

Peer Review File

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Reviewer A

Comment 1: Most probable, many your included patients have NOT had a full-thickness perforation of the oesophageal wall (>50% had no surgery or any other procedure, and short LOS). Thus, to prevent the reader from getting the false impression that oesophageal perforation is a mild condition, I believe that you should stress even more that you not been able to verify the diagnosis and that your work is based on data from an administrative registry. To me this is utterly important and can easily be done by adding ‘having a diagnosis of’ at crucial points, e.g., on line 79, “...outcomes in patients HAVING A DIAGNOSIS OF EP”.

Reply 1: We have added ‘having a diagnosis of EP’ at crucial points in the manuscript.

Changes in the text: Page 3, Line 63; Page 5, Line 118

Comment 2: At present, the manuscript is focused on incidence, admission rate, given treatment, use of stents and outcome, i.e., your SECONDARY outcomes, while the present primary outcome (inpatient mortality) is always presented at the end of each section (e.g., the two last sentences in the Results). Thus, I suggest that you correct this imbalance by switching the two outcomes, line 102.

Reply 3: The primary outcomes of interest were switched to rates of esophageal perforation admissions and management strategies over time, pneumonia, sepsis, and time to surgery from admission (among patients who underwent a procedure). The secondary outcome of interest was inpatient mortality.

Changes in the text: Page 5, Line 141-143

Comment 3: Abstract. Lucid, however, the abbreviation ‘NH’ needs to be explained when first used on line 38.

Reply 3: The abbreviation ‘NH’ has been explained as “non-Hispanic” when first used in the Abstract.

Changes in the text: Page 3, Line 68

Comment 4: Introduction. Short and to the point. The reference to Supplemental Table 1 on line 93, 97 and 105 is incorrect. Please revise the order of the supplemental tables.

Reply 4: The order of the supplemental tables has been revised and the reference to Supplemental Table 1 on line 131, 136, 144 in the ‘Introduction’ is correct.

Changes in the text: Page 19

Comment 5: Interesting and well-balanced. Again, I believe that the uncertainty of correct diagnosis, i.e., if the patients really had a true EP with a full-thickness perforation of the oesophageal wall needs to be additionally commented in the third paragraph (line 192-197) and of course under Limitations

Reply 5: We have added the comment regarding the inability to determine whether patients with the diagnosis of esophageal perforations had a full-thickness perforation in our Discussion and Limitations and its potential implications on the results.

Changes in the text: Page 9, Lines 238-240, 260-262

Reviewer B

Comment 1: In the operative group the median length of stay was 15 days but the authors truncated the data at 15 days - so I do not know how reliable this finding is. In my experience many patients with esophageal perforation who require surgery stay at least 15 days in the hospital, so saying that the mean length of stay

was 15 days when data was not examined after 15 days seems to suggest perhaps incorrectly that many operative patients exceeded a 15-day hospital stay and many, many had a very short hospital stay in order to arrive at that average. I think if you cut off the data acquisition at length stay at 15 days, you cannot make accurate conclusions about the true length of stay for operative patients who had esophageal perforation. I do not think this diminishes the other findings of the authors, but it may be better to just omit this. Especially when adding a 2-day buffer for transferred patients, the authors really only are looking at 13 days at their own institution. There are too many variables here that may have been accounted for by the authors but need to explain that a little better. It is important to keep in mind that there is not much data about length of stay in these patients published, so insurance payers and many others may try to incorrectly utilize the authors data that suggest the average length of stay for an operative patient with esophageal perforation is and therefore should be 15 days. It may actually be 15 days, I do not know - but if decide to include in in final form please elaborate more on how arrived at this, accounting for the questions I mentioned above.

Reply 1: We agree with the reviewer's comment and have omitted the sensitivity analyses of 15 days.

Changes in the text: Page 6, Line 166-172; Page 7, Line 203-204, Page 23

Comment 2: there may be a typo in line 177 "non-Whitey" I assume that is to read "non-White"

Reply 2: Typo has been corrected to "non-White"

Changes in the text: Page 8, Line 219

Reviewer C

Comment 1: I have only one concern with the manuscript; the issue of non-operative management of esophageal perforation. The finding that the majority (57% NH White up to 68% Hispanic) patients with EP received no surgery or procedure is striking. This high rate of no surgical or procedural intervention seems incongruent with most thoracic surgery practice and warrants additional clarification. For example, is it possible that iatrogenic perforations (the most common etiology) occurring during EGDs, dilations, ect are being treated endoscopically during the index endoscopy procedure and thus not appearing to have a surgery/procedure? Alternatively, the contribution of non-EPs that are miscoded as EP is difficult to quantify and may be significant. For example, many patients with pneumomediastinum are miscoded as having esophageal perforation. Finally, patients with a primary diagnosis of esophageal problem and secondary code of EP will capture patients with postoperative leaks that are often managed non-operatively with antibiotics and drainage via drainage tubes placed at the index operation. The manuscript would be strengthened by addressing the above issues and is necessary to provide critical context for the authors statement (lines 169-170) that non-operative management is the "preferred treatment option" for esophageal perforation.

Reply 1: We agree with all the points the reviewer suggested regarding the possible finding for why the majority of patients with a diagnosis of esophageal perforations received no surgery or procedure. It is certainly possible that iatrogenic perforations occurring during endoscopy were treated endoscopically during the index procedure, and as a result appearing to not have a surgery/procedure. Due to the nature of using a database that captures patient diagnoses using ICD-9 and ICD-10 codes, we are unable to determine the contribution of false positive esophageal perforations that are potentially miscoded. Additionally, we cannot differentiate between contained perforations or post-operative leaks versus full thickness perforations, as the former are often managed non-operatively with antibiotics and percutaneous drainage at the index operation. We have added these points to the Discussion and Limitation section of our manuscript. We have also removed the text stating that non-operative management is the preferred treatment option for esophageal perforation.

Changes in text: Page 8, Lines 211-212; Page 9, Lines 236-242, 258, 260-261
