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Schwannoma of the parotid gland

Case report

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Schwannoma of the parotid gland. Case report

Schwannoma is encapsulated benign tumors arising from nerve cell. Of which ancient schwannoma is one of five variants. Intraparotid facial nerve schwannoma is been documented sporadical throught the medical literature, althought a few ancient schwannomas have been reported in different locations in the head and neck region. In this report, a 31 year old man patient with an misunderstanding tumor of the parotid gland is described and the histopathologic exam was performed to diagnosed the schwannoma.

KEY WORDS: Micro-capsulated, Microcysts, Neurilemmoma, Schwannoma, Surgical excision

Introduction

Schwannoma or neurilemmoma is an uncommon, benign encapsulated tumor arising from the Schwann cells of the facial nerve. The term neurilemmoma is often used to describe benign tumors of neural origin, including schwannomas and neurofibromas.
Intraparotid facial nerve schwannoma is been documented sporadical throught the medical literature; althought a few ancient schwannomas have been reported in different locations in the head and neck region, intraparotid facial nerve schwannoma is very rare. Only 25% of these cases originate from the neural structures of the head and neck [1].
In this region, schwannoma comprise a significant number of the tumors of the parapharyngeal space; then from histological point of view are been described five variant of schwannoma: they are conventional, plexiform, cellular, epithelioid and ancient schwannoma.
Microscopically schwannoma is completed capsulated, but we can consider different histological variant. Often most of the micro-capsulated microcysts, contained eosinophilic proteinaceous fluid.
From clinical point of view schwannoma can develop various symptoms, and because of lack of specific symptoms, diagnosis may be difficult.
Scahwannoma of the facial nerve is frequent but account for less than 5% of facial paralysis and should be considered in the differential diagnosis [2].
Early diagnosis and treatment are required for a better postoperative facial nerve function.

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We report a typical case of a parotid gland swelling which clinically, radiologically represented a pleomorphic adenoma. Only following surgical excision and histological examination however, was the true diagnosis of ancient schwannoma made.
Although this connection has previously been described in letterature, where a few isolated cases were reported.

Case report

A 31 year-old male presented to our Departement in April 2007, with a six months history of progressive grow, on the left neck, of an asymptomatic solid mass (Fig. 1 a-b-c). The mass measuring approximately 3.5 x 1.5 cm of diameter and it was located below the upper portion of the sternocleidomastoid muscle. At the objective exam, we noticed an alteration of the third left of the middle face, characterized by mobile and solid lesion, not tender, not pulsing and no associated bruit. The patient reffered that the mass had been progressively increasing in size but not associated with any other symptoms; and well-conservative the facial function. The patient underwent to an echographic exam, which revealed " a solid ipoechogenic mass in the posterior parotid pole; then a cytologic exam was perfomed, but a negative result". Diagnostic study was performed, including MRI scan, that confirmed a well-circumscribed mass in the left side of the parotid region; then the lesion circumscribed, extended exclusively in intra-parotid gland including the the facial nerve (Fig. 2 a-b). According to the patient's history and the mass increasing, we supposed an pleomorphic adenoma of the parotid gland. The patient underwent to surgical remove of the mass by a conservative and shallow parotidectomy, with preservation of the facial nerve and its branches(Fig. 2c).During the intraoperatory time, the lesion appeared branched in the parotid gland, including the nervous component.
The mass was dissected from the surronding tissues; the extirpation from the gland was difficult, due to location of the tumor branched. Post-operative time was uneventful and the facial nerve function was preserved(Fig. 3a). The patient was monitorized at follow-up of fifteen days to one, three months and clinical conditions were improvement (Fig. 3 b,c,d).

Fig. 1: (A) (B) Frontal and lateral view of patient pre-operatory; (C) Facial nerve valuation pre-operatory.

