

Discussion Summary

Early or Delayed Catheter Drainage for Cases of Infected Necrotizing Pancreatitis?

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Keywords: acute necrotizing pancreatitis; image-guided percutaneous catheter drainage; endoscopic transluminal drainage; percutaneous necrosectomy; videoscope-assisted retroperitoneal debridement; endoscopic transluminal necrosectomy

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Financial Disclosures and Conflicts of Interest:

The authors have no financial disclosures or conflicts of interest to report.

Main Text

Abstract

International guidelines recommend delaying catheter drainage in cases of infected necrotizing pancreatitis until the affected tissue is encapsulated. However, there is no clear evidence that earlier catheter drainage would improve the outcomes of this potentially lethal condition.

We summarize the @GIJournal discussion held on March 6, 2022, during which we discussed the article by Boxhoorn et al. titled Immediate versus postponed intervention for infected necrotizing pancreatitis¹. The session was moderated by Dr. Vaibhav Wadhwa (VW [@vaibhav_manu]) and the key findings were critically reviewed by Dr. Neil R. Sharma (NS [@neilRsharmaMD]).

Introduction

Roughly 20–30% of patients with acute pancreatitis develop necrotizing pancreatitis,^{2,3} and infections of these necrotic tissue typically requires invasive procedures.³ In cases of infection, international guidelines recommend delaying antibiotic administration or catheter drainage until the affected tissues are encapsulated, which can take ~4 weeks.⁴⁻⁶ Nevertheless, there is no clear evidence that earlier catheter drainage would improve patient outcomes.

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Article Summary

Boxhoorn et al.¹ examined whether earlier intervention is beneficial for treating infected necrotizing pancreatitis in a multicenter, randomized superiority trial referred to as POINTER (Postponed or Immediate Drainage of Infected Necrotizing Pancreatitis). Eligible adult patients with (suspected) infected necrotizing pancreatitis that participated in the trial were randomized to receive either immediate (within 24 h; $n = 55$) or delayed ($n = 49$) catheter drainage, in which drainage was performed after encapsulation occurred (i.e., walled-off necrosis [WON]) with conservative management according to the standard of care in the interim. For all patients, necrosectomy, if required, was delayed until the WON stage. The primary outcome assessed at the end of the trial was the comprehensive complication index (scores range from 0 to 100, with higher scores indicating more severe complications), whereas mortality, complications, number of (repeat) interventions, lengths of hospital and intensive care unit stays, quality-adjusted life years, and costs were secondary outcomes.

At the 6-month follow-up, patients that received immediate drainage had a mean comprehensive complication index of 57 and those in the delayed-drainage group had an index of 58 (mean difference, -1 ; 95% confidence interval [CI], -12 to 10 ; $P = 0.90$), with mortality of 13% and 10%, respectively (relative risk, 1.25; 95% CI, 0.42 to 3.68). A mean of 4.4 interventions (catheter drainage and necrosectomy) were performed in the immediate-drainage group versus 2.6 in the delayed-drainage group (mean difference, 1.8; 95% CI, 0.6 to 3.0). Both groups had a similar incidence of adverse events. Notably, 19/49 patients (39%) in the delayed-drainage group did not require drainage and were treated only with antibiotics; 17 of these patients survived. Overall, the results of this trial indicate that earlier drainage does not affect the severity of

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complications or mortality of patients with infected necrotizing pancreatitis. However, patients assigned to delayed drainage underwent fewer invasive interventions because not all cases required drainage.

A limitation of this study is the use of the comprehensive complication index (a measure of postoperative complications) as the primary outcome because there is no other assessment that combines all types of complications and their severity. In addition, surgical step-up approaches were included according to current clinical practice, because not all areas of necrosis are accessible to endoscopic procedures. Finally, a substantial number of patients (26) were considered ineligible for the trial because of a late diagnosis of infected necrosis or previous treatment or because delayed drainage was impractical.

Discussion

A pre-discussion poll was administered by VW on how to approach a patient with a pancreatic pseudocyst compressing on the gastric wall and left colon if there is evidence of necrosis and infection: most respondents (84.4% [65/77]) would elect for endoscopic drainage, 3.9% (3/77) would use interventional radiology (IR)-guided drainage, 5.2% (4/77) would use endoscopy and IR-guided drainage, and 6.5% (5/77) would opt for antibiotics and waiting.

