Is it a primer, a refresher, or just common knowledge? Well, I think about my abdominal explores with new brain cells each time I do one. I learn (sometimes through the school of hard knocks) each time I do one. So, I sketched up what I have currently evolved into with my explores, for your perusal below. I also included an example of a data collection form (at the end) that you can use to document your findings (and prompt your thinking pre and intra-op!) Always go into your explores with an educated guess on what you will find and an initial plan of action. You'll get surprised sometimes, but most of the time that simple preop exercise will get your brain in "now what do I do" mode faster. If you were reading these blogs back when I did the book review of the Checklist Manifesto by Atul Gawande MD, you will know my love of checklists!

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EXPLORATORY CELIOTOMY (FEMALE)

Plan skin incision length depending upon your goals in abdomen

- Never "key hole" it!!!!
- Bigger is better!!!!

Right handed surgeons on the right side of dog

(Lefties-- sorry, you are on your own; no experience to make logical recommendations!)

SKIN INCISION

Goal: To create an opening in the skin down to the level of the abdominal fascia that is clean and with 90 degree edges that will heal with minimal scar.

- Blade perpendicular to the skin
- Lateral tension on the skin with fingers; keep walking them along with the blade passing smoothly
- "Draw or paint" the incision with a purposeful stroke; do not lift and re-apply
- Avoid pausing, hacking, hesitation, and death by 1000 cuts!

SUBCUTANEOUS INCISION ("STRIP THE LINEA")

Goal: To isolate a swath of exposed external rectus fascia at midline (for ease of entry and closure) w/out creating undo disturbance and inflammation.

- Use blade until you visualize white/blue of linea

- Try to section SQ quickly, so that you can see the linea before having to blot away blood (blotting makes everything pink and hard to delineate)
- Tent small portion of caudal SQ on one side of midline
- Stab with closed scissors (curve down) perpendicular to incision and tips angled toward body wall to pop through SQ…open blade and remove
- Insert one blade of scissors into hole (curve of scissors on body wall) and run/push the length of incision
- Repeat on opposite side of midline
- Result is approximately 1 cm of external rectus sheath "clean" of SQ
- Do not finger touch, snip/snip/snip, or putz in this endeavor; seroma will form

ABDOMINAL WALL INCISION

Goal: To incise linea alba (midline) specifically in order to avoid cutting muscle tissue.

- Thumb forceps grasp boldly the midline nearest umbilicus (widest linea location)
- Retract upward boldly (allows organs to fall away from body wall)
- Blade held with finger tip grip, **parallel** to ventral body wall
- Stab into the side of the "tent" created by thumb forceps 1cm away from forceps to the level of the "belly" of the blade
- Hold blade steady, release thumb forceps, and pull blade up through linea
- Hold thumb forceps like a shovel (this is the only time!), closed
- Probe into the created hole to ensure full-thickness hole
- Scoop edge of hole with 3-5 mm of tip of thumb forceps
- Allow forceps to open slightly creating a trough to cut in
- Slide/push blade and forceps along together to cut on midline in 2-3 cm runs caudally
- Remove and re-insert thumb forceps every 2-3 cm to insure no bowel, etc. is entrapped
- Switch hands and extend incision cranially if necessary
- Leave 5-10 mm linea intact cranial and caudal to the margins of skin/SQ incision (i.e. linea incision shorter than skin incision)
- ***Remove falciform fat*** (Fat is highly inflammatory; less pain, lower incisional inflammation, easier to see things! You and your patients will be pleasantly surprised.)
    - Grasp falciform caudal edge on one side (w/ gauze square or Carmault clamp) and tear cranially; repeat opposite side; result will be a clump of falciform remaining at cranial incision on midline
    - Grasp bulk at cranial midline and tear/break off (tearing creates small vessel spasm and less bleeding)

EXPLORATION

Goal: To gather diagnostic data from the abdomen with sufficient detail and thoroughness to help diagnose a patient's medical problem(s).

