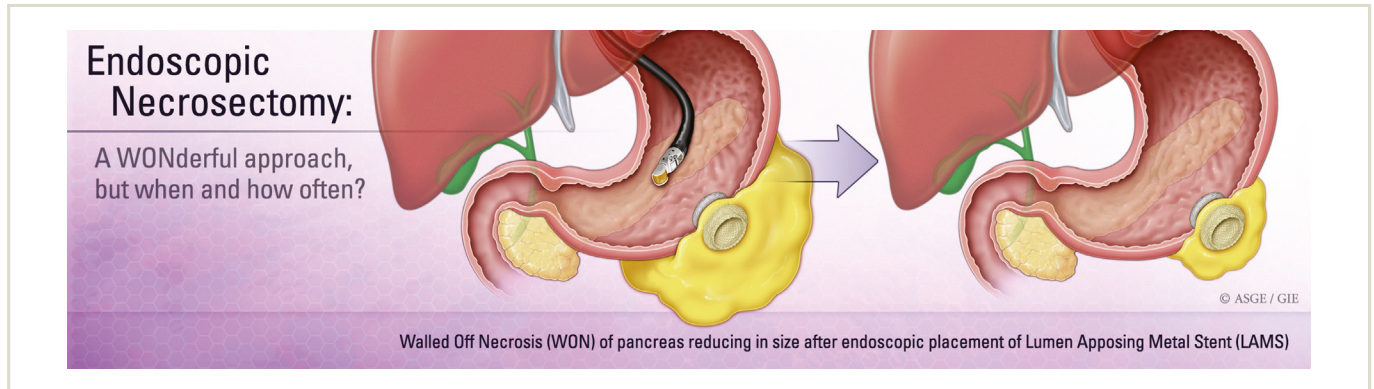




## Endoscopic necrosectomy: A WONderful approach, but when and how often?

### GRAPHICAL ABSTRACT



Over the past 2 decades, there have been dramatic advances in the endoscopic management of patients with walled-off necrosis (WON), one of the feared sequelae of acute pancreatitis. This represents a patient group at high risk of adverse events such as sepsis and multiorgan failure, with reported mortality as high as 39%.<sup>1</sup> The Dutch group had demonstrated the benefits of the step-up approach in treating patients with WON, initially using percutaneous drainage and subsequently resorting to minimally invasive surgical necrosectomy, an approach that confers superior patient outcomes in comparison with initial open surgical necrosectomy.<sup>2</sup> The emergence of the lumen-apposing metal stent (LAMS) further revolutionized the treatment of these patients by advancing our ability to avoid surgery in this patient group, thereby reducing the rates of adverse events and improving patients' quality of life.<sup>3</sup> As part of the endoscopic approach to managing these pancreatic collections, endoscopic necrosectomy (EN) has been shown to play a role for patients in whom initial endoscopic drainage has not been successful.

In this issue of *Gastrointestinal Endoscopy*, Tsujimae et al<sup>4</sup> report on their multicenter Japanese experience of 153 patients with WON seen over the course of a decade (2010 to 2020) in whom initial attempt at EUS-guided endoscopic drainage was unsuccessful. This study provides further evidence to support the benefit of EN in this patient population. However, questions remain regarding the

optimal timing of EN in patients with WON in whom initial endoscopic drainage has been unsuccessful, such as the ideal number of endoscopic sessions required and the optimal interval between sessions.

Although the authors' work broadens our knowledge of the role of EN in patients with WON, there are fundamental study limitations that have an impact on the conclusions to be drawn. The retrospective nature of the study must be acknowledged. Patients in whom an initial attempt at EUS-

