



# Author response to: Intraoperative gallbladder perforation and risk of postoperative abscess with or without antibiotics: national cohort study of more than 108 000 cholecystectomies

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Dear Editor

We greatly appreciate the interest in and very relevant questions on our paper<sup>1</sup>. Some of these were more thoroughly discussed in the original submission, but the published article was shortened to fit the 'Short report' format<sup>1</sup>. Abscess in the 30 day follow-up in GallRiks is defined as an intra-abdominal infection requiring drainage. We did not distinguish between anatomical locations of the abscesses but included all abscesses in need of draining. By gallbladder perforation we mean iatrogenic intraoperative perforations. Perforations prior to surgery were not included in the definition.

Data validity is, of course, crucial for the conclusions that can be drawn from a register study. The GallRiks registry is validated continuously. This is done by independent reviewers that compare the registered data with medical records on various hospitals in Sweden every fifth year. This routine has been briefly described previously<sup>2</sup>.

We agree, as stated in the discussion, that the increased odds for abscess with antibiotic treatment are probably due to selection bias and residual confounding. The conclusions of our study were not based on this odds ratio, but on the interaction between gallbladder perforation, antibiotic treatment, and postoperative

abscess. Obviously, retrospective studies have limitations regarding the level of evidence provided. Nevertheless, for ethical reasons it is not possible to perform a randomized trial of the consequences of intraoperative iatrogenic gallbladder perforation and therefore we will have to make do with observational studies.

We thank the authors for their valuable feedback on our study. We hope that it may serve as a guidance in the management of iatrogenic gallbladder perforations and help to define more strict criteria for antibiotic prophylaxis in gallstone surgery.

## References

1. Edergren Å, Sandblom G, Agustsson T, Jaafar G. Intraoperative gallbladder perforation and risk of postoperative abscess with or without antibiotics: national cohort study of more than 108 000 cholecystectomies. *Br J Surg* 2022; <https://doi.org/10.1093/BJS/ZNAC351> [Epub ahead of print]
2. Enochsson L, Thulin A, Osterberg J, Sandblom G, Persson G. The Swedish Registry of Gallstone Surgery and Endoscopic Retrograde Cholangiopancreatography (GallRiks): a nationwide registry for quality assurance of gallstone surgery. *JAMA Surg* 2013;**148**:471–478