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Outcome of patients undergoing Large Para-oesophageal hernias laparoscopic repair with selective biological mesh placement.

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Introduction

Laparoscopic Para-oesophageal hernia repair (LPEHr) is associated with a high recurrence rate between 15 - 30%[1]; the use of synthetic mesh to augment the strength of the hiatal crura has been controversial, with trials demonstrating a significant reduction of recurrence rate[2]. A number of new biomaterials has been developed, that could serve as a temporary matrix to potentially reduce this high rates.

However, there are potential problems by using a synthetic mesh at the dynamic hiatus, such as mesh erosion, ulceration, stricture, and dysphagia with an increased complication rate and an increased poor functional post operative results in some studies[2].

Materials & Method

We studied 77 consecutive Large Para-oesophageal hernias (PEH) who underwent laparoscopic repair (LPEHr).

The ad hoc criteria to proceed for a crus augmentation were:

- Type IV Para-oesophageal hernias <72 years-old. and/or with poor crus tissue quality after resection or High crus tension after reconstruction.
- Type III Para-oesophageal hernias with poor crus tissue quality after resection, High crus tension after reconstruction or Large Hiatal defect >5.5cm.

The reinforcement was made with a U shaped tailored biological Permacol™ mesh.

Radiological recurrence was defined as the presence of >2cm. intra-thoracic stomach on a CT scan and/or an upper gastrointestinal (UGI) series in doubtful cases. Follow-up CT scan were performed 6 months and yearly after surgery. All radiologic follow-up test were revised and diagnosed by a dedicated Upper GI radiologist.

Results

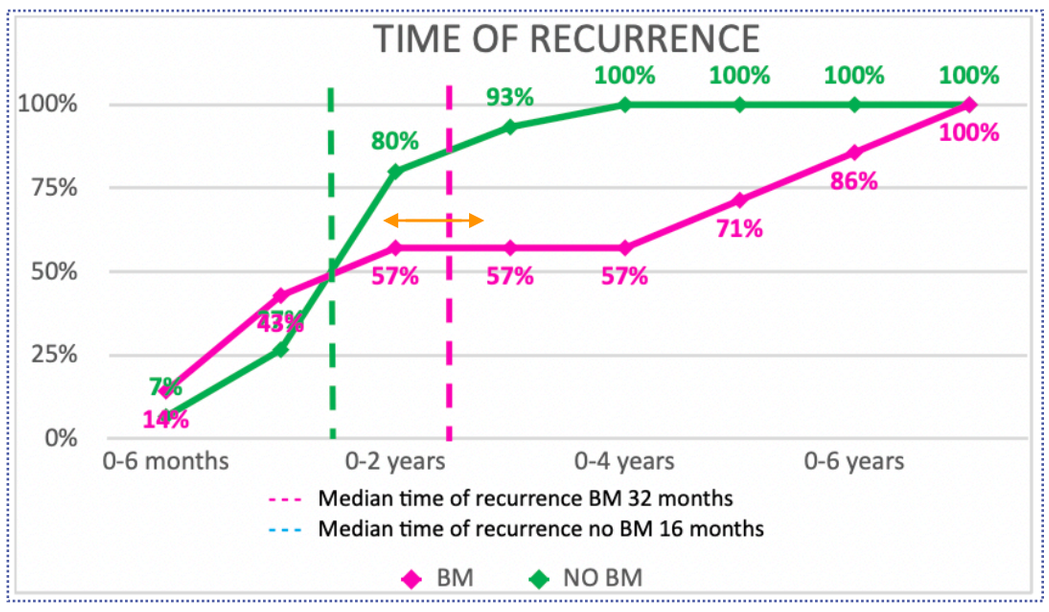
77 consecutive LPEHr were performed, 61 females and 16 males:

- 39 Patients Type III PEH
- 38 Patients Type IV PEH

Applying our criteria for mesh reinforcement, we reinforced 56% (43) of our patients with a Permacol™ biological mesh (BM), mainly in Type IV PEH with 40% vs. 16% mesh reinforcement applied in Type III PEH respectively.

Overall recurrence rate was 29% (22 of 77 patients) in a median follow-up time of 34,7 months, mainly no symptomatic or well controlled symptoms with oral treatment on 91% of the patients.

Analysing our mesh reinforcement, 9% of our recurrences were present in patients with a biological mesh while 20% recurred without a BM reinforcement *p=0.01*. Median time of recurrence was 22 months and patients with a BM reinforcement had a significant delayed recurrence with a mean of 32 months compared with 16 months in patients without a BM *p=0.05. (graph), on multivariate analysis the use of mesh correlated with a decreased odds to have a recurrence.* We indicated more BMs in patients with Type IV PEH than in patients with a type III PEH p<0.01. Contradictorily, median recurrence time was shorter in type III than in type IV repairs 14 vs 29 months *p<0.05.*



No significant differences in recurrence were found in our patients regarding age, sex, para-oeasophageal hernia type, morbid obesity, diabetes or immunosupressive medication intake. There was 14% morbidity with 1.4% mortality rate; 3% of our primary cases required re-operation for complications and 5% required a redo repair.

Conclusion

Biologic mesh was used in 56% of our patients mainly in Type IV PEH. In type III PEHr we indicated less BM placement procuring an unexpected earlier recurrence rate compared with type IV PEHr despite of being a more severe disease, in our data we associate that a biologic mesh significantly decrease and delay recurrences in large PEH reducing the probability of recurrence. We are continuing our follow in this study to analyse the result at 5 years mean follow up.

References

1 **Oelschlager BK et al.** Biologic prosthesis to prevent recurrence after laparoscopic paraesophageal hernia repair: long-term follow-up from a multicenter, prospective, randomized trial. J Am Coll Surg. 2011 Oct;213(4):461-8.

2 **Fuchs et al.** EAES recommendations for the management of gastroesophageal reflux disease. *Surg Endosc* (2014) 28:1753–1773.

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