

## Continuing problems with classifications of vascular malformations

Stuart C. Morrison · Janet R. Reid

Received: 14 February 2007 / Accepted: 23 February 2007 / Published online: 13 April 2007  
© Springer-Verlag 2007

Sir,

We were dismayed to read the Case Report by Yong Sun Jeon et al. [1] that perpetuates the confusing nomenclature around hemangiomas and vascular malformations. Their description of a cavernous hemangioma is a classic imaging

and pathological specimen of a venous malformation and is *not* a hemangioma. The classification system of Mulliken and Glowacki [3] was accepted by the Workshop on Vascular Anomalies in Rome 1996 and should be universally adopted by all involved with these lesions (Table 1).

**Table 1** Vascular anomalies [3]

Tumors	Malformations	
Hemangiomas	Vascular malformations	
Proliferative phase	Simple	Capillary malformation
Involutive phase		Venous malformation
		Arterial malformation
		Lymphatic malformation (macro, micro, mixed)
	Combined	Arteriovenous malformation
		Capillary–venous malformation
		Lymphaticovenous malformation
		etc ...

Reprinted by courtesy of Dr. Josée Dubois [2]

## References

1. Jeon YS, Cho SG, Kim WH et al (2006) Cavernous haemangioma of the spermatic cord in a child. Pediatr Radiol 36:1323–1325
2. Dubois J, Garel L (1999) Imaging and therapeutic approach of hemangiomas and vascular malformations in the pediatric age group. Pediatr Radiol 29:879–893
3. Mulliken JB, Glowacki J (1982) Hemangiomas and vascular malformations in infants and children: a classification based on endothelial characteristics. Plast Reconstr Surg 69:412–422

S. C. Morrison · J. R. Reid (✉)  
Section of Pediatric Radiology, The Cleveland Clinic,  
9500 Euclid Avenue,  
Cleveland, OH 44195, USA  
e-mail: reidj@ccf.org