ANOMALÍAS VASCULARES

CASO 4

LII REUNIÓN TERRITORIAL APMUR

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Albert Caballero Illanes, María Isabel Oviedo Ramírez, Belén Ferri Ñíguez

Mujer de 57 años con lesión intraósea a nivel de maxilar derecho.

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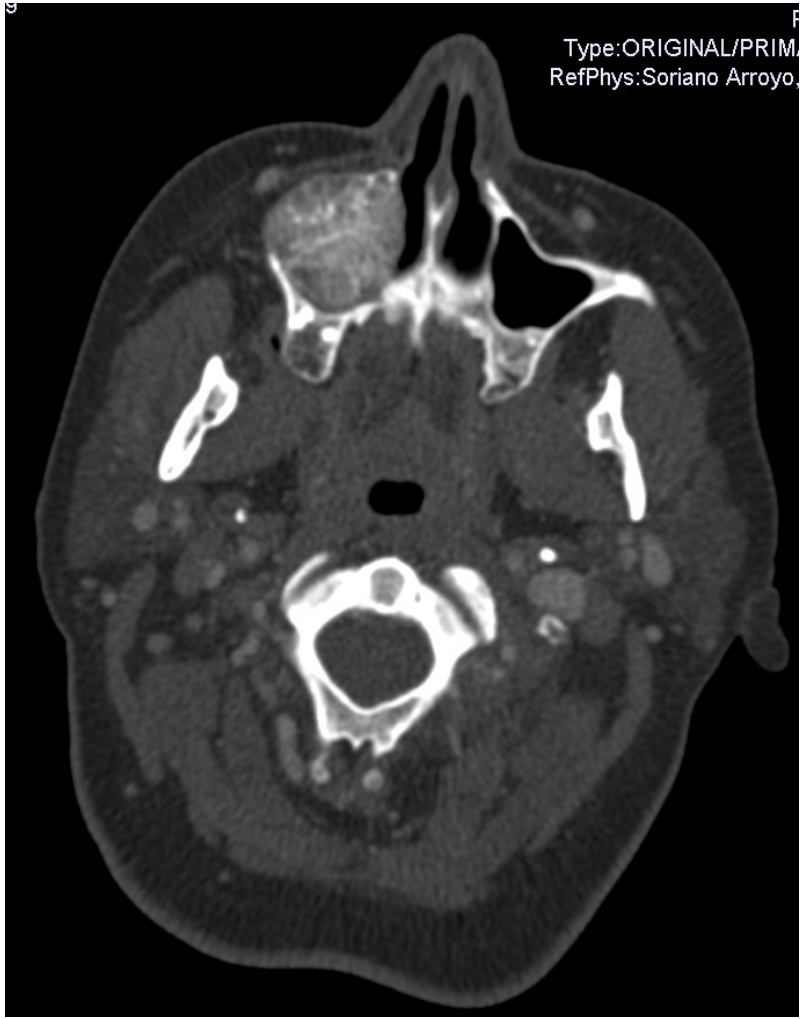

TAC CON CONTRASTE

Lesión ósea expansiva y lítica en maxilar superior derecho que oblitera parcialmente el seno maxilar y la fosa nasal inferior derecha. Presenta una morfología redondeada y expande la cortical maxilar externa.

Presenta unos diámetros máximos de 28x28x32mm (APxTxCC).
Sin evidencia de adenopatías locorregionales.

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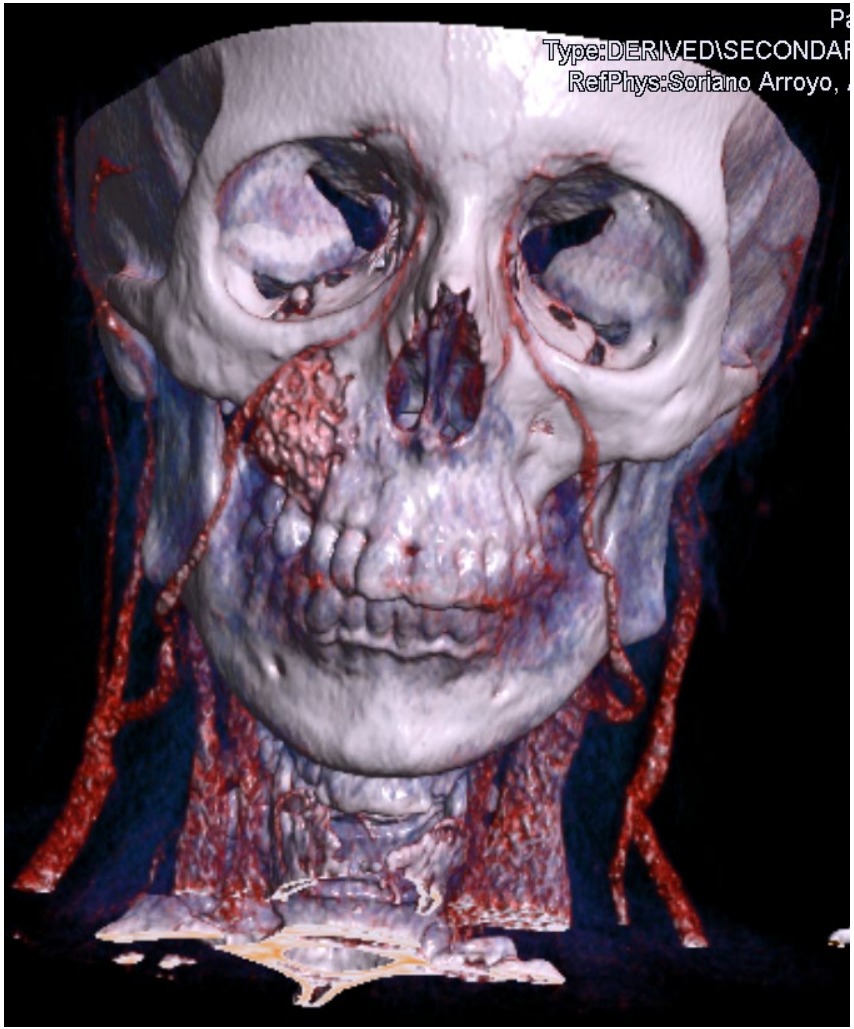
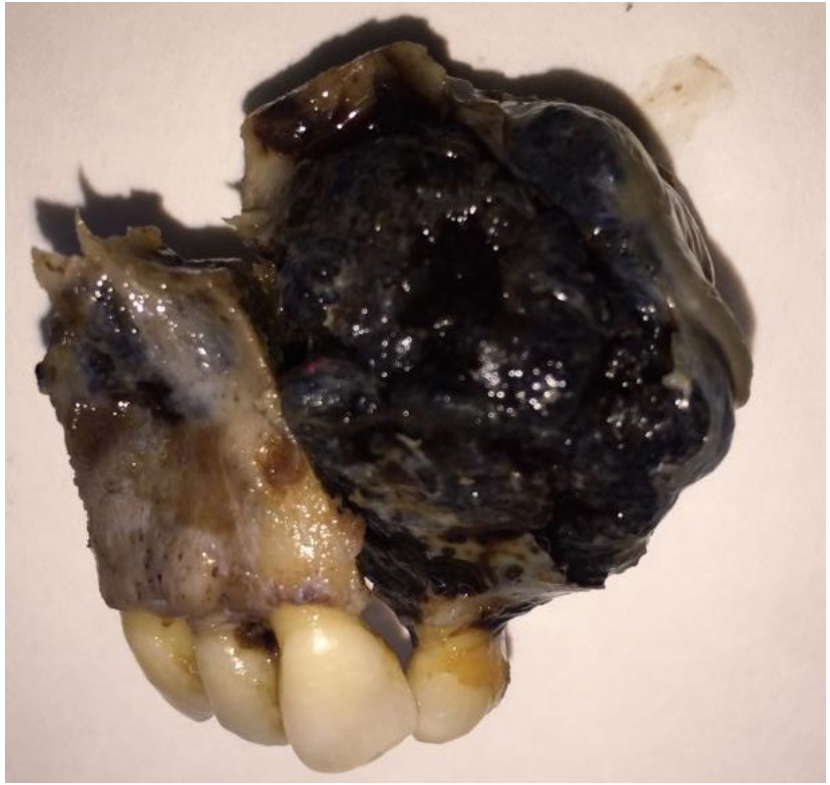


MAXILECTOMÍA PARCIAL DERECHA

Lesión nodular rojiza oscura, de consistencia dura.

