

SHORT REPORT

CK5/6 EXPRESSION BASED ON MORPHOLOGICAL COMPONENTS IN ADENOID CYSTIC CARCINOMA OF THE BREAST

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Invasive breast carcinomas are a heterogeneous group of tumor with diverse clinical, morphologic and molecular features. Adenoid cystic carcinoma (AdCC) is one of the rare malignant epithelial-myoeplithrial lesions of the breast. It was reported to have a very indolent clinical course contrasts with its aggressive behavior in the salivary glands [1]. Morphologically, AdCC is arranged in one or more of three morphological components: tubular, cribriform, and solid [2]. Therefore, it can be challenging to distinguish AdCC from its mimicker. Recently, Nakai *et al.* [3] found that the basal/myoepithelial marker CK5/6 was unusually expressed in luminal rather than abluminal cells of breast AdCC. They concluded that CK5/6 was helpful for the differentiating AdCC from its mimickers.

However, Nakai *et al.* [3] only focused on the diagnosis of classical cribriform or tubular pattern, solid pattern of the AdCC were excluded from their study. Our interest was the expression of CK5/6 in solid pattern. We reviewed 1328 cases of breast cancer in our archives from August 2010 to October 2016, only one case of breast AdCC predominantly showing solid pattern in

more than 90% was found (Fig. 1A). Immunohistochemistry was performed using the ChemMate Envision method (DakoCytomation, Glostrup, Denmark). In contrast to p63 (Fig. 1B) for abluminal cells and CK7 (Fig. 1C) for luminal cells, CK5/6 expression was found both in abluminal and luminal cells (Fig. 1D). While in a handful of cribriform region, CK5/6 was expressed only in luminal cells (data did not show), which was consistent with the article of Nakai *et al.* [3]. As a relatively specific marker [2, 3], CD117 expression was detected mostly in luminal cells in our case (Fig. 1E), which can contribute to the diagnosis of AdCC. The abluminal cells also showed positive expression of SMA, but ER and PR expression were observed in merely a minority of luminal cells (data did not show).

Interestingly, both the luminal and abluminal cells expressed SOX10 diffusely (Fig. 1F). As a important marker for melanocytic, schwannian, myoepithelial and some salivary gland tumors [4], transcription factor SOX10 can regulate cancer stem cells (CSCs) of AdCC in salivary gland [5]. SOX10 expression are not reported in solid pattern of the breast AdCC previously,

