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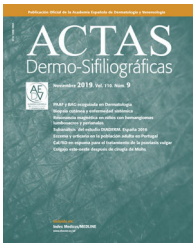

CASE AND RESEARCH LETTER

[Translated article] Benign Cutaneous Plexiform Hybrid Tumor Composed of Agminated Perineurioma and Cellular Neurothekeoma Components in a 9-Month-Old Boy

Tumor benigno cutáneo plexiforme híbrido de perineuroma y neurotecoma celular agminado en un niño de 9 meses

To the Editor:

Benign cutaneous plexiform hybrid tumor of perineurioma and cellular neurothekeoma (BCPHTPCN) was recently described by Requena et al.[1] as a single papule in the perioral area in adults. Histologically, it is characterized by a well-defined dermal nodule, with a plexiform pattern, nests of cells on a myxoid stroma, and dual positivity for immunohistochemical markers typical of perineurioma and cellular neurothekeoma.[1-4] Since then, other authors have described new cases that differ from the classic description. Yamada et al.[2] described a case arising from the nose, Linos et al.[3] reported a case affecting the ankle, without a plexiform pattern, and Areán et al.[4] described a case with abundant CD68$^+$ and CD163$^+$ cells situated between tumor cells from the lesion. These new cases, together with the 9 included in the original series, bring the total number described in the literature to 12.

Here, we describe a case of pediatric agminated BCPHTPCN that retains the dual marker profile typical of this entity but differs from the original classical description in terms of both clinical and histological features.

A 9-month-old infant was seen for 7 erythematous papules (maximum diameter, 2–3 mm) on the skin of the mandibular region that had been present since birth, and had been clinically diagnosed as collagenoma, elastic nevus, or apocrine nevus (Fig. 1A and B). Histology (hematoxylin–eosin) of one of the lesions showed a dermal tumor that did not affect the epidermis (Fig. 1C) and consisted of scattered fusiform cells on a dense collagenous vascularized stroma, with homogeneous nuclei and no obvious nucleolus. No atypical cells, necrosis, or mitoses were observed. The classic plexiform pattern with a myxoid stroma was absent (Fig. 1D–F). Immunohistochemistry revealed cells positive for microphthalmia transcription factor (MiTF), glucose transporter 1 (GLUT1), and CD10 (Fig. 1G and I), and negative for Melan-A, enolase, epithelial membrane antigen (EMA), claudin-1, S100, desmin, actin, CD163, CD31, and CD34. A diagnosis of BCPHTPCN was established.

Conventional benign peripheral nerve sheath tumors contain a single component. However, descriptions of tumors with hybrid characteristics, the most common of which combine features of schwannoma and perineurioma, are increasingly common. Perineurioma is a rare tumor composed of perineural cells with a typical storiform growth pattern. The tumor expresses EMA, with variable expression of claudin-1, GLUT1, CD10, and CD34, and negative S100 expression.[1-4] Cellular neurothekeoma is a benign skin tumor that does not exhibit true nerve sheath differentiation, and consists of nests and bundles of epithelioid cells in a myxoid background. The cells are positive for vimentin, NKI/C3, MiTF, S100A6, PGP9.5, and enolase, and show focal staining for actin and CD68.[5]

BCPHTPCN was described by Requena et al.[1] in a series of 9 cases. Characteristically, it presents as a single lesion with a plexiform architecture and immunohistochemical features of both perineurioma and cellular neurothekeoma. All patients described to date are adults (7 men and 6 women; mean age, 54 y). All reported cases have consisted of a solitary papule or nodule, 10 in the perioral area, with similar histological features, except for 1 case described by Linos et al., which presented a storiform pattern.[3] In general, immunohistochemistry shows variable shared characteristics of perineurioma and cellular neurothekeoma, with CD68$^+$ or CD163$^+$ cells observed in 4 cases (Table 1).

Our case, which consisted of multiple mandibular papules in a 9-month-old child, differed from those described previously in terms of both age and presentation. Histology did not reveal the plexiform pattern typical of this entity, but

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Table 1 Clinical and Pathological Characteristics of Benign Cutaneous Plexiform Hybrid Tumor of Perineurioma and Cellular Neurothekeoma Described in the Literature and Comparison with the Present Case.

Case	Sex/age, y	Location/solitary or multiple	Histological pattern	GLUT1	EMA	CD34	Claudin-1	MiTF	NKI/C3	Enolase	Actin	Vimentin	CD68/CD163
Requena et al. [1]													
1	F/33	Perioral/solitary	Plexiform	+	+	–	–	+	NE	+	–	ND	–
2	M/64	Perioral/solitary	Plexiform	ND	+	–	ND	ND	NE	+	–	ND	–
3	M/56	Perioral/solitary	Plexiform	–	–	–	+	+	+	+	–	ND	+
4	F/75	Perioral/solitary	Plexiform	+	+	+	–	ND	+	+	–	ND	–
5	F/67	Perioral/solitary	Plexiform	ND	+	–	ND	+	+	+	–	ND	–
6	M/76	Perioral/solitary	Plexiform	ND	–	–	ND	ND	–	–	–	ND	ND
7	F/58	Perioral/solitary	Plexiform	ND	+	ND	ND	+	+	ND	–	ND	ND
8	F/58	Perioral/solitary	Plexiform	–	+	–	–	+	+	ND	–	ND	ND
9	M/32	Perioral/solitary	Plexiform	ND	ND	ND	ND	ND	+	ND	–	ND	+
Yamada et al. [2]													
10	F/30	Nose/solitary	Plexiform	+	–	–	–	+	+	+	–	+	+
Linos et al. [3]													
11	F/36	Ankle/solitary	Storiform	+	+	+	–	+	+	–	ND	ND	ND
Areán et al. [4]													
12	M/59	Perioral/solitary	Plexiform	–	–	–	+	+	ND	–	–	+	+
Present case													
13	M/0.75	Jaw/multiple	Whorled	+	–	–	–	+	ND	–	–	+	ND

