RARE HISTOPATHOLOGICAL FORMS OF PARAPHARYNGEAL TUMORS

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Summary

The parapharyngeal space is a potential space, which has been described shaped like an inverted pyramid, surrounding the rhino-, oro- and hipo-pharynx. Tumors arising herein are highly uncommon, representing 0,5-1% of head and neck tumors. This paper presents four particular cases treated in Emergency County Hospital, SF.Spiridon Iasi, E N T Clinic. The diagnosis of these tumors was squamous cell carcinoma, lipoma, TB adenopathy and osteoclastoma. In all four cases the main method of treatment was surgery, the transcervical approach was the main procedure used for complete ablation of the tumors. Postoperative local favorable evolution, allowed the complementary 60 Gy radiotherapy for both, primitive carcinoma and osteoclastoma. There was no regional recurrence observed in follow-up protocol.

Key words: parapharyngeal space, tumors, histopathological, surgical approach.

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Introduction

Parapharyngeal tumors are rare head and neck neoplasms. Various pathological processes infectious, inflammatory and neoplastic which involves the parapharyngeal space (PPS), represents less than 1% of all head and neck tumors (Stanley,1991; Pang et al 2002).

PPS tumors may arise from the any individual components or structure contained within this space or may invade from the surrounding structures.

Metastatic lesions must be suspected when chronic pain is the prominent clinical feature, non-responsive to oral treatment and radiological findings demonstrate a characteristic lesion with central necrosis and an enhancing rim, especially when these are encountered in a patient with a known primary carcinoma elsewhere in the body (Morrissey et al 2000). When the primary lesion is not apparent or suspected, the diagnosis cannot be made with certainty until histopathological examination is performed Loré et al 2003).

80% of all parapharyngeal tumors, are benign, (Andrat Schke M et al 2000).

From all retrospective reviews there are three main groups of tumors which arise herein: those of salivary origin, neurogenic tumors, especially schwannomas, and paragangliomas (Allison et al 1989).

Comprising 10-15% of PPS lesions, may occur other rare lesions such as lipomas (Smith et al 2002), liposarcomas, metastatic lesions, meningiomas, hemangiomas, heamangiopericytomas, chondrosarcomas, hemangioendotheliomas (Biswas et al 2005), malignant fibrous histiocytoma, branchial cleft cyst, primitive carcinoma.

Review of the medical literature over the last decades, revealed only four cases of parapharyngeal space abscesses of tuberculous etiology, up to 11 osteoclastomas of temporal bone (Khadivi et al 2006), and only eight cases of a lipoma in the parapharyngeal space, near critical vasculo-nervous package of the neck.

The risks and benefits of surgery must be weighed in every case.

The relationship of the between tumor and vessels should be clearly delineated by preoperative imaging prior to
planning resection, and patients should be counseled accordingly. Injury to the great vessels may result in uncontrollable bleeding, stroke, or death. Consult a vascular surgeon is necessary if exist a possibility of carotid resection requiring grafting interposition. Consulting a neurosurgeon may be appropriate for lesions involving the skull base.

In this cases it is necessary always to perform tracheostomy in conjunction with a transmandibular approach because significant upper airway edema may result from surgical manipulation of the oral cavity and oropharynx, causing obstruction (Gourin et al 2009).

Materials and methods

We present four particular cases admitted in Emergency County Hospital, Sf.Spiridon Iasi, E N T Clinic with unusual tumors of parapharyngeal space:

- a 58 years old woman, from urban environment, with a chronic, progressive, six month history, swallowing difficulty. On physical examination: a firm, well limited, painless, sub-mucosal mass, pushing the right half posterior-lateral pharyngeal wall forward, covered with normal mucosa,

- a 45-year-old male presented with a progressive, painless swelling on the right side of his upper neck (fig.1).

- a 57-year-old pacient, A.O., from a rural environment, with three months history of gradually, progressive dysphagia to solids and liquids. The pacient also reported mild fatigue and snoring.

On oral examination, a significant (firm, non-tender swelling, 5x4 cm) right posterior pharyngeal bulge was found with intact overlying mucosa.

- a 53-year-old lady, U.M. living in rural areas, presented for left temporal neuralgia, progressively installed in few month, non responsive to analgesic ambulator treatment, trismus, left facial nerve paresis, peripheral type, installed in the last two weeks, without deformation region.