VW: Q1. What did you think of this trial? Does it change anything in your current practice?

@TomTielleman: I think [that] the [fewer] recurrent interventions required and [that] over 1/3 of the patients with the postponed strategy didn't ultimately need drainage speaks volumes. That and no improvement in mortality with immediate drainage is food for thought.

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@AbhilashPerise1: This study solidifies the prior thought of not being too aggressive if the wall is not matured and intervene only when the patient is clinically worsening due to infected collections and [that] decompression might provide temporary relief.

@ChrisAndersonM4: In general, our practice has been to intervene when infection is suspected. If the wall is not mature, go with IR drainage. This study would definitely challenge that thought process, @neilRsharmaMD.

NS: A1: Often, we encounter pressure from a variety of facets to engage in early intervention for WON and pseudocysts. This @NEJM article has given me pause and some data to engage other specialists and patient families in conversation on a more thoughtful, “timed” approach.

@AbhilashPerise1: Excellent point! Further, natural development of the wall (WON) by the body defenses assists in localizing the infection. Initial intervention might decrease this ability and might not offer an advantage except for immediate/short-term relief (of symptoms for both patient and treating team).

@bentharian: Also need to keep reminding ourselves [that] doing less and not more can be in the patient’s best interests, in this and several other situations. Just because “we can” doesn’t equate to “we should!”

@helpatologist: [I] support the well-established rule of 3Ds (delay, drain and debride). How did they define the “infected” necrotizing pancreatitis? [I’m] not surprised that the immediate drainage group required more interventions—post-peripancreatic fluid collections (post-PFCs) start to behave as secondary abscesses.

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VW: Q2. *How often are you "tempted" to intervene early when there is evidence of infected necrosis? When would you consider early endoscopic intervention?*

@ChrisAndersonM4: All the time! Infection is a buzz word for the surgeons and primary teams that something needs to be done as soon as possible. Also, the concept of abscess comes in that unless it's drained, it's not going to respond to antibiotics.

NS: A2: Interventional endoscopists—like [those in] other surgical fields—are often tempted to “cut.” Learning when and when not to is key. Early intervention likely should be limited, and patient clinical decompensation in WON may be the factor that pushes your hand: hold steady until it's time.

Signs that may push your hand:

- 1- worsening vitals,
- 2- high fevers,
- 3- bedside changes indicating clinical deterioration such as need for increasing pressor support.

@hепatologist: [I] agree [that] early interventions should be limited to the group with rapid clinical deterioration, such as those who develop multiorgan failure or abdominal compartment syndrome, etc.

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@SultanMahmoodMD: What about percutaneous versus endoscopic drainage?

VW: I do believe percutaneous has a role in critical patients, but it depends on the availability of IR expertise, and the best approach often varies on a case-by-case basis. Having a multidisciplinary care team including us, IR, and surgery is the key!

@gastrowala: This is an excellent point. Reviewing the imaging together with IR and surgery can be extremely helpful and determine the best drainage method.

NS: Percutaneous drains are an option. Watch for cutaneous fistula and you cannot do DEN (direct endoscopic necrosectomy) unless you can upsize significantly. Percutaneous drains have value for distant regions such as paracolic gutter, etc., and when there is not a mature wall. Good to have all the tools for difficult cases and multidisciplinary care!

@helpatologist: [I] agree completely—careful multidisciplinary team discussion is the key. I would favor IR over endoscopic approach in this scenario.

@SunilAminMD: [I] agree with all comments. In certain carefully chosen situations, IR drainage in addition to endoscopic therapy (dual modality therapy) can significantly decrease the time to clinical resolution of the collection. They are not mutually exclusive.

@AustinChiangMD: Was the intervention group for this study endoscopic or percutaneous? How did they define “infected?” Did patients show signs/symptoms that could portend worse outcome?

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@JJFordeMD: Both percutaneous and endoscopic were allowed as a first step. Infection was defined as positive Gram stain or culture, presence of gas on CT. Clinical diagnosis was not used as the sole criterion in the first 14 days. After 14 days, SIRS was okay as the sole indicator of infection.

