

T400-Series Technical Note

Aortic Coarctation Hypertension Model

Introduction

This is an interesting model because it causes hypertension proximal to coarctation but normotension below coarctation in two days.

Animal Preparation

Fast animal the night before surgery.
Prepare animal for aseptic surgery using sterile instruments.

Surgical Protocol

1. Expose abdominal aorta through a laparotomy. Dissect free from the vena cava.
2. Place a 10 x 8 mm piece of sterile Handi-Wrap or Saran Wrap around the aorta at the site of the coarct. This prevents the aorta from growing around the ligature and effectively bypassing the coarctation.
3. Place a blunt hypodermic needle (20 gauge needle for 200 gram rat) along the axis of the aorta over the Handi-Wrap. Tie a length of 3-0 suture around the aorta, the Handi-Wrap and the hypodermic needle (Fig. 1).
4. Tie the suture (3-0 or 3-0 silk) snugly but not so tight as to crush the aorta (Fig. 2).
5. Remove the hypodermic needle, leaving a stenosis in the aorta which is the same size as the hypodermic needle (Fig. 3).

Results

Hypertension develops in 2 days

Suprarenal - normal renin

MAP	150(mmHg) in a few days
	160(mmHg) in 1 month
	170(mmHg) in 2 months

Between kidneys - high renin

