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Commentary

The Aligned Ambit-Basal Cell Adenocarcinoma- Salivary Gland

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Basal cell adenocarcinoma of salivary glands emerges as a primary, low grade carcinoma of salivary glands. Basal cell adenocarcinoma is an exceptionally discerned primary tumour of salivary glands configuring < 2% of malignant salivary gland neoplasms. The low grade, malignant salivary gland neoplasm is commonly confined to parotid gland. Minor salivary glands or diverse major salivary glands are uncommonly incriminated. The biphasic tumefaction delineates a dual cell population comprised of basal cells and ductal epithelial cells.

Morphologically, tumefaction appears reminiscent of basal cell adenoma although neoplasm manifests an invasive pattern of tumour progression. Cogent tumour discernment is contingent to demonstration of dual cell population constituted of centric ductal cells and abluminal basal cells delineating peripheral palisading of nuclei. Foci of squamous cellular or sebaceous differentiation may be enunciated.

Precise therapeutic strategy emerges as surgical extermination of the neoplasm with achievement of surgical tumour free tissue perimeter.

Frequently, adults between seventh decade to eighth decade are incriminated although neoplasm may be discerned between 40 years to 90 years. Tumour discernment is extremely exceptional within paediatric population. A mild female predominance is observed with female to male proportion of 1.2:1 [1,2].

Basal cell adenocarcinoma of salivary glands preponderantly incriminates parotid gland (~90%), submandibular gland or minor salivary glands confined within oral cavity [1,2].

Basal cell adenocarcinoma emerges from pluripotent, ductal and myoepithelial cells. Majority of neoplasms arise de novo. However, nearly 25% tumefaction are engendered from basal cell adenoma. Exceptionally, syndromic conditions as familial cylindromatosis syndrome or Brooke-Spiegler syndrome may induce basal cell adenocarcinoma of salivary gland [1,2].

Basal cell adenocarcinoma of salivary glands represents as a gradually progressive, painless tumefaction. Neoplasm may be accompanied by an extended duration of disease representation. Exceptionally, tumour may be associated with dermal cylindromas [2,3].

Around ~50% lesions delineate localized tumour reoccurrence. Distant metastasis may ensue within 15% neoplasms and are predominantly confined to regional lymph nodes. Tumour metastasis into pulmonary parenchyma is infrequently encountered.

Appropriate cytological discernment of basal cell adenocarcinoma is extremely challenging as smears are comprised of dual cell population and abundant, aggregated stroma, reminiscent of several biphasic salivary gland neoplasms [2,3].

Cellular smears are constituted of irregular, cohesive clusters of neoplastic cells, preponderantly comprised of miniature and intermediate basaloid cells demonstrating peripheral nuclear palisading. Perimeter of cellular aggregates appear dense, non fibrillary and intermingled with accumulated stroma.

Infrequently, neoplastic cells delineate features of malignant metamorphosis as nuclear atypia, mitotic figures or necrosis [2,3].

Upon gross examination, a characteristic well circumscribed, non encapsulated, solid or focally cystic lesion of magnitude beneath < 5 centimetres is encountered. Cut surface is well demarcated and grey/white, off white or tan.

Frozen section examination requires circumvention as appropriate diagnosis may be challenging [2,3].

Upon microscopy, the non encapsulated, well circumscribed tumefaction exhibits an infiltrative tumour perimeter with neoplastic invasion into circumscribing salivary gland parenchyma, adipose tissue, peripheral nerves or lymphatic and vascular spaces.

Tumefaction manifests with solid, trabecular, tubular or membranous pattern of configuration [2,3].

Essentially biphasic, neoplasm is composed of dual cellular population of centric ductal cells and ab-luminal basal cells. Cuboidal ductal cells are permeated with moderate eosinophilic cytoplasm and spherical to elliptical nuclei. Basal cells are incorporated with scanty cytoplasm and ovoid, hyperchromatic nuclei. Peripheral basal cells display nuclear palisading [3,4].

Tumour cell nests are segregated by basement membrane-like, eosinophilic substance. Foci of squamous cell and sebaceous differentiation may appear. Roughly ~45% neoplasms depict tumour necrosis. Mitotic activity may be enhanced.

Ultrastructural examination of basal cell adenocarcinoma of salivary glands is generally circumvented when employed for routine tumour discernment [3,4].

Ultrastructural features of basal cell adenoma and basal cell adenocarcinoma appear identical. Tumour cells exhibit basal, myoepithelial and ductal differentiation. Basal lamina appears excessive and is disseminated within cellular perimeter and inter-cellular zones.

