Utility of Immunohistochemical Analysis of CD34 Expression in the Diagnosis of Lesions with Trichilemmal Differentiation

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To the Editor:

Immunohistological staining for CD34 may be positive in both benign and malignant tumors with differentiation toward the outer root sheath of the hair follicle (trichilemmal differentiation). We have recently confirmed the usefulness of CD34 staining in 2 clinical cases.

Case Description 1

A 54-year-old patient was seen for a tumor on the upper lip present for 4 months and clinically compatible with a basal cell carcinoma (Figure 1A). This was surgically removed. Histopathology revealed a clearly defined tumor proliferation composed of lobed formations of cells with clear cytoplasm presenting the typical peripheral palisading of trichilemmoma (Figure 1B). The periphery contained an area of desmoplasia, with small epithelial cells forming chords and nests, immersed in hyalinized collagen (Figures 1B and 1C). The cell membranes were CD34-positive (Figure 1D) and the lesion was diagnosed as trichilemmoma with desmoplastic areas.

Case Description 2

An 81-year-old patient had undergone the surgical removal of a nodular lesion on the chest present for 6 months. Histopathological study revealed an endophytic tumor in continuity with the epidermis (Figure 2A). This was made up of cells with a clear cytoplasm showing trichilemmal keratinization (Figures 2A and 2B). An expansive infiltrative growth pattern was observed, surrounded by a thick membrane on the periphery of the lobes (Figure 2C). Nuclear pleomorphism and mitotic figures were also observed (Figures 2B and 2C). CD34 immunostaining was positive in the cell membranes (Figure 2D), and so

Figure 1. Nodular tumor lesion on the upper lip clinically compatible with basal cell carcinoma. B. Clearly defined lesion with lobed formations. Peripheral desmoplastic area (*) (Hematoxylin-eosin, ×40)
C. Cells of an epithelial appearance forming chords and nests, in hyalinized collagen. (Hematoxylin-eosin, ×200).
D. Positive CD34 staining in the cell membranes (CD34, ×200).
the tumor was diagnosed as trichilemmal carcinoma. The patient died of unrelated causes 8 months after the tumor was removed.

In both cases, positive expression of vascular endothelial growth factor was used as an internal control for the technique.

CD34 staining can be very useful in tumors presenting trichilemmal differentiation, as this facilitates differential diagnosis from other lesions.

Firstly, desmoplastic trichilemmoma can clinically resemble basal cell carcinoma; furthermore, in histological study areas of desmoplasia can simulate squamous cell carcinoma or morpheaform basal cell carcinoma. Differential diagnosis from these tumors was easier in the first case than the second as desmoplasia was only really visible in the peripheral area of the tumor whereas desmoplasia is present almost throughout the entire tumor in some cases of desmoplastic trichilemmoma.

Trichilemmal carcinoma is a very rare tumor with good prognosis and only exceptional cases of recurrence or metastases, despite its histological appearance (marked pleomorphism and cell atypia and/or numerous mitoses). It tends to involve well-defined tumors that occasionally have lobes surrounded by a membrane—as in our second case—which could explain the good prognosis for these carcinomas. Furthermore, as it tests positive for CD34, we can differentiate trichilemmal carcinoma from other clear cell carcinomas (including clear cell squamous cell carcinoma or some clear cell adnexal tumors, like sebaceous carcinoma or clear cell porocarcinoma) that could be associated with less favorable prognosis.

It would be possible to misdiagnose the second tumor as a squamous cell carcinoma with trichilemmal differentiation, but in such a case CD34 staining would be positive only in the trichilemmal areas and not, as we found, throughout the entire mass. This supports diagnosis of a tumor with differentiation toward the outer root sheath of the hair or trichilemmal differentiation.

In summary, we present 2 case descriptions—one trichilemmoma with desmoplastic areas, and 1 trichilemmal carcinoma—where CD34 staining was a determining factor in differential diagnosis from other potentially more aggressive tumors with a less favorable clinical prognosis.

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Conflicts of Interest
The authors declare no conflicts of interest.
References