Basaloid Squamous Cell Carcinoma in Nasal Cavity with Neural-Type Rosettes: A Diagnostic Challenge

Juan Carlos López Duque*, Goikoane Cacho, Francisco Javier Martín Arregui, Juan José Gómez, María Carmen Etxezárraga and Cosme Ereño Zarate

1Department of Pathology, Hospital de Basurto, Universidad del País Vasco EHU-UPV, Bilbao, Vizcaya, Spain
2ENT Department, Hospital de Basurto, Bilbao, Universidad del País Vasco EHU-UPV, Bilbao, Vizcaya, Spain
3Department of Radiology, Hospital de Basurto, Universidad del País Vasco EHU-UPV, Bilbao, Vizcaya, Spain

Abstract

BSCC is a well defined variant of Squamous Cell Carcinoma (SCC) with an aggressive behaviour. It grows in the upper respiratory tract mostly, but it has been seldom reported to occur in the sinonasal tract; mucous of nasal cavity and paranasal sinuses. We report here the case of a male with a right nasal cavity tumour with obstruction and some nasal bleeding. The image study (CT and MRI) showed a polypoid mass that infiltrates the lateral wall of the sinus. The endoscopic biopsy showed an infiltrative basaloid tumour with areas of neural-type rosettes that was a diagnostic challenge even using a wide IHQ panel, given that there wasn’t squamous component. The pathological examination of the surgical resection showed a typical morphology of the BSCC and a strong p63 and p16 reactivity. The molecular study found several high grade HPV phenotypes. There is only a previous report (two cases) with neural-type rosettes and to the best of our knowledge, our case is the sole HPV related found, in this site.

Keywords: Basaloid squamous cell carcinoma; Nasal cavity; Neural-type rosettes; p16; HPV

Introduction

The Basaloid Squamous Cell Carcinoma (BSCC) is an aggressive high grade variant of squamous carcinoma mainly seated in larynx, hypopharynx and base of tongue [1]. A few cases have been reported in the sinonasal tract [2-7] and rarely with a growth pattern of neural-type rosettes.

The correct identification of this tumour in small endoscopic biopsy is a diagnostic challenge even with the proposed immunohistochemical procedure [5,9,10], because the squamous component is scan and difficult to identify in the tumoral tissue.

We report a case of BSCC with true neural-type rosettes growing in the right nasal fossa with extensions that go from the middle turbinate to the choanae. In this area the differential diagnosis include, high grade basaloid tumours with glandular adenoid pattern such as: small cell neuroendocrine carcinoma, olfactory neuroblastoma (grade 3 of basaloid tumours with glandular adenoid pattern such as: small cell neuroendocrine carcinoma, olfactory neuroblastoma (grade 3 of Hyams), adenocarcinoma of intestinal-type and non intestinal-type and salivary gland type Adenoid Cystic Carcinoma (ACC) of solid pattern.

Case Report

A 30-year-old man, non smoker, with 3 weeks history of nasal obstruction and some nasal bleeding. The endoscopic procedure showed a polypoid smooth mass of 45 x 30 mm. CT scan and MRI showed mass effect with heterogeneous signal which infiltrate the lateral wall of the maxillary sinus (Figure 1a and 1b). The laboratory tests were normal. The endoscopic biopsy showed 3 small fragments of about 3 mm each, the greatest of them with basaloid cells forming rosettes of neural-type with central lumen (Figure 2a and 2b). They were positive for AE1/AE3, CK7, CK8-18 and negative for neuroendocrine markers, CK20, CDX-2 or neurofilaments; expression of S-100 was positive for AE1/AE3, CK7, CK8-18 and negative for neuroendocrine rosettes of neural-type with central lumen (Figure 2a and 2b). They were of about 3 mm each, the greatest of them with basaloid cells forming tests were normal. The endoscopic biopsy showed 3 small fragments of about 3 mm each, the greatest of them with basaloid cells forming rosettes of neural-type with central lumen (Figure 2a and 2b). They were positive for AE1/AE3, CK7, CK8-18 and negative for neuroendocrine markers, CK20, CDX-2 or neurofilaments; expression of S-100 was positive for AE1/AE3, CK7, CK8-18 and negative for neuroendocrine rosettes of neural-type with central lumen (Figure 2a and 2b). They were of about 3 mm each, the greatest of them with basaloid cells forming

