



## **A Comparative study of immunohistochemical expression of MMP-9 and its inhibitor (TIMP-1), Ki-67 and erbB3 in polymorphous low grade adenocarcinoma and adenoid cystic carcinoma of the salivary glands**

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**Abstract : Background:** A number of matching histological forms were seen in polymorphous low grade adenocarcinoma (PLGA) and adenoid cystic carcinoma (ACC) including three patterns which are solid, tubular and cribriform. The bisecting features of clinicopathology of PLGA and ACC may end in a challenging diagnostic. ACC has an abundant not as good as prognosis than PLGA, making the differentiation vital for the purposes of therapy and prognosis. The Aims of our study were to assess the immunohistochemical expression of MMP-9, TIMP-1, Ki-67 and erbB3 in the salivary gland tumors including adenoid cystic carcinoma and polymorphous low grade adenocarcinoma and immunoexpression equivalent of these proteins with the outcomes of clinicopathology.

**Materials and Methods:** Twenty five blocks of salivary polymorphous low grade adenocarcinoma and another twenty five of salivary adenoid cystic carcinoma attained from Al-Shaheed Ghazi hospital and the oral pathology department archives of Dentistry College in Baghdad University were retrospectively involved in our study which are inserted in archival formalin fixed paraffin. We gained and immunostained sections of four micrometer using monoclonal antibody against MMP-9, TIMP-1, Ki-67 and erbB3.

The detection of immunoexpression was by the presence of stain which are brown in color seen in the cytoplasm of cells of tumor. The clinicopathological documents of the patients associated with the quantity of cells that expressed the stain.

**Results:** MMP-9 expression was found positive in 21cases of PLGA and 22 cases of ACC restricted in tumor cells.

TIMP-1 expression was found positive in 20 cases of PLGA and 19 cases of ACC limited in tumor cells, Ki-67 expression was found positive in 23 cases of PLGA and 24 cases of ACC limited in tumor cells and ErbB3 expression was found positive in 20 cases of PLGA and 24 cases of ACC limited in tumor cells.

The relation was seen non-significant (P=0.357) in concerning MMP-9 appearance in both types of tumor, (P=0.937) was seen about TIMP-1 expression in two types of tumor, (p=0.798) was seen about Ki-67expression in two types of tumor and (p=0.006) was seen about erbB3 expression in two types of tumor.

The relation was seen non-significant ( $p > 0.05$ ) in examples of gender, sites and stage of PLGA and ACC concerning MMP-9 expression. Non-Significant relation ( $p > 0.05$ ) was seen with grade of ACC was detected regarding MMP-9.

The relation was seen non-significant ( $p > 0.05$ ) in examples of gender, sites and stage of PLGA and ACC was seen concerning TIMP-1 expression.

Non-Significant relation ( $p > 0.05$ ) was seen with grade of ACC was detected regarding TIMP-1. The relation was seen non-significant ( $p > 0.05$ ) in examples of gender, sites and stage of PLGA and ACC was seen concerning Ki-67 expression.

Non-Significant relation ( $p > 0.05$ ) was seen with grade of ACC was detected regarding Ki-67. The relation was seen non-significant ( $p > 0.05$ ) in examples of gender, sites and stage of PLGA and ACC was seen concerning erbB3 expression.

Non-Significant relation ( $p > 0.05$ ) was seen with grade of ACC was detected regarding erbB3.

**Conclusion:** We can understand an concerned balance between MMP-9 and TIMP-1 in malignant salivary gland neoplasm. Imbalanced of MMP-9/TIMP-1 expressions might offer the tumor cells a double growth benefit because uninhibited TIMP-1; deposition of ECM is joint with increase MMP-9; degradation of ECM. A multistep process created due to this communication which is capable to excite and possibly will display a portion in the genesis of salivary gland tumor; may chain forces to normalize invasive events related to these neoplasms. ACC greater than PLGA in Ki-67 mean of expression which shows advanced malignant potential. EBP1 expression is reduced in polymorphous low grade adenocarcinoma and adenoid cystic carcinoma, indicating unfavorable prognosis of PLGD and ACC patients.

**Keywords:** Polymorphous low grade adenocarcinoma, Adenoid cystic carcinoma, immunohistochemistry, MMP-9, TIMP-1, Ki-67 and erbB3.