

A 31-year-old woman, who suffered from chronic alcohol abuse, presented with hematemesis and loss of consciousness 2 hours after ingesting toilet bowl cleaner and sedative pills. Over the previous 6 months she had suffered worsening depressive symptoms, with increased alcohol intake, inadequate diet, and a rapid weight loss of 20 kg. An urgent endoscopy revealed extensive gastric and duodenal hemorrhage as a result of caustic injury. The esophagus was not a source of bleeding; however, it showed an unusual appearance of thick mucosa with orderly displayed rings and furrows (Figure 1a). The furrows were particularly prominent when the lumen constricted upon irrigation (Figure 1b). The lesion started with discrete patches at the upper esophagus (Figure 1c), extended diffusely through the entire esophagus, and ended up at the esophagogastric junction. A section of square-shaped mucosa at the upper esophagus was peeled off by random grasping using biopsy forceps (Figure 1d). Epithelial parakeratosis was demonstrated by microscopic examination (Figure 2). The patient was treated with alcohol abstinence, proton-pump inhibitor, standard tube-feeding diet, and supplements of thiamine, pyridoxine, and cyanocobalamin. A follow-up endoscopy 40 days later revealed normal esophageal mucosa except for scattered candidal infections.

Diffuse esophageal hyper-/parakeratosis is an uncommon endoscopic finding. It is associated with conditions like tylosis, mucosal hyperkeratosis syndrome, and pachyonychia congenita [1]. In addition to genetic diseases, it may be linked to ethanol exposure, duodenal reflux, riboflavin deficiency, and zinc deficiency [2–5]. Rapid and complete recovery after nutritional supplement in this patient suggests a causal–result relationship between them.

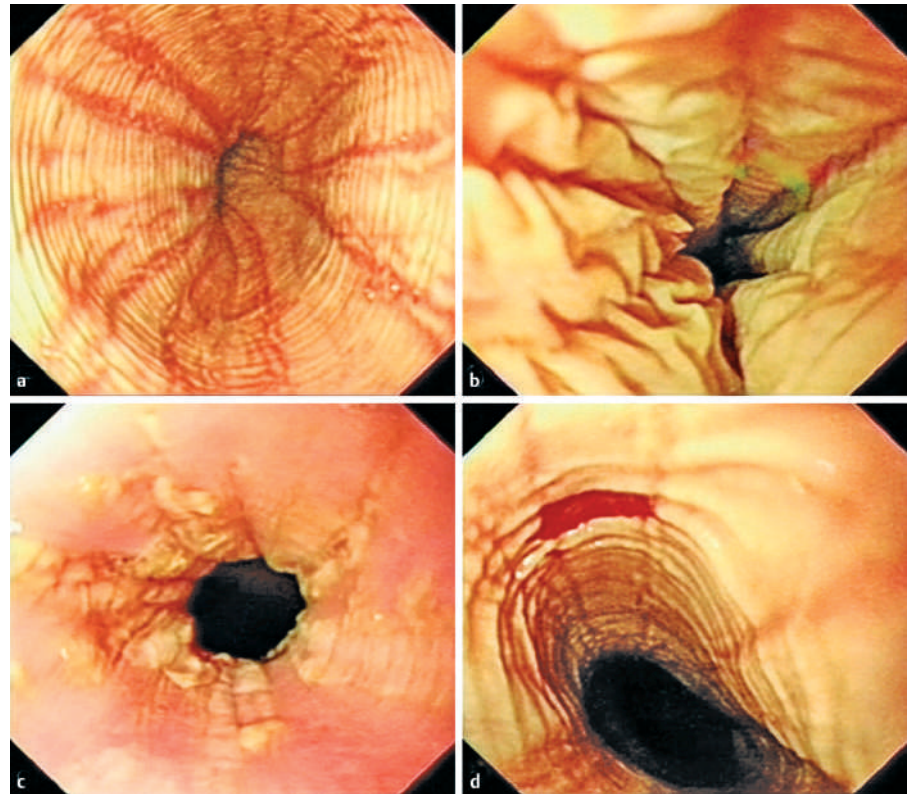


Figure 1 Endoscopic finding of diffuse esophageal mucosal thickening. **a** Thick mucosa with orderly displayed rings and furrows. **b** Prominent furrows during lumen constriction. **c** The upper esophagus showing discrete lesion patches. **d** Random grasping with biopsy forceps removed a square-shaped section of mucosa at the upper esophagus.

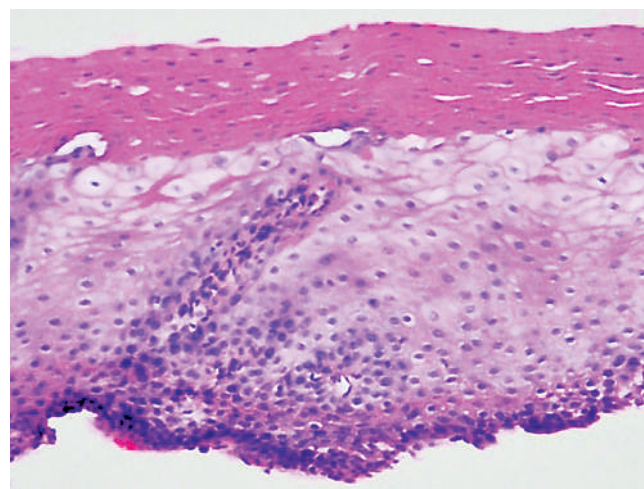


Figure 2 Biopsy of upper esophagus reveals a dense layer of parakeratosis covering the normal-appearing squamous epithelium (hematoxylin and eosin, original magnification $\times 100$).

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References

- ¹ Ashworth MT, Nash JR, Ellis A et al. Abnormalities of differentiation and maturation in the oesophageal squamous epithelium of patients with tylosis: morphological features. *Histopathology* 1991; 19: 303–310
- ² Korsten MA, Worner TM, Feinman L et al. Balloon cytology in screening of asymptomatic alcoholics for esophageal cancer, Part I. *Dig Dis Sci* 1985; 30: 845–851
- ³ Clark GW, Smyrk TC, Mirvish SS et al. Effect of gastroduodenal juice and dietary fat on the development of Barrett's esophagus and esophageal neoplasia: an experimental rat model. *Ann Surg Oncol* 1994; 1: 252–261
- ⁴ Foy H, Kondi A. The vulnerable esophagus: riboflavin deficiency and squamous cell dysplasia of the skin and the esophagus. *J Natl Cancer Inst* 1984; 72: 941–948
- ⁵ Barney GH, Orgebin-Crist MC, Macapinalac MP. Genesis of esophageal parakeratosis and histologic changes in the testes of the zinc-deficient rat and their reversal by zinc repletion. *J Nutr* 1968; 95: 526–534

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