*Corresponding author: Juan Carlos López Duque, Department of Pathology, Hospital de Basurto, Universidad del País Vasco EHU-UPV, Avd. Montevideo, 18-48013 Bilbao, Spain, Tel: +34 944 006 000; E-mail: JUANCARLOS.LOPEZDUQUE@osakidetza.net

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Immunohistochemical stain revealed strong reaction for 34ßE12 (original magnification 40x), strongly nuclear stain for p63, delineate perfectly the peripheral palisading (original magnification 40x) and p16 in a neural-type rosettes area (original magnification 40x).

Discussion

BSCC was described using morphological criteria by Wain et al. [1] in the larynx, hypopharynx and base of the tongue. Out of the head and neck region, there are reports in other sites, including lung, esophagus, anus, cervix and penis [11-13].

Several cases in the nasal cavity with or without sinus affection have been reported [2-4,6,7]. Wienieke et al. [5] reported the largest case series related to the sinonasal tract with 14 cases, 64% of them the (9-13) growing in the nasal cavity, 3 in the paranasal sinuses and 2 in both areas. Clinically, most cases present nasal obstruction and/or nasal bleeding, as in our case.

The growth patterns of BSCC is assorted and this heterogeneous arrangement varies among different cases reported. Some of the growing patterns of the BSCC result especially unusual and they lead often to a diagnostic pitfall. To the best of our knowledge, there is only one series with two cases showing –true neural-type rosettes– [5], as in our case. Wain et al. [1] described ductal structures that may be misinterpreted as neural-type rosettes. The spindle pattern has been reported very few times in this site [5,8].

The differential diagnosis in small endoscopic biopsy of BSCC with neural-type rosettes include, first at all, the small cell neuroendocrine carcinoma, which can have rosettes, but the nuclear molding, crush artifact, dot-like keratin pattern and neuroendocrine markers clearly separate this entity of the BSCC. The olfactory neuroblastoma grade 3 of Hyams usually negative for CK, EMA, CEA or CD99, but positive for neurofilaments and endocrine markers. The high grade adenocarcinoma of intestinal type is CK7 negative and positive for CDX-2, MUC-2 and CK20 positives as opposite to non-intestinal adenocarcinomas [14]. Furthermore the solid variant of Adenoid Cystic Carcinoma (ACC) should be also considered. In the distinction between BSCC and ACC, absence of myoepithelial cells and the presence of dot-like vimentine expression in BSCC can be helpful. S-100 protein reactivity is not helpful in the differential diagnosis, and when observed, it usually corresponds to intermingled dendritic cells [15].

The diagnostic of BSCC needs to identify the squamous component which can be either in-situ carcinoma, invasive or abrupt keratinization into basaloid nodules. The strong positive reaction for 34ßE12 and p63 may also help in its identification.

Recently a report [16] of sinonasal carcinomas of different histotypes (including two cases of BSCC) relates the HPV presence with better 5-year progression-free survival. Woolgar et al. [17] suggest the idea that the oropharynx BSCC is not an uniform entity. Emphasis must be placed on the fact that despite the morphology, when arising in the oropharynx and it is HPV-positive, BSCC has a biology and prognosis apparently equivalent to the typical HPV-positive oropharyngeal SCC.

Finally, the BSCC of the sinonasal tract is unusual, involving all nasal cavity and paranasal sinuses. The presence of true neural-type rosettes is an event very unusual in this entity and should be considered a wide differential diagnosis versus other tumours of this area. Although in lesser extent than the oropharynx, the BSCC of the nasal cavity can be related to HPV, in which case it is mandatory testing for p16/HPV.

References