4 x 3’5 x 2’5 cm



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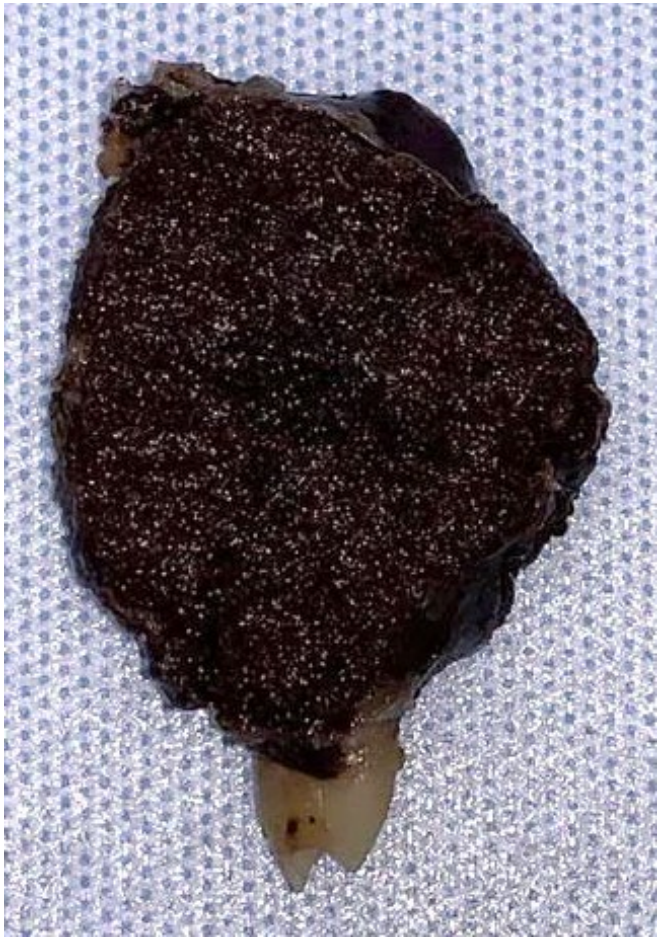