All cases were explored by native and enhanced computed tomography scan, aiming at determining whether it’s a benign or malignant tumor mass, location, relation to major vasculo-nervous elements, possibly locoregional extension and bony erosion of neighborhood structures, the presence of retropharyngeal or laterocervical adenopathies.

All cases underwent surgery with histopathological examination to confirm the diagnosis.

Pieces of surgical excision and aspiration of the content for TB adenopathy were worked in the UMF Iasi laboratory of pathology, using routine techniques and bacteriology for BK: microscopic examination, microbiological tests.

In 3 / 4 cases complete removal of the tumor was attempted, trans-cervical approach was used in all these three cases, for complete ablation.

In two of these three cases, combined approach technique, transcervical-transoral or transcervical-transmandibular was required for complete ablation of the tumor.

There were no incidents, minor or major complications, during surgery.

For all cases presented the rules of medical ethics were followed; informed consent of patients was obtained.

Fig.1. Preoperative image

The swelling had first been noted one and a half years previously. The patient also complained of some difficulty in swallowing and a moderate effort dyspnoea.
Results
Case one
Computed tomography scan (CT) with contrast material enhancement achieved by intravenous administration of 100 ml of non-ionic contrast, with a power injector rate of 2 ml/sec, revealed a mass of 4.2×3.5 cm that was located in the retropharyngeal and prevertebral space, extended between C2-C4.

Transoral approach was initially tempted, through a vertical incision on the right posterior tonsilar pillar free edge. Because of the anatomical constitution of the patient- short neck, small mouth opening and the intraoperative situation- the tumor located very deep, bloody supradiacente plans, combined transoral-transcervical approach through exploratory right cervicotomy was decided and performed. The tumoral mass, adhering to prevertebral aponeurosis was detached with difficulty, and pushed to the right side through the endobucal incision, and being well defined, was completely excised through the laterocervical surgical wound.

The surgical excised mass was given to the pathology laboratory which established the final diagnosis of squamous cell carcinoma, keratinized, moderately differentiated, with polymorphous inflammation and necrosis.

Postoperative local favorable evolution, allowed the complementary 60 Gy radiotherapy.

Checks regularly at 3, 6 months and then at 1 and 2 years, revealed the presence of no local recurrence.
Case two
A full blood count and erythrocyte sedimentation rate were within normal parameters. Chest radiography showed no abnormalities. A throat examination revealed the right pharyngeal wall and uvula to be deviated slightly to the left.

Native and enhanced computed tomography scan, showed a low-density mass, 3×6.5×8 cm, in the right post-styloid parapharyngeal space extending superiorly, consistent with a mass of adipose tissue origin.

No evidence of lymphadenopathy was seen.

The patient underwent excision of the parapharyngeal mass under general anesthesia via a transcervical approach. A large fatty tumor was found extending into the PPS, inferior to the level of the hyoid bone, superior to the horizontally line of mandible, and anterior to the submandibular gland.

The mass was carefully excised by a combination of blunt and sharp dissection from the neurovascular structures, pushed out and separated by the tumor (Fig. 2).

Fig.2. Total removal of the lipoma

Histopathology confirmed it to be a lipoma. Because the large dimensions of the tumor (fig.3) and increased dyspnoea, tracheostomy was performed.

Fig.3. The giant lipoma

Due to an uneventful recovery, the tracheal cannula was removed. One year after surgery, the patient showed no evidence of a recurrence.
Case three

CT scan confirmed a mass lesion in the right retropharyngeal space, suggesting central suppuration, not sustained by clinical features and full blood count. The chest x-ray was normal, but tuberculin skin test was positive.

Due to necrosis presence, ablation is not tempted, and was performed transoral drainage of the mass lesion.

Aspiration yielded small amount of dark colored pus, and when incised, caseous material was expressed, which was sent for culture. Pathological results confirmed the presence of BK and imposed antituberculosis medication for 6 month.

After treatment, evolution was favorable, without reporting any local recurrences. As noted in this case report was the fact that the patient worked in a TB ward, and adenopathy was the only location of the disease.

Case four

Enhanced computed tomography scan showed the presence of a tumor in the left prestygial space, extended into infratemporal fossa.

The transcervical combined with transmandibular approach was decided, external carotid artery ligation was performed, finally realizing the 3.5 /2.5 cm tumor full removal.

Postoperatively, the left facial nerve paresis and temporal neuralgia complete remission was found.

Histopathological examination was crucial. After histopathological examination and diagnosis of certainty, with osteoclasts tumor, surgery was completed with 40 Gy irradiation dose.

