NEONATAL TUMORS

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DISCLOSURE OF RELEVANT RELATIONSHIPS WITH INDUSTRY

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I have no relevant relationships with the industry regarding this lecture
Objectives

• Recognize different tumors in the neonatal period

• Address each particular tumor

• Recognize clinical, histopathology, treatment and prognosis
Case

- Full term baby boy
- Evaluated few hours after birth for a congenital mass over the leg
• Eccrine angiomatous hamartoma
• Myofibromatosis
• Hemangioma
• NICH (Non-involuting congenital hemangioma)
1 year old: Lesion grew
Hyperplasia of eccrine glands in close association with foci of dilated capillaries in the middle and reticular dermis.
• Eccrine angiomatous hamartoma
• Myofibromatosis
• Hemangioma
• NICH (Non-involuting congenital hemangioma)
Red-bluish plaque

Tumor lesions with telangiectasias
Multiple lesions
Shoulder lesions
Unusual presentation

- Patient with mild pain, under painkillers
Associated Signs

• Mild Hyperhidrosis
Eccrine angiomatous hamartoma is a lymphatic proliferation

**Background:** Eccrine angiomatous hamartoma (EAH) is recognized as a vascular hamartoma composed of abnormal proliferation of blood vessels and eccrine glands. **Objective:** We sought to investigate the immunohistochemical results of D2-40 and Prox1 in EAH in order to gain further insight into its histogenesis. **Materials and methods:** We collected 21 cases of EAH diagnosed in a dermatology department. Immunohistochemical staining of D2-40 and Prox1 was performed on all cases. **Results:** Prox1 was universally positive in the endothelial cells of proliferated vessels in all cases. D2-40 was universally positive in the endothelial cells of proliferated vessels in 3 cases, focally positive in 18 cases. **Conclusion:** EAH is a lymphatic proliferation and therefore we suggest the name of eccrine lymphangiomatous hamartoma.

**Key words:** D2-40, eccrine angiomatous hamartoma, Prox1, vascular hamartoma, vascular neoplasm

D2-40 and Proxi-1 lymphatic markers
Eccrine angiomatous hamartoma

- Rare entity characterized histologically by the combination of proliferative eccrine and vascular elements at the dermal-subcutaneous level.
- Affects both sexes equally
- Congenital or in early childhood
- Solitary or multiple lesions
- Diagnosis: Histopathology
- Surgical treatment if necessary
CASE REPORT

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Eccrine Angiomatous Hamartoma: Report Five Congenital Cases

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Abstract: Eccrine angiomatous hamartoma is a rare entity characterized histologically by the combination of proliferative eccrine and vascular elements. It generally arises before puberty, as solitary or multiple lesions, with a heterogeneous clinical appearance, affecting predominantly the distal extremities, with or without associated pain or hyperhidrosis. It may require surgical treatment due to cosmetic concern, progressive enlargement or the presence of pain or excessive hyperhidrosis. We report five congenital cases of eccrine angiomatous hamartoma, emphasizing a clinically uncommon tumor-like appearance, with numerous telangiectasias on their surfaces
Case

• Full term baby boy

• No relevant perinatological background

• Presented at birth with a tumoral lesion on the arm
Spindle-shaped cells arranged in interweaving bundles or a whorled disposition (smooth muscle-like fascicles)
IHQ: vimentin (+)
• Eccrine angiomatous hamartoma
• Myofibromatosis
• Hemangioma
• NICH (Non-involuting congenital hemangioma)
• Eccrine angiomatous hamartoma
• Myofibromatosis
• Hemangioma
• NICH (Non-involuting congenital hemangioma)
atrophic
At birth

At 3 years
Infantile myofibromatosis
Infantile Myofibromatosis

- Rare fibrous tumor of infancy
- Solitary or multiple
- Systemic involvement can be present
- May affect
  - Skin
  - Soft tissue
  - Bones
  - Internal organs
Case

- Full term baby boy
- Evaluated few hours after birth for a congenital violaceous mass over neck
- 24 hours later the lesion increased
- Petechiae appeared
Complementary studies

- Platelets: 20,000 /ml
- PT: 54%
- KPTT: 49"
- Ht: 51%
Lobule vessels in reticular dermis (with compromise of hypodermis).

