

## SU-01

### Lateral Approach to Subtotal Bulla Osteotomy and Horizontal Ear Canal Ablation to ameliorate head tilt due to Chronic Otitis Media attributed to *Mycoplasma bovis* infection

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**Objective:** Otitis media caused by *Mycoplasma bovis* infection is well recognised in young calves in the UK and most of the World (Foster *et al.*, 2009), usually resulting in head tilt which may not respond to antimicrobial therapy with or without Non-steroidal anti-inflammatory drugs (NSAID's). This paper describes a surgical approach to attempt amelioration of the degree of head tilt in a pedigree Guernsey heifer and is believed to be the first such recorded in the UK.

**Materials and Method:** A 5 month-old Guernsey heifer with head tilt of 3 months' duration was referred in early February 2015 having been diagnosed with otitis media in November 2014 when seroconversion to *Mycoplasma bovis* was reportedly demonstrated by the referring veterinarian and having undergone various antimicrobial treatments with and without NSAID's.

On initial examination, the degree of head tilt to the horizontal was approximately 75 degrees to the right. Otoscopy revealed a ruptured tympanic membrane. Radiographs showed an increased density within the right tympanic bulla but no abnormalities in the cervical vertebrae.

A lateral approach to subtotal bulla osteotomy (adapted from a technique described in dogs by Smeak and Inpanbutr, 2005) along with horizontal ear canal ablation was performed under general anaesthesia.

Induction was with Xylazine (0.2 mg/kg Rompun, Bayer plc) and Ketamine (0 mg/kg. Narketan, Vetoquinol UK Ltd. followed by intubation and maintenance with Oxygen and Isoflurane (Merial Animal Health Ltd.). The right auriculo-palpebral nerve was anaesthetised pre-operatively with Procaine Hydrochloride (Adrenacaine, Norbrook). Flunixin meglumine was given intravenously (2.2 mg/kg, Cronyxin, Bimeda).

The horizontal ear canal cartilage was identified by palpation and a 15 cm incision made in a dorso-ventral direction caudal to the base of the ear. This cartilaginous ear canal was dissected out - care was taken to avoid the Facial Nerve emerging from the Stylomastoid Foramen located ventral to the mastoid process sited at 11 o'clock relative to the osseous ear canal (the stylomastoid foramen is separated from the External Auditory Meatus (EAM) by a distinct, readily palpable, sharp bony ridge along the caudal edge of the EAM).

Blunt dissection of the soft tissue was performed from the lateral and ventral aspects of the Tympanic Bulla with elevators. The ventro-lateral floor of the osseous EAM was then removed using rongeurs; the soft tissue lining of the EAM was teased from the osseous EAM compartment; bone removal was continued ventrally into the ventral tympanic cavity.

The area where the Facial Nerve runs was protected and the palpable sharp bony ridge removed at the caudal edge of the osseous ear canal followed by continued bone removal on

the caudolateral aspect of the Tympanic Bulla. The interior of the Tympanic Cavity was then visualised with a dark green-brown coloured membranous lining (it is transparent in the normal state).

Curettage of the thickened diseased membranous lining of the tympanic bulla was performed (particularly difficult off the medial wall) and an in-dwelling fenestrated cannula and Penrose drain inserted within the Tympanic Cavity, the former exiting through the skin rostro-dorsal to the incision site at the ear pinna level and the latter exiting ventral to the incision site.

Post-operative treatment comprised twice daily 1% povidone-iodine solution flushing for 4 days, 6 days NSAID's [ 2.2 mg/kg Flunixin meglumine daily for 3 days (Cronyxin, Bimeda) then 0.5 mg/kg Meloxicam (Metacam, Boehringer Ingelheim Ltd.) on day 4 after surgery ] and 10 days antimicrobial cover [ 8.75 mg/kg amoxicillin/clavulanic acid (Synulox RTU, Zoetis UK Ltd.) ].

The irrigation cannula was removed on day 5 post-operatively and the Penrose drain on day 7 (when no further fluid was draining).

