



# Esophageal Stricture Caused by CMV in a Non-HIV-Infected Renal Transplant Patient

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## ABSTRACT

Esophageal stricture due to cytomegalovirus (CMV) infection is an uncommon pathology, with most reported cases occurring in patients infected with human immunodeficiency virus. We report a renal transplant patient who presented with progressive dysphagia and weight loss for 2 years. Endoscopic examination revealed a long esophageal stricture with a necrotic lesion but no typical CMV esophageal ulcers; immunostains were positive for CMV. Dysphagia resolved after treatment with ganciclovir and serial esophageal dilations. We are presenting the first case of esophageal stricture due to CMV esophagitis in a renal transplant patient without human immunodeficiency virus infection and are reviewing current literature.

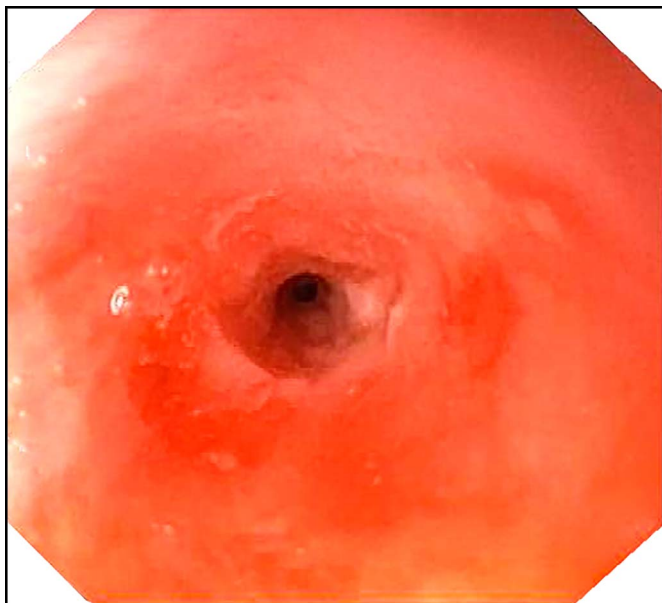
## INTRODUCTION

Cytomegalovirus (CMV) ulcerative esophagitis is well described in immunocompromised patients, but esophageal stricture is an exceedingly rare complication.<sup>1,2</sup> Most of the previous case reports of CMV esophagitis complicated with esophageal stricture have been described in patients with acquired immunodeficiency syndrome.<sup>1-5</sup> There is only 1 other reported case in a non-HIV-infected patient who had a liver transplant.<sup>6</sup> This is the first report of esophageal stricture due to CMV in a HIV-negative renal transplant recipient.

## CASE REPORT

A 77-year-old man who received a complex sequential deceased-donor kidney transplant (CMV D+/R+) 2 years earlier presented with dysphagia and unintentional weight loss. He complained of progressive difficulty in swallowing for 4 months, initially for solids and then also for thin liquids. He denied odynophagia. He reported a 10 lb weight loss in 1 month. His medications included omeprazole 20 mg BID, mycophenolate 500 mg BID, tacrolimus 5 mg BID, and prednisone 10 mg daily. His vital signs were blood pressure 158/80 mm Hg, heart rate 100 bpm, temperature 37°C, and SpO<sub>2</sub> 95% in room air. Physical examination was unremarkable. Serum CMV quantification was negative, and HIV testing before admission was negative. Barium swallow showed a 5-cm segment of severe narrowing involving the distal esophagus. A computed tomography of the chest, abdomen, and pelvis showed a markedly dilated esophagus with probable stricture proximal to the gastroesophageal junction. Total parenteral nutrition and an intravenous proton pump inhibitor were started.

Esophagogastroduodenoscopy showed a severe distal esophageal stricture with near-complete luminal obstruction suggestive of malignancy (Figure 1). The luminal diameter measured approximately 8 mm from 32 to 35 cm and only 2–3 mm from 35 to 36 cm. The stricture could not be traversed with a 6.5-mm pediatric gastroscope but allowed passage of biopsy forceps. There was also a necrotic-appearing lesion measuring 5 mm at 32 cm (Figure 2). Biopsies with cold forceps initially reported inflamed granulation tissue without viral cytopathic changes or malignant cells. Immunostain for CMV was positive from the necrotic lesion, at the stricture, and from biopsy at 32 cm, but was negative in the midesophageal biopsies. Other viral testing on the biopsies were negative for herpes simplex virus 1/2, Human Herpesvirus-8, and adenovirus. Fungal stains were also negative.



