

of 9186 ft (2800 m), and a barometric pressure ranging from 1008 to 1040 mm Hg.³ We then compared measures of oxygen saturation on pulse oximetry with arterial blood gas analysis. In striking contrast to a maximum reduction of 12.2% in the mean oxygen saturation (normoxia vs. hypoxia during 35 minutes of exercise), there was a drop of 31.7% in the partial pressure of arterial oxygen, which led to a mean level of 48 mm Hg (95% confidence interval, 47 to 48) (Fig. 1). Since levels of less than 60 mm Hg may be harmful pulse oximetry may not provide information accurate enough for the assessment of oxygen homeostasis²; air carriers and physicians should be aware of potential health risks.

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1. Muhm JM, Rock PB, McMullin DL, et al. Effect of aircraft-cabin altitude on passenger discomfort. *N Engl J Med* 2007;357:18-27.
2. Planès C, Leroy M, Foray E, Raffestin B. Arterial blood gases during exercise: validity of transcutaneous measurements. *Arch Phys Med Rehabil* 2001;82:1686-91.
3. Schäcke G. Basics for preventive occupational survey when working in oxygen depleted atmosphere. Presented at the 28th International Congress on Occupational Health, Milan, June 11–16, 2006. abstract.

Eosinophilic Esophagitis

TO THE EDITOR: In the description of their Image in Clinical Medicine on eosinophilic esophagitis (May 17 issue),¹ Hawari and Pasricha note that endoscopic dilation of the esophageal stricture near the gastroesophageal junction was performed before treatment with oral fluticasone. The safety and efficacy of esophageal dilation in patients with eosinophilic esophagitis are still controversial. Straumann et al.² treated 11 patients with dilation and reported complete improvement in 6 patients and partial relief in 4 without relevant complications. However, Shafi et al.³ treated 10 patients with 16 endoscopic dilations, 5 of which resulted in free perforation or a deep tear. There was a significantly increased risk of esophageal perforation with dilations, especially among patients with multiple esophageal webs.³

Endoscopic dilation is helpful but must be attempted with prudence in such patients because of the risk of perforation. A trial with corticosteroids should be considered before endoscopic dilation, in order to reduce active inflammation and the rate of complications with the procedure.⁴

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1. Hawari R, Pasricha PJ. Eosinophilic esophagitis. *N Engl J Med* 2007 (Web only). (Available at <http://content.nejm.org/cgi/content/full/356/20/e20>.)

2. Straumann A, Spichtin HP, Grize L, Bucher KA, Beglinger C, Simon HU. Natural history of primary eosinophilic esophagitis: a follow-up of 30 adult patients for up to 11.5 years. *Gastroenterology* 2003;125:1660-9.
3. Shafi MA, Eisien GE, Al-Kawas FH, Benjamin SB. Increased risk of esophageal perforation with dilatation in patients with multiple esophageal webs (feline esophagus): a case control study. *Gastrointest Endosc* 1997;45:56. abstract.
4. Sgouros SN, Bergele C, Mantides A. Eosinophilic esophagitis in adults: what is the clinical significance? *Endoscopy* 2006;38:515-20.

THE AUTHOR REPLIES: I agree that dilation in cases of suspected eosinophilic esophagitis should be carried out with caution. However, there is a difference between empirical dilation of webs in patients with chronic dysphagia and dilation of high-grade fibrotic strictures. In the case presented, the patient had a high-grade stricture at the gastroesophageal junction, with a residual lumen of less than 8 mm that appeared fibrotic. The patient also presented with impaction. Careful dilation of a predominantly fibrotic area is safe and offers an alternative means of management to restore enteral nutrition. In the abstract that Leclercq et al. cite with respect to an increased risk of perforation,¹ the patients underwent multiple dilations for chronic dysphagia with the use of balloons with an average size of 15 to 18 mm or an average Savary size of 36.8 French (12.26 mm), indicating an aggressive target size for dilation. Endoscopic dilation should always be carefully performed, and the anatomy of every single stricture should always

be studied before dilation is approached, regardless of the underlying pathology.

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1. Shafi MA, Eisien GE, Al-Kawas FH, Benjamin SB. Increased risk of esophageal perforation with dilatation in patients with multiple esophageal webs (feline esophagus): a case control study. *Gastrointest Endosc* 1997;45:56. abstract.

More on Thunderstorms and iPods

TO THE EDITOR: Heffernan et al. (July 12 issue),¹ in their letter to the editor about thunderstorms and iPods, and others² make contentions about lightning that require correction. There is no evidence that a metal or electronic apparatus worn or carried on the body, whether on the head or elsewhere, makes a person more attractive to lightning. Eardrum perforation is the norm in lightning-related injury, not a sign of any special effect due to an iPod.

Once lightning strikes, metal will be incorporated into the pathway of the current. Andrews³ notes that cranial orifices are likely entry points for lightning current — with known consequences. The iPod merely assists a natural phenomenon.

Furthermore, skin impedance has a large capacitive component, and thus, there is zero impedance at the beginning of the passage of current. Charging of this capacitance leads to flashover, after which current will not re-enter the body (which is analogous to current behavior in wood⁴), and internal current will diminish monotonically.

A tree is not a safe shelter from lightning; National Lightning Safety Awareness Week promotes the concept that “no place outside is safe when thunderstorms are in the area” (www.lightningsafety.noaa.gov/week.htm). An iPod may prevent the user from hearing thunder, which is a primary warning of lightning danger. It is ironic that in our study of telephone-mediated lightning strikes,⁵ perforated eardrums that healed naturally performed better in the long term than those that were surgically corrected.

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1. Heffernan EJ, Munk PL, Louis LJ. Thunderstorms and iPods — not a good idea. *N Engl J Med* 2007;357:198-9.

2. Esprit S, Kothari P, Dhillon R. Injury from lightning strike while using mobile phone. *BMJ* 2006;332:1513.

3. Andrews C. Structural changes after lightning strike, with special emphasis on special sense orifices as portals of entry. *Semin Neurol* 1995;15:296-303.

4. Darveniza M. Electrical properties of wood and line design. Brisbane, Australia: University of Queensland Press, 1978.

5. Andrews CJ, Cooper MA, Darveniza M, Mackerras D. Lightning injuries: electrical, medical, and legal aspects. Boca Raton, FL: CRC Press, 1992.

TO THE EDITOR: Heffernan et al. do not consider the possibility that the iPod wires conducted electricity away from the patient's ears, preventing further otologic injury.

Electricity preferentially flows through tissues of high conductance. The temporal bone and air in the external auditory canals are highly resistant. The worst burns incurred from the iPod wires occurred away from the ear on the neck (Fig. 1). If current had entered the body, it would have done so at the neck, not the ear.

We are the otolaryngologists who cared for the patient described by Heffernan et al., and our clinical findings suggest that blast effect and acoustic trauma, not electric shock, were responsible for his bilateral tympanic-membrane perforation.



Figure 1. Burns along the Distribution of the iPod Wires, with Relative Sparing of the Ear.