

**Republic of Iraq
Ministry of Higher Education
& Scientific Research
University of Baghdad
College of Dentistry**



**Immunohistochemical Expression
of S-100, EMA, and Calretinin in
Oral Schwannomas and Neurofibromas**

A Thesis

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Baghdad in Partial Fulfillment for the Requirement to Award the
Degree of Master of Science in Oral & Maxillofacial Pathology

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Abstract

Background: It is crucial to differentiate between neurofibromas and schwannomas, especially when histologic overlapping is obvious. Depending on the tumor type, the surgeon can select the optimal treatment approach. Additionally, the potential of malignant transformation and the association with neurofibromatosis type 1 syndrome should be considered in neurofibroma cases.

Aims of the study: This study aims to identify the immunoprofile of a series of cases diagnosed histologically as neurofibromas and schwannomas by evaluating and comparing the expression of S-100, EMA, and Calretinin markers. Besides, identification and comparing the mast cell count in these tumors by Giemsa stain.

Materials & Method: Formalin-fixed paraffin-embedded tissue blocks of twenty-four cases (12 neurofibromas and 12 schwannomas) were retrospectively retrieved and selected from the Oral Pathology Laboratory at the College of Dentistry, the University of Baghdad in the period between 2000 to 2019. Four micrometer thick sections were cut and mounted on positively charged slides and stained immunohistochemically with antibodies to S-100, EMA, and Calretinin. Moreover, other four-micrometer thick sections were obtained and mounted on conventional slides for histochemical analyses by Giemsa stain. Statistical analysis was performed concerning the evaluation and comparison of the immunohistochemical findings, the clinicopathological parameters, and mast cell count in the above-mentioned tumors.

Results: The means of age at the time of diagnosis for neurofibroma and schwannoma were (38.83, 31.5) respectively. Regarding the sex distribution, women were more frequently affected in schwannoma cases, while no gender predilection was noted in neurofibroma cases. The tongue was the most prevalent site for schwannomas, while the alveolar ridge was the most common location for neurofibromas. Microscopically, sixty-six percent of schwannomas

were of conventional type, while seventy-five percent were solitary neurofibromas. Furthermore, the immunohistochemical analysis showed a stronger and more diffuse immune-expression of the S-100 in schwannomas than neurofibromas. The EMA reactivity was absent in most neurofibroma cases, while a weak expression was observed in schwannomas, especially by the capsular area rather than tumor cells. Moreover, a variable immunoreactivity was demonstrated for calretinin by schwannomas, while an absence of expression was evident in neurofibroma cases.

Conclusion: This study concluded that combined immunohistochemical evaluation and analysis of (S-100, EMA, and Calretinin), in addition to the utilization of Giemsa stain, could be regarded as a reliable method to differentiate between the studied tumors.



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وزارة التعليم العالي والبحث العلمي
جامعة بغداد
كلية طب الأسنان

**الظهور المناعي النسيجي الكيمائي للمعطات (S-100)
و(EMA) و (Calretinin) في الأورام
الشفانية والاورام العصبية الليفية الفموية**

رسالة

مقدمة إلى مجلس كلية طب الأسنان في جامعة بغداد لأستيفاء متطلبات درجة
الماجستير في امراض الفم والوجه والفكين

من قبل:

عوف شامل محمود

بكالوريوس طب وجراحة الفم والاسنان

بإشراف

الاستاذ

د. بشار حامد عبدالله

دكتوراه في امراض الفم والوجه والفكين