

Metatypical carcinoma of the head: a review of 312 cases

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Abstract. – BACKGROUND: Metatypical cell carcinoma (MTC) is a quite rare malignancy accounting for 5% of all non melanoma skin cancers, with features of basal cell carcinoma and squamous cell carcinoma. It can be described as coexistence of basal cell carcinoma and squamous cell carcinoma with no transition zone between them.

AIM: Our review identified a correlation between gender and MTC affected region.

MATERIALS AND METHODS: We performed a retrospective study of 312 consecutive patients, diagnosed for MTC localized on face and scalp. Statistical analysis was made to determinate most affected areas, gender prevalence, average age, presence of ulceration and infiltration and peripheral clearance rate.

RESULTS: A relevant difference came out between two genders. χ^2 test emphasized a relation between males and the presence of carcinoma on the scalp. In addition a strong correlation between mixed subtype and ulceration was evident. A strong relation between intermediate subtype and positive surgical margin was found; this data could identify a more aggressive behavior of intermediate type.

CONCLUSIONS: In our findings an important correlation between sun exposition and this tumor was found. Moreover, due to the difficulties that can occur in preserving the aesthetic subunits in the surgical treatment of these regions, the prevention of this pathology has an important role.

Key Words:

Metatypical carcinoma, Metatypical carcinoma epidemiology, Metatypical carcinoma risk factors, Head and neck cancer.

Introduction

Nonmelanoma skin cancer (NMSC) is a common cancer in the world¹. Miller et al², in their studies, evaluate that lifetime risks of developing NMSC were estimated to be 29-55% for basal cell carcinoma (BCC) and 7-11% for squamous cell carcinoma (SCC).

In Caucasian, the basal cell carcinoma is the most common malignant tumor of the skin³. It is related with sun exposure and is a slow-growing locally invasive tumor that rarely metastatize⁴.

Squamous cell carcinoma (SCC) of the skin is more rare than BCC but is known to be more aggressive, requiring extensive resections and amputation. Sometimes, cutaneous SCC may metastasize to regional lymph nodes or to distant sites.

Metatypical cell carcinoma (MTC) is a quite rare malignancy (5% of all non melanoma skin cancers), with features of basal cell carcinoma and squamous cell carcinoma⁵. It was first reported as a distinct histologic variant in 1910 by MacCormac⁶ that described it as coexistence of basal cell carcinoma and squamous cell carcinoma with no transition zone between them. Some Authors⁷ believe that MTC is an uncommon high-grade variant of SCC, whereas others⁸ have suggested that BSC may behave more aggressively, with a propensity for local recurrence and a potential risk for distant metastatic spread. However, this behaviour differs substantially from BCC. It is four times greater than in BCC and eight times greater than in normal skin epidermidis.

MTC presents two subtypes: intermediate and mixed. This study reviews the clinical-pathological features and follow-up of a series of cases occurring in the head and neck.

Materials and Methods

A retrospective study of 312 patients, diagnosed for metatypical carcinoma of the head and neck (face and scalp) from 1993 to 2003 and from March 2007 to November 2011 was performed. Patients were treated to the Department of Plastic Surgery of the “Sapienza” University of Rome. Only people diagnosed for MTC according to histological analysis were accepted to the study. The report included 107 females and 205 males.

The surgeons analyzed and measured the tumor; the excision margins were marked on the basis of palpable or visual alteration of the burden. The minimum surgical margin was equal to the short axis of the ellipse. Peripheral margin of 3 mm beyond apparent clinical tumor limit was drawn, but for rapid and aggressive growth neoplasm a 5 mm was taken, in order to increase the peripheral clearance rate. A full-depth dermal incision was performed to avoid possible relapses, due to a marked peculiarity of metatypical carcinoma to be aggressive and to metastasize.

An histological analysis was performed after excision. Features analyzed were size, typology, presence of ulceration, infiltration of contiguous structures and clearance of excision margins. In all cases where margins were infiltrate, other excisions were made until clear margins were obtained.

Additional therapies were performed after surgery such as radiotherapy and chemotherapy.

