The Rule of Eyelid Surgery

- KEEP
- IT
- SIMPLE
- STUPID

“Everything should be made as simple as possible, but not simpler.”

Albert Einstein

Ophthalmic Surgery

- Gelatt KN: Veterinary Ophthalmic Surgery 2011

Everyone has an opinion

Ophthalmic Surgery

- Pitfalls
  - Failure to use magnification
  - Failure to use appropriate instrumentation
  - Inappropriate suture selection and/or placement
  - Poor tissue handling

Chalazion clamp

Jaeger eyelid plate
**Jameson caliper**

**Castrovejo caliper**

**Magnification**
- Good
- Bad

**Surgical Position for all microsurgery**
- Seated
- Specialized chairs with armrests
- Arms resting on armrests
- Essential for fine motor control

**The Eyelids serve the Cornea**
- 23-25 mm
- 16 mm
They come in all sizes, but……
Most corneas are the SAME size!

We breed them to look different, but corneas remain the same

Macroblepharon
This is the underlying cause of almost all entropion and ectropion

Eyelid length is determined under anesthesia and is the “stretched” maximum canthus to canthus length

Most normal canine eyelids measure 24-26mm when stretched

Size Does Matter

24-26 mm
All entropion/ectropion patients have abnormalities of eyelid length.

**12 month old labrador retriever**

**33 mm pre-op**

**25 mm post-op**

Permanent Lateral Canthoplasty

6-0 to 7-0 absorbable
Permanent Lateral Canthoplasty
6-0 non-absorbable, monofilament
Cruciate pattern

Permanent Lateral Canthoplasty
Tuck the ends so they direct away from the cornea

Lateral Canthal Entropion
Look where the canthus collapses and also for “notching” at the fold

Permanent Lateral Canthoplasty
http://youtu.be/y-vg-5DuiFQ

Entropion
http://youtu.be/TBH54MfFiyw
Entropion

Temporary Tacking
Young dog, mild entropion

5-0 to 6-0 non-absorbable monofilament

For a more permanent correction we use the Modified Hotz-Celsius

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For a more permanent correction we use the Modified Hotz-Celsius
Modified Hotz-Celsus

6-0 Surgilene

Entropion

http://youtu.be/zMG4ckCgjf0

Entropion and Macroblepharon

http://youtu.be/gBBpummV08M

Lateral canthoplasty and Modified Celsus

2 yr old Great Dane
Pre-op
-Macroblepharon
-Entropion
-Ectropion
-Scroll cartilage
A combined HC and lateral canthal closure had a 99.21% success rate of resolving lower lid entropion.
Why did this surgery fail?

Failed to correct macroblepharon
Failed to correct collapsed canthus
Incision too far from eyelid margin

Follow the rules....it works

What options are there for this dog?

Brow-Sling

Brow-Sling

Brow-Sling
Pre-op      Brow Sling      Post-op

Rhytidectomy

Pre-op

Rhytidectomy

Post-op

Rhytidectomy 4 month post-op

Rhytidectomy three years post-op
Focal Rhytidectomy plus lateral canthoplasty and modified-celsus (upper and lower eyelid)

Stades Technique

Medial Canthal Entropion

What is the #1 Question?

How old is this dog??

5yr old and blind

Shih Tzu with long soft hairs, no corneal damage

5yr old and blind

Shih Tzu with long soft hairs, no corneal damage
2 yr old pug with short stiff hairs and pigmentary keratitis

This is NOT the result of the nasal fold!

Permanent Medial Canthoplasty

Tissue to be excised

Caruncle

Permanent Medial Canthoplasty

http://youtu.be/Tq8mFUGncS4

Intraop

Postop

Permanent Medial Canthoplasty

Preop

Postop

Ectropion
Munger RJ, Carter JD. A further modification of the Kuhnt–Szymanowski procedure for correction of atonic ectropion in dogs. JAHA 1984; 20: 651–656

The primary problem remains macroblepharon

Entropion/Ectropion

Kuhnt-Szymanowski

Pre-op

46 mm

Wedge excision
Agenesis
- lack of development of the upper eyelid
- superior-temporal 50% of the eyelid
- usually bilateral

Dziezyc/Millichamp modification

What is wrong with this image?

What the books tell you to do

Lip to Lid

Lip to Lid
From: Popesko P: Atlas of topographical anatomy of the domestic animals
Parotid Duct
Oral Mucosa
Bridge incision
Conjunctiva to oral mucosa 8-0 vicryl simple continuous
Immediately Post-op
2 months Post-op
Treatment:
- Epilating the hairs has only a short term effect
- Cryosurgery
- Electroepilation
- CO2 Laser

Distichia

Cryosurgery

Nitrous Oxide -89°C

Liquid nitrogen -196°C
**Ectopic cilia**

- originates from tarsal/meibomian gland
- exits from palpebral conjunctiva
- difficult to diagnose (need magnification)
- Usually at the 12 o'clock position
- Common in Shih Tzu
Ectopic cilia

Eyelid Neoplasia

- Canine Eyelid Neoplasia
  - Canine
  - common
  - benign
  (>90%)