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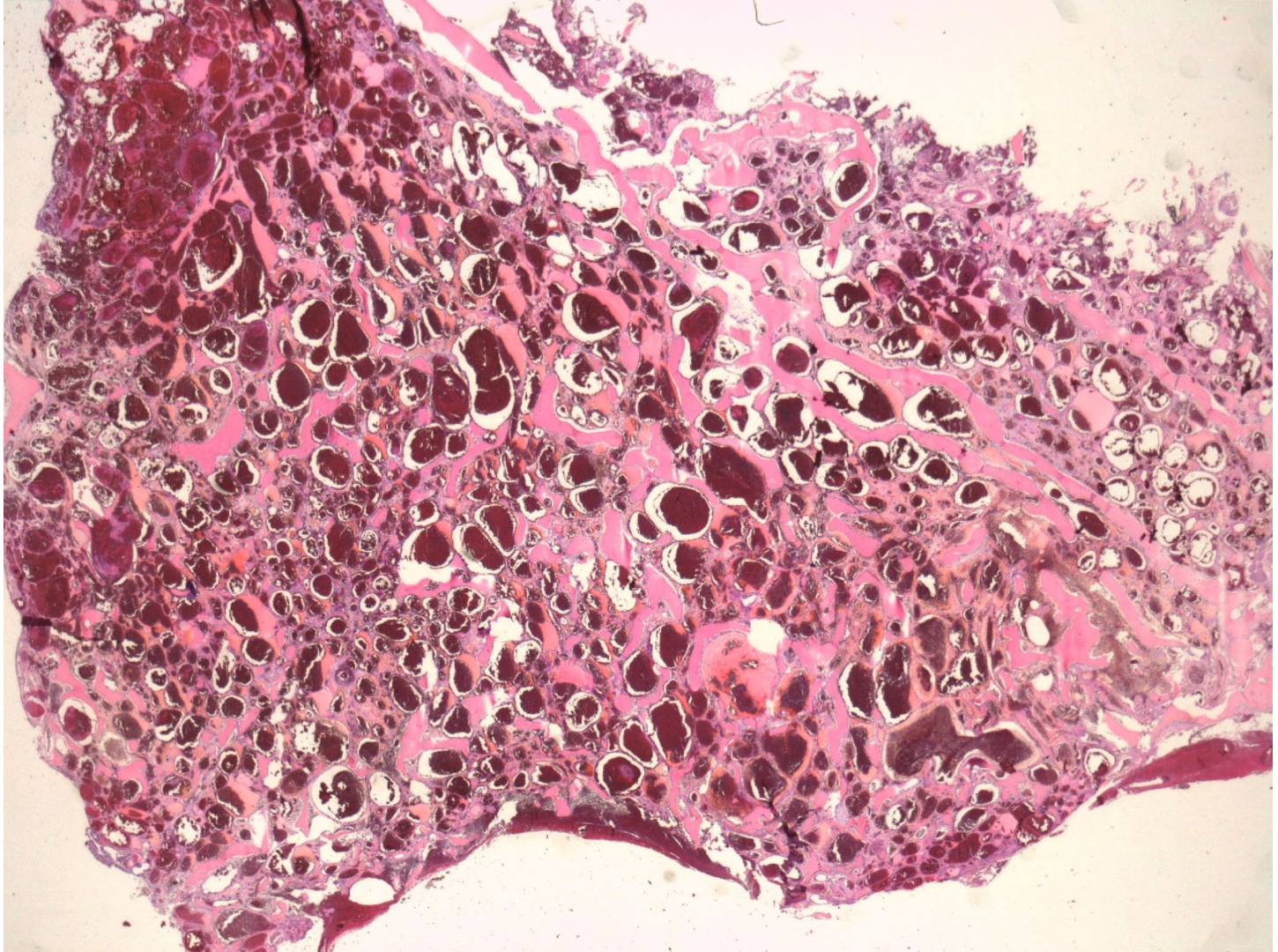
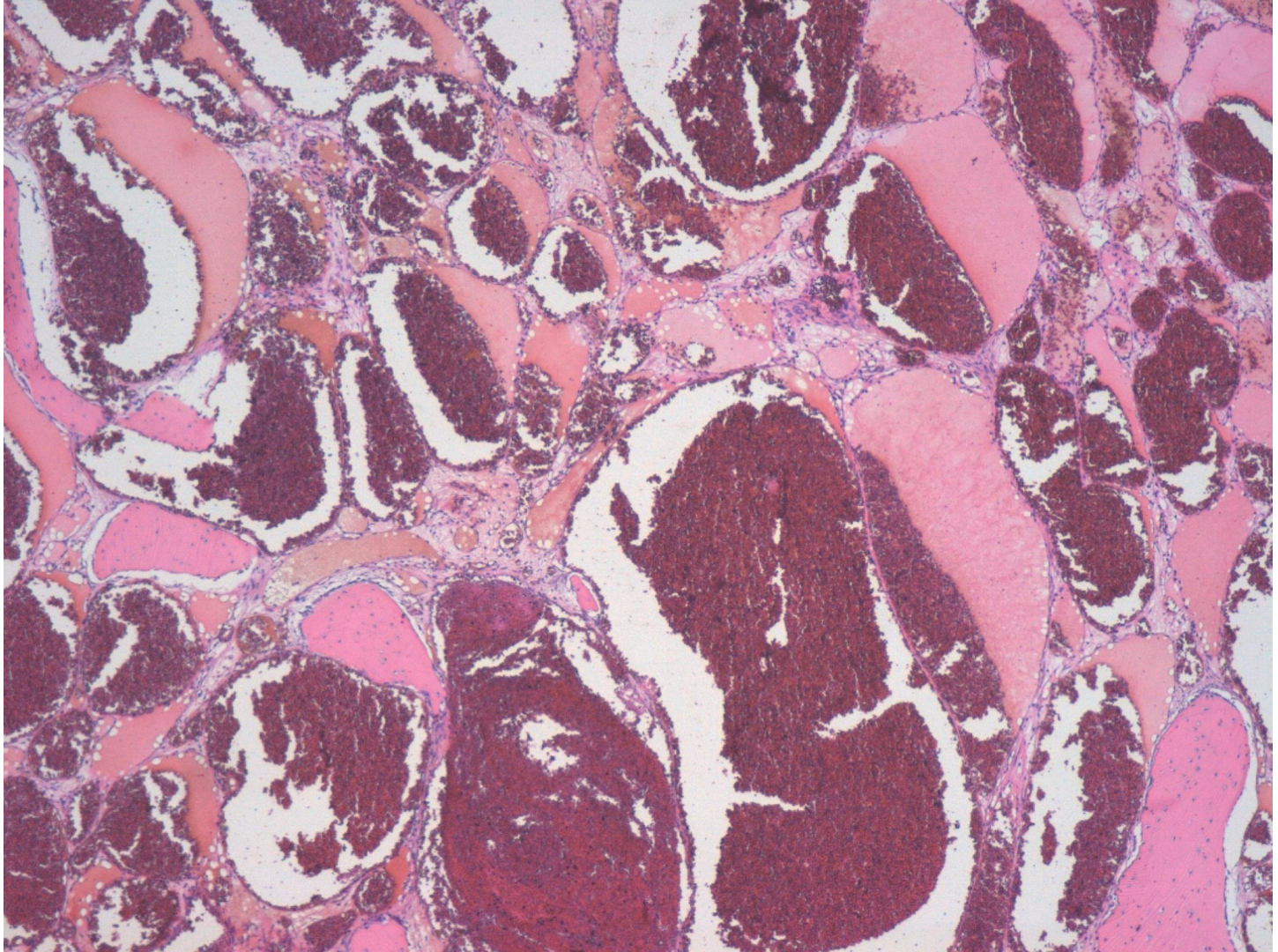
