S T U D E N T N A M E S

Surgeons:

1. Garnet THOMPSON
2. Andrew GARVEY

Anesthetists:

1. Tashard MAJOR
2. Vanessa GREEN
3. Gabrielle BECKFORD

Assistants:

1. Marc ALKHAL
2. Aimee BEARD
3. Arielle PERSAD

S U P E R V I S O R S

Dr. Michael DIPTEE

Dr. Lakshmanan NAGARAJAN

S I G N A L M E N T

Species – Caprine

Gender – Male (intact)

Age – 3 months

Breed – Mixed

Colour: Brown and white

Weight – 22kg

P R E S E N T I N G C O M P L A I N T

- Enlargement/swelling in umbilical region

H I S T O R Y

- N/A

P R E- O P E R A T I V E E V A L U A T I O N

**Table 1**: Pre-operative clinical findings for older goat.

|  |  |
| --- | --- |
| **Parameters** | **Results** |
| Temperature | 38.9oC |
| Body condition score (BSC) | 3 out of 5 |
| ASA Grade | I |
| Capillary Refill Time (CRT) | < 2 secs (normal) |
| Pulse Rate | 96 bpm |
| Respiration Rate | 24 bpm |

- Large swelling at the center of the umbilical region with a size of 7 cm in diameter

T E N T A T I V E / F I N A L D I A G N O S E S

- Umbilical Hernia

A N A E S T H E T I C: P R E- M E D I C A T I O N

Food was withheld 24 hours pre-operatively.

**Table 2**: Drugs used on white and brown adult kid for induction.

|  |  |
| --- | --- |
| **Induction** | **Drug** |
| Pre-anaesthetic | Bomazine® 2% (Xylazine HCl, 20mg/ml) |
| Anaesthetic | Ketamine® 6mg/kg and Valium® 0.2mg/kg |
| Analgesia | Banamine® (Flunixin meglumine, 50mg/ml) |
| Maintenance/Intra-op fluids | 0.9% Saline solution  |
| Post-operative drugs | Tetanus antitoxin SQ and Penstrep IM |

C A L C U L A T I O N S

Pre-anesthetic Induction: Bomazine® 2% (Xylazine HCl, 20mg/ml) IV

 Valium® 2% (Diazepam, 5mg/ml)

Analgesic: Lidocaina® (Lidocaine HCl) IV

Concentration = 20mg/ml

Dose = 1.0mg/kg

**Maintenance (CRI)**

Anaesthesia was maintained with isoflurane in oxygen.

Drip Rate

Rate of fluid delivery= 5ml/kg/hr

Drop factor = 20 drops/ml

where: M = number of mg of drug to add to the delivery fluid

 D = dosage of drug in mcg/kg/min

 W = body weight of the patient in kg

 V = volume in lm of delivery fluid

 R = rate of delivery in ml/hr

 16.67 = conversion factor

We started administering 1 drop/second and then raised the drip rate to 1 drop/2seconds due to the animal giving a low mean blood pressure.

S U R G I C A L P R O C E D U R E

* The animal was placed in dorsal recumbency to permit the return of the herniated tissue into the abdominal cavity
* The surgical area was aseptically prepared using iodine and alcohol.
* Two elliptical incisions was made lateral to the hernia approximately 1cm away from the hernial sac.
* The two elliptical incisions was then joined cranially.
* The caudal aspect of the two elliptical incisions was joined by making an inverted “V” shaped incision to avoid cutting the prepuce.
* The skin was then undermined using scissors.
* The peritoneum was punctured, then explored using a finger, to see if there were any adhesions present.
* The incision into the peritoneum was widened using scissors and the hernial ring identified.
* Upon inspection of the hernial ring and sac a structure was observed which was connected to the hernial sac originating from the abdominal cavity.
* The origin of the structure was not identifiable as it continued caudally into the abdominal cavity. (It was assumed that this structure may have been the Urachus.)
* The structure (Urachus) was then ligated using absorbable suture material (2-0 Catgut) via Transfixation ligatures and a circumferential ligature.
* After ligation, the structure was then cut above the ligatures and the cut surface was observed for any patency or bleeding. None was observable so it was then returned to the abdominal cavity.
* After ensuring that the herniated tissue had gone back into the abdominal cavity the hernial ring was closed using the “Vest over Pants” suture pattern (0 Prolene on a curved needle).
* The subcutaneous tissue and skin was closed as one layer using 0 Prolene on a curved needle and a combination of cruciate (cranial aspect of the incision) and simple interrupted suture pattern (inverted “V” incision around the prepuce).

P O S T- O P E R A T I V E P R O C E D U R E

**Post-operative Care**

**Immediately following surgery:**

Temperature = 34.4OC

Normal body Temperature = 39oC ± 0.5

The animal was noted to be hypothermic. This was attributed to the surgery. Thus external heat was supplied to increase the body temperature. The animal was also evaluated until it was in sternal recumbency and the temperature was taken periodically until it was within normal parameters.