- Note the position of things **before** manipulation
- Be systematic; do it the same way each time
- See or feel everything
    - Use a checklist of everything that makes up the normal abdomen; call out to your assistant to check things off and/or describe what you find (see attached sample)
- Appreciate surface and deep texture
- Appreciate color
- Appreciate blood flow
- Appreciate contents of hollow organs
- Appreciate size/shape
- Appreciate motility
- Appreciate smell
- Appreciate peritoneum (often forgotten)
- Sample everything that carries low morbidity unless directly involved in disease/abnormal finding then weight risk:benefit of sampling
- !!!!!!!Never leave a “negative exploratory” without many samples!!!!!!!!!

CLOSURE

Goal: Seal up the abdomen safely, effectively and with a minimum of induced morbidity (pain, contaminated SQ, seroma formation, etc.)

- Lavage and evaculate abdomen as appropriate
    - Never leave fluid in the abdomen
    - When in doubt, use one more litre!
- Reposition organs into approximate correct location/orientation
- Spread and cover small bowel in omental "sac", just like you found it (?)
- **Appose and close external rectus sheath**
    - Interrupted pattern (safe, slow, increases suture reaction)
    - Continuous pattern (risk dehiscence, fast, less suture foreign body)
    - Interrupted-continuous pattern (happy medium)
        - Make runs of 4-8cm continuous pattern

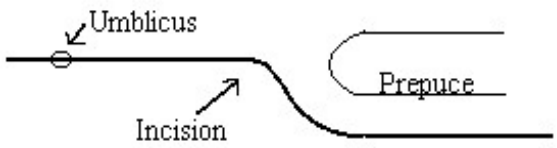
        - If one dehisces, it is a small enough hole that they won't drop their entire abdomen and large enough that they won't strangulate
    - Time to strength gain for rectus sheath + time to significant loss of suture strength = what sutures are appropriate
- !!!!! If abdomen is/was contaminated (infectious, neoplastic), lavage linea after closure and change gloves/instruments!!!!!
- **Subcutaneous closure**
    - Simple continuous/"Lembert" with every-other tacking to external rectus
    - Tack away from linea closure to avoid inadvertently cutting linea suture
- **Intradermal closure**
- **Skin closure** (if necessary)

EXPLORATORY CELIOTOMY (MALE)

"Do not be scared away from a caudal abdominal incision by a little prepuce!"

SKIN INCISION

- Ventral midline caudally to 1-2 cm in front of prepuce
- Deviate incision laterally then parallel to prepuce (3-4 cm lateral) to caudal extent



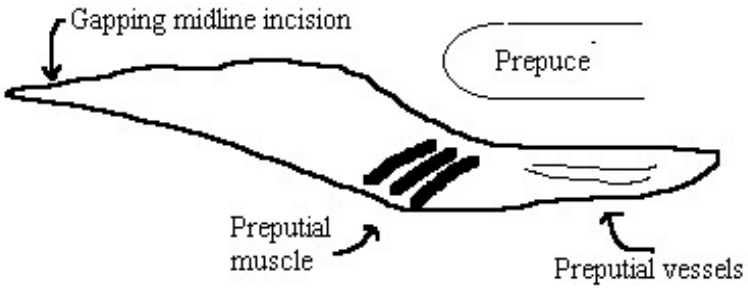
PREPUTIAL MUSCLE

- Blunt dissection under muscle
- Place stay suture on either side of muscle; transect in between sutures

PREPUTIAL VESSELS

Easily visualized; if you cut thru them, tie them…they will bleed, hematomize and frustrate.

