

Peer Review File

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Reviewer A

Comments to the authors:

This is a relevant and well written description of unfavorable outcome related to probable manufacturing/design shortcomings when using a tailored mesh for the repair of parastomal hernia. I have two comments that might further improve an already good manuscript:

1. Many hernia surgeons with long term of experience probably remember the failures from the first generation of polyester meshes. Many of those repairs recurred after some time, some of them as a consequence of mesh fracture. We all know that the industrial representatives have promised that the new generation of polyester meshes has solved this problem – but is that true? Is what you describe only a consequence of design failure or also a material failure?

Authors' reply: This is a relevant question, that we do however find difficult to answer. It was not clear from the intraoperative findings specifically which type of failure was present. We have now elaborated on this in the discussion.

“As stated above, several factors may contribute to mesh fracture. It is unclear whether the fracture was due to failure of the polyester material, or a failure in the design. Considering that all fractures occurred in the same area of the mesh (i.e. the junction between the 2D and 3D zones), it seems likely to be a failure due to design rather than material .”

2. Parastomal hernia repair is hazardous and there is probably no technique without a significant failure rate. Although what is described in the present manuscript is a very clear and well-defined failure, the problem with parastomal hernia repair can be put in a wider context with failure of most techniques and also other brand of tailored parastomal meshes as described in the below articles.

Authors' reply: This is a relevant perspective, which we have now elaborated on in the “Discussion” section.

“Previous studies have found similarly high recurrence rates after parastomal hernia repair, even with different types of meshes. In a recent study including 38 patients undergoing recurrent parastomal hernia repair, a biological mesh had been used in 50% of the patients, and a collagen mesh in the remaining 50% (15). Similarly, a study including 50 consecutive patients undergoing open keyhole surgery using a polypropylene mesh showed a 26% recurrence rate (16). This underlines the difficult nature of parastomal hernia repair regardless of technique and mesh type.”

Reviewer B

Comments to the authors:

Thank you for giving me the chance to review the manuscript entitled “Mesh fracture in laparoscopic Sugarbaker parastomal hernia repair”. The manuscript presents an interesting case series about recurrence after parastomal hernia repair due to mesh fracture. The manuscript is interesting, but I don’t see why authors don’t analyze the whole series of patients with parastomal hernia repair and look for risk factors for recurrence/mesh fracture. Some modifications could be performed to improve its quality:

- Title: include the study design to allow the reader what to know before reading the article.

Authors’ reply: Thank you for this relevant suggestion. The title has been edited to better reflect the study design.

“Mesh fracture as a cause for recurrence in laparoscopic Sugarbaker parastomal hernia repair: a case series.”

- Abstract: appropriate although some changes should be performed if the statistical analysis is changed (see material and methods section).

Authors’ reply: Please see answer below.

- Introduction: appropriate.

Authors’ reply: Thank you.

- Material and methods: appropriate. I don't understand why you only present the series of patients with mesh fracture/recurrence. They could report the whole series and analyze (at least with a univariate analysis) the factors that are associated with recurrence/mesh fracture.

Authors' reply: We tend to agree, that inclusion of the entire cohort and analysis on risk factors for mesh fracture would be preferred. However, no diagnostic measure can accurately determine mesh fracture as the cause of recurrence except for laparoscopy. Thus, including the entire cohort of patients introduces a high risk of bias towards underreporting the incidence of mesh fracture. A discussion of this has now been added to the "Discussion" section.

"Only patients with verified mesh fracture in the study period was included, and not the entire population of patients undergoing parastomal hernia repair in the same period, which limits the study. However, since no diagnostic tool other than laparoscopy can accurately verify mesh fracture, the true incidence of mesh fracture would most likely be understated. Preoperative CT scan in a specialized hernia protocol was performed on all patients included in this study, and did not reveal any mesh fractures. Thus, to accurately assess the full scope of the problem, all patients with recurrent parastomal hernia after previous mesh repair would have to undergo laparoscopic surgery, which was not feasible."

- Results: poor, as I have already said analyzing the whole cohort would be much more interesting.

Authors' reply: Please see answer above.

- Discussion: closing the aponeurotic defect is a key step in parastomal hernia repair and it could help to recurrence/mesh fracture. This point must be deeply discussed as it could be the reason for the problem and a solution for the future. I don't see what the authors have made to improve the results (using a new mesh, closing the aponeurotic defect, another technique...).

Authors' reply: The concern regarding suture of the aponeurotic defect may be relevant, however not yet described in the literature. Patients in the current series did

not undergo defect closure, but we have since then adopted defect approximation. We have elaborated on this in the “Discussion” section. Please see response to reviewer A.

“As a consequence of our findings, the Parietex™ Composite Parastomal Mesh for laparoscopic Sugarbaker parastomal hernia repair was withdrawn from the world market.”

“Hypothetically, closure of the defect may have reduced the forces of tension on the mesh, however if mesh fracture was avoidable with defect closure remains unknown.”