

#355 FEASIBILITY OF NEW ZEALAND RABBIT AS AN ANIMAL MODEL FOR THE STUDY OF BIOLOGICAL GRAFTS IN PELVIC RECONSTRUCTIVE SURGERY

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Introduction:

Sant Pau Hospital performs a project that aims to study the biological properties of a human acellular dermal matrix (hADM), which can be an alternative to synthetic meshes.

Objective:

To evaluate the New Zealand (NZ) rabbit as an animal model for testing a hADM as a biomaterial to be used in pelvic reconstructive surgery.

Material and methods:

Experimental study on animal model, using white female NZ rabbits. The graft will be implanted at the subcutaneous level of the abdominal wall and in the rectovaginal septum of each animal. As a control, a synthetic polypropylene (PP) graft will be used. 20 rabbits will be randomized in 2 groups. Experimental group: hADM graft, control group: PP graft.

Results

1. Surgical difficulties

Adequate **exposure** of the vaginal surgical field

Maintenance of the integrity of the **vaginal mucosa layer** during the placement of the grafts

Maintenance of adequate **aseptic conditions**

Location and dissection of the **lateral thoracic vein** during abdominal surgery

2. Clinical complications during follow-up

Control group:	Experimental group:
20% minor injuries due to stereotypes	20% minor injuries due to stereotypes
10% dirty genitalia	30% dirty genitalia
20% extrusion of the abdominal mesh	
10% nose injury due to collar malposition	
10% abdominal wound infection	
Death day 58 (normal autopsy)	

3. Pathological findings during explantation surgery

Control group:	Experimental group:
30% erosion of the vaginal mesh	40% vaginal hADM not visible
10% abdominal and vaginal chronic infection	10% abdominal and vaginal chronic infection

There was a **greater** number of **pathological findings** during the explantation surgery in the **control group** (60%) vs the experimental group (10%) with a $p = 0.015$. However, the macroscopic **degradation** of the **vaginal grafts** was more frequent in the **experimental group** (40%), whereas in the control group the vaginal mesh was identified in 100% of the individuals ($p = 0.01$).



hADM in the rectovaginal septum



hADM on the anterior vaginal side



hADM in subcutaneous level of abdominal wall

Conclusions:

It is feasible to use New Zealand rabbits as an animal model to reproduce surgeries both abdominally and vaginally to test grafts. Although this model comes with some difficulties related to the small size of the animal, it is compensated by the benefits of the model: it is an easily acquired animal, which offers the researcher a quick learning curve regarding its management and caring, and presents a cost-efficient barning.