Canine Eyelid Neoplasia

- Histiocytoma
- Basal Cell
- Melanoma
- Adenoma
- Mast cell
- Granular cell
Feline Eyelid Neoplasia

- more aggressive than neoplasms of the canine eyelid

Results
All periocular CMCTs were restricted to the eyelids. In addition to surgical excision, three cats were treated with adjunctive therapy (strontium-90 irradiation or cryotherapy) intraoperatively. Local tumor control was achieved in 22/23 cats with a minimum follow-up of 30 days (median follow-up time of 711 days); one cat developed disseminated CMCTs but no local recurrence. Cats with periocular CMCTs had a median survival time of 945 days. Metastatic disease involving peripheral lymph nodes or abdominal viscera was not detected in any cat at any time during the study. All periocular CMCTs were classified as low-grade based on histopathology, and complete excision was achieved in approximately 50% of cases.

Conclusions
Surgical excision of periocular CMCTs in cats is an effective treatment option with rare local recurrence and metastases, even following incomplete surgical excision.

How much can I remove?
How much can I remove?

Wedge Resection

Two-layer closure
- Conjunctiva: 6-0 absorbable suture in a continuous pattern

Two-layer closure
- Conjunctiva: 6-0 absorbable suture in a continuous pattern

Two-layer closure
- Skin: 6-0 non-absorbable suture
  - cruciate suture pattern at the eyelid margin, then simple interrupted

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Wedge Resection

http://youtu.be/95W0tRUd560

Reconstruction of larger eyelid mass excisions
- H-plasty/Z-plasty
- Semicircular flap
- Split eyelid flap
- Cross eyelid flap
- Rhomboid graft flap
- Lip to Lid
- Axial pattern flap

H-Plasty

- Repair of larger excisions
- Preserve as much conjunctiva as possible
- Diverging incisions

From: Projects by Dittmann J: http://www.delta-3.de/

b = 120% a
Diverging incisions
Preserve Conjunctiva
6-0 surgilene cruciate
6-0 vicryl continuous

48hr Postop

1 month Postop

3 month Postop

3 month Postop

Fibrosarcoma
Mast cell tumor Postop

Z-Plasty
-for lateral canthus

Feline Mast Cell Tumor

Axial Pattern Flap
One step procedure for medial canthal reconstruction

Axial Pattern Flaps incorporate a cutaneous artery and vein vs a subdermal plexus flap


From: Projects by Dittmann J: http://www.delta-3.de/
Use of a caudal auricular axial pattern flap in three cats and one dog following orbital exenteration

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Figure 1. Diagrammatic representation of the location and utilisation of the caudal auricular arterial arch in cats. Reprinted with permission from Sucich et al.15

Figure 2. Case 1 (a) Immediately following surgery, showing position of drain.

Figure 3. Case 1 (b) 1 week following surgery. The outer 1/4 of the flap is de-epithelialised, Note dark colour and erosion of tissue.

Figure 4. Case 1 (c) 7 months following graft revision, still with secondary intention healing.

Figure 5. Case 1 (d) Axial Pattern Flap

Feline SCC Axial Pattern Flap
Conjunctival Neoplasm

Cryosurgery

Intralesional Chemotherapy

Radiation

Conjunctival Neoplasm

Squamous papilloma

Conjunctival Neoplasm

Hemangiomata
Hemangiosarcoma
Canine Conjunctival Melanoma

Conjunctival Melanoma - 5% mortality

Feline Conjunctival Melanoma

Conjunctival Melanoma - 55% mortality

Third Eyelid Neoplasia

Papilloma

K9 adenocarcinoma

K9 adenocarcinoma

K9 adenocarcinoma

Feline conjunctival melanoma

K9 adenocarcinoma
“Cherry” Eye

Options:
- Surgically replace
- Leave alone
- Excise
- All are at risk for KCS
- Excise (48%) > Leave alone (43%) > Replace (14%)*
- Control (5%)
- Monitor STT for life

*Morgan R JAAHA1997

Suture anchor placement technique around the insertion of the ventral rectus muscle for the replacement of the prolapsed gland of the third eyelid in dogs: 100 dogs

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Abstract

Objective: To evaluate a rapid and effective procedure to anchor the prolapsed gland of the third eyelid in dogs.

Methods: A prospective study of 100 selected dogs (122 eyes with third eyelid gland prolapse) was carried out. The suture anchor technique was employed in all cases. The average age of the patients was 2.2 years (range, 3 months to 11 years). Complete resolution of the prolapse was observed in all cases (122 eyes).

Results: No recurrence of gland prolapse was observed in any eye at follow-up, and no complications were noted.

Conclusions: The suture anchor placement technique provides a rapid, safe, and effective replacement of the prolapsed gland of the third eyelid in dogs. No recurrence was noted. Complications were not observed.

Key Words: canine, dogs; KSL; koniocentric incision; prolapsed gland; ventral rectus anchor placement; third eyelid, ventral rectus muscle
Power set to lowest coagulation energy setting and gradually increased to effect. Typically a setting of Cut 0 and Coag 2..


QUESTIONS?

https://www.youtube.com/watch?v=uBmCpekwpcc

https://www.youtube.com/watch?v=ca165P4PbcE

Thermal Cautery