**Figure 1.** Esophagogastroduodenoscopy revealed a 5–6-mm distal esophageal stricture.

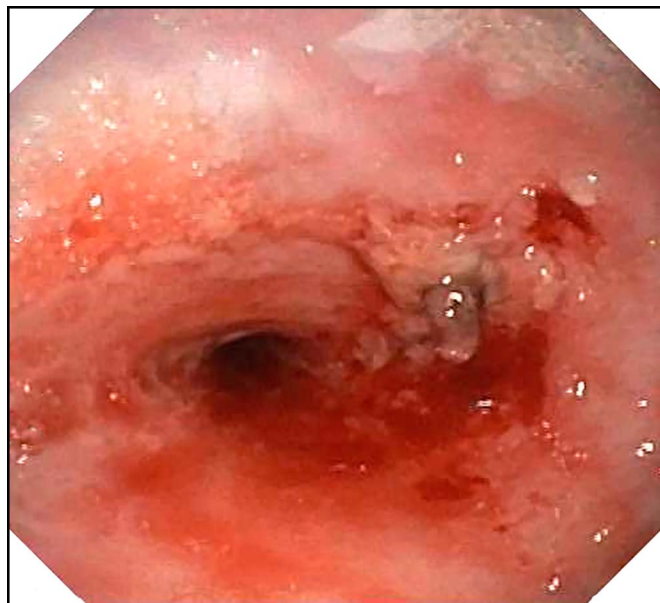
IV ganciclovir 80 mg daily was initiated, and this was increased to 160 mg daily. The patient underwent serial dilations with guided bougie to 39 French under fluoroscopic guidance.

He was discharged on oral valganciclovir 450 mg twice daily. He subsequently underwent 3 additional repeat endoscopic esophageal dilations with resolution in dysphagia. The patient was contacted a year later and denied current dysphagia and ironically had trouble losing weight.

## DISCUSSION

The most common esophageal strictures are peptic, anastomotic, iatrogenic (after Barrett's treatment, radiation, and nasogastric tube injury), and malignant.<sup>7</sup> CMV infection is a common complication in transplant recipients. The most common gastrointestinal manifestations of CMV infection are colitis and esophagitis. However, CMV esophageal stricture is a rare complication even in immunocompromised patients. After an extensive review of the literature, our case is the second to report CMV esophagitis in a non-HIV patient and the first to report it in a renal transplant recipient.

In a series of 160 HIV-infected patients with esophageal ulceration,<sup>1</sup> 13 (8%) developed stricture, with positive CMV in 5 and combined CMV and herpes simplex infection in 1. Our patient did not have HIV infection but was immunocompromised because of maintenance therapy with mycophenolate, tacrolimus, and prednisone for kidney transplant. The diagnosis of CMV esophagitis is suspected in patients with acute severe odynophagia and esophageal ulcerations on endoscopy and confirmed on histology (viral inclusion bodies and positive immunostaining) and/or viral culture. The organ-specific direct infection of CMV is poorly understood. However, CMV infection in our patient could be because



**Figure 2.** Focal necrotic lesion just proximal to the stricture.

of reactivation of latent CMV or superinfection.<sup>8</sup> The common macroscopic findings of CMV esophagitis are well-demarcated linear ulcers, erosions, and mucosal hemorrhages in the mid-to-distal esophagus.<sup>9</sup> However, in our patient, the endoscopic findings were not typical of CMV, rather there were findings of mild stasis esophagitis and a 5-mm lesion at 32 cm with signs of tissue necrosis. This stresses the importance of diagnosis through histologic examination of biopsies with adequate sampling.

Without an obvious cause, such as caustic ingestion or radiation, we initially suspected gastrointestinal reflux disease or malignancy as the cause. Serum CMV quantification was negative. However, according to the International Consensus Guidelines on the Management of CMV in solid-organ transplantation, CMV serology does not have a role in the diagnosis of active CMV disease after transplantation.<sup>10</sup> The final histopathological report confirmed the diagnosis of CMV esophageal stricture and was negative for malignancy. The stricture in the esophagus was likely from the edema and inflammation from the CMV esophagitis, leading to fibrous healing.<sup>3</sup> This patient had an excellent clinical response to ganciclovir/valganciclovir and serial esophageal dilations with no residual dysphagia.

In conclusion, this case is the first report of an esophageal stricture due to CMV in a renal transplant patient. Thus, an esophageal stricture in an immunocompromised individual should raise the suspicion of CMV.

## DISCLOSURES

Author contributions: TC Tennant and S. Pandey conducted the literature review and wrote and revised the article. A. Edhi reviewed and edited the article. M. Batke performed the endoscopy, provided the photographs, revised and edited the

article for intellectual content, approved the final article, and is the article guarantor.

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Informed consent was obtained for this case report.

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