

2. Koshelev VN, Arkhangel AV, Glukhov EI. Effect of low intensity carbon dioxide laser on reparative regeneration of experimental wounds. *Byulleten Eksperimentalnoi Biologii i Meditsiny* 1985; 99: 338-341.
3. Kana JS, Hutschenreiter G, Haina D, Waidelich W. Effect of low power density laser radiation on healing of open skin wounds in rats. *Arch Surg* 1981; 116: 293-295.
4. Avevbakh MM, Sorkin MZ, Dobkin VG, Kosarev II, Ostapehenko EP. Effect of Helium-Neon laser on the healing of aseptic experimental wounds. *EKSP Khir Anaesteziol* 1976; 3: 56-61.
5. Mester E, Spiry T, Szends B. Effect of laser rays on wounds healing. *Bull Soc Int Chir* 1973; 32:169-172.
6. Bisht D, Gupta SC, Misra V, Mittal VP, Sharma P. Effect of low intensity laser radiation on healing of open skin wounds in rats. *Indian J Med Res* 1994; 100: 43-46.
7. Georgadze AK, Karpov VI, Kuznetsov EV, Soldatov AV, Rukosuev VP. Treatment of non-healing wounds and trophic ulcers by low-intensity laser irradiation in an outpatient clinic. *Khirurgiia-Mosk* 1990; 12: 93-96.
8. Sugrue ME, Careolan J, Leen EJ, Feeley TM, Moore DJ, Shanik GD. The use of infrared laser therapy in the treatment of venous ulceration. *Ann Vase Surg* 1990; 179-181.
9. Nussbaum E L, Biemann I, Mustard B. Comparison of ultrasound/ultraviolet-c and laser for treatment of pressure ulcers in patients with spinal cord injury. *Physical Therapy* 1994; 74: 812-823.
10. Crous L, Malherbe C. Laser and ultraviolet light irradiation in the treatment of chronic ulcers. *Physiotherapy* 1988; 44: 73-77.
11. Young S, Dyson M, Bottom P. Effect of light on Calcium uptake by macrophages. Presented at a Seminar on Laser Biomodulation at Guy's Hospital, London, 1991.
12. El Sayed S, Dyson M. Comparison of the effect of multiwavelength light produced by a cluster of semiconductor diodes and of each individual diode on mast cell number and degranulation in intact and injured skin. *Laser Surge Med* 1990; 10: 559-568.

Retrobulbar Pseudotumor as a Manifestation of Staphylococcal Pyemia

R.P. Sakalkale
Vinod K. Kapur
A.D. Bhagwat

Staphylococcal infection leading to periorbital complication is known but is rare. Various complications including cavernous sinus thrombosis and extension to the ethmoid sinus can occur. Rapid recovery

is always possible with correct diagnosis and treatment. The case presented emphasizes this point.

Case Report

A four-year-old girl was referred to us

From the Deptt. of Pediatric Surgery, B.J. Wadia Hospital for Children, Parel, Mumbai 400 012.

Reprint requests: Prof. Vinod K. Kapur, Head, Department of Pediatric Surgery, B.J. Wadia Hospital for Children, Mumbai 400 012.

Manuscript Received: July 25, 1996;

Initial review completed: August 28, 1996

Revision Accepted: January 15, 1997

with an acute proptosis of the right eye of seven days' duration. She also had a swelling of the left forearm. She was febrile and lethargic. The right eye was congested with chemosis, proptosis and severe periorbital edema (*Fig. 1*). There was a large abscess on the left forearm. Her left hemithorax was hyper-resonant with no air entry on auscultation and pneumothorax was evident on X-ray chest. Left eye examination showed that her vision was intact though ocular movements were grossly restricted. The media were clear on fundoscopy except slight retinal congestion. She was clinically diagnosed as having multiple abscesses of the forearm and orbital region and started on cloxacillin and cefotaxime. The orbital X-rays were normal. A CT scan of the orbit and skull was done with contrast enhancement which showed the retro-bulbar pseudotumor with the abscess pushing the eyeball forwards (*Fig. 2*). There was no cavernous sinus thrombosis or other intracranial extension. Oral prednisolone was started on Day 3. Meanwhile, the left hemithorax was drained by an intercostal drain and the forearm abscess was also drained. The pus grew *Staph. albus* sensitive to cloxacillin and cefotaxime. Her general condition improved dramatically and

by Day 7, the chest drain was removed, the forearm wound was healing well and the proptosis had decreased considerably in size. At three months follow up, she has a normal looking right eye without any sequelae.

Discussion

Proptosis in children has numerous causes, some of these being glaucoma (buphthalmos), optic nerve glioma, retro-orbital plexiform neurofibroma, metastatic neuroblastoma or other tumors, including tumors of the iris, choroid, retina and ciliary body(1). Similarly, paranasal sinusitis especially ethmoiditis is the most frequent source of infection causing bacterial orbital cellulitis in children under the age of ten years(2). However, inflammatory pseudotumor not affecting the eyeball is only sporadically reported(3). In the present case, the infection was treated before it probably would have caused cavernous sinus thrombosis or intracranial spread. Moranne *et al.*(3) reported one out of five children with proptosis and serious complications of sinusitis who responded to antistaphylococcal antibiotics. They also recommended anticoagulant and anti-cerebral edema measures to prevent extension



Fig. 1. Clinical photograph of the patient showing right proptosis.

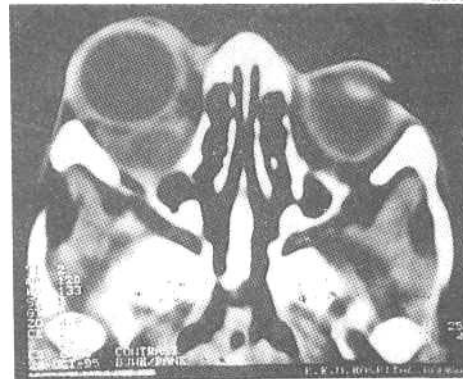


Fig. 2. Orbital CT scan showing retrobulbar pseudotumor. The media are clear.

via cavernous sinus and intracranial propagation of periorbital cellulitis. This was not required in our case due to probably institution of appropriate antibiotic therapy. It may be of merit in severe or late diagnosed cases. Staphylococcal colonization of nasopharynx can lead to ethmoiditis in immunocompromized or susceptible child, with rapid progress locally and hematogenous seeding as in our case. A variety of organisms other than staphylococcus can cause this infection, which is dangerous because it may be complicated by retrobulbar abscess and cavernous sinus infection and thrombosis. Treatment should be started early with intravenous antibiotics. Also, concomitant staphylococcal foci should be looked for and dealt with surgically if necessary. If in any doubt, a contrast enhanced

CT or an MRI should be done as the investigation of choice to differentiate between an inflammatory lesion and a tumor.

REFERENCES

1. Besley G, Minns RA. Disorders of the central nervous system. *In*: Forfar and Ameal's Textbook of Pediatrics, 4th edn. Eds. Brown JK, Campbell AGM, McIntosh N. Edinburgh, Churchill Livingstone, 1992, pp 898-901.
2. Haynes RE, Cramblett HG. Acute ethmoiditis: Its relationship to orbital cellulitis. *Am J Dis Child* 1967; 114: 261-267.
3. Moranne JE, Estorunet B, Adrien A, Seurat MC, Barois A. Staphylococcus, the most frequent agent of serious complications of acute sinusitis in children: 5 cases. *Ann Intern Med* 1982; 133: 462-467.