagnosed as necrosis and organizing hematoma. The postoperative course was unremarkable, without any complications. The functions of the cranial nerves (VII, X, XII) were intact, and there was no sign of recurrence at the 6-month follow-up.

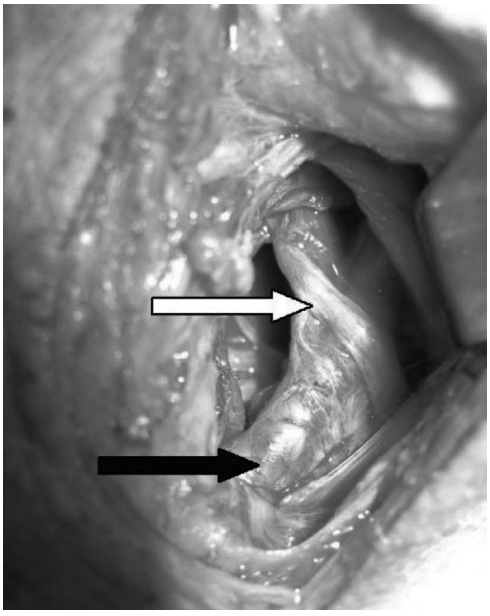

Figure 2. The tumor was totally excised via a transcervical approach. White arrow = hypoglossal nerve; black arrow = carotid artery.

Discussion

The PPS tumor most commonly presents clinically as a painless mass in the neck or bulging of the oropharynx. Patients may harbor these masses for long periods before symptoms arise. PPS tumors often grow to at least 2.5–3 cm before they are detected. Almost 25% of patients are reported to be without symptoms,

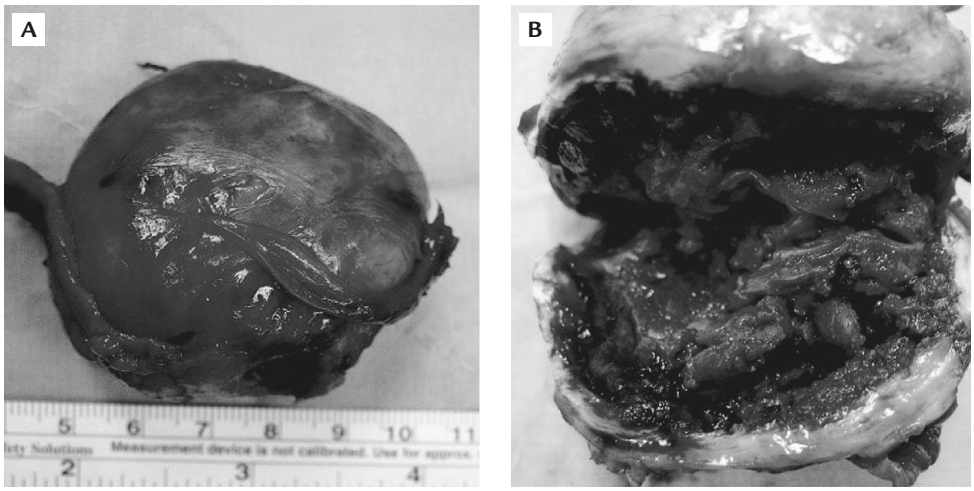

Figure 3. (A) The tumor was well encapsulated and measured 5.6 × 4.8 × 4.2 cm. (B) The tumor was lobulated, with amorphous chocolate-brown muddy material inside.

