

expression of neuronal proteins. Accurate recognition is essential to appropriate management.

► Paraneoplastic syndromes are one of the most intriguing, and at the same time, one of the most difficult diagnoses to make. Clinicians need to consider paraneoplastic syndromes when patients present with retinopathies, optic neuropathies, cranial nerve palsies, myasthenia-like syndromes, and uveitis, especially when MRI scanning is normal.

The current review provides the latest basic science information and a practical clinical perspective for the practicing ophthalmologist.

**R. C. Sergott, MD**

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**Orbital Radiation for Graves Ophthalmopathy: A Report by the American Academy of Ophthalmology**

Bradley EA, Gower EW, Bradley DJ, et al (Ophthalmic Technology Assessment Committee Oculoplastics/Orbit Panel)

*Ophthalmology* 115:398-409, 2008

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*Objective.*—To investigate whether orbital radiation offers effective and safe treatment for Graves ophthalmopathy.

*Methods.*—Medical literature databases were searched to identify all published reports relating to orbital radiation treatment for Graves ophthalmopathy. To be included in the technology assessment, reports had to provide original data, to report on a case series or uncontrolled trial of at least 100 subjects or a randomized clinical trial of any size, to focus on orbital radiation for the treatment of Graves ophthalmopathy, and to follow-up patients for at least 3 months. Abstracted data included study characteristics, patient characteristics, treatment response, and safety information.

*Results.*—Fourteen studies were included in the technology assessment: 5 observational studies and 9 randomized controlled trials. Three of the observational studies report on treatment response, with overall favorable outcomes for 40% to 97% of patients. Three of the observational studies provided intermediate-term safety data. The risk of definite radiation retinopathy is 1% to 2% within 10 years after treatment. Patients treated with orbital radiation did not have an increased risk of secondary malignancy or premature death. The 9 randomized trials were qualitatively heterogeneous. Patients with optic neuropathy generally were excluded from participating in the randomized trials. Three of the randomized trials were sham controlled. None of these studies showed that orbital radiation was more efficacious than sham irradiation for improving proptosis, lid fissure, or soft tissue changes such as eyelid swelling. Two of the 3 sham-controlled randomized trials demonstrated improved vertical range of motion in radiation-treated subjects compared with controls.

*Conclusions.*—Systematic review of the effect of orbital radiation on Graves ophthalmopathy is limited by the lack of standardization and variable quality of published reports. Extraocular motility impairment may improve with radiotherapy, although the evidence of a treatment effect is mixed in clinical trials. Future studies are needed to determine if a potentially beneficial motility effect results in improved patient function and quality of life. Level I evidence indicates that proptosis, eyelid retraction, and soft tissue changes do not improve with radiation treatment. The efficacy of orbital radiation for compressive optic neuropathy resulting from Graves ophthalmopathy has not been investigated in clinical trials and merits further study. Radiation retinopathy, although rare, is a risk of orbital radiation, even in patients without diabetes who receive appropriate radiation dose and delivery.

► Orbital radiation for Graves' ophthalmopathy has been a controversial topic in recent years because of a study from the Mayo Clinic. According to the case descriptions, the patients in that study appeared to be in a clinically quiescent phase of their disease.

Our experience in Philadelphia has clearly shown a benefit of this therapy when patients are in an active phase of their disease with relatively recent onset, red, injected eyes and optic neuropathies.

Of course, the managed care insurance industry seized on the Mayo Clinic study to refuse approval for all patients with Graves' ophthalmopathy. Clinicians must remember that managed care is often denial of care and that this therapy for Graves' ophthalmopathy, especially in elderly patients is often the best option.

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**Saccadic palsy after cardiac surgery: characteristics and pathogenesis**

Solomon D, Ramat S, Tomsak RL, et al (Johns Hopkins Univ, Baltimore, MD)  
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*Objective.*—To characterize the syndrome of saccadic palsy that may follow cardiac surgery, and to interpret the findings using current concepts of the neurobiology of fast eye movements.

*Methods.*—Using the magnetic search coil technique, we measured eye, eyelid, and head movements of 10 patients who developed selective palsy of saccades after cardiac surgery.

*Results.*—Patients showed varying degrees of slowing and hypometria of saccades in the vertical plane or both horizontal and vertical planes, with complete loss of all saccades in one patient. Quick phases of nystagmus were also affected, but smooth pursuit, vergence, and the vestibuloocular reflex were usually spared. The smallest saccades were less slowed than larger saccades. Affected patients were visually disabled by loss of ability to voluntarily shift their direction of gaze. Blinks and