- Ligate and transect individually (usually 2-4 ligatures)



SUBCUTANEOUS INCISION

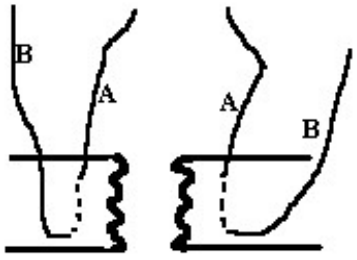
- Start cranially in order to appreciate midline
- "Strip" linea with reverse scissor hold (i.e. directed caudally instead of cranially; see above)
- Result is 1cm external rectus exposed either side of midline, and prepuce retracted laterally (don't get crazy in the lateral SQ region…stay on midline)

ABDOMINAL WALL INCISION (as above*)*

EXPLORATORY (as above)

CLOSURE

- Abdominal wall (as above)
- Subcutanous tissue (as above)
- Preputial muscle
    - Tie two opposite ends of suture ("A" strands)
    - Pull two other opposite ends of suture ("B" strands) to appose muscle and tie



- Intradermal/subcuticular layer (as above)
- Skin (as above)

ABDOMINAL EXPLORATORY DATA COLLECTION FORM

DATE: _____ PATIENT: _____ DOCTOR: _____ ASSISTANT: _____

PREPARATIONS

Hx summary:
Findings (preop abdominal palpation):
Findings (ultrasonography):
Findings (radiography):
Pertinent lab data:
Predicted surgical findings:
Initial plan of action:

SURGICAL FINDINGS

Note surface and deep texture; color; blood flow; contents of hollow organs; size/shape; motility; odor	
Initial organ positions	☐ Typical/normal ☐ Other: _____
Free fluid	☐ None ☐ Other: ____ cc / _____ (color) / _____ (clarity)
Peritoneum	☐ Smooth/translucent ☐ Other: _____
Omentum	☐ Thin/lacy ☐ Other: _____
Body walls	☐ Intact ☐ Other: _____
Diaphragm	☐ Intact ☐ Other: _____
Liver	☐ Smooth surface, sharp margins, red/brown ☐ Other: _____
Gallbladder	____ x ____ cm ☐ Expresses easily ☐ Express not attempted ☐ Other: _____
Stomach	☐ Soft, pliable wall / palpable contents _____ ☐ Other: _____
Spleen	____ x ____ x ____ cm ☐ Other: _____
Duodenum	☐ Soft, pliable wall ☐ Other: _____

Pancreas	☐ Pink/tan; lobulated R & L lobes ☐ Other: _____
Jejunum	☐ Soft, pliable wall; minimal contents; visible motility ☐ Other: _____
Mesenteric LN	____ x ____ x ____ cm ☐ Other: _____
Ileum	☐ Soft, pliable wall; minimal contents ☐ Other: _____
Cecum	☐ Soft, pliable wall; minimal contents ☐ Other: _____
Colon	☐ Soft, pliable wall ☐ Formed stool / ☐ Liquid stool ☐ Other: _____
Colonic LNs	☐ Not visible/palpable ☐ average ____ x ____ x ____ cm / _____ total count ☐ Other: _____
Kidneys	☐ Smooth, kidney shaped; thin capsule / _____ cm R ; _____ cm L ☐ Other: _____
Adrenals	☐ Peach, uniform color; no mass effects / _____ cm R ; _____ cm L ☐ Other: _____
Ureters	☐ No mass effects / _____ cm ☐ Other: _____
Bladder	☐ Thin, supple wall ☐ Expresses easily ☐ Express not attempted ☐ Other: _____
Prostate	☐ ♀ N/A ☐ Symm / _____ cm ☐ Other: _____
Ovaries/uterus	☐ ♂ N/A ☐ absent/ligature scars ☐ Symm / ovaries ____cm / uterus ____cm ☐ Other: _____

SAMPLES COLLECTED

(Routine Bx) ☐ Stomach / ☐ Duodenum / ☐ Jejunum / ☐ Liver / ☐ Mesenteric LN

(Special circumstance Bx) ☐ Pancreas / ☐ Kidney / ☐ Colon / ☐ Bladder / ☐ Other: _____

(Free fluid) ☐ Culture / ☐ Fluid analysis w/ Cytology

(*Urine*) ☐ Culture / ☐ Cytology / ☐ Stones (appearance: _____)

TREATMENT SUMMARY