Statistical Analysis

Moreover, statistical analysis was made to determinate prevalence between gender, average age, presence of ulceration and infiltration, peripheral clearance rate. A possible correlation between two variables was valuated with χ^2 method. A $p < 0.05$ was considered statistically significant.

Results

The study considered a group of 312 patients affected by MTC localized at scalp and face. Average age was (75.8) years old. A relevant difference came out between two genders: 205 Males (65%) were affected in comparison with only 107 females (35%). The χ^2 statistical analysis was applied in order to identify a relation between gender and affected area (scalp and face) and it emphasized a relation between females and the presence of carcinoma on the face (Figure 1).

Particularly, the most affected region in males was the scalp (118 cases on 205) (57%); on the other hand, in females the face was more affected than the scalp (73 cases on 107) (68.2%).

χ^2 is 18,710, with a $p = 0.0001$. No other significant correlations were individuated between variables.

Considering histological subtypes, there is a strong prevalence of intermediate 250 (80.1%) in comparison with mixed 62 (19.9%). Average diameter of lesions was 0.92 mm: the biggest lesion measured 2.5 mm and the smallest 0.2 mm. Margins taken, when it was possible, were 3 mm, except in aggressive lesion where a bigger margin (5 mm) was taken. Relapses occurred in 63 cases. No metastases were documented.

Discussion

Nonmelanoma skin cancers are, by far, the most common form of human malignancy⁹. Habit of smoking and blistering sunburn skin are related to the development of NMSC, in addition, the major environmental cause of NMSC is exposition to solar ultraviolet radiation. Metastases are not so common and rarely mortal. Despite this comforting data, there's a strong evidence of increased risk of melanoma among people who have a previous NMSC¹⁰. A relation with the rise of other tumors was also individuated¹¹. Moreover, there is an apparent absence of any single environmental agent that could explain the multiple cancer risks and this indicates that intrinsic risk factors may be responsible for this phenomenon.

A distinction must be considered between BCC and SCC: BCC is the most common skin cancer and there are few cases in literature of its metastases. SCC is more rare than BCC but is more prone to metastasize. In addition to these two types there is a third, intermediate entity, metatypical carcinoma, also defined as basosquamous carcinoma.

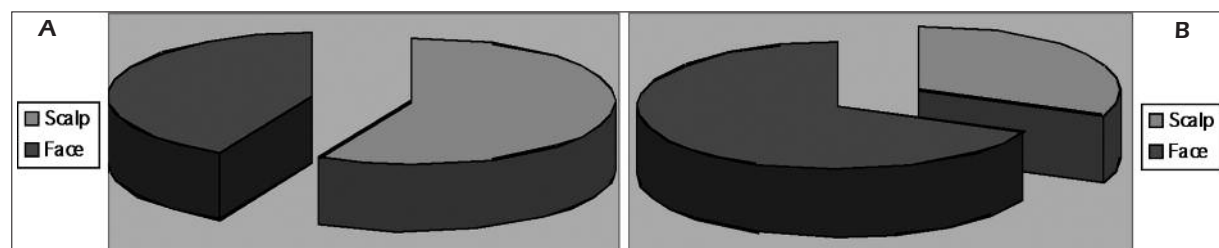


Figure 1. Relation between affected areas and gender. **A**, Males. **B**, Females.

Metatypical was considered, in 1910 by MacCormac⁶, as a distinct histologic variant: like an intermediate form with BCC and SCC at each end of the spectrum. In 1928 Montgomery¹² defined it as a fully distinct neoplasm. In 1974 WHO¹³ confirmed the demarcation of MTC from BCC and SCC.

Macroscopically MTC is similar to BCC and this characteristic easily misleads¹⁴. Despite their similar aspect they have a different behaviors¹⁵. BCC metastasize rarely and MTC is more similar to SCC and has a worse prognosis¹⁶. Significant indicators for prognosis of MTC seem to be gender (male), positive margins and lymphatic and perineural invasions¹⁷⁻¹⁹.

