Rat model of cavernous nerve crush injury

Model advantages:
This rat model of cavernous nerve crush injury mimics neural damages associated with radical prostatectomy in human.

Pathophysiological features:
Identically to human, the rat model of cavernous nerve crush injury displays ED (figure 1).

![Figure 1: Effects of bilateral cavernous nerve crush injury (4 weeks post-surgery) on intracavernosal pressure (ICP) after ES CN in anesthetized rats (from Bessede T et al., 2008).](image)

Moreover, several pathophysiological mechanisms which are linked to radical prostatectomy-associated ED in human are present in rats with cavernous nerve crush injury:
- Penile nNOS immunoreactive fibers content decrease. (The brief activation of nNOS is involved in the initiation of the erectile process causing the increase in intracavernosal pressure)
- Cavernosal tissue remodeling and fibrosis

Summarized methodology:
Briefly, bilateral cavernous nerve crush is performed in rats under anaesthesia usually 3-4 weeks before experimentation (figure 2).

![Figure 2: Per-operative view of cavernous nerve crush procedure in rats](image)

Related Pelvipharm bibliography:

Links to applicable experimental skills:
- Administration routes / regimen
- Plasma / urine / tissue collection
- In vivo experiments – conscious animals
  * Telemetry
  * Urine collection - Metabolic cages
  * Behavioural science
- In vivo experiments – anesthetized animals
  * Erection elicited by pharmacological or electrical neural stimulation
- Behavioural science
- Organ bath studies (EFS / Pharmacological studies)
  * Animal tissues
- Biochemistry (Plasma / Urine / Tissue)
  * Spectrophotometric assays
  * Protein expression and activity
- Histology
  * Histomorphology
  * Histomorphometry
  * Oxidative fluorescense
- Immunohistology / Confocal microscopy
  * Protein expression – immunohistochemistry / immunofluorescence
  * Confocal microscopy