Orbital Angiolipoma

Robert E. Feinfield, MD; Richard J. Hesse, MD; John C. Scharfenberg, MD

• Successful resection of an orbital angiolipoma in a 3-year-old child was performed. To our knowledge, this is the first report of angiolipoma in this site.

(*Arch Ophthalmol* 1988;106:1093-1095)

Angiolipoma usually occurs as a subcutaneous, encapsulated mass in young adults. Two thirds involve the forearm, while approximately one third appear on the trunk and upper arm. They are seldom located in other sites. We report what is apparently the first documented orbital angiolipoma.[1-5]

REPORT OF A CASE

A 3-year-old girl was referred to the Ochsner Clinic, New Orleans, for evaluation of a puffy left lower eyelid that had been noted for approximately nine months. The eyelid was nonpainful, and knowledge of prior discomfort was denied by the child and the parents. The child is one of adopted identical twins. There was no known significant medical history, although the history prior to her adoption at age 2½ years was unavailable.

Physical examination revealed a well-developed child in no distress. Visual acuity was 15/30 OU by Allen cards. The external examination was remarkable for an obvious fullness of the left inferonasal orbit with supradisplacement of the globe. A soft mobile mass was palpable through the inferior nasal fornix (Fig 1). Motility examination was remarkable for −2 rotations in the left eye inferonasally and −3 inferotemporally. Muscle balance demonstrated approximately 40 prism diopters (PD) of left hypertropia, which decreased on right gaze, increased on left gaze, and increased on head tilt to the right. Results from pupillary, anterior segment, and funduscopic examinations were unremarkable.

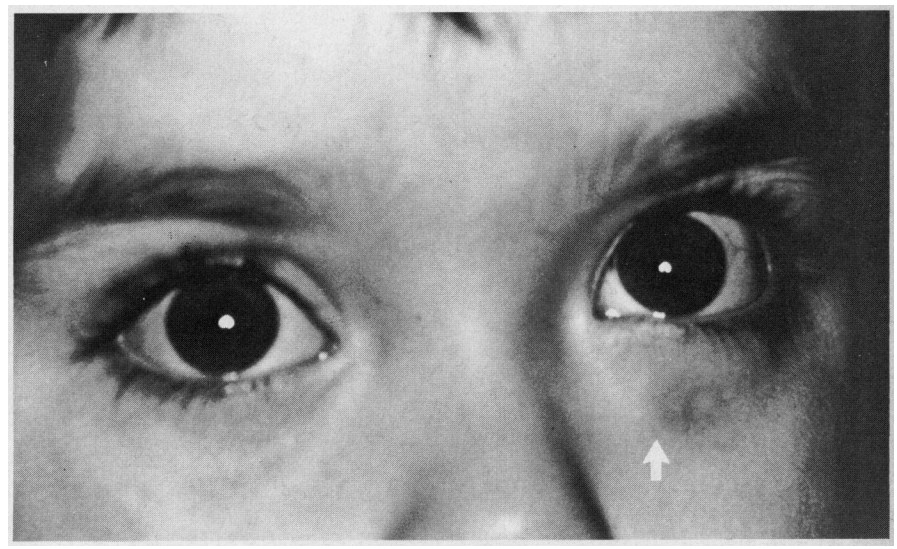


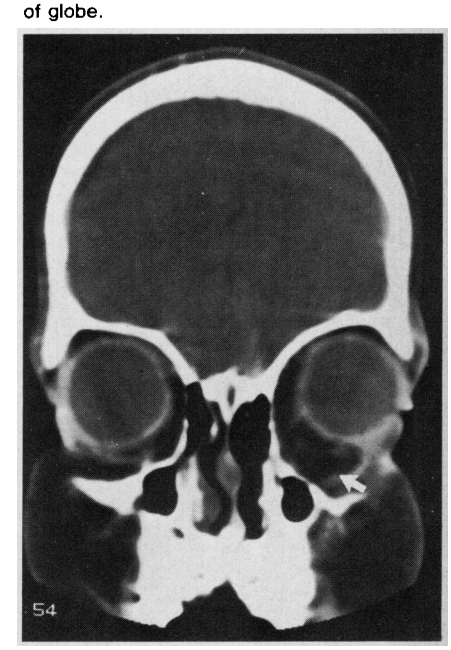
Fig 1.—Fullness of left lower eyelid (arrow) with left hypertropia.