Diagnosis is based on histological analysis. Histologically MTC is divided into two subtypes: intermediated and mixed. In the first form transitional zones and tumor islets are found together, thus combining features of BCC and SCC (Figure 2)²⁰. In second form subtype typical basal cells coexist with areas of conglomerated squamous cells, squamous pearls could be present (Figure 3) Both subtypes present much proliferating cells and large number of mitotic figures. These findings support the hypothesis that MTC may be responsible for some cases of biologically aggressive cutaneous carcinomas. An important help to diagnosis can be expression of keratin, because MTC express low level instead BCC express keratin 8 and 17²¹⁻²³.

In previous studies²⁴ a major prevalence of MTC was found in men 65% (207) than in women 35% (107).

This review demonstrates that, further an increase of cases of MTC located on head (92 cas-

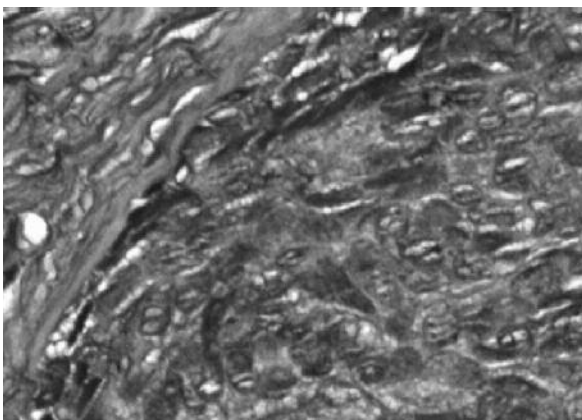


Figure 2. Histological features of intermediate subtype: transitional zones and tumor islets are found together (Hematoxylin Eosin, 20 ×).

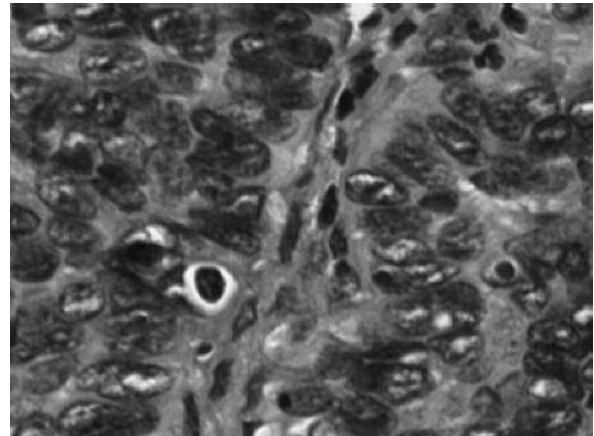


Figure 3. Histological features of mixed subtype typical basal cells coexist with areas of conglomerated squamous cells (Hematoxylin Eosin, 20 ×).

es from November 2009 to November 2011), probably due to a greater unprotected sun exposure, there is a correlation between affected region and gender.

These information arise the attention about the prevention of the MTC.

The scalp and face, due to their anatomical features, make the surgical treatment difficult to perform: particularly for eyelid and ear's reconstruction, surgeon should consider the aesthetic subunits.

For all these features, surgical treatment of these regions, is a compromise between peripheral margins that should be taken (3 or 5 mm, depends on MTC behavior) and the aesthetic results. In addition any NMSC on the head are characterized by a propensity to relapse.

No studies on the adequate peripheral surgical margin in MTC were made, but probably in MTC a wider excision, due to an aggressive behavior of the malignancy, is necessary²⁵.

Moreover, a strong relation between intermediate subtype and positive surgical margin was found. This data could identify a more aggressive behavior of intermediate type ($p = 0.016$) and necessity of a more radical intervention.

Conclusions

Our review identified a correlation between gender and MTC affected region. Particularly, in males the scalp is more affected than in females; this can probably be attributed to sun exposure, but previous studies shows that there are more factors to consider.

Due to the greater increase of MTC of the head in last years and the difficult of surgical treatment of this region, more studies should be performed to understand how to prevent these pathologies and the causes of onset.

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