Histologic Findings

A cytologic examination of the mass, was performed and on microscopic value the tumor showed solid cellular and hypocellular areas and it was been diagnosis of Schwannoma.
The resected specimen consisted of a well-capsulated nodular mass measuring cm 3,7 in greatest dimension and of a fragment of major salivary gland, which showed no macroscopic alteration, measuring cm 4,3 in greatest dimension.
On cut section the mass had a gray-white appearance with areas of hemorrage.
On microscopic examination the mass was surrounded by a fibrous capsule and was constituted of a population of spindle cells with twisted nuclei and indistinct cytoplasmic borders. These cells where organized in two distinct growth patterns: Antoni A areas and Antoni B areas (Fig. 4a). Antoni A areas where densely cellular and characterized by Verocay bodies, formed by two compact rows of well aligned nuclei separated by fibrillary cell processes(Fig. 4b). The Antoni B areas where less cellular and cells where distributed less orderly in a looser textured matrix. Immunohistochemical investigation revealed diffuse positive staining for S100 protein (Fig. 4c).

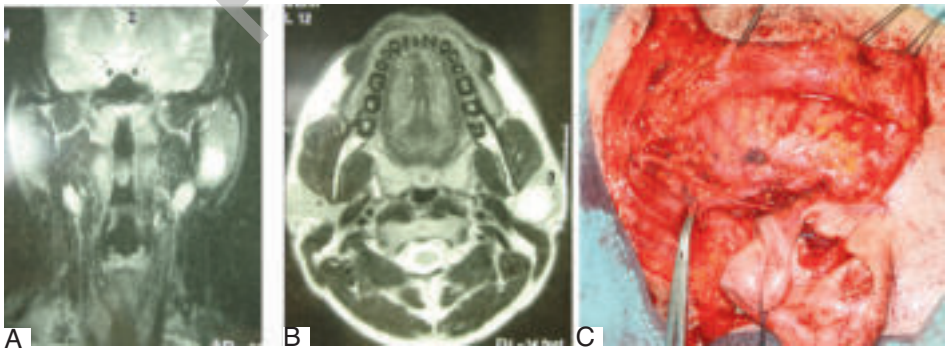

Fig. 2: (A) (B) MRI exam:Coronal and axial view; (C) Intra-operatory view: facial nerve's branches.

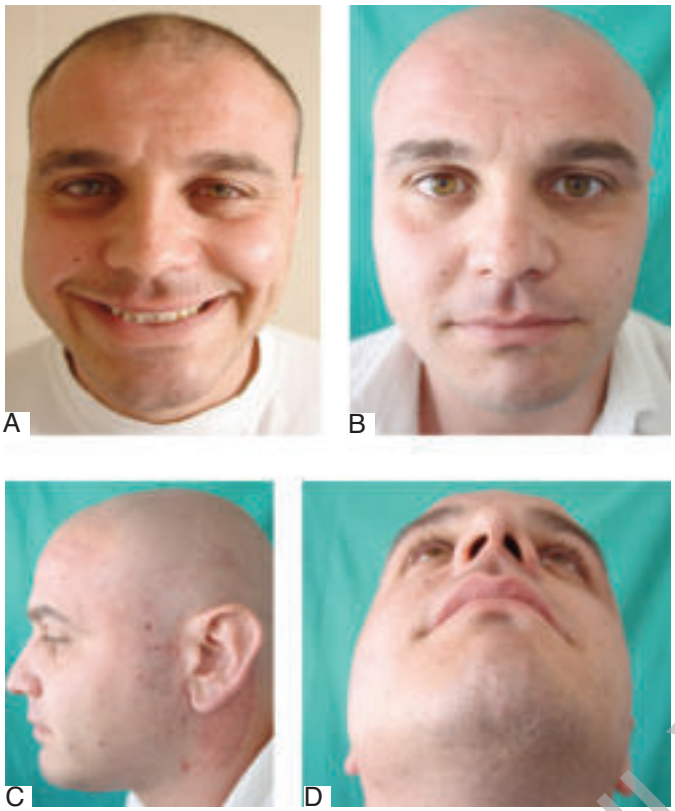

Fig. 3: (A) Facial nerve valuation post-operatory; (B)(C)(D) Frontal, lateral and axial view of patient post-operatory.