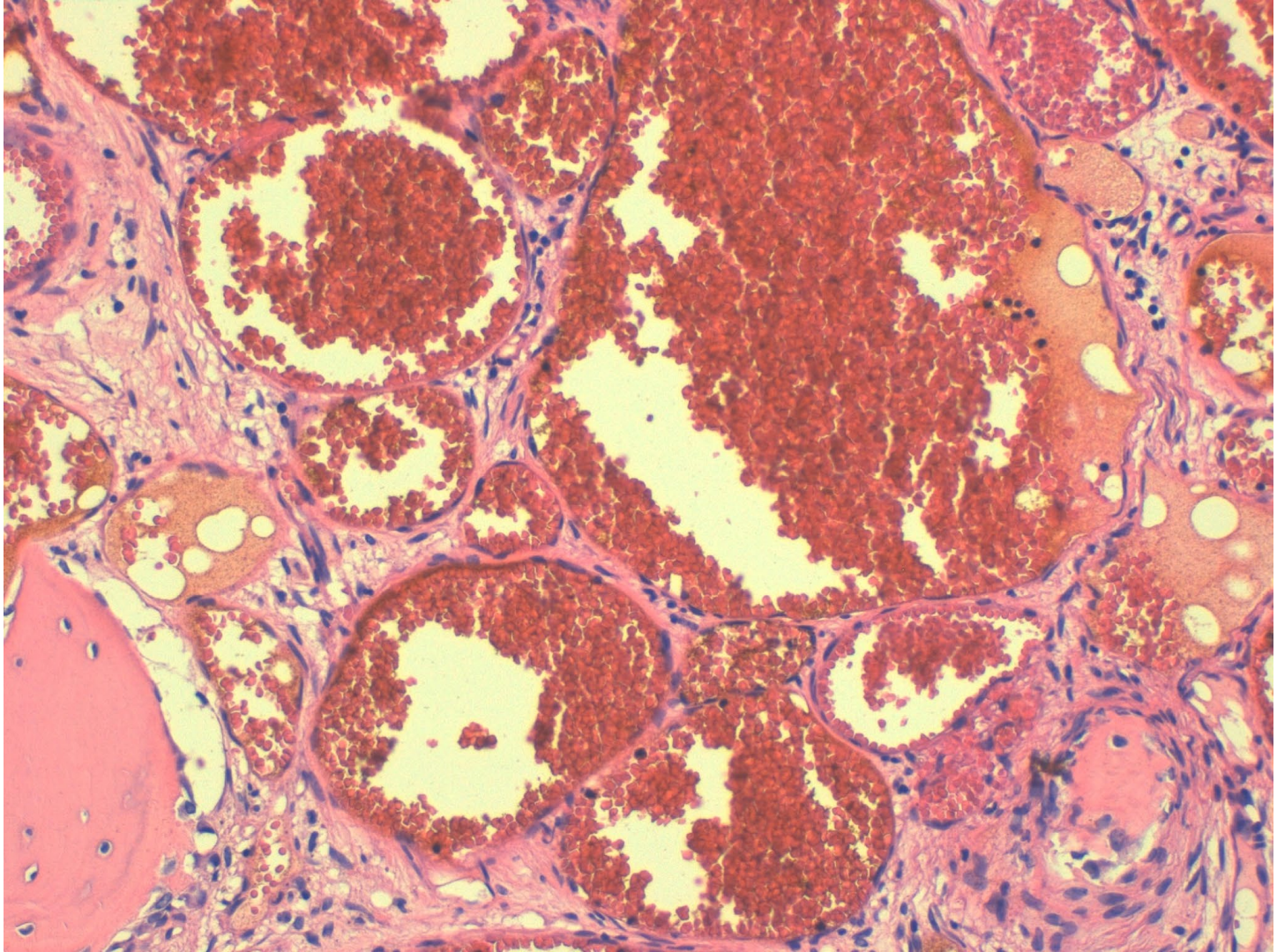
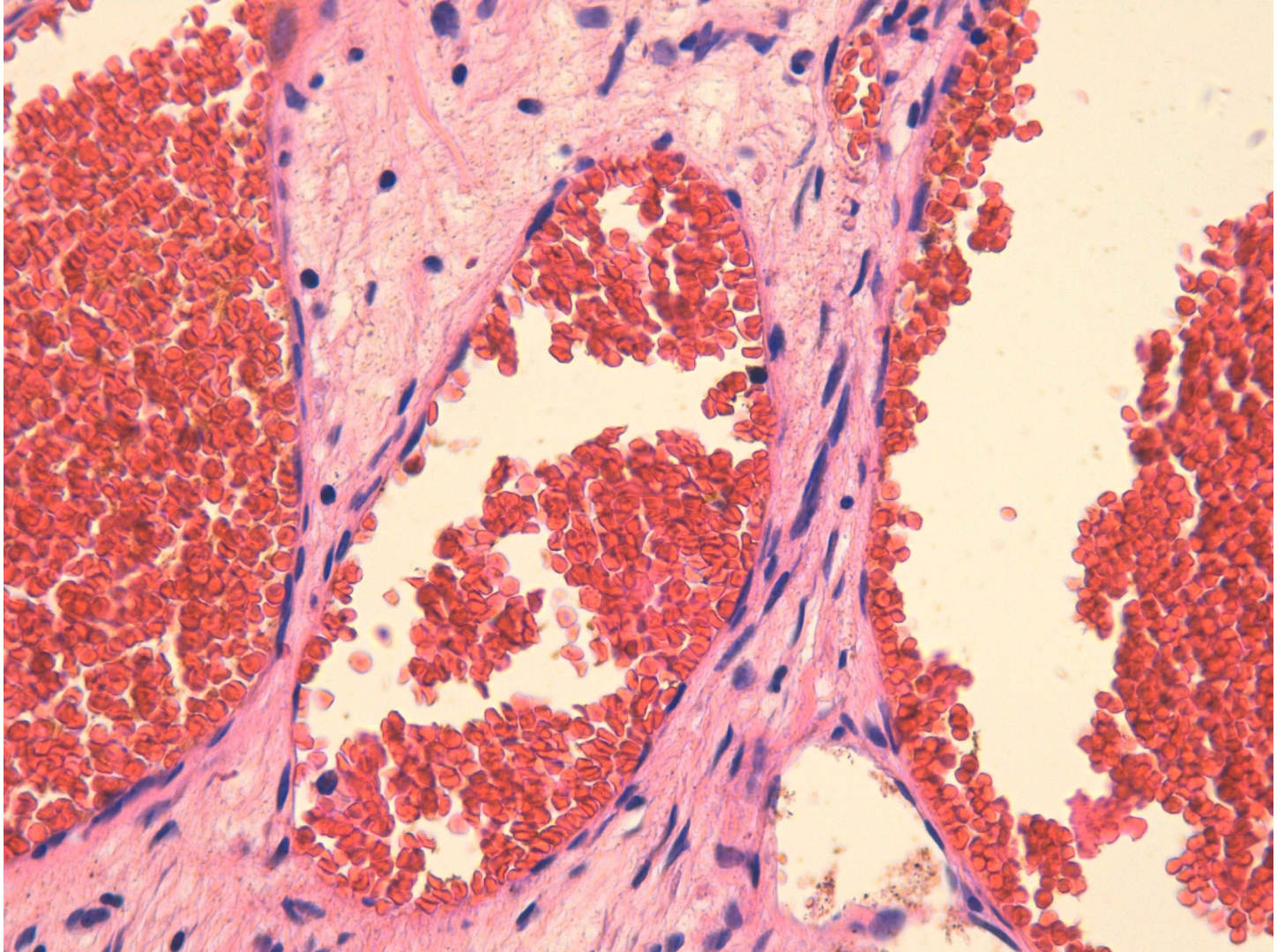
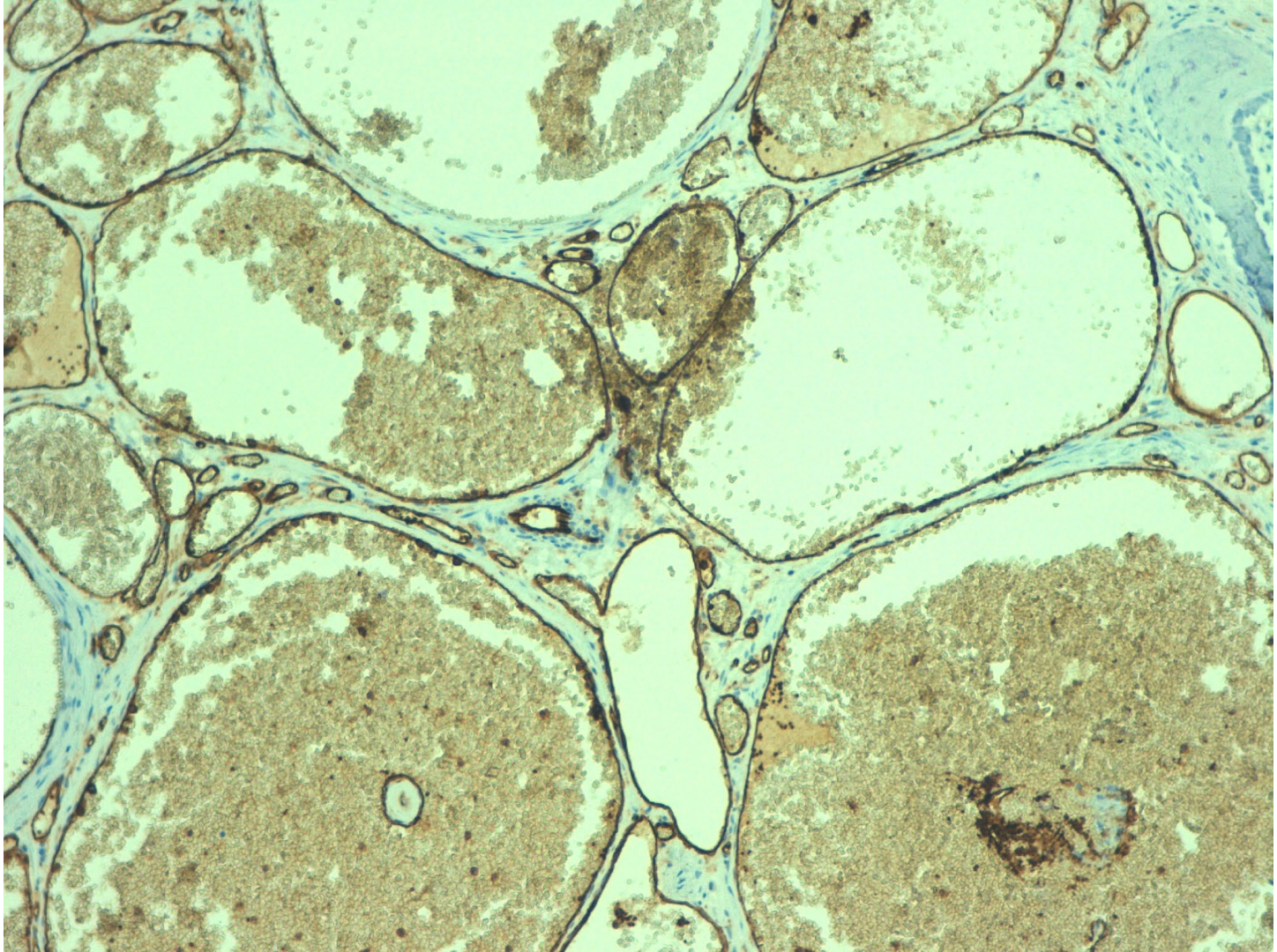


