

EVOLUTION OF THE POST-OPERATIVE PARESIS OF THE FACIAL NERVE AFTER NEURORRHAPHY AND VITAMIN THERAPY IN A CASE OF GIANT WARTHIN TUMOUR

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Keywords: Warthin tumour, parotidectomy, facial nerve, neurorrhaphy

Abstract: Functional recovery of a nervous branch after an injury of surgical nature varies in terms of healing time and degree. A case with large dimension Warthin tumour extended in the whole parotid bed and the parapharyngeal space is presented, involving a special diagnosis and therapy approach. The intrasurgery injury of one of the facial nerve branches, asking for immediate repair through neurorrhaphy, was followed by quasi complete functional repair after a year of directly observed therapy.

Cuvinte cheie: tumora Warthin, parotidectomie, nervul facial, neurorafie

Rezumat: Recuperarea funcțională a unui ram nervos după o leziune de natură chirurgicală este variabilă ca timp și grad de vindecare. Este prezentat un caz de tumoră Warthin de mari dimensiuni, extinsă în întreaga lojă parotidiană și spațiul paraforingian ce a implicat o abordare diagnostică și terapeutică specială. Lezarea intraoperatorie a uneia din ramurile nervului facial, ce a necesitat reparația imediată prin neurorafie, a fost urmată de recuperare funcțională cvasicompletă după o perioadă de dispensarizare de circa 1 an.

INTRODUCTION

The Warthin tumour (papillary cystadenoma lymphomatosum) is a benign tumour with pseudo-cystic appearance of the salivary glands, affecting the parotids exclusively, (1) frequently located in the superficial lobe of the parotid gland.(2) It has an incidence of 5-10% of all the parotid tumours (1), and it is more frequent among men in their 6's decade. Papillary cystadenoma lymphomatosum is a well shaped, painless and slow evolution tumour (3), that rarely relapses after complete ablation (1), and whose malignity is less probably.(4) Warthin tumour eponym comes from the research made by Aldrin Scott Warthin in 1929 in the USA on the first two cases of papillary cystadenoma lymphomatosum.(5) The choice treatment for the Warthin tumour is the surgical excision but, unlike the other benign parotid tumours (i.e. pleomorphic adenoma, monomorphic adenoma, oncocytoma etc.) in which tumour ablation by lateral parotidectomy is recommended, the simple enucleation is enough in the case of papillary cystadenoma lymphomatosum.(1)

Although the simple enucleation of the tumour involves small surgical risks, there are cases (i.e. large tumours) in which the surgical procedure may be really difficult, especially relating the facial nerve preservation.

Usually, incision biopsy is not indicated in benign parotid tumours because of a couple of reasons: the scarves may harden the parotid surgery; risk of tumour cells dissemination; risk of injuring the facial nerve or bleeding from the parotid bed (there lies retromandibular vein, as well as external carotid artery) and the high risk of a salivary fistula.(1) Nevertheless, there are cases where the tumour biopsy may be performed before the parotidectomy procedure, namely in cases where the tumour lies in a superficial approachable layer and if malignity is suspected. We present a case of a gigantic Warthin tumour selected from the database of the Oral and Maxillofacial Surgery Department of the Military Emergency Hospital in Sibiu, comprising the cases of parotid tumours within May 2012- June

2014. Patients in this database were monitored for the evolution of the post-surgery paresis of the facial nerve under various adjuvant therapies. To evaluate the degree of the post-surgery paresis of the facial nerve the House-Brackmann scale was used (6), revised by Facial Nerve Disorders Committee in 2009 (7), which we adapted for every main branch of the facial nerve. The House-Brackmann scale for the global evaluation of the facial nerve function comprises 6 degrees (table no. 1).(8)

For the clinical evaluation, the patients were asked to raise their eyebrows (temporal branch), close their eyes tightly (zygomatic branch), to wrinkle their nose and lips (buccal branch), open their mouth and show their teeth (marginal mandibular branch).(8)

This evaluation scale for the facial nerve function was applied in the following case, where the paresis of one of the facial nerve branch was encountered.

Table no. 1. Grading system for peripheral facial nerve paresis according to House and Brackmann (1985) (8)

Grade	Description	Definition	Estimated function
I	Normal	Normal symmetrical function in all areas	100%
II	Slight	Slight weakness noticeable only in close inspection; complete eye closure with minimal effort, slight asymmetry of the smile with a maximal effort, absent contracture or spasm,	80%
III	Moderate	Obvious weakness, but not disfiguring; may not be able to lift the eyebrow; complete eye closure and strong but asymmetrical mouth movement with maximal effort, obvious spasm	60%

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Article received on 14.08.2014 and accepted for publication on 01.10.2014
ACTA MEDICA TRANSILVANICA December 2014;2(4):211-213

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IV	Moderate - serve	Obvious disfiguring weakness; inability to lift brow; incomplete eye closure and asymmetry of mouth with maximal effort, severe spasm	40%
V	Serve	Motion barely perceptible, incomplete eye closure, slight movement corner mouth, contracture and spasm usually absent	20%
VI	Total	No movement, loss of tone, no contracture or spasm	0%

CASE REPORT

Patient B.D., 62 years old, living in Sibiu, was admitted to the Oral and Maxillofacial Surgery Department of the Military Emergency Hospital Sibiu in May 2013 for a right para-pharyngeal tumour, that appeared for the first time two years before. The patient complained of painless deformation of the parotid region and the soft palate on the right side, with slow growth, which associated lately with swallowing, speech and breathing alteration.