**Results:** On the day of discharge (Day 13 post surgery) the degree of head tilt had reduced to approx. 25 degrees and 6 weeks post-operatively was 15 degrees (reported by the referring veterinarian) and 10 degrees by August 2015.

**Conclusion:** This procedure can be considered as a viable option to correct major head tilt deviation in cases due to chronic otitis media.

#### References:

Foster, A.P., Naylor, R.D., Howie, N.M., Nicholas, R.A., Ayling, R.D. (2009) *Mycoplasma bovis* and otitis in dairy calves in the UK *Vet.J.* **179** (3):455-457.

Smeak D.D. and Inpanbutr N. (2005) Lateral Approach to Subtotal Bulla Osteotomy in Dogs. *Compendium* pp 377-384.

**Keywords:** Head tilt correction, *Mycoplasma bovis*.

## SU-02

### Association between hyperglycemia and survival in adult cattle affected by acute gastro-intestinal disorders

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**Objective:** To evaluate the association between glycemia and short-term outcome in adult cattle with acute gastro-intestinal disorders (AGID).

**Material and methods:** We reviewed medical record of adult dairy and beef cattle (> 24 months), presented to the Veterinary Teaching Hospital of the Université de Montréal between January 1<sup>st</sup>, 2015 and December 31<sup>st</sup>, 2019 and diagnosed with an AGID. The type and diagnosis of the AGID (strangulating, non-strangulating and haemorrhagic bowel syndrome (HBS)) were established based on the clinical examination, the abdominal ultrasonography findings, the sur-



gery and/or the necropsy findings. All cattle with a serum biochemistry profile, including glycemia, performed at admission were included. Exclusion criteria were: cattle treated with dextrose, propylene glycol or dexamethasone prior to admission.

Glycemia, heart rate, packed cell volume, urea, creatinine, total proteins, lactates and category of lesion (strangulating, non-strangulating, HBS) were evaluated as possible predictors for short-term outcome (discharge or not from the hospital) in a logistic regression model. The association between category of lesions and clinical as well as laboratory findings was evaluated with a general linear model followed by Tukey's post-hoc tests.  $P$  was set at 0.05.

**Results:** Overall, 197 records were evaluated and 112 were selected. Median (interquartile range (IQR)) values of glycemia for animals with positive (79%) and negative outcome (21%) were 6.7 mmol/L (IQR: 5.3-9.3) and 8.15 mmol/L (IQR: 6.6-10.7), respectively. Median values of glycemia for animal with strangulating (26%), non-strangulating (59%) and HBS lesions (15%) were 7.4 mmol/L (IQR: 5.8-9.3); 6.65 mmol/L (IQR: 5.3-9.3) and 8.8 mmol/L (IQR: 7.3-10.7), respectively. Glycemia was associated with non-survival in the univariable analysis (OR 1.16; 95% CI: 1.035, 1.30,  $p < 0.05$ ), but not in the multivariable analysis. In the multivariable analysis, only decreased total proteins (OR 0.94; 95% CI: 0.89, 0.99), increased creatinine (OR 1.01; 95% CI: 1.001, 1.017) and category of lesions (HBS OR 1.56 compared to strangulating lesions 95% CI: 1.12, 19.96) were associated with non-survival ( $p < 0.05$ ). Interestingly, urea and glycemia were significantly higher with HBS compared to non-strangulating lesions ( $p < 0.05$ ). Urea was significantly higher with HBS compared to strangulating lesions ( $p < 0.05$ ).

**Conclusion:** Glycemia is an easily obtainable parameter in field setting. It was not a predictor for short-term survival in our study. However, glycemia was increased in cases with a negative outcome and specifically for HBS. Further prospective studies are needed in order to elucidate the validity of glycemia as a prognostic tool in different type of acute gastro-intestinal disorders.

**Keywords:** Hyperglycemia, gastro-intestinal disorders, surgery, haemorrhagic bowel syndrome, cattle.

### SU-03

#### Perineoplastic surgery for the treatment of pneumovagina in dairy cows

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**Objectives:** The infertility associated with anatomical disorders seems to be greatly underestimated in bovine medicine. The genital tracts injuries and scars are the main source of anatomical and physiological dysfunction often caused by peri-calving disturbances. Pneumovagina is a condition associated with air aspiration into vagina, usually caused by the

leakiness of vulva. It could lead to excessive starching of vagina, accumulation of urine and mucosal irritation conducted chronic inflammation of genital track causing infertility. Surgery targeted on restoration of labial closure could be an effective method of pneumovagina treatment.