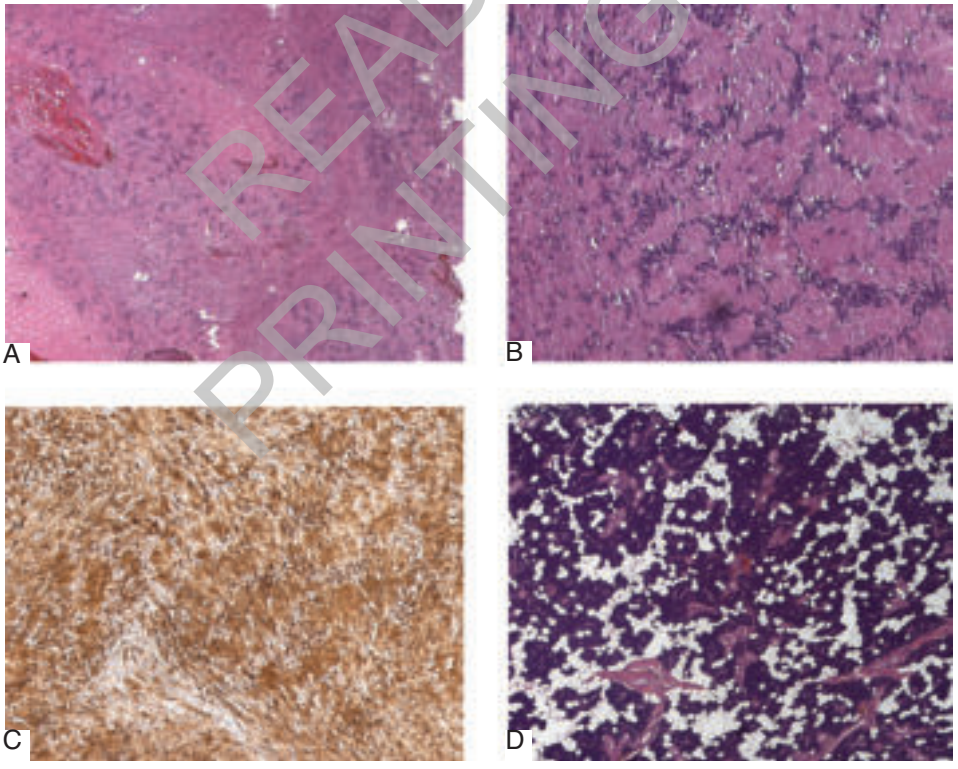

Fig. 4: (A) Schwannoma showing both Antoni A and Antoni B areas (Hematoxilin/eosin stain, 25x); (B) Schwannoma, Antoni A areas, illustrating nuclear palisading with Verocay bodies (Hematoxilin/eosin stain, 100x); (C) Schwannoma, intense immunostaining for S100 protein (S100 immunostaining, 100x o 200x); (D) Major salivary gland with adipose involution(Hematoxilin/eosin stain, 25x).

These findings led to a diagnosis of "schwannoma of the parotid gland".The surrounding tissue showed mild adipose involution (Fig. 4d).

Discussion

Tumors arising from the facial nerve, within the parotid gland are rare and are unlikely to be included in the differential diagnosis of a parotid mass. These tumors may arise from the neural structures of the parapharyngeal space, including nerves IX, X, XI and XII [3], but in this case, the differential diagnosis was between a schwannoma of the vagus nerve or a schwannoma of the cervical sympathetic chain.

