



Dr Wallwiener Christian
PAX University Women's Hospital 72076 Tuebingen Germany 07071-2982681
taufiek.rajab@imperial.ac.uk

Topic : Adhesion Prevention

Authors and addresses : Christian W. Wallwiener (a), Erden Ali (c), Bernhard Kraemer (b), Markus Wallwiener (b), Taufiek K. Rajab (b,c)

a: University Hospital rechts der Isar, Technical University of Munich, Germany

b: Universitaetsfrauenklinik Hospital, University of Tuebingen, Germany

c: Imperial College London, United Kingdom

Presenting Authors : Christian Wallwiener

The extent of adhesion induction through electrocoagulation in an experimental rat study

Electrocoagulation is known to predispose to adhesion formation, yet electrocoagulation is used extensively to achieve haemostasis. The current study aims to investigate the role of electrocoagulation and suturing on peritoneal adhesion formation in a rat model.

Different modes of traumatisation were studied in 35 femal Wistar rats. The following groups were examined. Group 1: limited electrocoagulation (traumatisation with 40W for 1 second). Group 2: extensive electrocoagulation (traumatisation with 60W using greater pressure for 4 seconds). Group 3: mechanical denuding of the peritoneum. To study the the additive effect of suturing, experimental lesions were examined with additional suturing plus limited electrocoagulation (Group 4) or mechanical denuding (Group 5). Adhesion quantity and quality were scored 14 days post-operatively

Mechanical denuding of the peritoneum without damage to the underlying musculature lead to no adhesion fromation. After limited electrocautery, adhesion coverage of the traumatised area averaged 5%. This contrasted with extensive electro-cautery, where there was 65% adhesion coverage. If the lateral body wall was further traumatised by additional suturing then 71% and 62% of the traumatised areas were covered with adhesions for superficial electrocautery and mechanical denuding respectively.

Mechanical traumatisation limited to the peritoneum is a neglible factor in adhesion formation. However, additional traumatisation of the underlying musculature, either by deeper electrocautery or suturing, lead to significantly increased adhesion formation. These data show that there is a spectrum concerning the extent of traumatisation by electrocautery at the lower end of which there is little adhesion formation. Thus, clinicians should use smart coagulation systems and soft default settings to limit the depth of traumatisation whenever possible.