



ORIGINAL ARTICLE

## Facial paralysis after superficial parotidectomy: analysis of possible predictors of this complication<sup>☆</sup>



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### KEYWORDS

Salivary gland neoplasms;  
Parotidectomy;  
Superficial parotidectomy;  
Facial nerve;  
Facial paralysis

### Abstract

**Introduction:** Salivary gland tumors represent 3–10% of all head and neck neoplasms. These tumors occur predominantly in major salivary glands. The parotid gland is affected most often, ranging from 36.6% to 83%. The pleomorphic adenoma comprises 45–60% of all salivary gland tumors. Several surgical approaches have been described to treat this tumor. Lesion of the facial nerve is one of the most serious complications that can occur after parotid gland surgery. **Objectives:** To determine possible predictive factors related to the occurrence of peripheral facial paralysis (PFP) after superficial parotidectomy in the surgical treatment of the pleomorphic adenomas of the parotid gland.

**Methods:** This was a primary, observational, case-control study performed through the revision of patients' charts and histopathological reports. Data was obtained from 1995 to 2014. The analyzed events were: tumor's length and depth; duration of the disease referred by the patient (more than 1, 5 or 10 years); primary or secondary surgical approach.

**Results:** The analysis showed that tumor lengths equal or superior to 3.0 cm were a risk factor of PFP with an odds ratio of 3.98 ( $p=0.0310$ ). Tumor depths equal or superior to 2.0 cm were also a risk factor with an odds ratio of 9.5556 ( $p=0.0049$ ). When the tested event was secondary surgery to recurrent tumors we have found an odds ratio of 6.7778 ( $p=0.0029$ ).

**Conclusion:** Tumors with 3.0 cm or more in length and/or 2.0 cm or more in depth have a significant higher risk of facial nerve injury. Secondary surgery to recurrent tumors also has a much higher risk of evolving with facial palsy after superficial parotidectomy.

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**PALAVRAS-CHAVE**

Neoplasias de glândulas salivares;  
Parotidectomia;  
Parotidectomia superficial;  
Nervo facial;  
Paralisia facial

**Paralisia facial após parotidectomia superficial: análise de possíveis preditivos dessa complicação****Resumo**

**Introdução:** Os tumores de glândulas salivares representam de 3 a 10% de todas as neoplasias de cabeça e pescoço. Esses tumores ocorrem predominantemente nas glândulas salivares maiores. A glândula parótida é afetada na maioria das vezes, variando de 36,6 a 83%. O adenoma pleomórfico abrange 45–60% de todos os tumores de glândulas salivares. Diversas abordagens cirúrgicas foram descritas para o tratamento desse tumor. A lesão do nervo facial é uma das complicações mais graves que podem ocorrer após cirurgia de glândula parótida.

**Objetivos:** Determinar possíveis fatores preditivos relacionados à ocorrência de paralisia facial periférica (PFP) após parotidectomia superficial no tratamento cirúrgico de adenomas pleomórficos de glândula parótida.

**Método:** Estudo preliminar, observacional, de caso-controle, realizado por meio de revisão dos prontuários de pacientes e laudos histopatológicos. Os dados foram obtidos no período de 1995–2014. Os eventos analisados foram o tamanho do tumor no maior diâmetro e a profundidade, o tempo de doença referido pelo paciente (mais de 1, 5 ou 10 anos) e a abordagem cirúrgica primária ou secundária.

**Resultados:** A análise mostrou que o tamanho do tumor igual ou superior a 3,0 cm foi um fator de risco para PFP, com um razão de chance de 3,98 ( $p=0,0310$ ). A profundidade do tumor igual ou superior a 2,0 cm também foi um fator de risco, com uma razão de chance de 9,5556 ( $p=0,0049$ ). Quando o evento testado foi cirurgia secundária para tumores recorrentes, encontramos uma razão de chance de 6,7778 ( $p=0,0029$ ).

**Conclusão:** Os tumores de 3,0 cm ou mais de comprimento e/ou 2,0 cm ou mais de profundidade apresentam um risco significativamente maior de lesão do nervo facial. A cirurgia secundária para tumores recorrentes também apresenta um risco maior de evoluir com paralisia facial após parotidectomia superficial.

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**Introduction**

Salivary gland tumors represent 3–10% of all head and neck neoplasms.<sup>1</sup> These tumors occur predominantly in major salivary glands.<sup>2,3</sup>

The parotid gland is affected most often, ranging from 36.6% to 83%. Malignant tumors are a minority, occurring in 15–32% of cases.<sup>1,4,5</sup>

The most common malignant and benign tumors are the mucoepidermoid carcinoma and the pleomorphic adenoma, respectively.<sup>6,7</sup>

The pleomorphic adenoma comprises 45–60% of all salivary gland tumors. Approximately 80% occur in the parotid gland, usually in the inferior pole of the superficial lobe; however, less frequently, it can occur at the deep lobe or in the accessory parotid tissue.<sup>8</sup>

Several surgical approaches have been described to treat this tumor. In 1895, Senn described enucleation as the technique of choice. However, tumor removal was incomplete with an unacceptable rate of recurrence.<sup>9</sup>

Total parotidectomy removes all gland tissue lateral and medial to facial nerve, whereas superficial parotidectomy removes parotid gland lateral to the facial nerve. In extracapsular dissection, it is not performed any dissection of the facial nerve.<sup>8,10–14</sup>

Lesion of the facial nerve is one of the most serious complications that can occur in parotid gland surgery. It is estimated that 30–65% of all patients experience some sort of transient facial weakness, and 3–6% evolve with permanent dysfunction resulting in significant impact in the quality of life.<sup>14</sup>

The main purpose of this study was to determine possible predictive factors related to the occurrence of peripheral facial paralysis after superficial parotidectomy in the surgical treatment of the pleomorphic adenomas of the parotid gland.

**Methods**

This was a primary, observational, case-control study performed through the revision of patients' charts and histopathological reports. Data was obtained from 1995 to 2014. Patient's names were not retrieved; all information was obtained through hospital's registration numbers.

The analyzed events were: tumor's length and depth; duration of the disease referred by the patient (more than 1, 5 or 10 years); primary or secondary surgical approach. The dimensions evaluated were obtained from the histopathological reports and not from the clinical staging, to give a more precise value.

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