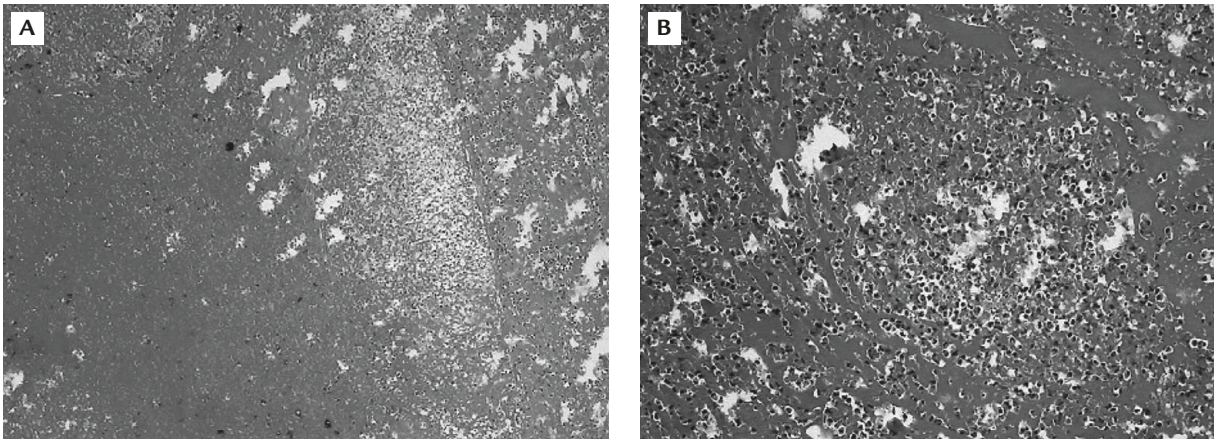

Figure 4. (A) Necrosis, extravasated red blood cells, fibrin deposits (hematoxylin & eosin, 40×); (B) inflammatory cell infiltrate in the central portion (hematoxylin & eosin, 100×).

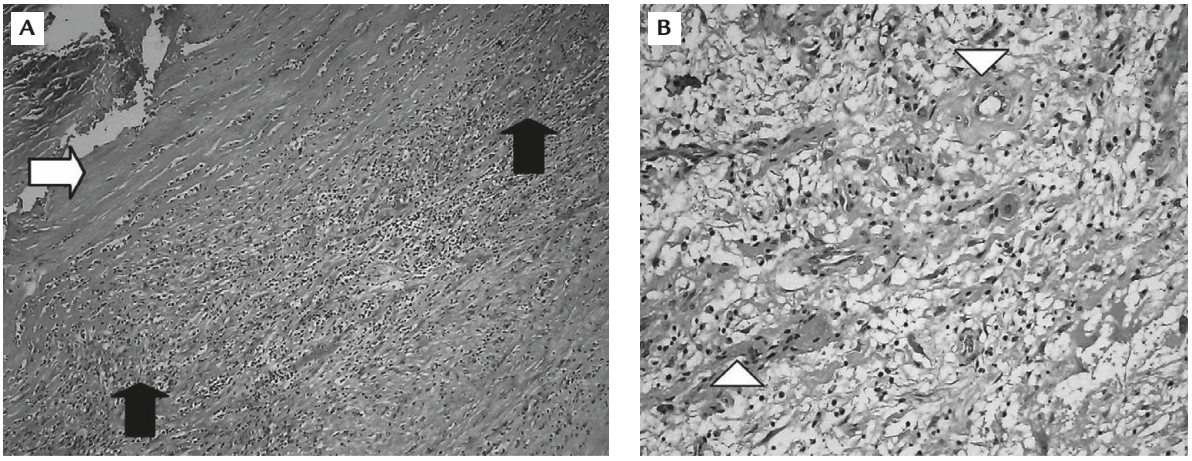

Figure 5. (A) Granulation tissue (black arrows) and dense fibrous tissue (white arrow) in the peripheral portion (hematoxylin & eosin, 40×). (B) Fibrosis and angiogenesis (white arrowheads) were organized in hematoma background (hematoxylin & eosin, 200×).

and 20% of PPS tumors are found incidentally. Additionally, 15% of benign PPS tumors may be associated with preoperative cranial nerve deficits.[6]