Membranous subtype of basal cell adenocarcinoma of salivary gland demonstrates CYLD genetic alterations [3,4].

Staging of malignant salivary gland tumours is designated as [3,4]:

- Stage 0: Tis, N0, M0
- Stage I: T1, N0, M0
- Stage II: T2, N0, M0
- Stage III: T3, N0, M0 OR T0, T1, T2, T3, N1, M0
- Stage IVA: T0, T1, T2, T3 or T4a, N2, M0 OR T4a, N0 or N1, M0
- Stage IVB: Any T, N3, M0 OR T4b, any N, M0
- Stage IVC: Any T, any N, M1

Basal cell adenocarcinoma of salivary glands is immune reactive to pan-cytokeratin, CK7, carcinoembryonic antigen M (CEA-M), p63, p40, S100 protein, calponin and CK5/6.

Neoplastic cells are immune non reactive to β-catenin [4,5].

Basal cell adenocarcinoma of salivary glands requires segregation from neoplasms such as basal cell adenoma, pleomorphic adenoma, canalicular adenoma, adenoid cystic carcinoma, basaloid squamous cell carcinoma, polymorphous adenocarcinoma or cutaneous basal cell carcinoma [4,5].

Basal cell adenocarcinoma of salivary glands can be appropriately detected with cogent imaging modalities as ultrasonography, computerized tomography (CT) and magnetic resonance imaging (MRI).

Precise cytological assessment is exceedingly problematic as tumefaction exhibits a morphological concurrence with various, commonly encountered, biphasic salivary gland neoplasms as pleomorphic adenoma or adenoid cystic carcinoma. Radiological features are generally non specific [4,5].

Basal cell adenocarcinoma of salivary gland can be appropriately treated with comprehensive surgical extermination of the neoplasm with tumour free surgical perimeter.

Evidentiary metastasis into regional lymph nodes mandates a neck dissection.

Adoption of postoperative radiotherapy appears compatible with emergence of adverse prognostic features or as a component of therapeutic management of lesions originating from minor salivary glands [4,5].

Basal cell adenocarcinoma of salivary glands is a low grade, malignant neoplasm depicting superior prognostic outcomes and lesion occurrence within an extended duration. Disease associated mortality is exceptionally discerned. Tumefaction may be associated with localized destruction of circumscribing tissues.

Tumour reoccurrence occurs in ~50% neoplasms and may be discerned in up to a decade following surgical eradication of the neoplasm.

Factors contributing to inferior prognostic outcomes are constituted of:

- Tumour localization within minor salivary glands
- Advanced neoplastic stage
- Inadequate tumour resection
- Tumour reoccurrence [4,5].

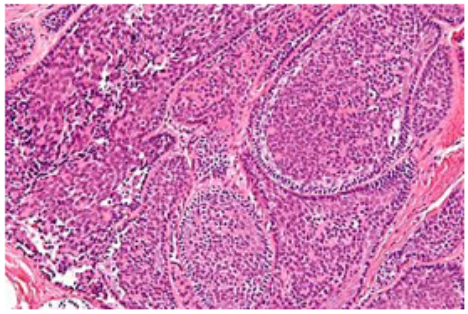

Figure 1: *Basal cell adenocarcinoma delineating nests, cords and trabeculae lined by dual layer of centric cuboidal ductal cells and abluminal basal cells with hyperchromatic cells. Surrounding stroma is imbued with basal lamina-like material [6].*

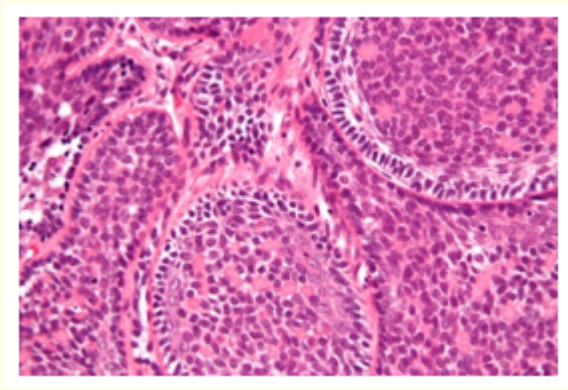

Figure 2: *Basal cell adenocarcinoma depicting cords, aggregates and trabeculae layered by centric cuboidal ductal epithelial cells and ab-luminal basal cells with hyperchromatic cells. Circumscribing stroma is incorporated with basal lamina-like material [7].*

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6. Image 1 Courtesy: Libre pathology.
7. Image 2 Courtesy: Wikimedia commons

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