Blood and lymphatic vessels (without BM), anastomized, with erythrocyte extravasation
Kaposiform-Hemangioendothelioma
• Kasabach-Merritt Syndrome
• Blueberry muffin baby
• Idiopathic Thrombocytopenic purpura
• Blue rubber bleb nevus syndrome
• Kasabach-Merritt Syndrome
• Blueberry muffin baby
• Idiopathic Thrombocytopenic purpura
• Blue rubber bleb nevus syndrome
K-M syndrome refers to development of life-threatening thrombocytopenia as a result of platelet trapping with a vascular tumor.

Complicated by the secondary consumption of fibrinogen and coagulation factors.

Treatment: sirolimus 0.8 mg/m² (PI3/AKT/mTOR downstream signalling pathway).

Associated with
- Kaposiform Hemangioendothelioma
- Tufted Angioma
Newborn, male, AGA.
Was seen at birth by another colleague.
Congenital reddish-purple lesion on the right buttock.
6x7 cm in size.

- Vascular lesion
- Fully developed at birth
- Pale surrounding halo

First Diagnosis:
**Congenital Hemangioma**

Ultrasound B-mode and Doppler Watch and wait conduct
The lesion increased in size: 11 x 9 cm.

Became more purpuric in the centre and more pale in the margins.

Referred to us when he was 3 months old:
Firm, non tender, bluish peripheral lesions that were located on the sacral area and right ankle.
• The lesion increased in size during the first three months

• **Ultrasound:**
  - Anechoic channels containing echogenic foci with distal shadowing consistent with intraluminal calcifications.
  - Monophasic, low velocity flow
Irregular vascular channels located in the lower part of the papillary dermis and hypodermis
• Blueberry muffin baby
• Idiopathic Thrombocytopenic purpura
• Blue rubber bleb nevus syndrome
• Combined vascular malformation
• Blueberry muffin baby
• Idiopathic Thrombocytopenic purpura
• Blue rubber bleb nevus syndrome
• Combined vascular malformation
Case History - Follow up visit

- Tenderness on palpation
- Increased temperature of the overlying skin.
- Palpable stone like structures = Phleboliths!

Mixed vascular malformation complicated by localized intravascular coagulopathy (LIC)
Medical approach

Blood tests in order to confirm LIC

Evaluation by the hematology service

Vascular Anomalies Multidisciplinary Team

Hct: 36.7  Hb: 12
PLT: 305,000
D-Dimer 5000 (+>400)
Fibrinógen 1,41g/l (1,80-3,50)
APTT 34 seg
TP: 100%
Magnetic Resonance Angiography

A: T2-weighted coronal image: septated lesion with increased signal intensity consistent with venous malformations.
B: T2-weighted coronal image: small low signal intensity foci consistent with phleboliths.
C: Axial STIR image: hyperintense lesion.
Multidisciplinary medical approach

Painful venous malformation + ↑D-dimer
Baseline blood work ruled out primary and secondary causes of thrombophilia

Started enoxaparin 10 mg daily
Planned follow up visits: lab tests (dosage of D-dimer, fibrinogen and anti-Xa levels) and clinical assessment

Follow up visit two weeks later:

No pain, no palpable phleboliths

↓D-dimer  
↑fibrinogen

Ultrasound guided sclerotherapy with sodium tetradecyl sulfate (STS) + Rapamycin and then open surgical excision: enoxaparin will be stopped 12 hours before and restarted 12 hs after the procedure
• Dermatologists play a key role in the diagnosis of vascular malformations.
• Medical approach should always be multidisciplinary in orden to minimize complications and morbidity.
• It is vital to treat localized intravascular coagulopathy before any surgical procedure.
Case