Although history and physical examination can provide clues to the site of origin and nature of a PPS tumor, imaging studies are more useful for diagnosis. CT with contrast can define the site of origin and extent of the tumor, as well as its vascularity and relationship to the great vessels of the neck and other neurovascular structures. Magnetic resonance imaging is preferred over CT when soft-tissue invasion or perineural invasion is suspected. Angiography is considered the test of choice to define the blood supply of vascular tumors and establish their site of origin. The typical contrast-enhanced CT findings of organizing hematoma are heterogeneous or homogeneous lowly attenuated lesions with or without calcification.[7] PPS tumors that originate from salivary glands appear as a non-enhancing mass on CT. The most common extraparotid enhanced PPS lesion on CT is neurogenic tumor. Paraganglioma in PPS represents uniform enhancement on CT and shows a characteristic pattern of vascularity.[8]

Although the precise mechanism remains unclear, it is hypothesized that organizing hematoma develops in several stages. Initially, blood accumulates owing to various causes. Then the chronic hematoma changes to organized hematoma through angiogenesis, neovascularization, and fibrosis. The causes of initial bleeding are various, such as facial trauma, postoperative bleeding, vessel injury, and various vascular and idiopathic diseases. However, our patient denied any history of trauma, operation or blood coagulation abnormalities before and remained idiopathic.

The mainstay of treatment of PPS tumors is surgical extirpation. Complete excision of the tumor is recommended to corroborate the diagnosis and as final treatment. Fine-needle aspiration biopsy is recommended for patients who are poor surgical candidates or for those who are suspected of having a lymphoma or metastatic tumor, and incisional biopsy is indicated when fine-needle biopsy fails to establish a definitive diagnosis. There are many surgical approaches for PPS tumors. The choice of approach is dictated by the size of the tumor, its location and relation to the major vessels, index of suspicion for malignancy and experience of the surgeon. We chose the transcervical approach for total excision because the location of the tumor was in the post-styloid compartment of the PPS without violation of the submandibular triangle.

There have been sporadic reports from various medical fields of organizing hematoma not only in soft tissue but also in brain, adrenal gland, lung and maxillary sinus. However, in our review of the literature, none of the published organizing hematomas presented as a huge PPS tumor.

Differential diagnosis of organizing hematoma in PPS tumor is a challenge because the CT findings are not very specific. Clinical histories of trauma, surgery or hemophilia may be significant clues for organizing hematoma of the PPS. But it is interesting that our patient denied any previous trauma, operation, or coagulopathy.

Although PPS tumors are rare and mostly benign, our case demonstrates that idiopathic organizing hematoma may occur in the PPS. Therefore, organizing hematoma deserves consideration in tumors occurring in the post-styloid compartment of the PPS, especially when patients have a history of trauma or coagulopathy. Surgical excision can be successfully accomplished with minimal morbidity.

References

1. Carrau RL, Johnson JT, Myers EN. Management of tumors of the parapharyngeal space. *Oncology* 1997;11:633–42.
2. Carrau RL, Myers EN, Johnson JT. Management of tumors arising in the parapharyngeal space. *Laryngoscope* 1990;100: 583–9.
3. Andratschke M, Helmberger R, Mees K. Differential diagnosis of parapharyngeal mass. *Laryngorhinootologie* 2000;79:174–9. [In German]
4. Reid JD, Kommareddi S, Lankerani M, Park MC. Chronic expanding hematomas. A clinicopathologic entity. *JAMA* 1980; 244:2441–2.
5. Tabaee A, Kacker A. Hematoma of the maxillary sinus presenting as a mass—a case report and review of literature. *Int J Pediatr Otorhinolaryngol* 2002;65:153–7.
6. Cohen SM, Burkey BB, Netterville JL. Surgical management of parapharyngeal space masses. *Head Neck* 2005;27:669–75.
7. Lee HK, Smoker WR, Lee BJ, Kim SJ, Cho KJ. Organized hematoma of the maxillary sinus: CT findings. *AJR Am J Roentgenol* 2007;188:370–3.
8. Som PM, Biller HF, Lawson W. Tumors of the parapharyngeal space: preoperative evaluation, diagnosis and surgical approaches. *Ann Otol Rhinol Laryngol Suppl* 1981;90:3–15.