A computed tomographic scan of the orbit revealed a low-density mass in the inferoanterior orbit, with superolateral displacement of the globe (Fig 2). Negative Houndsfield units suggested a lipid component. Inferior rectus muscle involvement was suspected. Magnetic resonance imaging demonstrated the mass more clearly with hyperintensity on the T_1-weighted image (Fig 3). The T_2-weighted image (Figs 4 and 5) demonstrated a loss of intensity corresponding to predominantly adipose tissue. A presumptive diagnosis of orbital lipodermoid was made.

The patient underwent orbitotomy through the inferior fornix, which revealed a soft, encapsulated, lobulated, lipomatous mass (Fig 6). Fine adhesions between the capsule of the lesion and the muscle sheaths of the inferior rectus and inferior oblique muscles were present and required careful dissection. No infiltration of the extraocular muscles was noted, nor was there any apparent break in the capsule. The mass was totally excised. One day after surgery, motility and muscle balance were markedly improved (Fig 7).

The encapsulated fatty mass measured

Fig 2.—Coronal computed tomographic scan demonstrating space-occupying, low-density mass (arrow) with superolateral displacement of globe.



Accepted for publication March 15, 1988.

From the Departments of Ophthalmology (Drs Feinfield and Hesse) and Pathology (Dr Scharfenberg), Ochsner Clinic and Alton Ochsner Medical Foundation, New Orleans.

Reprint requests to Ochsner Clinic, 1514 Jefferson Hwy, New Orleans, LA 70121 (Dr Hesse).

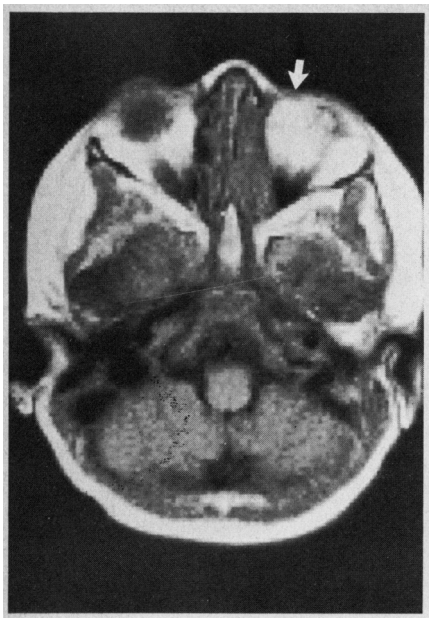


Fig 3.—Hyperintense mass (arrow) of left orbit on axial magnetic resonance imaging of T_1-weighted image.

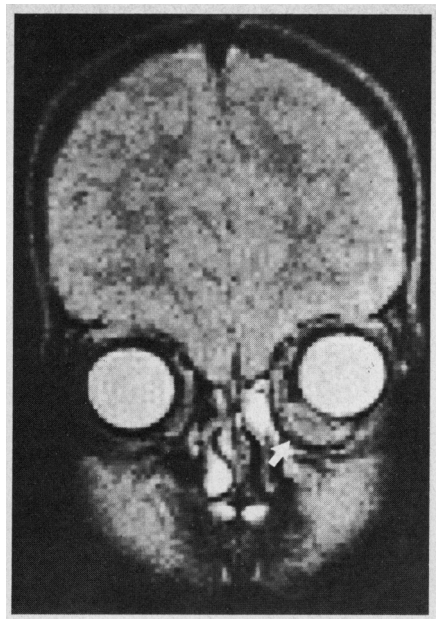


Fig 4.—Magnetic resonance imaging of early T_2-weighted coronal image. Arrow indicates mass.

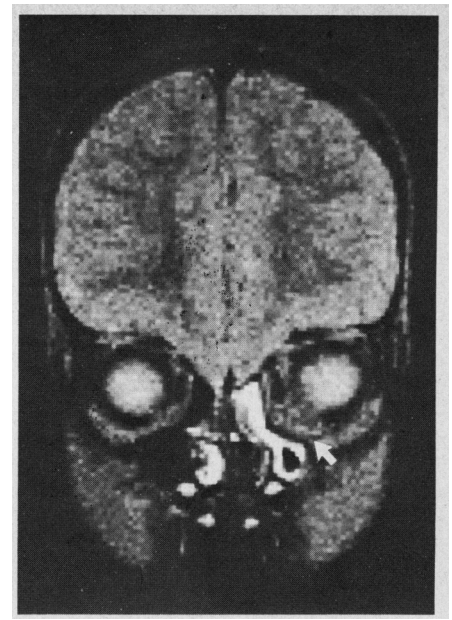


Fig 5.—Late T_2-weighted image demonstrating loss of intensity (arrow), corresponding to adipose tissue.

