AUTHORS: Kolbe T, Hollinsky C, Walter I, Joachim A, Rülicke T
PRODUCT DISCUSSED: Parietene ProGrip™ self-gripping mesh

TYPE OF STUDY
• Prospective animal study in a rat model
• Although this is an animal study, the authors felt the results would be comparable to humans, as the ductus deferens is much larger and therefore less likely to suffer detrimental effects

BACKGROUND
• There are two major risks for the ductus deferens after inguinal hernia surgery
  - Mechanical damage
  - Inflammatory reactions due to a strong foreign-body reaction
• Animal models have shown that mechanical damage is likely only after severe mechanical pressure, which is unlikely to occur in carefully conducted surgery
• Inflammatory reactions have been reported in humans and confirmed in several animal models
  - The macroporous self-gripping mesh (Parietene ProGrip™) is composed of a co-knitting of light polypropylene and polyactic acid (PLA) monofilaments. The mesh exhibits polyactic acid absorbable micro-hooks on the under side which facilitate gripping to the surrounding tissues. These micro-hooks raised the concern of increased inflammatory reactions

PURPOSE OF THE STUDY
To determine whether self-gripping mesh (Parietene ProGrip™) might damage the ductus deferens thereby impairing male fertility

METHODS
• Two different meshes were examined
  - Parietene™-Light – a standard lightweight polypropylene mesh
  - Parietene ProGrip™ – a new self-gripping polypropylene mesh with absorbable microhooks
• Meshes were wrapped surgically around the prepared ductus deferens of each of 10 Sprague Dawley rats
  - 5 control rats had ducts bluntly separated from adherent tissue
• Animals were sacrificed after two months
• Mesh were removed together with the ductus deferens for histology and electron microscopy to determine whether any signs of degradation or changes in the surface of the material

RESULTS
• There was no difference between the two meshes with regard to morphology
• Only minor signs of inflammation were visible around the implanted materials
  - Fibres were surrounded with few infiltrating cells and partly with giant cells
• Mesh hooks were anchored in the muscularis but did not reach the mucosa, suggesting the fixation method of Parietene ProGrip™ did not cause damage
• Electron microscopy did not show any signs of alteration or degradation to fibre surfaces

CONCLUSIONS
• ProGrip™ showed no harmful influence on the ductus deferens in a rat model
• Given the larger dimension of the ductus deferens in humans, any detrimental effect can be excluded

This concludes the clinical synopsis of this publication

REFERENCES
None