The cervical-facial and endo-oral clinical examination showed the presence of a voluminous tumour formation (estimated diameter 7x8 cm) which was altering the right parotid relief and submandibular region. The tumour was also expanding in the lateral wall of the pharynx and in the soft palate, the lueta was displaced to the left with ~1.5 cm. Upon endo-exo-oral bimanual palpation the tumour revealed no pain, had a soft and elastic consistency, was well shaped superficially, but deeply fixed, without any limits to be precisely defined. The clinical examination also showed a mobile, elastic, painless submandibular right node with 1.5 cm in diameter.

Figure no. 1. Pre-operative appearance – tumefaction in the right parotid region (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



Figure no. 2. Pre-operative oral appearance: the tumour in the oro-pharynx and the right soft palate (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



Considering the large dimension of the tumour and the involvement of the lateral pharyngeal space, imaging examination (CT) was recommended for a detailed topographic diagnosis (figure no. 3).

It showed a well defined tumour in the parotid region extended in the right para-pharyngeal space; deep right cervical adenopathies with the diameter of up to 1.7 cm. In order to establish the diagnosis, a tumour incision biopsy was also

performed by endo-oral approach at the level of the soft palate that revealed papillary cystadenoma lymphomatosum. Because of the large dimension and particular location of the tumour, ablation was decided by a subtotal parotidectomy approach with the preservation of the facial nerve. Although para-pharyngeal space for tumours involving the transmandibular surgery approach is frequently recommended, in this case the operative team managed to ablate the tumour by widening the usual Redon parotid approach, in the lateral cervical region, to the carotid triangle. This approach enabled the external carotid artery ligation at the emergency from above the stiliyan muscles. The posterior belly of the digastrics muscle was cut to facilitate the tumour approach.

Figure no. 3. Preoperative CT image (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)

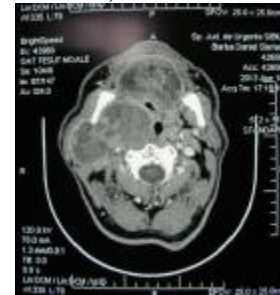


Figure no. 4. Intra-operative appearance, right lateral view. The posterior belly of the digastrics muscle is sectioned (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



The dissection of the facial nerve was not possible by anterograde technique because of the tumour volume. Thus, the main branches of the facial nerve which were adjacent and superficial to the tumour capsule were first identified, after that the enucleation of the tumour was performed.

Figure no. 5. Intra-operative appearance, right lateral view; post-excision plaque (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



Deeply, the tumour showed a close relation to the prevertebral, stylian, pterigoidian muscles, the internal jugular

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vein, which were preserved during dissection. Due to the close relation, tensioning by the tissue distension, the marginal mandibular branch of the facial nerve is cut during dissection, asking for immediate neuroorrhaphy.

Figure no. 6. Intra-operative appearance, right lateral view. Neuroorrhaphy of the marginal mandibular branch of the facial nerve (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



Tumour enucleation was completed with the removal of the superficial and deep acinar gland of the parotid gland. Post-operatively, the patient did not show any complication except for the paresis of the facial nerve, which was obvious immediately after surgery. It was evaluated as 4th degree for the marginal mandibular branch (according to House-Brackmann adapted scale).

Figure no. 7a, 7b. Post-operative aspect 7 days later – paresis of marginal mandibular branch of the facial nerve which is more visible in this patient in lip-wrinkling (figure no. 7a) than in smiling (figure no. 7b) (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



The patient was prescribed vitamin therapy with B complex - 1 week cure then he was monitored for one year. Six months after surgery, the patient did not present any sign of tumor relapse and the paresis of the marginal mandibular branch of the facial nerve was reevaluated as 3rd degree.

Figure no. 8. Post-operative appearance 6 months later (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



One year after the operation, the patient still did not present any relapse signs, the paresis of the facial nerve healed almost completely, and he was again re-evaluated as 1st degree using the House-Brackmann modified scale.

Figure no. 9. Post-operative appearance one year later. Quasi-complete remission of the paresis of the marginal mandibular branch of the facial nerve is observed (casuistry PhD. Univ. Prof. Viorel Ibric Cioranu)



CONCLUSIONS

This case presented various anatomical, clinical, diagnosis and therapy features, some of them being favourable, others unfavourable for the clinical management. Despite the large dimensions of the tumour, which was curving out into the oral-pharyngeal wall, this fact allowed an incision biopsy by endo-oral approach without the risk of affecting the facial nerve. The benign evolution of the Warthin tumour in which the common therapy is the simple surgical enucleation that allowed an widened parotid approach for the para-pharyngeal space. The big dimension of the tumour did not allow identifying the facial nerve trunk when entering the parotid gland, but, the identification of the facial nerve was possible firstly at distal branches. This together with the close relation of the nerve to the tumour capsule favoured the accidental dilaceration of a branch of the facial nerve asking for immediate neuroorrhaphy. On the other hand, it could be noticed a favourable evolution to almost complete recovery of the facial nerve submitted to neuroorrhaphy, about one year later, whilst the patient underwent only one cure (7 days) of vitamin B complex therapy.

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