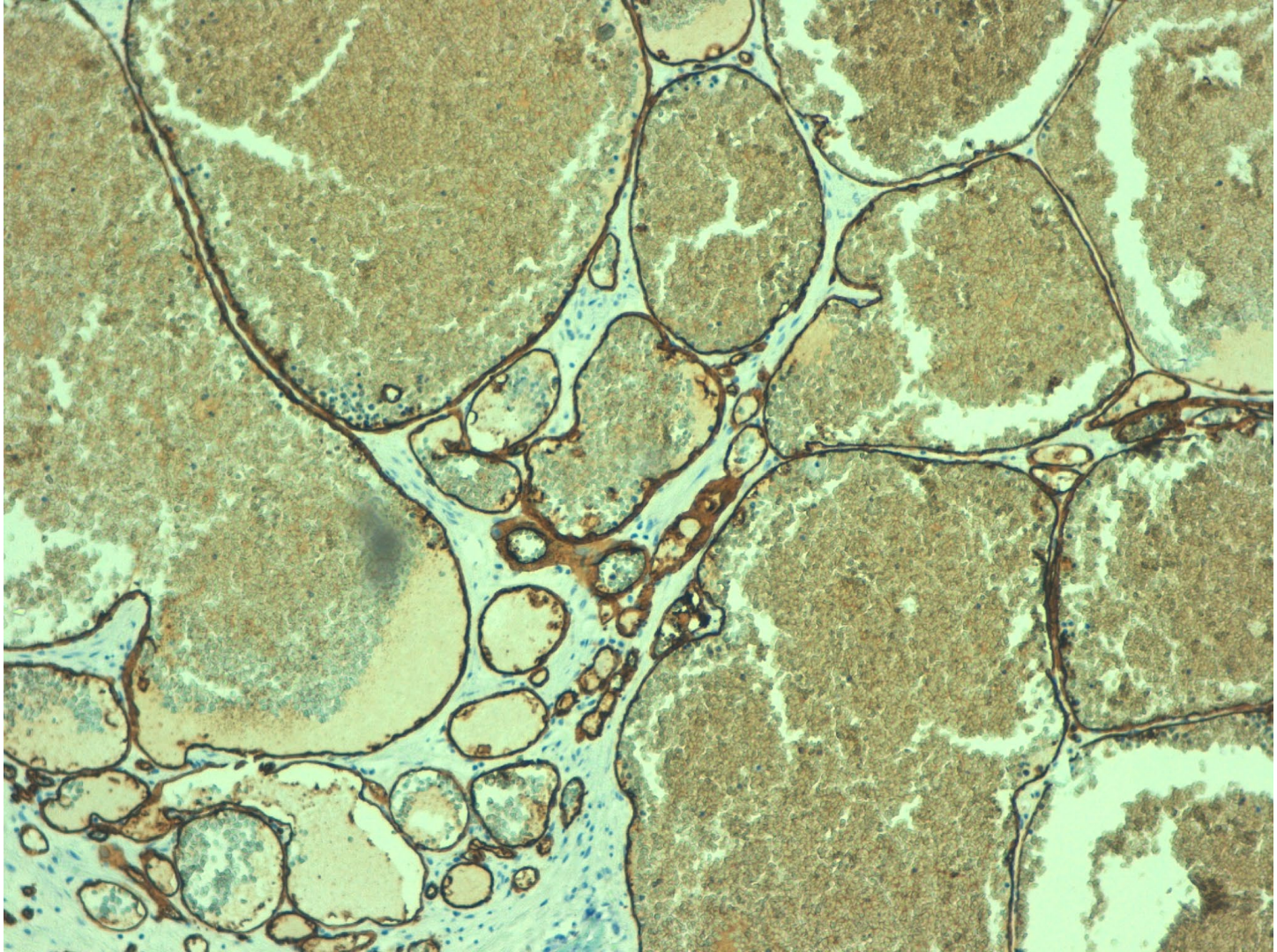








CD31



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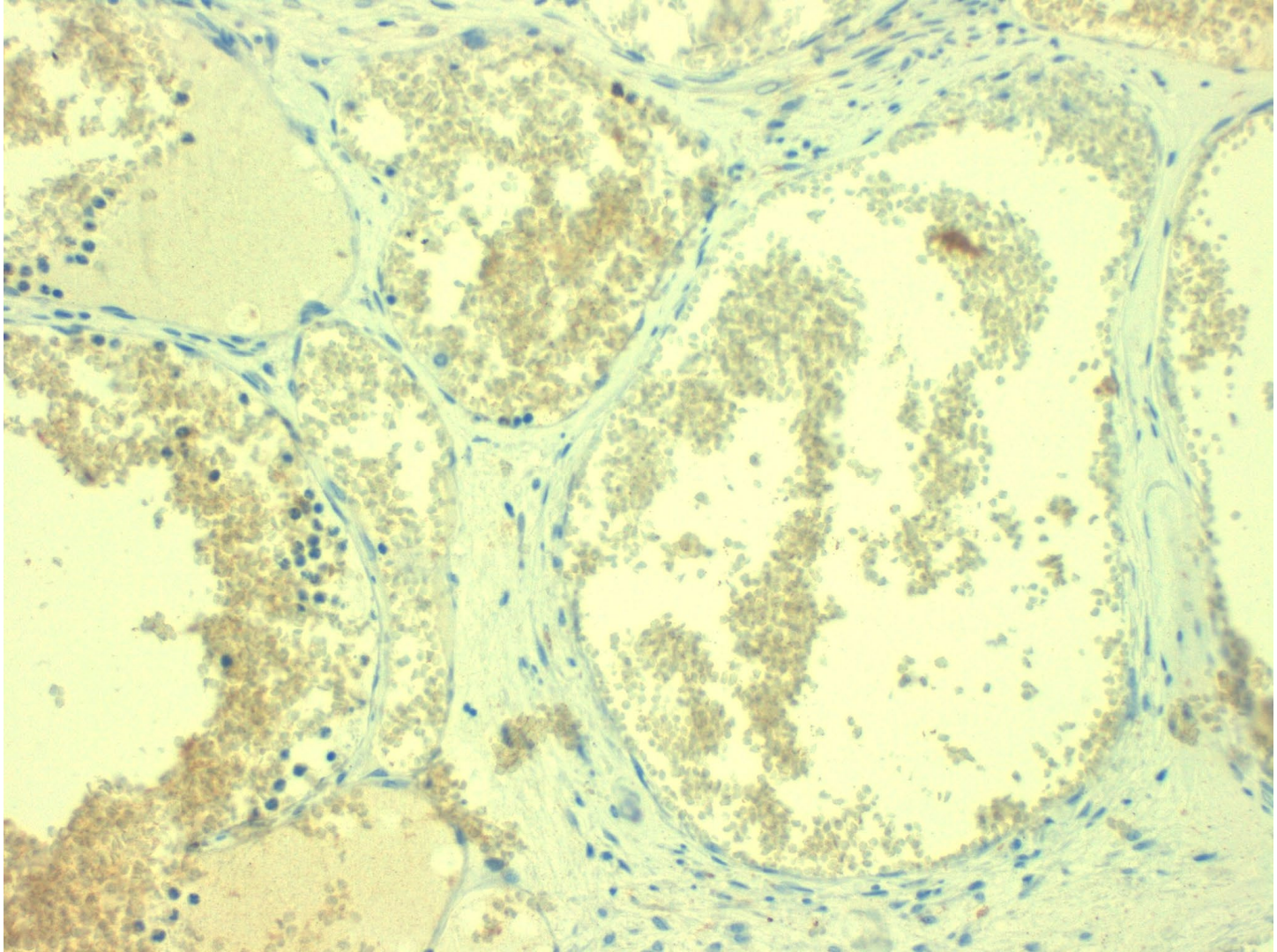
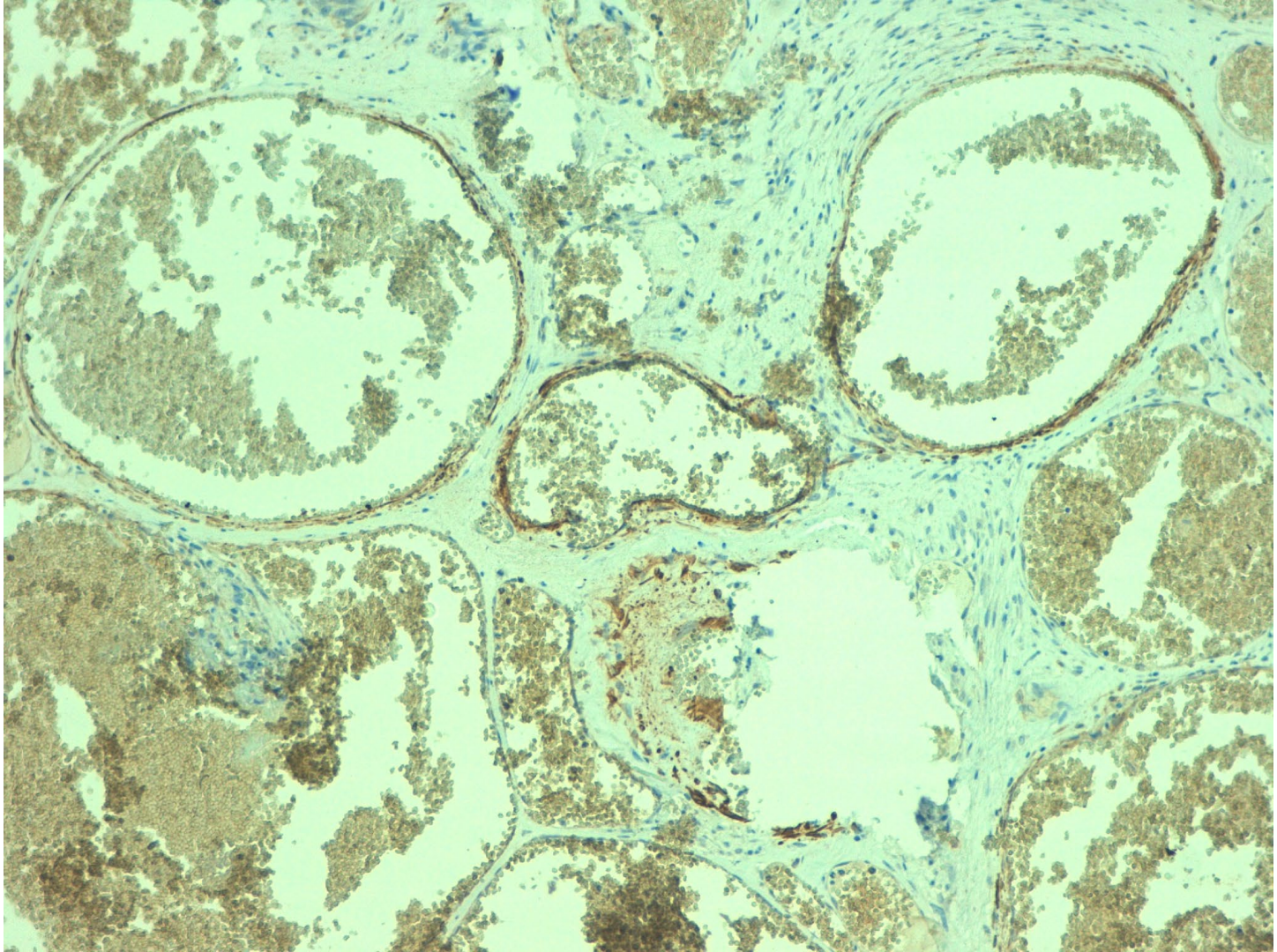