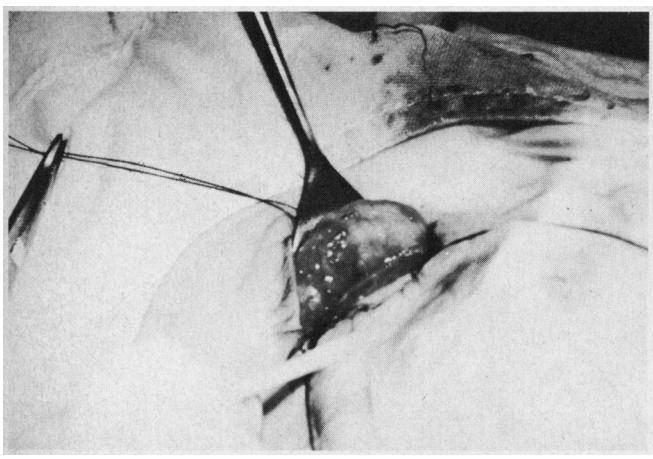


Fig 6.—Lobular, lipomatous, encapsulated mass excised from inferonasal orbit via inferior fornix.

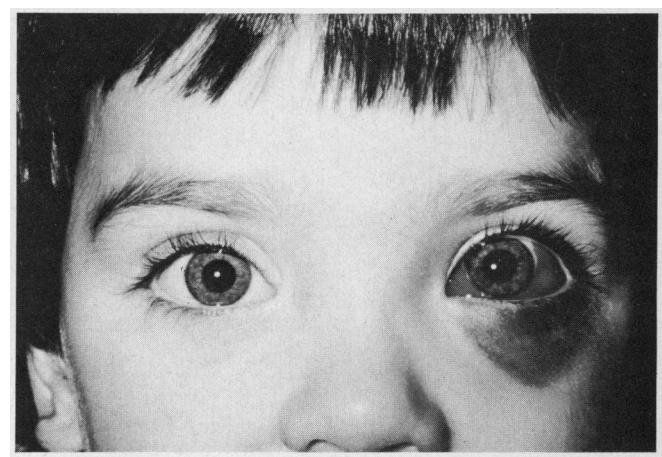


Fig 7.—Improvement of left hypertropia in primary gaze position one day after surgery.

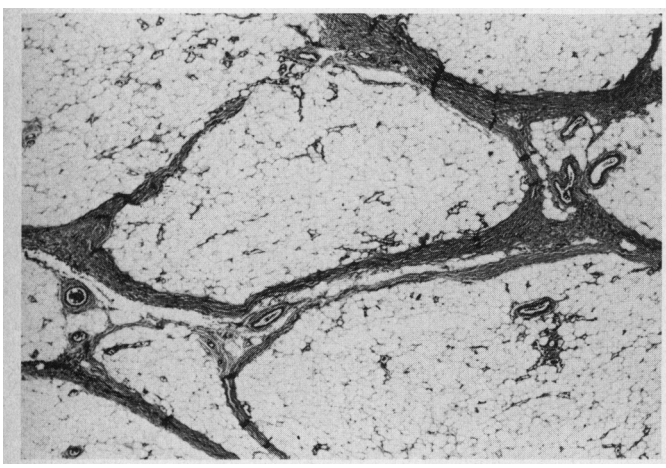


Fig 8.—Lobules of mature adipose tissue with foci of microvascular proliferation (hematoxylin-eosin, original magnification ×20).

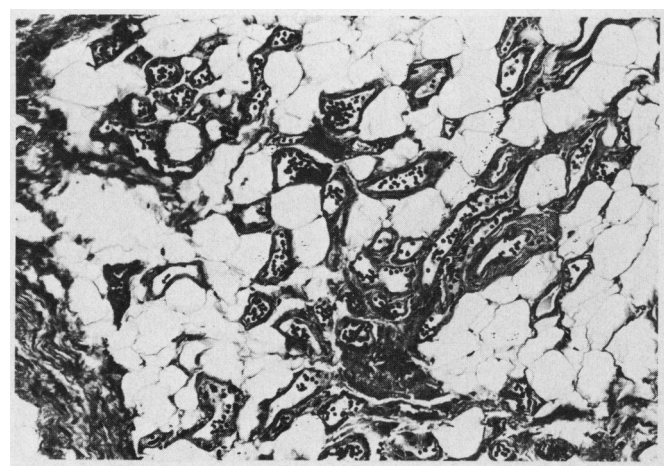


Fig 9.—Congeries of small blood vessels in mature adipose tissue (hematoxylin-eosin, original magnification ×100).