The clinical case, that we described in this paper, is included in the primary tumor of the facial nerve: schwannoma and neurofibromas; in particular the schwannoma contains no axons within the tumor and may be separeted from the associated nerve fibres, whereas the neurofibromas has axons that penetrate directly into the tumor mass. Therefore is important, before the treatment, to know the tumors origin, because an intraparotid lesion branched may occur a bad post-operative complications.

The clinical case, that we reported, is an example of tumor of the parotid gland, which clinically, radiologically represented a pleomorphic adenoma. During the intra-operatory timing, the lesion presented not well-capsulated and branched in the parotid gland; these data were important to management of our surgical treatment, that is was extremely conservative. Althought in a typical schwannoma, the nerve fibres are separeted from the tumor and the lesion can theoretically be removed without damage to the nerve; in our case the benign lesion not respect the normal canons and hystological diagnosis reveals a " schawnnoma of the gland parotid".

Typically schwannoma enlarge slowly, with minimal symptoms until size and impact on other structures make them evident. Its characteristic histological appearance is dominated by an encapsulated lesion arising from a nerve and composed of an intimate mixture of spindle cells.

Generally these lesion may undergo degenerative ancient changes dominated by large cystic.

About 25-40% of all schwannoma occur in the head and neck region [4]; it is an extremely rare to encounter an ancient schwannoma in the parotid gland. Althought in the literature there are a few schwannoma cases reported in the head and neck area, only one case in the pareotid gland is described [5].

Head and neck schwannoma are frequently misdiagnosed and preoperatory evaluations are often fruitless. When suspected of a parotid mass, a MRI scanning is to be performed, to help both diagnostically and prognostically.

According to the literature, the management of intraparotid facial nerve should be conservative and based on facial nerve functional; the lesion should be treated by surgical excision, preserving the facial nerve. If the nerve is too thin or splayed out, nerve segment should be done.

In the case described, the mass originated from the deep portion of the parotid, the nerve is involved in the lesion, so dissection was done with preservation carefully of the nerve and its branches.

Conclusions

A case of unusual schwannoma is described in this paper. The lesion appeared, in the intra-operatory time, an uncommon schwannoma of the parotid gland which included the facial nerve and its branches. According to the literature, we conformed to traditional and conservative surgical resection of the lesion, preserved to the nervous component. An hystological exam was performed and confirm the diagnosis. We noticed that the post-operatory facial nerve function was normal and during a follow-up the patient was free from disease.

Riassunto

Lo Schwannoma è un tumore benigno capsulato proveniente dalle cellule nervose di cui se ne riconoscono cinque varianti. Lo Schwannoma intraparotideo derivante dal nervo facciale è stato sporadicamente descritto in letteratura, inoltre alcuni Schwannomi primitivi sono stati descritti in differenti regioni di testa e collo. In questo articolo è stato descritto il caso di un paziente di 31 anni, con un tumore parotideo misconosciuto, che tramite l'esame istologico è stata fatta diagnosi di Schwannoma.

References

1. Bayindir T, Kalcioglu MT, Kizilay A, Karadag N, Akarcay M: *Ancient schwannoma of the parotid gland: a case report and review of the literature.* Craniomaxillofac Surg, 2006; 34(1):38-42.

2. Ulku CH, Uyar Y, Acar O, Yaman H, Avunduk MC: *Facial nerve schwannomas: A report of four cases and a review of the literature.* Am J Otolaryngol, 2004; 25(6):426-31.

3. Kayem MJ, Dufour JJ, Robert F: *Development of a schwannoma within a facial nerve neurofibroma: A case report and literature review.* Otolaryngol Head Neck Surg, 1995; 112(3):483-87.

4. Saydam L, Kizilay A, Kalcioglu T, Gurer I: *Ancient cervical vagal neurilemmoma: A case report.* Am J Otolaryngol, 2000; 21(1):61-64.

5. Ogren FP, Wisecarver JL, Lydiatt DD, Linder J: *Ancient neurilemmoma of the infratemporal fossa: A case report*. Head Neck, 1991; 13(3):243-46.