

VETM 4001

Large Animal Surgery

Lab # 8

Hernia Repair

Date: 20<sup>th</sup> October 2015

Group members:

Surgeons:

- Je'laja Johnson
- Navita Maharaj
- Arielle Marine
- Kalidia Millette

Other group members:

Clive Folkes

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The surgical report:

Signalment:

Species: Caprine

Age: \_\_\_\_\_

Sex: Female

Colour: Black and white

### 1. Pre-operative evaluation:

The pre-operative evaluation was given in a table format.

	Kid 1 (black)
Temperature	38.2°C
Heart Rate	68bpm
Resp. Rate	28bpm
CRT:	Normal
Weight:	4.5kg
BSC:	2.5
ASA Grade:	I
Clinical Finding:	<ul style="list-style-type: none"><li>- 4cm diameter swelling of umbilical region</li><li>- Intestines felt upon palpation</li><li>- 2cm diameter ring was felt</li></ul>

Table 1: Table showing the results of the pre-operative physical findings for the black and white kid.

### 2. Anaesthetic pre-medication, induction and maintenance:

Drugs:

Pre-anaesthetic induction	Anaesthetic Induction	Analgesia	Maintenance/ intra-op fluids	Post-operative drugs
Bomazine® 2% (Xylazine HCl, 20mg/ml)	Valium® (Diazepam, 5mg/ml)	Banamine® (Flunixin meglumine, 50mg/ml)	Ketamin® (Ketamine HCl, 100mg/ml)	Combi-kel 40® ( 200 000IU/ml) Composition: Procaine benzylpenicillin eq.120 000 I.U. - Benzathine benzylpenicillin eq.80 000 I.U. - Dihydrostreptomycin

				sulphate eq. 200 mg base
	Ketamin® (Ketamine HCl, 100mg/ml)		Lidocaina® (Lidocaine HCl 20mg/ml)	Tetanus Antitoxin
	Lidocaina® (Lidocaine HCl 20mg/ml)		Bomazine® (Xylazine HCl 20mg/ml)	
			Morphine Sulphate® (10mg/ml) *	
			0.9% Saline (1L)	

\*Morphine Sulphate was given to the black kid to reach adequate level of anaesthesia.

### **Pre-Anaesthetic Induction**

1) Bomazine® 2% (Xylazine HCl)

Conc = 20mg/ml

Dose = 0.025mg/kg

Dosage = (4.5kg x 0.025 mg/kg) / 20 mg/ml

= 0.005625ml

Correct Use: 0.01ml diluted with saline to 0.5ml in syringe.

Give each kid 0.25ml of the solution.

Thus dosage of 0.005ml would have been administered.

### Complication:

0.1ml was accidentally diluted to 0.5ml in syringe with saline instead of 0.01ml

Reversal with Tolazoline was done.

### **Emergency drug**

Tolazoline® (Tolazoline HCl)

Conc = 100mg/ml

Dose = 0.1mg/kg

Dosage =  $(4.5\text{kg} \times 0.1\text{mg/kg}) / 100\text{mg/ml}$   
= 0.0045ml

### **Anaesthetic Induction**

1) Ketamin®:Valium® in 1:1 mixture of 0.5ml.

0.25ml Ketamine was mixed with 0.25ml Diazepam

2) Lidocaina® (Lidocaine HCl)

Conc = 20mg/ml

Dose = 1.0mg/kg

Dosage =  $(4.5\text{kg} \times 1\text{mg/kg}) / 20\text{mg/ml}$   
= 0.025ml

Toxic dose = 10mg/kg

Vol =  $(4.5 \times 10\text{mg/kg}) / 20\text{mg/ml}$   
= 2.25ml

“Top up” vol:

½ induction drug volume given

⇒ 0.25ml Ketamine®/Valium® solution

⇒ 0.1125ml Lidocaina®

These were used in the case that the level of anaesthesia became too light.

Splash blocks with a solution made of a 1ml Lidocaine diluted to 10ml with saline was also used for regional analgesia when response to pain was present.

## Analgesia

1) Banamine® (Flunixin meglumine)

Conc: 50mg/ml

Dose : 2.2mg/kg

Dosage= (2.2mg/kg x 4.5kg) / 50mg/ml  
= 0.198ml  $\approx$  0.2ml

## Maintenance (CRI)

Drip Rate

Rate of fluid delivery= 5ml/kg/hr

Drop factor= 20drops/ml

Drip rate = (4.5kg x 5ml x 20drops/ml) / 60 = 450 drops /min

450/60 = 0.125drops/sec

= 1drop / 8 seconds

## Formula for CRI

$$M = \frac{(D)(W)(V)}{(R)(16.67)}$$

M = number of mg of drug to add to delivery fluid

D = dosage of drug in mcg/kg/min

W = patient body weight in kg

V = volume in ml of delivery fluid

R = rate of delivery in ml/hr

16.67 = conversion factor

1) Ketamin® (Ketamine HCl)