The aim of this study was to evaluate the efficacy of perineoplastic surgery as a method of treatment of pneumovagina in dairy cows.

**Materials and methods:** The study was performed between November 2018 to February 2020 in two regions of Poland in 36 family farms on 60 dairy cows with diagnosed pneumovagina. Before every surgery, rectal palpation and ultrasound examination of genital track were performed to exclude other pathologies than pneumovagina. In the presence of pathological discharge together with pneumovagina, intrauterine antibiotic infusion (gentamycine, 20 mg/animal) was performed before operation. Premedication before surgery was performed with xylazine (2 mg / 100 kg of body weight (BW)) and epidural anesthesia with procaine (20 mg / 100 kg BW). The incision was carried out at the border between the skin and mucous membrane of the labia from the dorsal symphysis to the bottom of the designated area. Then mucosa and submucosal tissue were prepared to create the vault limiting new, reduced labial closure. In simply case there was no tissue removal. In more complicated cases, scar tissue was resected and labial structure was reconstructed. Then, the dissected tissues were sutured with three layers of sutures with absorbable PGA monofilament USP 2. The first layer was made with Lambert's or Cushing's suture to connect the vulva mucosa. The second one was joined with a straight or interrupted suture. The skin was connected with an intradermal suture. At least a two-week recovery period was recommended after surgery before insemination.

**Results:** By the end of February 2020, pregnancy was confirmed in 41 out of 60 operated cows (68 %). In 19 patients (46 % of pregnant cows), the first artificial insemination (AI) after the procedure was successful, in some cases two, three or four AIs were necessary. There was no postoperative complication as extended healing, oedema or abscesses. Among all cows already delivered in 4 cases there was a vulvar rupture during parturition following perineoplastic surgery.

**Conclusions:** Perineoplastic surgery is an effective method of pneumovagina treatment in dairy cows. It allows to restore labial closure without creating large scar limiting vulvar elasticity.

**Keywords:** Pneumovagina, surgery, bovine.

### SU-04

#### Teat lesions – Retrospective data evaluation of 116 German Holstein Cows – Case collection of the Clinic for Ruminants and Swine Leipzig

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**Objective:** The management and treatment of teat injuries represent major challenges in modern dairy farming. The objective of this study was to create guidelines for practicing veterinarians for the treatment and management based on the evaluation of a large data set.

**Materials and Methods:** The data from patients from the Clinic for Ruminants and Swine were analysed in a retrospective study. The location and type of injury, initial and postoperative medication and treatment and outcome were analysed.

**Results:** The teat canal was the most common location of injuries (70.8%), and closed injuries (without an external wound) were the most frequent type (59.8%). Of all teat canal injuries, 54.2% were internal and did not involve the skin. Most of these injuries were treated under theoscopic guidance directly after initial examination irrespective of concomitant disorders, such as thelitis (except severe acute), cysternitis and mastitis. The majority of treated teats (87.4%) had functional healing and could be milked, 7.5% of injured teats were amputated and the remaining had functional healing after a second surgery. After at least 700 days post-treatment, owners were asked about the outcome. Fifty percent of the nonsurgically treated cows and 21.5% of the surgically treated cows had been slaughtered because of complications associated with the treated teat or the corresponding quarter. High-volume caudal epidural anaesthesia using xylazine provided adequate analgesia during surgery. A tilt table was found to be very convenient and safe for both the cow and the surgeon and useful for restraint of standing cows or cows in lateral recumbency.

**Conclusion and Clinical Relevance:** Teat injuries are commonly seen in dairy practice. A successful outcome can be obtained when surgical or medical treatment is given promptly and appropriate postoperative therapy and monitoring are carried out.

**Keywords:** Cattle, Surgery, Udder, Pain management.