The patient was given:

Pen-Strep IM Brand name: Combikel®

Dose = 40,000 IU/kg. Concentration = 200,000 IU/ml. Weight = 22kg

A short acting preparation was initially used after surgery as it reaches higher plasma concentrations than the long acting form. Long acting drugs enter the circulatory system gradually over a longer period of time but don't reach peak plasma concentrations.

Penicillin-Streptomycin synergism - Penicillin causes damage to the cell wall of the bacteria while Streptomycin is allowed to enter and inhibit protein synthesis. Penicillin also stimulates a process in the bacterial cell wall to actively transport Streptomycin (aminoglycosides) into the cell.

Withdrawal times; for meat: 21 days For milk: 3 days.

Flunixin meglumine (IV) Brand name: Banamine®

Dose = 2mg/kg Concentration = 50mg/ml Weight = 22kg

A Non-Steroidal Anti-Inflammatory Drug (NSAID) was given to reduce inflammation of the surgical wound, thereby reducing the animal’s pain (analgesic) and discomfort. It is also an antipyretic. Flunixin provides its anti-inflammatory properties from its ability to inhibit cyclooxygenase which in turn stops prostaglandin synthesis from arachidonic acid.

Prostaglandins can have a direct effect on nerve endings, inducing pain and can also act by lowering the pain threshold making normally painless stimuli, painful. They also play a role in inflammation by increasing blood flow and chemotaxis to the affected area which subsequently results in tissue dysfunction.

Withdrawal time in goats; 10 days in meat and 72 hours in milk

Tetanus anti-toxin given was 1.6 ml SQ

This was a prophylactic measure taken to prevent the animal from succumbing to a post-operative infection. Goats are the most susceptible species to *Clostridium tetani* infections.

The surgical wound was also sprayed with Topical Antibiotic aerosol spray and Larvacid.

**One day post-op (21/10/2015)**

* Temperature = 39.4 oC
* Bright alert and responsive (BAR)
* Slight swelling around surgical site noted.
* Normal pelleted stool noted.

**Drugs given:**

* Pen- Strep Long acting (IM) = 4ml
* Flunixin Meglumine IV = 0.88ml
* Wound sprayed with antibiotic aerosol spray and Larvacid.

**Two days post-op - Morning (22/10/2015)**

* T = 39.3OC
* Respiratory Rate (RR) = 32 breaths/minute
* Pulse = 112 beats/minute
* Mucous membranes-pink and moist
* Lung sounds- normal

**Evening (22/10/2015)**

* T = 39.5OC
* RR = 32 breaths/minute
* Pulse = 80 beats per minute

**Three days post-op – Morning (23/10/2015)**

* T = 38.9OC
* Pulse = 84 beats/minute

 **Evening (23/10/2015)**

* BAR
* T= 39.5OC
* RR= 44 breaths/minute
* Pulse = 64 beats/minute
* Rumen contractions (R/C) - 2 in 2 minutes
* Mucous membranes (MM) – pink
* Capillary Refill time (CRT) = <2s
* Faeces observed
* Suture line – no significant swelling, good apposition

**Drugs Given:**

* Pen/Strep (LA) – 4 ml (right rump)
* Flunixin – 0.88 ml (Jugular)

**4 days Post- op – Morning (24/10/2015)**

* T= 39.5 oC
* RR= 40 breaths/minute
* Pulse = 76 beats/minute
* Mucous membranes(MM) - pink
* CRT = <2s
* R/C - 3/ 2 minutes
* Normal faeces
* No abnormalities observed on suture line

**Evening (24/10/2015)**

* BAR
* T = 39.0 oC
* RR = 4O breaths/minute
* Pulse = 72 beats/minute
* MM = pink
* CRT = <2s
* R/C = 3 in 2 minutes
* No abnormalities along suture line.

**Drugs given:**

* Tetravet and larvacid (topical)

**5 days post-op Morning (25/10/2015)**

* BAR
* RR = 24 breaths/minute
* Pulse= 68 beats/minute
* MM - pink and moist
* CRT = <2s
* Normal pelleted faeces observed

**Evening (25/10/2015)**

* BAR
* T= 39.2 oC
* RR = 40 breaths/minute
* Pulse = 72 beats/minute
* CRT = <2s
* R/C = 3 in 2 minutes

**6 days post-op Morning (26/10/2015)**

* BAR
* T= 38.6 oC
* RR = 28 breaths/ minute
* Pulse = 64 beats/ minute
* CRT = <2s
* MM - pink and moist
* Seen urinating

P R O G N O S I S

- Good

O U T C O M E

- Short term