- Full term baby boy
- Evaluated at 10 days of age for a congenital violaceous mass over the right hand
Proliferation of spindle cells in interlacing bundles and sharply intersecting fascicles, *small round cell and whorled patterns*
• Rabdomyosarcoma
• Infantile Hemangioma
• Congenital Infantil Fibrosarcoma
• Vascular malformation
• Rabdomyosarcoma
• Infantile Hemangioma
• Congenital Infantile Fibrosarcoma
• Vascular malformation
Congenital Infantile Fibrosarcoma

- Rare mesenchymal tumor
- More common in extremities
- Few cases in neonatal period
- The prognosis is relatively good compared to adult
- Histopathology proliferation of spindle cells in interlacing bundles and sharply intersecting fascicles, small round cell and whorled patterns
- Immunohistochemistry vimentin (+)
- Translocation t(12,15)(p13,q25)
- Treatment surgery post chemotherapy
Case

- Born Term

- No relevant perinatological background

- Presented at birth with a tumoral lesion on the cheek
• Sebaceous Nevus
• Syringocystadenoma papilliferum
• Herpes infection
• Dermoid Cyst
• Sebaceous Nevus
• Syringocystadenoma papilliferum
• Herpes infection
• Dermoid Cyst
Syringocystadenoma papilliferum

- Organoid nevus
- Congenital or acquired
- Isolated or on Jadassohn nevus
- Occasionally syndromic
Placa verrugosa lineal congénita en cuero cabelludo

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Figura 1.
Placa pápulo verrugosa, alopecica, de disposición lineal, localizada en la región temporoparietal derecha del cuero cabelludo.

Figura 2.
Biopsia de cuero cabelludo: invaginaciones epidérmicas con infiltrado inflamatorio dérmico (H&E 40X).

Activating mutations in the RAS/mitogen-activated protein kinase signaling pathway in sporadic trichoblastoma and syringocystadenoma papilliferum.

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Abstract

Trichoblastoma (TB) and syringocystadenoma papilliferum (SCAP) are both rare adnexal skin lesions occurring either sporadically or as secondary neoplasms in sebaceous nevi. TB and SCAP associated with sebaceous nevi have been shown to carry the same HRAS mutation as the underlying nevus. However, the genetic background of sporadic TB and SCAP has remained unknown. Therefore, we screened 18 sporadic TBs and 23 sporadic syringocystadenoma papilliferum from 41 patients for the presence of activating mutations in RAS genes and other oncogenes. Using a RAS SNaPshot assay, HRAS mutations were detected in 2 (11%) of 18 sporadic TB and 6 (26%) of 23 sporadic syringocystadenoma papilliferum. A KRAS mutation was identified in 1 sporadic SCAP. High-throughput oncogene mutation profiling furthermore identified BRAF V600E mutations in sporadic syringocystadenoma papilliferum, which could be validated in 12 (62%) of 23 lesions using a BRAF SNaPshot assay. BRAF and RAS mutations were mutually exclusive in sporadic syringocystadenoma papilliferum. No BRAF mutation could be detected in 3 syringocystadenoma papilliferum secondarily arisen from a sebaceous nevus as well as in sporadic TB. In 14 lesions carrying an oncogenic mutation, nonlesional control tissue from the epithelial margin revealed a wild-type sequence, thus proving the somatic character of the mutation. Our results indicate that activation of the RAS-mitogen-activated protein kinase pathway by BRAF and RAS mutations contributes significantly to the tumorigenesis of sporadic SCAP and, less frequently, of sporadic TB.
Conclusions

- Tumor lesions in the neonatal period are a challenge
- Biopsy usually scares the attending physician
- A trained multidisciplinary team is required to make the diagnosis
THANK YOU!