Abbreviations: EMA, epithelial membrane antigen; GLUT1, glucose transporter 1; M, male; F, female; MiTF, microphthalmia transcription factor; ND, no data; NKI/C3, lysosomal membrane-associated glycoprotein 3; NE, not evaluable.

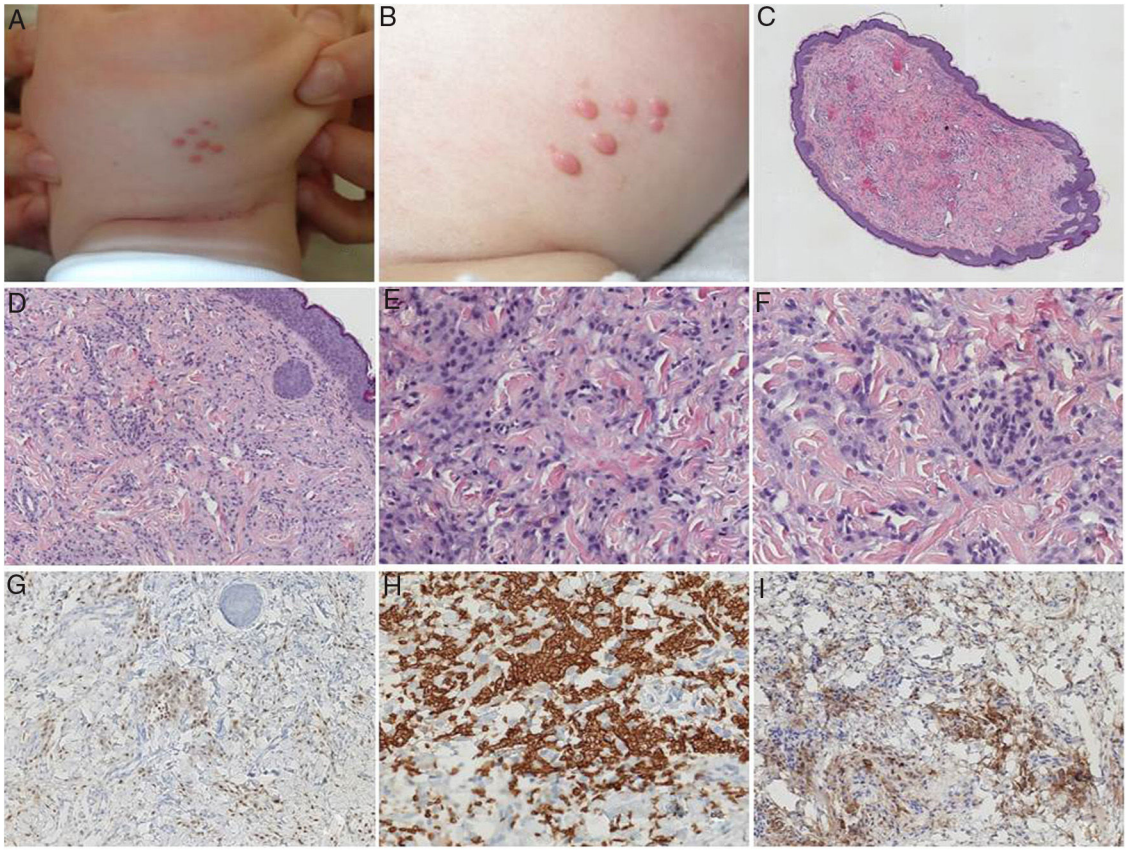

Figure 1 A and B) Clinical image showing 7 papules of 2–3 mm diameter on the jaw. C–F) Histological images (hemoxylin–eosin) show a dermal tumor with no epidermal involvement and a whorled architectural pattern, consisting of spindle cells with monomorphic ovoid nuclei, without atypia or mitotic figures, in a dense collagen stroma. G) Diffuse microphthalmia transcription factor (MiTF)-positive staining in the nuclei of neoplastic cells. H) Intense, diffuse GLUT1-positive staining in neoplastic cells. I) Diffuse and cytoplasmic CD10-positive staining in neoplastic cells.

did show the hybrid immunohistochemical characteristics ascribed to this lesion in the literature, and an absence of $CD68^{+}$ and $CD163^{+}$ cells (Table 1).

In conclusion, BCPHTPCN is a recently described tumor, initial descriptions of which indicate a preference for the perioral region, common morphological characteristics, and an immunohistochemical profile that combines features of perineurioma and cellular neurothekeoma. The present case featured this hybrid immunohistochemical profile, but differed from cases described to date in terms of both clinical and morphological characteristics. Given the clinical and morphological heterogeneity reported after the initial description of this lesion, more case reports will be needed to better characterize the clinical and pathological spectrum of the disease. The hybrid profile revealed using immunohistochemical techniques is currently the main diagnostic feature.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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