



Imaging visceral adhesion to polymeric mesh using pneumoperitoneal-MRI in an experimental rat model

Submitted by Laurent Lemaire on Tue, 10/14/2014 - 10:14

Titre	Imaging visceral adhesion to polymeric mesh using pneumoperitoneal-MRI in an experimental rat model
Type de publication	Article de revue
Auteur	Franconi, Florence [1], Roux, Jérôme [2], Lefebvre-Lacoeuille, Céline [3], Lemaire, Laurent [4]
Editeur	Springer Verlag
Type	Article scientifique dans une revue à comité de lecture
Année	2015
Langue	Anglais
Date	Aug-10-2014
Pagination	1567-73
Volume	29
Section	6
Titre de la revue	Surgical Endoscopy
ISSN	0930-2794
Mots-clés	Adherence [5], Magnetic Resonance Imaging [6], Mesh [7], MRI [8], Pneumoperitoneum [9], Ventral hernia repair [10]

Background:

Intraperitoneal mesh implantation is often associated with formation of adhesion to the mesh. This experimental study examines the potential of minimally invasive pneumoperitoneal-MRI to assess these adhesions in a preclinical context.

Methods

Uncoated polyethylene terephthalate meshes were placed intraperitoneally in rats, in regard to the caecum previously scraped to promote petechial bleeding and subsequent adhesions. Examinations were performed 2-weeks post mesh implantation using a rodent dedicated high field MRI. Respiratory-triggered T2-weighted images were acquired prior to and after intraperitoneal injection of 8-10 mL gas to induce a mechanical stress on the abdominal wall.

Results

Adhesions are occasionally seen in sham-operated rats as opposed to rats receiving polyethylene terephthalate meshes. On high-resolution images, meshes can be detected due to their characteristic net shape. However, evidence of adherence is only found if intraperitoneal gas injection is performed, when a 1-cm elevation of the abdominal wall is observed. When adherence occurs between the mesh and the caecum, the latter remains in contact with the wall. Looser adhesions between visceral tissue and meshes are also observed.

Conclusions

T2-weighted pneumoperitoneal-MRI is a powerful tool for assessing adherence after intraperitoneal mesh implantation. According to the mini-invasive procedure adopted here, this approach may allow a temporal follow-up of adherence fate.

Résumé en anglais

URL de la notice <http://okina.univ-angers.fr/publications/ua4857> [11]

DOI [10.1007/s00464-014-3843-9](https://doi.org/10.1007/s00464-014-3843-9) [12]

Titre abrégé Surg Endosc

Liens

[1] <http://okina.univ-angers.fr/f.franconi/publications>

[2] <http://okina.univ-angers.fr/jerome.roux/publications>

[3] [http://okina.univ-angers.fr/publications?f\[author\]=7739](http://okina.univ-angers.fr/publications?f[author]=7739)

[4] <http://okina.univ-angers.fr/l.lemaire/publications>

[5] [http://okina.univ-angers.fr/publications?f\[keyword\]=9201](http://okina.univ-angers.fr/publications?f[keyword]=9201)

[6] [http://okina.univ-angers.fr/publications?f\[keyword\]=6040](http://okina.univ-angers.fr/publications?f[keyword]=6040)

[7] [http://okina.univ-angers.fr/publications?f\[keyword\]=9200](http://okina.univ-angers.fr/publications?f[keyword]=9200)

[8] [http://okina.univ-angers.fr/publications?f\[keyword\]=1393](http://okina.univ-angers.fr/publications?f[keyword]=1393)

[9] [http://okina.univ-angers.fr/publications?f\[keyword\]=9199](http://okina.univ-angers.fr/publications?f[keyword]=9199)

[10] [http://okina.univ-angers.fr/publications?f\[keyword\]=9198](http://okina.univ-angers.fr/publications?f[keyword]=9198)

[11] <http://okina.univ-angers.fr/publications/ua4857>

[12] <http://dx.doi.org/10.1007/s00464-014-3843-9>

Publié sur *Okina* (<http://okina.univ-angers.fr>)