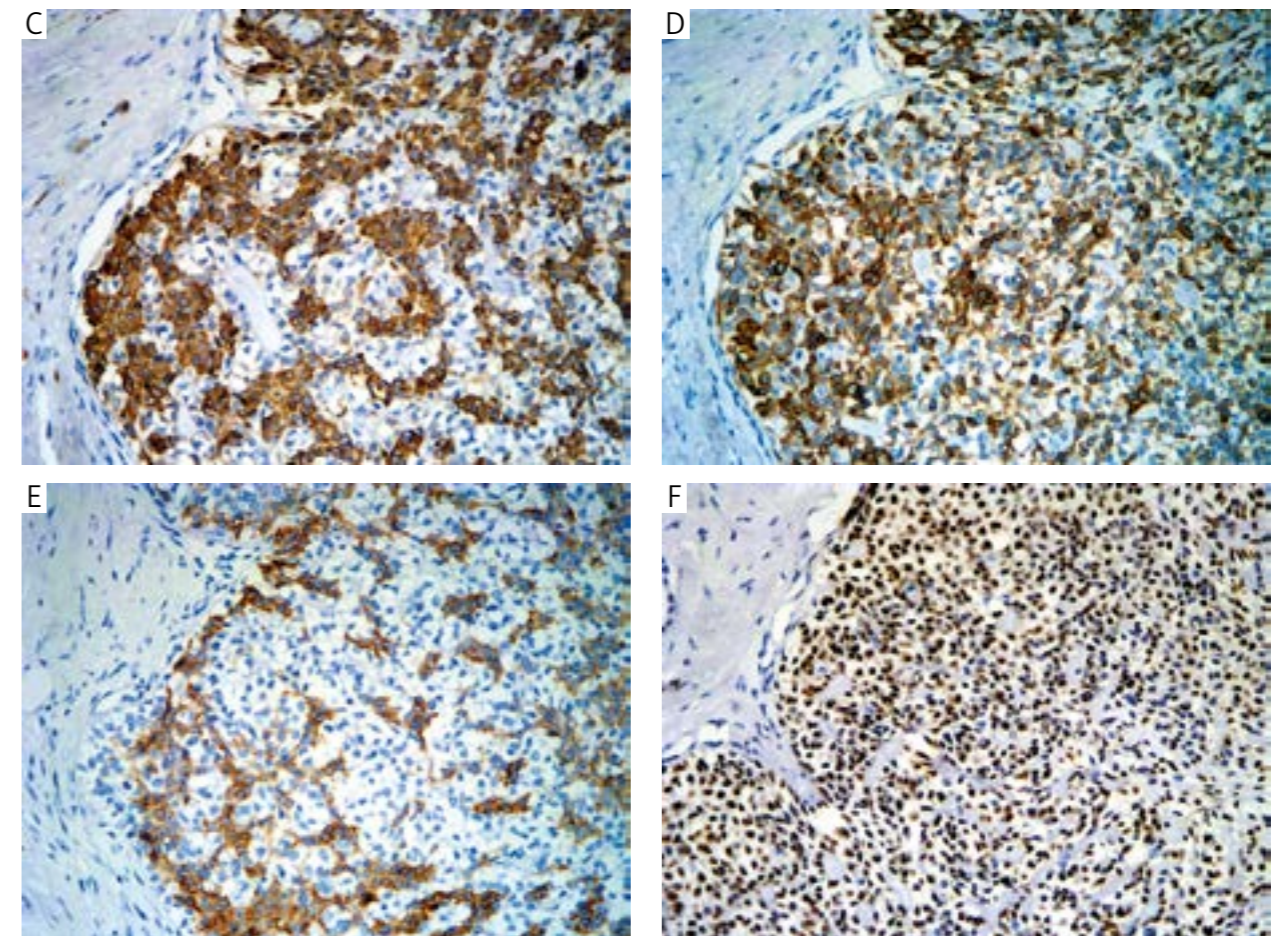


Fig. 1. Cont.

we hypothesized that the solid pattern cells had CSCs characteristics, which have multiple differentiation potential, leading to the change of CK5/6 expression.

In summary, we noticed that CK5/6 expression changed according to the morphological components in breast AdCC. In cribriform or tubular pattern, CK5/6 was expressed in luminal cells, but both abluminal and luminal cells showed positive expression in solid pattern. CSCs may be the cause of the diversification of CK5/6 expression.

The author declares no conflict of interest.

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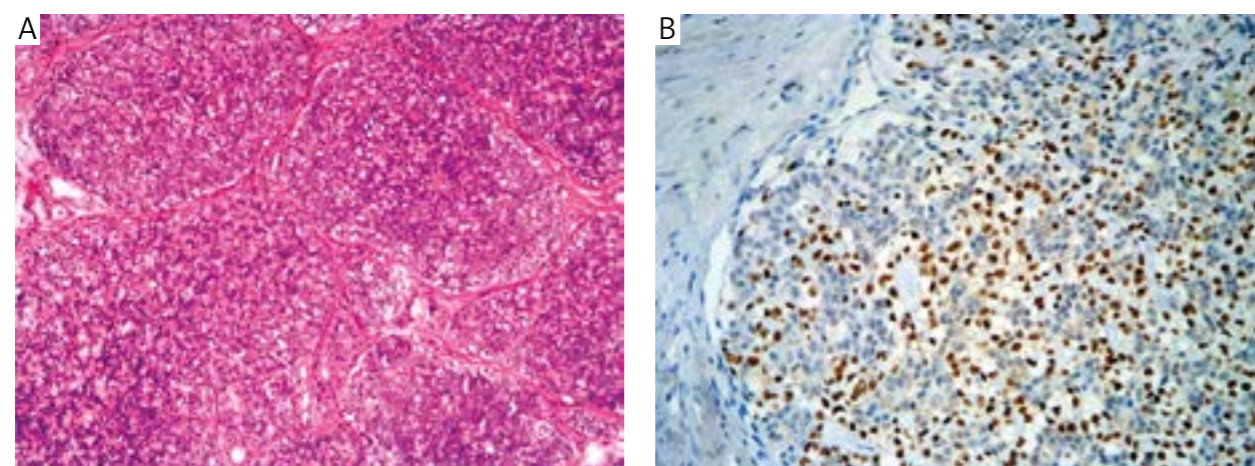


Fig. 1. A) Solid pattern of breast adenoid cystic carcinoma, HE, magnification 100x. Contrasting to B) p63 for abluminal cells and C) CK7 for luminal cells, D) CK5/6 expression is detected both in abluminal and luminal cells. E) Luminal cells are positive for CD117. F) Both types of cells are positive for SOX10. Immunostaining, B-F: 200x