



## SCRAPE CYTOLOGY: AN IMPERATIVE TOOL IN INTRAOPERATIVE DIAGNOSIS AND MANAGEMENT OF SEBACEOUS CARCINOMA OF EYELID

### Pathology

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### ABSTRACT

Sebaceous carcinoma of ocular adnexa, a malignant neoplasm exhibits aggressive local behavior with metastasis to regional lymph nodes and distant organs. A 47 year old male presented with upper lid mass. Excision specimen was sent for intraoperative scrape cytology. Smears examined were highly cellular showing less cohesive clusters of and singly scattered atypical cells with vacuolated bubbly cytoplasm along with nuclear overcrowding and atypia. Based on cytomorphology a diagnosis of malignant adnexal tumor of sebaceous origin was given. Later on histopathology confirmed the diagnosis. Scrape cytology does not require any special instrument or setup. Therefore, we present this case to highlight the substantial role of scrape cytology in intraoperative diagnosis and subsequent appropriate surgical management in the treatment of sebaceous carcinoma eyelid to prevent recurrence and metastasis.

### KEYWORDS

Sebaceous carcinoma, Scrape cytology, Metastasis.

### INTRODUCTION:

Sebaceous cell carcinoma also known as sebaceous gland carcinoma or meibomian gland carcinoma is potentially lethal malignant tumor of the sebaceous gland origin. In India sebaceous gland carcinoma is the most common malignant ocular tumor followed by squamous cell carcinoma.<sup>1</sup> They frequently mimic other benign entities like chalazion, chronic blepharconjunctivitis, kerato-conjunctivitis and malignant tumors like basal cell carcinoma and squamous cell carcinoma. A few studies have been published from India still literature is limited on SGC especially cytology. Scrape cytology is a rapid, easy to perform and inexpensive technique which is of extreme importance for early diagnosis and management to reduce morbidity and mortality as the tumor has high propensity to metastasize to regional lymph nodes.<sup>2</sup> In our case intraoperative scrape cytology was performed for confirmation of clinical suspicion and management was modified to wide local excision.

### Case report-

A 47 year old male presented to ophthalmology department with complain of upper lid mass measuring around 1x1x1 cm. Excision was done and specimen was sent to pathology department for intraoperative scrape cytology. Smears were made on glass slides and stained with toll blue. Smears were highly cellular (Fig 1) showing numerous cells with bubbly cytoplasm (Fig 2) scattered singly and in clusters. Also seen were cohesive clusters of atypical cells (Fig 3) with nuclear overlapping and atypia. Considering high cellularity and atypia, a diagnosis suggestive of adnexal tumor, possibly of sebaceous origin probably malignant type was given. Later on histopathology examination was done. Tumor cells were arranged in the form of lobules (Fig 4). In the centre of lobules more differentiated cells with foamy vacuolated cytoplasm and distinct cell membranes (Fig 5) seen while towards the periphery of the lobules more anaplastic cells with scant cytoplasm and large hyperchromatic nucleus (Fig 6) seen. Also tumor showed multiple atypical mitotic figures and necrosis.

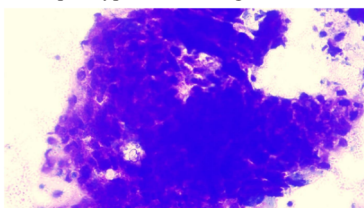


Fig 1- Cellular smear showing cells arranged in clusters (100X, Toll blue stain)

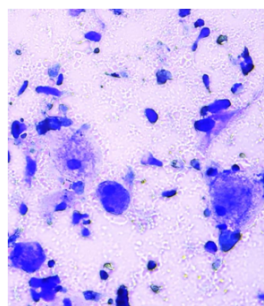


Fig 2- Smear showing cells scattered singly having bubbly cytoplasm (400X)

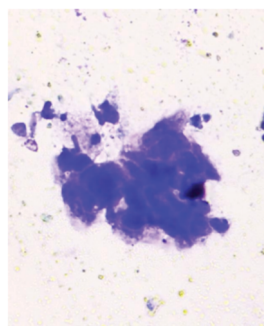


Fig 3- Cohesive clusters of atypical cells with nuclear overlapping and atypia (400X)