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guided drainage of pancreatic WON had failed either underwent EN (102 cases) or underwent subsequent repeated attempts at endoscopic drainage (51 controls). Given that there was no randomization to treatment arms and there were no a priori criteria to clarify the rationale for using EN, management decisions were at the discretion of the individual clinician or of a multidisciplinary joint consensus within each of the 10 Japanese medical centers. Not only did decision making likely vary among centers (and even among clinicians within centers), decision making also likely changed over time as clinicians garnered more experience and with the advent of LAMSs in 2018, which added a new tool to their treatment repertoire. Therefore, patients who were selected to undergo EN differed systematically from

those who underwent repeated attempts at endoscopic drainage, as evidenced by the significant imbalances in baseline characteristics between the 2 patient groups; the EN patient group was significantly sicker (on the basis of the Charlson Comorbidity Index and the greater degree of both organ failure and systemic inflammatory response syndrome) and had a greater percentage of pancreatic necrosis. Indeed, these imbalances in illness severity at baseline only serve to underscore the benefit of EN, which was associated with lower mortality (6.9%) than in the endoscopic drainage group (9.8%).

In the United States, pancreatitis is the third most common GI diagnosis requiring hospitalization.<sup>5</sup> Among hospitalized patients under the care of gastroenterologists, not only are patients with the sequela of complicated acute pancreatitis (such as WON) some of the sickest patients in any hospital, they also represent some of the most expensive cases because of their prolonged hospital stays, much of which occurs in the intensive care unit setting. These patients' hospital stays are resource intensive, frequently necessitating multiple therapeutic endoscopic interventions and, in some cases, surgery with its associated significant economic burden on the healthcare system. This study does not directly address the impact of EN on the cost effectiveness and overall value of care for patients with WON. Although the EN patient group required multiple endoscopic sessions per patient, with each session lasting approximately an hour, patient outcomes in this group were superior, as evidenced by lower rates of salvage surgery and improved survival rates, even though the patients overall were sicker. The authors' other measures of clinical success included diminution in size of WON during 6 months and removal of drainage stents, which likely correlated with shorter intensive care unit stays, shorter overall hospitalizations, fewer readmissions, and decreased need for surgical intervention. As healthcare costs continue to rise in tandem with steadily reducing reimbursement rates, pressure to justify the value of expensive endoscopic interventions will inevitably intensify. In this context, future studies that not only confirm the clinical benefit of EN but also characterize the associated reduction in resource utilization and cost savings will be valuable.

An interesting aspect of this study is that it bridged the pre- and post-LAMS eras. The authors relate that LAMSs were approved for clinical use in Japan in 2018 and thereafter were the first choice for endoscopic drainage of WON. The results nicely illustrate the impact of this endoscopic accessory in our approach to these patients. For example, 48% of the entire EN patient group were treated in the last 3 years of the study (2017-2020), highlighting the dramatic increase in the use of this approach coinciding the availability of this stent. Similarly, there was a dropoff in the non-EN drainage approach during this time. The authors do not separately analyze the pre- and post-LAMS experience, but the numbers hint at a dramatic change in endoscopic management approach with the arrival of this stent.

It is difficult to draw any definitive conclusions from the authors' work regarding the optimal timing of EN, ideal number of therapeutic sessions required, and interval between sessions, primarily because of the retrospective nature of the study. A recent study led by the Mayo Clinic study reported their experience with protocolizing an approach in patients with WON; the approach required cross-sectional imaging within 14 days of initial LAMS placement, followed by repeated intervention (EN or additional drainage) if WON had diminished in size by <50%, followed by subsequent imaging within 14 days and repeated intervention if size had not decreased by an additional 50%, and repeating the process until WON had diminished to <3 cm. This proactive approach demonstrated meaningful improvement in patients' outcomes despite no significant increase in numbers of endoscopic interventions, supporting the role of adopting an algorithm of care in these patients.<sup>6</sup>

In summary, the current study by Tsujimae et al<sup>4</sup> adds to the evidence to support the role of EN in patients with WON. Although its retrospective study design limits the ability to draw definitive conclusions about the optimal timing and frequency of endoscopic intervention, it provides interesting insights into the impact of LAMSs on the treatment of this high-morbidity and high-mortality patient group.

## DISCLOSURE

The author disclosed no financial relationship relative to the content of this work.

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*Abbreviations: EN, endoscopic necrosectomy; LAMS, lumen-apposing metal stent; WON, walled-off necrosis.*

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