@AustinChiangMD: Interesting. Sorry, [I was] unable to see article and so [I'm] wondering if a subgroup analysis was done for percutaneous drain versus endoscopic?

VW: *Q3. Interestingly, about 40% in the delayed drainage group did not need any intervention, do you think that's in line with what you see in your clinical practice?*

@neilRsharmaMD

@TarunRustaGI_MD: Yes, many patients (25–40%) have spontaneous absorption, or fistulization, drainage, and resolution without needing any intervention.

NS: This is a key stat from the @NEJM #pancreas article; [for] 40%, “the body heals itself,” saving cost and potential complications for patients. My personal expertise is perhaps closer to 30%, but the concept remains the same—many times, patience and support is the best medicine.

@SultanMahmoodMD: That’s a good number to quote to consulting physicians and patient!

@ChrisAndersonM4: Also, how long do you wait. 24 hours? Longer?

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@TarunRustaGI_MD: “Early” is a spectrum (not always defined by 4-week mark). Adverse events should be very low in carefully selected patients (only ones we should be intervening endoscopically to begin with).

VW: Q4. What are some of the most common complications you encounter when intervening early endoscopically?

@gastrowala: [I encounter] poor stent deployment or not in great position to facilitate adequate drainage.

@SultanMahmoodMD: I have seen a few cases of frank peritonitis which didn't end well for the patient.

@GI_Guy: It is a balloon of potentially infectious material. So, if you go in before 4 weeks, and we have seen this, the balloon disintegrates and all of that infectious material leaks in the peritoneum. It's a nightmare.

@DrSaeeed: I've seen failure to improve and still a need of surgical necrosectomy and bleeding.

NS: A4: Many complications can occur: perforation/peritoneal leak (not a well-formed wall), air embolism, stent migration, and more; fortunately, not too frequently. Here is a nice article⁷:

<https://pubmed.ncbi.nlm.nih.gov/21786063/>

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And another nice review on EUS complications article by @DrLakhtakia⁸:

<https://pubmed.ncbi.nlm.nih.gov/27931638/>

VW: Thank you for sharing these valuable resources! *Q5. What are your "go-to" tools for performing endoscopic necrosectomy? When do you repeat necrosectomy after the initial procedure?*

@TarunRustaGI_MD:

1. Spiral snare,
2. typically, 2–3 weeks post-LAMS placement; earlier if clinically indicated.

One should be very careful (and avoid if possible). With DEN in PFCs drained early, wait for walls to further mature and thicken before performing DEN. LAMS (lumen-apposing metal stent) drainage only may provide that additional 1–2 weeks required for maturation and thickening of walls to safely perform DEN later.

@DrSaeeed: Axios + double pigtail. Snare is my go-to tool. Hydrogen peroxide on each round and stop PPI (proton pump inhibitors) or H2 blockers. I do 1- to 2-week repeats if the wall is mature. Patients tend to present with signs of cystogastrostomy blockage if I wait longer.

NS: A5:

Access: LAMS and double pigtail plastic stents.

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For necrosectomy: using snare, basket, forceps.

Recently: Ovesco excavator.

Good reports on EndoRotor initially, but [I] have heard of some complications as well.

New dedicated tools, much needed, are on the way!!

And don't forget hydrogen peroxide to help facilitate necrosectomy. @ChahalPrabhleen has given some good tips and data.⁹

@**AgnihotriGI**: Access: prefer 20-mm LAMS + double pigtails on index session and, for necrosectomy, prefer 15-mm stiff snare and in some cases have had good success with the new larger EndoRotor with the 6-mm channel scope, especially for those with dense fat necrosis.

Conclusion

Postponed catheter drainage for infected necrotizing pancreatitis remains a subject for debate.

The trial reported by Boxhoorn et al.¹ showed that immediate catheter drainage provides no benefit over delaying this procedure until the WON stage. However, fewer interventions were needed in patients in which drainage was delayed: one-third of these patients required only conservative treatment with antibiotics. Therefore, an initial conservative approach to treat infected necrotizing pancreatitis with antibiotics is justified, with early catheter drainage reserved for cases of rapid clinical deterioration.

References

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