Conc= 100 mg/ml

Dose rate = 66mcg/kg/min

M= (66 mcg/kg/min x 4.5kg x 1000L) / (16.67 x (4.5kg x 5))  
= 791.842ml

791.842ml / 100

= 7.9 ml  $\approx$  8ml

2) Lidocaine® (Lidocaine HCl)

Conc = 20mg/ml

Dose rate = 5mcg/kg/min

$$M = (20\text{mcg/kg/min} \times 4.5\text{kg} \times 1000\text{L}) / (16.67 \times 22.5\text{mg})$$
$$= 240\text{ml}$$

$$240\text{ml} / 20\text{mg/ml} = 12\text{ml}$$

3) Bomazine® (Xylazine HCl)

Conc = 20mg/ml

Dose rate = 0.66mcg/kg/min

$$M = (0.66\text{mcg/kg/min} \times 4.5\text{kg} \times 1000\text{L}) / (16.67 \times 22.5\text{mg})$$
$$= 7.91842\text{ml}$$

$$7.91842\text{ml} / 20\text{mg/ml} = 0.39\text{ml} \approx 0.4\text{ml}$$

Total amount of drugs to be added to saline bag = 8ml Ketamine + 12ml Lidocaine + 0.4ml Xylazine = 20.4 ml

Therefore 20.4ml saline must first be removed from the sterile saline bag before administering 20.4ml of drugs.

Drug	Dose( $\mu\text{g/kg/min}$ )	Vol to be injected (ml)
Ketamine	66	8
Xylazine	0.66	0.4
lidocaine	20	12
Total volume		20.4

### 3. Surgical procedure:

#### Surgical Preparation

The shaved site was cleaned with povidone iodine and alcohol using 4\*4 gauze and towel forceps in a circular motion moving outward from the center of the shaved field to the edges. A surgical scrub was done using povidone iodine and alcohol alternatively for three consecutive scrubs.

#### Procedure

The skin was incised using a 10 blade , making an elliptical incision around the lesion into the subcutaneous skin ensuring not to nick the umbilical sack. Serrated forceps were used to help manipulate the skin for proper incising. A curved haemostat was used to ligate any bleeding superficial bleeders that arised . Sterile gauze was applied lightly to the incision to clean up excess any excess blood to make clear the surgical site to carry out the surgery. Upon incising the umbilical sac was knicked and the intestinal contents was exposed.

Using a mayo scissors, we proceeded to bluntly dissect the subcutaneous skin was bluntly dissected exposing the herniated sac. The sac was palpated for any masses and any intestinal adhesion to the sac wall was inspected through the nick that was previously made, using the surgeon's finger. A mayo scissors was then used to cut the sac at the point of the abdominal wall and the loose sac removed. The abdominal muscle was then sutured using swedged straight needle with 3-0 vicryl suture material in (suture pattern: vest-over-pants pattern). The surrounding subcutaneous skin was then undermined using the blunt mayo scissors and the subcutaneous skin was closed using 3-0 ( vicryl (white)/Prolene (blue) in a simple continuous pattern . The skin was closed using cruciate suture pattern with 3-0 prolene, the surgical site cleaned with 70% alcohol and an antibiotic( tetravet) and antimyiasis( larvicid) aerosol spray used respectively.

4. Post-operative and evaluation:

Recovery:

Time	4:55pm
Temp	37.0 °C
Heart rate	188 bpm
Respiratory rate	96 bpm

- Surgery was completed at approximately 4:55 pm, Endotracheal tubes were removed and warm water bags were used to regulate the temperature.
- 20mls Dextrose solution P.O over 5mins @ 5pm and kids were taken home.

**Monitoring at night:**

- Given warm Nestle Full Cream Milk 8ozs periodically throughout the night (6pm to 3am) and an additional 3ozs @8am.
- 10pm: TPR normal; temp 37.6°C, Pulse 112bpm, Resp: 56bpm
- 10pm: Still groggy, Not fully bright or alert. Fully responsive.

The kid was kept warm with blankets.

**Next day (21/10/15):**

	Black Kid
Vitals	Temp: 39.4°C Heart rate: 120bpm Resp: 56bpm
Demeanor	Bright, alert, responsive.
Other Notes	Creep feed and grass were made available throughout the day (kids showed a healthy appetite).

Drugs Admin.	Drug	Combikel (Penicillin/Streptomycin)	Flunixin Meglumine
	Route	S/C	IV
	Dose	40,000 IU/kg	2mg/kg
	Vol Given/ml	0.9	0.18
	Time	2pm	2pm

Table of Post Op. Drugs given to both kids