Checks for a period of three years, found a favorable development and the absence of local recurrence.

Radiologically, these lesions don’t have a distinguishing appearance and may simulate other expanding, destructive lesions of the temporal bone. Radiologic differential diagnosis includes chondrosarcoma, osteoblastomas, osteolytic metastasis, and otherfibrousosseous lesions.

Discussions

Parapharyngeal space tumors are often asymptomatic until the tumor reached a visible or palpable size in the oral cavity and / or neck regions.

Most of these lesions have a slow, insidious growth and are clinically asymptomatic.

Clinical signs and symptoms appear only when the mass tumor is large enough and are related to compression of surrounding structures.

They include observation of a neck mass, dysphagia, appearance of a pharyngeal wall bulge or velopalatine deformation, last four cranial nerve palsy, conductive hearing loss, and trismus.

The presence of pain, trismus, or a neurological deficit is suggestive for malignancy.

Besides the size of the tumor, clinical expression depends on the peritumoral edema and swelling extension.

The goal of parapharyngeal surgery is to provide adequate tumor visualization to achieve complete tumor removal, while preserve the surrounding nerves and vessels and control of any hemorrhage.

The selection of surgical approach depends on tumor size and site.

Many surgical procedures have been described for the treatment of PPS lesions. The goal of parapharyngeal surgery is to obtain adequate tumor visualization to ensure complete tumor removal with preservation of the surrounding nerves and vessels and to control any hemorrhage.

There are five surgical approaches to tumors of the PPS: the transoral, transcervical, transparotid, transcervical-transmandibular, and lateral skull base approaches.

The choice of surgical approach depends on the location, size, vascularity, and malignant potential of the tumor.

Epidemiological data of this study revealed a male / female ratio of 1: 3, with patients aged between 45 and 58, meaning an average of 52.5 years.
It also found the prevalence of patients living in rural areas.

In 1940, Pancoast described the first time a tumor in the temporal bone with osteoclasts.

Histologically, these tumors consist of mononuclear ovoid and spindle-shaped stromal cells and multinucleated giant cells. Osteoclasts are large cells, multinucleated (fig. 4), differentiated macrophages, which in normal bone marrow are involved in the reshuffle.

The etymology of this term is very interesting, coming from the association of osteo-terms (from the Greek osteon = bone), and-clast (from the Greek klastos = broken, broken). There was even a surgical tool with that name, used for bone fracture.

Osteoclastomas are rare primary tumors and usually affect the tubular bones in more than 70% of all cases. These are benign tumors but potentially malignant, because of its high recurrence rate, and difficulty of total removal.

Historically, first osteoclastoma was thought of as malignant tumor termed as giant cell sarcoma.

The differential diagnosis between osteoclastoma and the giant cell reparative granuloma can be particularly difficult.

Jaffe in 1958 was the first to differentiate between these lesions, and it was late in 1974 when Hirschi and Katz reviewed the subject and defined more precisely some histological criteria for diagnosis and differentiation of these two lesions (Pensak ML 2001).

Among the skull bones, sphenoid bone, temporal bone, maxilla and mandible are common site of involvement.

Conclusions

PPS tumors are a rare entity. The above four tumors are even more rarely encountered in the parapharyngeal space.

Diagnosis of these unusual lesions was a challenge to the clinician, radiologist and pathologist alike, but the certainty of these, which is crucial for therapeutic plan, was given by the histopathological step-wise manner of follow the clinical and cellular features.

The knowledge of differential diagnosis of PPS tumors and proper preoperative investigations may prevent delay in diagnosis. Extension in infratemporal fossa, where the tumor with osteoclasts was found, determined the trismus. For malignant tumors, the exact frequency of follow-up and testing will depend on the exact tumor type.

In general:

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<th>Year</th>
<th>Post-treatment</th>
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<td>1st year</td>
<td>post-treatment</td>
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<td>2nd year</td>
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<td>3rd year</td>
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<td>4th and 5th years</td>
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Imaging studies of the parapharyngeal space should be performed once or twice a year, during the first 5 years, and only if new symptoms or findings occur after that time.

For malignant lesions follow-up protocol includes an annual chest x-ray.

The most effective management of such cases requires an interdisciplinary collaboration team which includes the ENT surgeon, radiologist, pathologist, oncologist, not infrequently a neurosurgeon and/or a vascular surgeon, a plastic one, and at last but not at least, a psychologist.
References


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