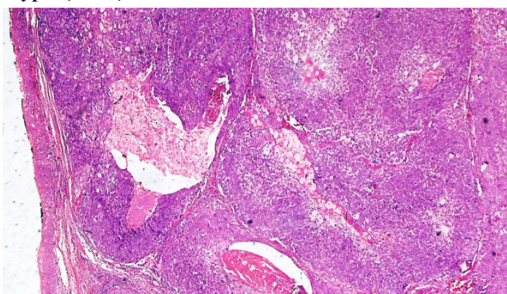
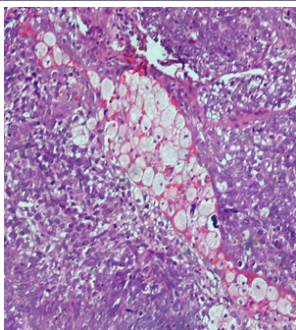
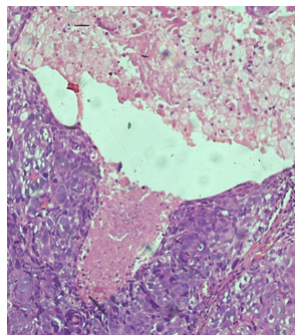


Fig 4-Tumor cells arranged in the form of lobules.(H&E 100X)



**Fig 5-More differentiated cells (Sebaceous cells) arranged in the centre of the lobules while to the periphery more atypical cells seen. (H&E 400X)**



**Fig 6-Necrotic foci could be seen in the centre of the lobules of atypical cells. (H&E 400X)**

#### Literature Search:

A Google scholar and PubMed engine search was carried out using the terms “sebaceous carcinoma India”, “Eyelid tumors India”, “Ocular malignancies in India”, and “Meibomian gland carcinoma India”. All studies published from India up to Dec 2019 were reviewed.

#### DISCUSSION:

Sebaceous gland carcinomas, on basis of location are broadly classified as periocular and extraocular types. Periocular SGC involving eyelid, caruncles and orbits are more aggressive than extraocular SGC. The tumor arises from sebaceous glands, like from the meibomian glands in the tarsus, the Zeis glands of the eyelashes, the caruncle, and the skin of the eyebrow. The tumor may also involve other body areas in 25% of cases including the head and neck and skin with hair, even genitalia.<sup>3</sup> The lesion occurs more commonly in the upper eyelid, probably due to the presence of a greater number of meibomian glands (~50 glands in upper eyelids, ~25 in lower). SGC is much commoner in the Asian population (Chinese and Japanese, followed by the Indian and Singapore population) as compared to western countries.<sup>4,5,6</sup> In India, SGC represents nowadays the most common malignant ocular lesion (37%), followed by SCC (21%).<sup>7,8</sup> In western countries presentation is usually at around fifth to seventh decade while in India occurs at younger age. The tumor commonly occurs in females, also old age, previous periocular radiation exposure, association with Muir–Torre syndrome (MTS)<sup>9</sup>, immunosuppression<sup>10</sup>, familial retinoblastoma leads to increased predisposition.<sup>11</sup>

Cytology is less developed diagnostic modality in diagnosis of ocular lesions and intraoperative scrape cytology has rarely been used. Main differential diagnoses on cytology are blepharitis, chalazion, pilomatricoma among benign entities and squamous cell carcinoma and basal cell carcinoma among malignant entities.<sup>12</sup>

On histopathology Sebaceous gland carcinoma morphology varies from well differentiated to highly undifferentiated tumors. Well differentiated tumors comprise predominantly sebaceous cell with foamy and vacuolated cytoplasm. In contrast undifferentiated tumors show mainly pleomorphic cells with scant cytoplasm and high nucleocytoplasmic ratio, indistinct to prominent nucleoli along with necrotic areas. Growth pattern may be lobular, trabecular, papillary, and BCC-like. A combination of two or more growth pattern may be seen. In the lobular architecture, cell are arranged in the form of variable sized lobules, some of the lobules show central necrosis. Lobular pattern is

the most common growth pattern.<sup>4</sup> The intracytoplasmic lipid vacuoles can be demonstrated by special stain like Oil red O or Sudan IV stains, performed on frozen sections of fresh tissues or formalin-fixed tissues, but is rarely used and has mostly been superseded by adipophilin.<sup>13</sup> Adipophilin is one of the proteins associated with lipid droplets of the sebaceous cells. Highly undifferentiated SGC may be differentiated from basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) by immune-phenotyping. Two most important epithelial markers are epithelial membrane antigen (EMA) and Ber-Ep4.<sup>14</sup> EMA is positive mainly in SGC and SCC, while negative in BCC. Ber-Ep4 is mainly positive in BCC and negative in SGC and SCC.<sup>15</sup> Tumor has high propensity to metastasize to regional lymph nodes (20–30% of cases). Distant metastasis is seen in 8–67% of the cases.<sup>4</sup> This leads to high morbidity and mortality. Exact data about morbidity and mortality could not be found in Indian studies.

To conclude SGC is an aggressive and rare tumor which is often misdiagnosed and mismanaged which leads to increased mortality so a quick and correct diagnosis is the immense need. Scrape cytology may prove to be reliable method to diagnose the entity and guide the management.

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