

# Eloesser Flap Thoracostomy Window

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The Eloesser flap thoracostomy window was initially described by Leo Eloesser in 1935 and later modified by Symbas and coworkers as a surgical treatment option for patients with tuberculosis and pleural space infections associated with bronchopleural fistulae.<sup>1,2</sup> Two simultaneous goals of the thoracostomy flap, as it was initially described, were to allow passive drainage of the infected pleural space and the creation of a one-way valve that would allow egress of fluid from the chest cavity without the return of air. The intent of this one-way valve comprising autologous tissue was to facilitate expansion of the remaining lung parenchyma to fill the thoracic space. Following the introduction of more efficacious drugs for the treatment of tuberculosis, the need for surgical therapies for tuberculosis has nearly disappeared. Similarly, the need for a true Eloesser flap thoracostomy, as it was initially described, has also dissipated. However, the concept of an epithelialized thoracostomy window remains important for the treatment of severe pleural space infections that are occasionally found in medically unfit patients who are not strong enough to tolerate a surgical decortication or a muscle flap transposition. The procedure described herein has retained the eponym “Eloesser flap,” although it does not completely represent the anatomy or the intended function of the flap as initially described.

Fortunately, the majority of pleural space infections are diagnosed within a time frame that is conducive for treatment with closed thoracostomy tubes with or without the instillation of fibrinolytic agents. This management is often sufficient to allow adequate drainage of the infected pleural space and complete expansion of the lung. When a tube thoracos-

tomy is inadequate, surgical decortication is usually successful in achieving these goals. However, an Eloesser flap thoracostomy window is a viable option when the patient is thought to be too ill for a decortication or if the lung does not completely fill the thoracic cavity following a decortication.

Alternative adaptations of the thoracostomy window, such as the Clagett window, have also been described as an option for similar patients.<sup>3</sup> The greatest differences between the Eloesser flap and a Clagett window is that the Clagett window is considerably larger than an Eloesser flap and that the Clagett window was designed to be a temporary measure to allow decontamination of the pleural space with a subsequent closure. In contrast, the Eloesser flap is intended to create a permanent drainage window into the pleural space.

Although potentially lifesaving, the Eloesser flap window commits the patient to a prolonged period of dressing changes and frequent annoyances with soiling of clothes and bed linens. Thus, the Eloesser flap technique continues to evolve. In an effort to minimize the duration of dressing changes and to better contain drainage, several authors have augmented the thoracostomy window with a vacuum-assisted closure (VAC) device.<sup>4,5</sup> This may be a viable treatment option for patients with an empyema and a moderate sized residual pleural space. In a retrospective review of their experience, the results of patients whose treatment included a wound VAC were substantially better than the historical controls in their own series and also better than the experiences of most surgeons describing the outcomes of patients previously treated with Eloesser flaps.<sup>5</sup>

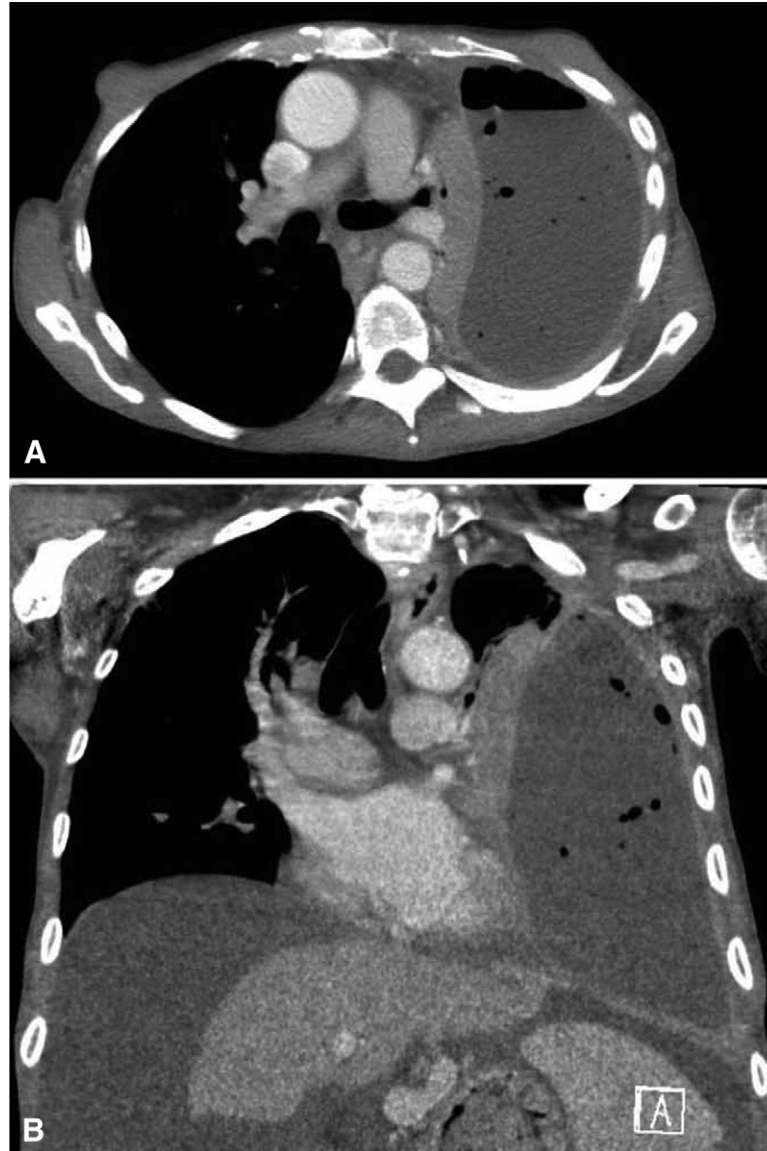
The operation described herein represents a modified Eloesser thoracostomy window with an inferiorly based soft tissue flap. Although this procedure commits the patient to a prolonged treatment course with serial dressing changes, it is also a potentially lifesaving procedure for patients with little physiologic reserve and a severely infected pleural space.

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## Operative Technique



**Figure 1** Selection of the optimal location for the thoracostomy window is critical for adequate drainage of the infected pleural space. A careful review of preoperative chest radiographs and computed tomographic (CT) images is required to determine the most dependent region involved, which will become the location of the window. Alternatively, a drain may be placed preoperatively with CT or ultrasound guidance into the most dependent region of the pleural effusion. In rare cases, this drain may be sufficient to evacuate the pleural space. More importantly, this tube may later be used as a physical landmark in the operating room, indicating the optimal location for the thoracostomy. Representative CT images are pictured here showing axial (A) and coronal (B) slices illustrating an empyema that developed in a cirrhotic patient with refractory ascites and a hepatic hydrothorax that became infected following serial thoracentesis to drain the recurrent pleural effusion.

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