3 × 1.5 cm. Microscopic examination revealed an encapsulated mass of mature adipose tissue divided into numerous lobules by thick, fibrous bands (Fig 8). In multiple foci, there were congeries of small blood vessels with inconspicuous endothelium and thin, focally hyalinized walls (Fig 9). The pathological diagnosis was angiolipoma.

One month after surgery, the patient's condition was satisfactory. Muscle balance was approximately 12 PD of the left hypertropia, with 6 PD of exotropia in downgaze and −2 PD of inferolateral rotation, demonstrating persistent left inferior rectus paresis.

COMMENT

Bowen is credited with coining the term *angiolipoma* in 1912, though it was Howard and Helwig,[2] in 1960, who detailed the characteristics of this tumor in 288 lesions among 1678 lipomatous masses at the Armed Forces Institute of Pathology, Washington, DC.[6] Angiolipoma characteristically occurs as an encapsulated mass of mature adipose tissue containing clusters of small blood vessels with occasional thrombi. The proportion of adipose to vascular tissue is variable. The tumor commonly occurs when the person is in his late teens or early 20s and is rare in children and older adults. Two thirds of the tumors are found in the forearm with one third found on the trunk and arm. Uncommonly it is found on the scalp, face, hands, and feet, and rarely in the eyelids.[1,2,4,5] A review of the literature as well as consultation with numerous ophthalmic pathologists has yielded no knowledge of additional cases of orbital angiolipoma.[2,3,7,8]

Approximately two thirds of these lesions are multiple and often present with pain or tenderness. It is thought that the discomfort is associated with increased vascularity and repeated mild trauma, although nerve fibers accompanying vascular septa have occasionally been demonstrated.[6,9] There is generally no fat necrosis, although scattered capillary thrombi with associated sclerosis and endothelial proliferation can be noted.[1] Although usually encapsulated and uniformly benign, angiolipomas may rarely infiltrate bone, muscle, nerves, and fibrocollagenous tissues.[9,10]

The orbital angiolipoma described herein is typical of encapsulated noninfiltrating angiolipomas found elsewhere. Despite loose adhesions to the sheaths of the inferior rectus and inferior oblique muscles, the fibrous capsule was intact.

The clinical significance of the tumor is that of a benign space-occupying mass with displacement of the globe and limitation of motility. The lesion was completely excised and is not expected to recur. The residual motility disturbance is being followed up expectantly but additional surgery may be required in the future.

David Apple, MD, Jerry Shields, MD, Ramon L. Font, MD, and Ian McLean, MD, reviewed the slides and concur with the diagnosis.

References

1. Enziger FM, Weiss SW: *Soft Tissue Tumors.* St Louis, CV Mosby Co, 1983, pp 208-210.
2. Howard WR, Helwig EB: Angiolipoma. *Arch Dermatol* 1960;82:924-931.
3. Duke-Elder S, MacFaul PA: Cysts and tumours, in Duke-Elder S (ed): *System of Ophthalmology.* St Louis, CV Mosby Co, 1974, vol 13, pp 470-474.
4. Velhagen C: *Klin Monatsbl Augenheilkd* 1899;37:253.
5. Laspeyres K: *Z Augenheilkd* 1906;15:527.
6. Belcher RW, Czarnetski BM: Multiple (subcutaneous) angiolipomas. *Arch Dermatol* 1974; 110:583-585.
7. Shields JA, Bakewell B, Augsburger JJ, et al: Space occupying orbital masses in children: A review of 250 consecutive biopsies. *Ophthalmology* 1986;93:379-384.
8. Shields JA, Bakewell B, Augsburger JJ, et al: Classification and incidence of space occupying lesions of the orbit: A survey of 645 biopsies. *Arch Ophthalmol* 1984;102:1606-1611.
9. Lin JJ, Lin F: Two entities in angiolipoma. *Cancer* 1974;34:720-727.
10. Puig L, Moreno A: Infiltrating angiolipoma: Report of two cases and review of the literature. *J Dermatol Surg Oncol* 1986;12:617-619.