D2-40



Actina

DIAGNÓSTICO…

”

Comentarios y diagnóstico

- La imagen descrita corresponde a una anomalía vascular.
- Por localización y edad, además de por la morfología descrita, y según la clasificación actual de la ISSVA…

MALFORMACIÓN VASCULAR DE TIPO VENOSO INTRAÓSEA.

- Existe mucha confusión en la clasificación de las lesiones vasculares.
- La **OMS** define a los *hemangiomas* como “neoplasias vasculares benignas o condición del desarrollo de origen endotelial”, lo cual incluye tanto a hemangiomas como a malformaciones vasculares.

- La **ISSVA** hace la distinción entre hemangiomas (tumores benignos) y malformaciones vasculares.

- En 1996 la International Society for the Study of Vascular Anomalies (ISSVA), aprobó una clasificación en base a *datos clínicos*, *histológicos* y de pruebas de *imagen*.

Table 2. Binary classification of vascular anomalies, accepted in 1996 by the International Society for the Study of Vascular Anomalies (ISSVA).

Tumours	Malformations
Haemangioma	Slow-flow
Haemangioendotheliomas	Capillary
Angiosarcoma	Lymphatic
Miscellaneous	Venous
	Fast-flow
	Arterial
	Combined

OMS

VASCULAR TUMOURS OF SOFT TISSUE

Benign
- Haemangioma
  - Synovial
  - Venous
  - Arteriovenous haemangioma/malformation
  - Intramuscular
- Epithelioid haemangioma
- Angiomatosis
- Lymphangioma

Intermediate (locally aggressive)
- Kaposiform haemangioendothelioma

Intermediate (rarely metastasizing)
- Retiform haemangioendothelioma
- Papillary intralymphatic angioendothelioma
- Composite haemangioendothelioma
- Pseudomyogenic (epithelioid sarcoma-like) haemangioendothelioma
- Kaposi sarcoma

Malignant
- Epithelioid haemangioendothelioma
- Angiosarcoma of soft tissue

ISSVA classification for vascular anomalies ©

(Approved at the 20th ISSVA Workshop, Melbourne, April 2014, last revision May 2018)

This classification is intended to evolve as our understanding of the biology and genetics of vascular malformations and tumors continues to grow

Overview table

Vascular anomalies				
Vascular tumors	**Vascular malformations**			
	Simple	**Combined °**	**of major named vessels**	**associated with other anomalies**
Benign Locally aggressive or borderline Malignant	Capillary malformations Lymphatic malformations Venous malformations Arteriovenous malformations* Arteriovenous fistula*	CVM, CLM LVM, CLVM CAVM* CLAVM* others	See details	See list

Table 1. Summary of the clinical and pathological differences between haemangioma and vascular malformation.

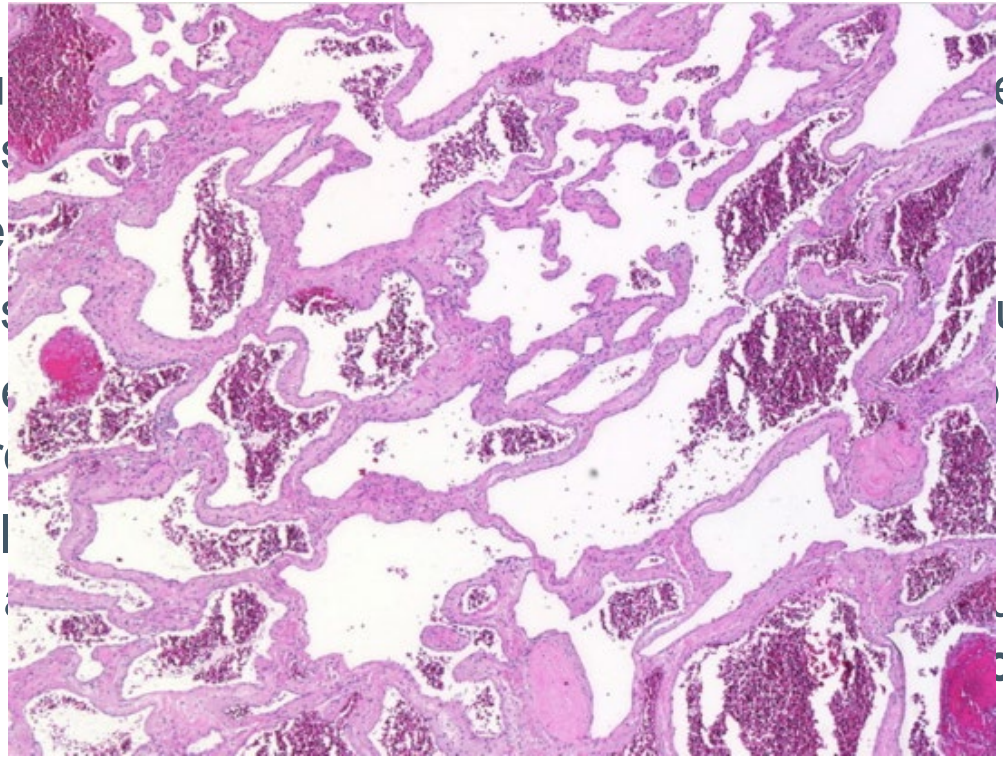
	Haemangioma	Vascular malformation
Gender distribution	Female > male	Equal
Presence at birth	No	Yes
Natural history	Rapid proliferation for the first several months of life and spontaneous regression	Growth proportionately with the child. May become more prominent, especially at puberty
Histology	Endothelial hyperplasia Large numbers of mast cells	Mature vascular elements Normal numbers of mast cells
Immunohistochemistry	GLUT-1-positive cells	GLUT-1-negative cells

GLUT-1, glucose transporter 1.

Kadlub N, et al. Intraosseous haemangioma: semantic and medical confusion, Int J Oral Maxillofac Surg (2015)

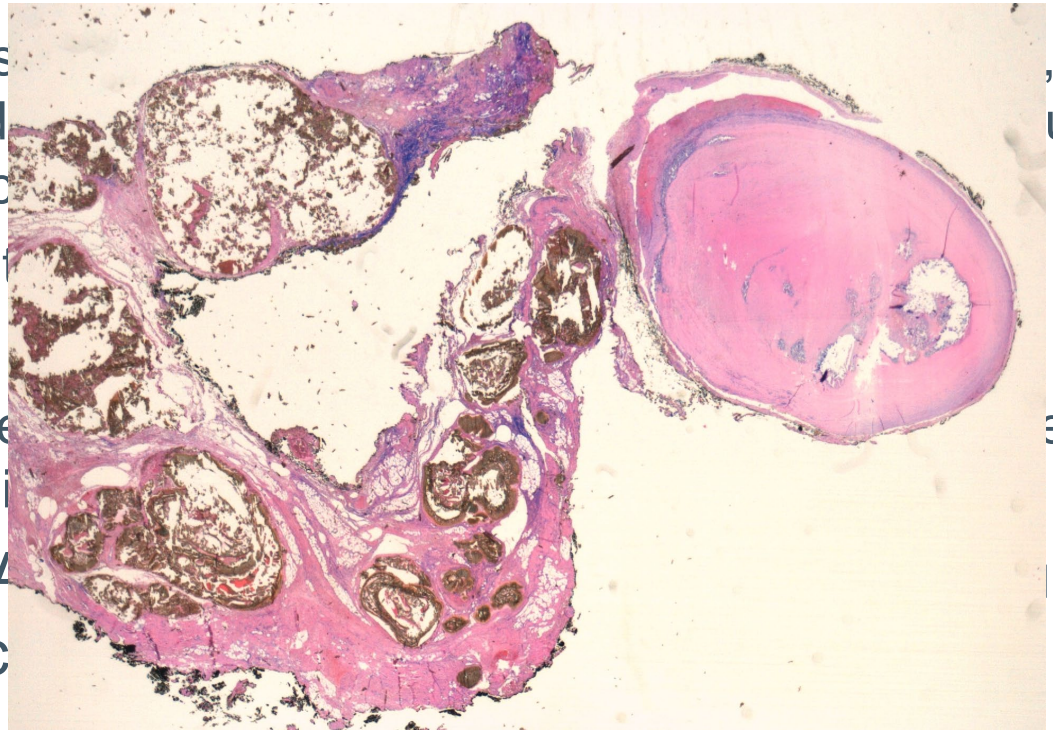
MALFORMACIONES VENOSAS

- Aunqu eden no ser visible
- Puede
- Lo más utis.
- Tambi mo hígado o cerebr
- En el por canales vascul uesto (back to back), oso”.



MALFORMACIONES VENOSAS

- Canales , tapizados por end úsculo liso que frec
- Suelen
- Escaso
- Con fre estado de progresi
- TRATA ido de resecc



Back to overview

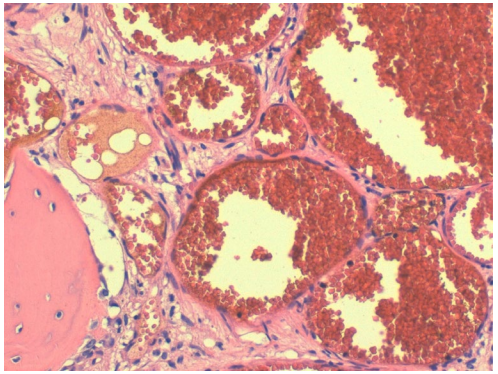
ISSVA classification for vascular anomalies

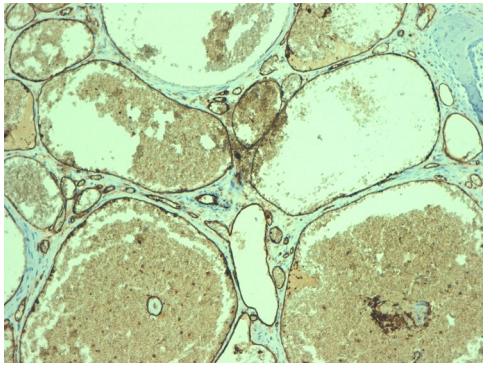
Type A for prev vie

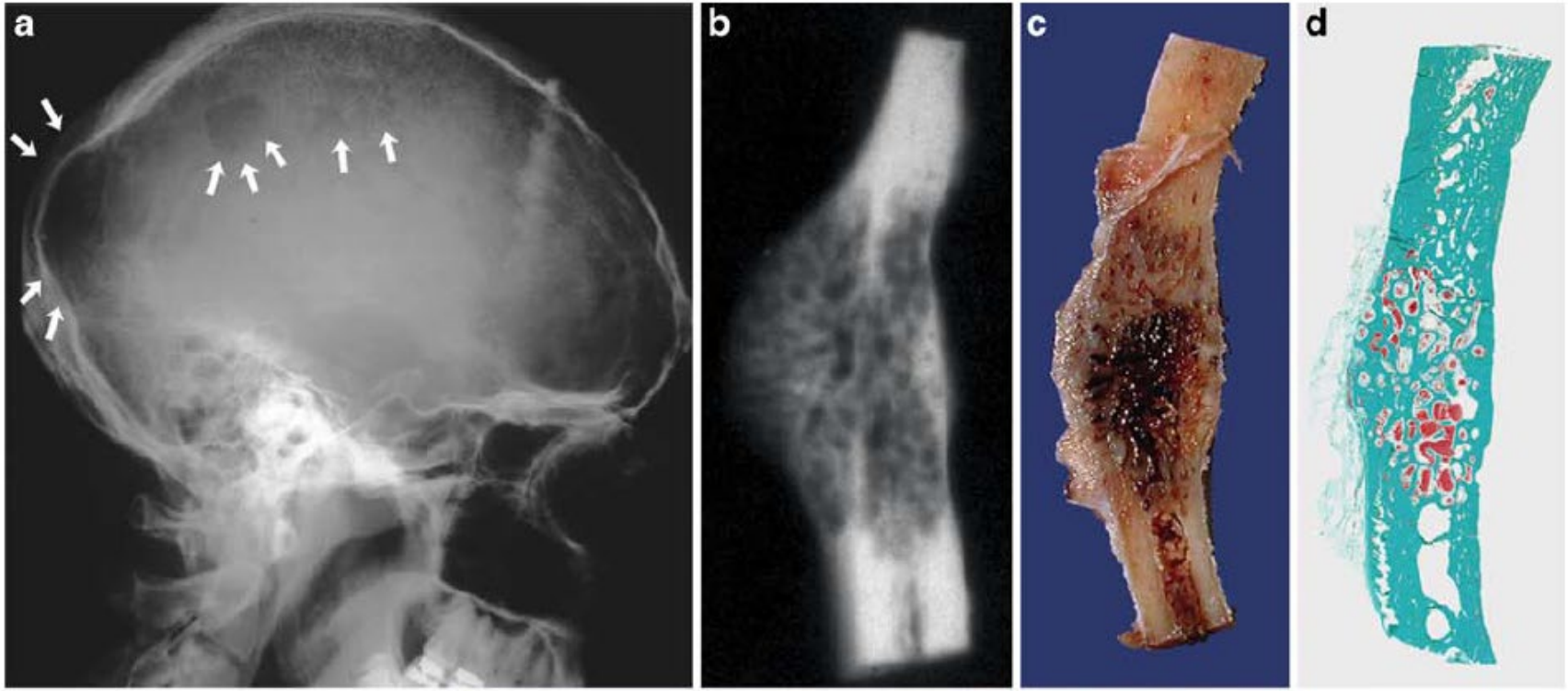
Simple vascular malformations III	
Venous malformations (VM)	
Common VM	TEK (TIE2) / PIK3CA
Familial VM cutaneo-mucosal (VMCM)	TEK (TIE2)
Blue rubber bleb nevus (Bean) syndrome VM	TEK (TIE2)
Glomuvenous malformation (GVM)	Glomulin
Cerebral cavernous malformation (CCM)	(*CCM1* KRIT1, *CCM2* Malcavernin, *CCM3* PDCD10)
Familial intraosseous vascular malformation (VMOS)	ELMO2
Verrucous venous malformation *(formerly verrucous hemangioma)*	MAP3K3
Others	

MALFORMACIÓN VASCULAR VENOSA INTRAÓSEA

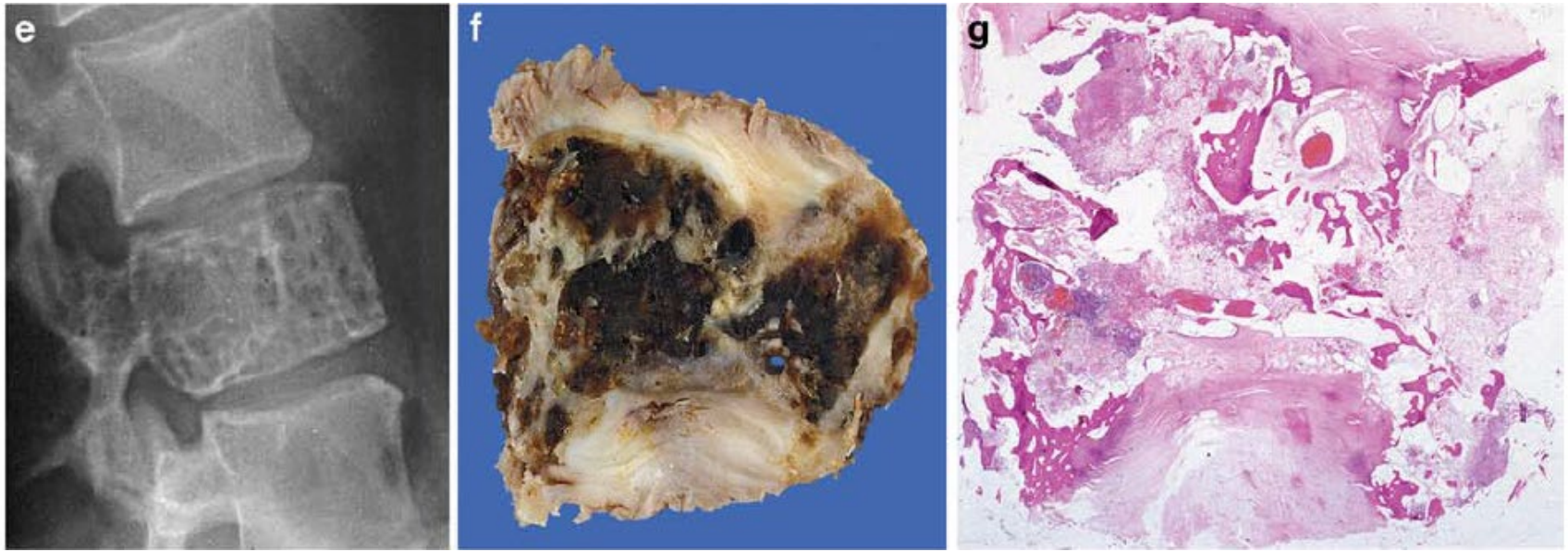
- También erróneamente se las ha llamado hemangiomas del hueso.
- Con más frecuencia se ven en los cuerpos vertebrales o en la bóveda craneal.
- Vasos de pared delgada, pequeños, endotelio aplanado, bajo índice proliferativo.
- Puede haber trombos e hiperplasia endotelial papilar.







◀ **Fig. 1** Venous malformation. **a** Cranial geographic osteolysis on lateral plain film (*arrows*; 17-year-old male). **b–d** Specimen radiograph, gross and whole mount section showing spongy appearance and expansion of the skull. Large abnormal channels contain blood



(same patient as in **a**). **e–g** Coarsely trabeculated osteolytic lesion of the third lumbar vertebra (22-year-old female). The hemisected vertebral body and whole mount section show central collapse, loss of bone and abnormal channels of varying size. The vertebra was removed because of compression fracture following sclerotherapy. **h–i**

Intraosseous haemangioma: semantic and medical confusion

N. Kadlub L. Dainese, A. Coulomb-L'Hermine, L. Galmiche, V. Soupre, H. Ducou Lepointe, M. -P. Vazquez, A. Picard : Intraosseous haemangioma: semantic and medical confusion. Int. J. Oral Maxillofac. Surg. 2015; xxx: xxx–xxx.

Table 4. Summary of the principal characteristics of maxillofacial intraosseous vascular malformations, mislabelled as haemangioma. Review of the international literature from 1996 to 2013.

Reference	Age	Gender	Localization	Radiological characteristics	Histological characteristics	Authors' diagnosis	ISSVA diagnosis	WHO classification	Treatment
Ramchandani et al. (2004)[8]	38 years	F	Zygoma	Soap bubble appearance	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Werle et al. (2003)[9]	1 month	F	Maxilla	Lytic lesion	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Steroid therapy
Jen et al. (2004)[10]	74 years	F	Maxilla	Lytic lesion	Venous vessels	Central haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Savastano et al. (1997)[11]	41 years	F	Zygoma	Sun ray appearance	Venous vessels	Haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Khanam et al. (2001)[12]	30 years	F	Calvaria	Osteocondensing tumour	Capillary vessels	Capillary haemangioma	Capillary malformation	Haemangioma with a capillary component	Surgical resection
	51 years	M	Calvaria	Soap bubble appearance	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Panagos and Hirsch (2009)[13]	77 years	M	Maxilla	Soap bubble appearance	Venous vessels	Central haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Alves et al. (2006)[14]	22 years	M	Mandibular condyle	Lytic lesion	Venous vessels	Haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Garcia-Marin et al. (2001)[15]	20 years	M	Occipital condyle	Honeycomb appearance	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Embolization
Arribas-Garcia et al. (2009)[16]	42 years	F	Zygoma	Soap bubble appearance	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Ozdemir et al. (2002)[17]	7 years	M	Mandibular symphysis	Lytic lesion	Venous and capillary vessels	Capillary–venous haemangioma	Capillary–venous malformation	Haemangioma with a capillary component	Surgical resection
Gomez Oliveira et al. (2008)[18]	51 years	F	Mandibular body	Honeycomb appearance	Capillary vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection
Marcinow et al. (2012)[19]	47 years	M	Zygoma	Ground-glass appearance	Venous vessels	Cavernous haemangioma	Venous malformation	Haemangioma with a venous component	Surgical resection

ISSVA, International Society for the Study of Vascular Anomalies; WHO, World Health Organization; F, female; M, male.

Loss-of-Function Mutations in *ELMO2* Cause Intraosseous Vascular Malformation by Impeding RAC1 Signaling

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Vascular malformations are non-neoplastic expansions of blood vessels that arise due to errors during angiogenesis. They are a heterogeneous group of sporadic or inherited vascular disorders characterized by localized lesions of arteriovenous, capillary, or lymphatic origin. Vascular malformations that occur inside bone tissue are rare. Herein, we report loss-of-function mutations in *ELMO2* (which translates extracellular signals into cellular movements) that are causative for autosomal-recessive intraosseous vascular malformation (VMOS) in five different families. Individuals with VMOS suffer from life-threatening progressive expansion of the jaw, craniofacial, and other intramembranous bones caused by malformed blood vessels that lack a mature vascular smooth muscle layer. Analysis of primary fibroblasts from an affected individual showed that absence of ELMO2 correlated with a significant downregulation of binding partner DOCK1, resulting in deficient RAC1-dependent cell migration. Unexpectedly, *elmo2*-knockout zebrafish appeared phenotypically normal, suggesting that there might be human-specific ELMO2 requirements in bone vasculature homeostasis or genetic compensation by related genes. Comparative phylogenetic analysis indicated that *elmo2* originated upon the appearance of intramembranous bones and the jaw in ancestral vertebrates, implying that *elmo2* might have been involved in the evolution of these novel traits. The present findings highlight the necessity of ELMO2 for maintaining vascular integrity, specifically in intramembranous bones.

CONCLUSIONES

- La existencia de lesiones proliferativas tipo hemangioma en adultos es rara, ya que estos tienen una fase proliferativa en la infancia para, con la edad, ir regresando o estabilizando.
- Los hemangiomas son LESIONES PEDIÁTRICAS que no deben considerarse en un paciente adulto.
- Los “hemangiomas hepáticos” o en otros órganos en adultos son en realidad MALFORMACIONES VENOSAS de bajo flujo.