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The Complete Avian Physical Examination : The "Hands On" Physical Examination

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Introduction

- A thorough, systematic physical examination is essential for the proper evaluation of the health status of the avian patient
- Do not be in too much of a hurry to perform blood tests and other diagnostics before you take a good look at the bird
- Proper capture and restraint are critical to performing an effective physical examination

Capture and Restraint of Birds

- Birds must be handled for proper evaluation of health status
- Clients judge your skills as an avian veterinarian on your method of capture restraint and examination
- The inability to handle a bird properly or causing physical trauma during the exam could lead to client dissatisfaction

Recognize When NOT to Handle a Sick Bird

- A bird in severe respiratory distress should not be handled
- Warn the owner that the bird may not be able to withstand capture and restraint so minimal handling is necessary
- However, if handled improperly, even a healthy bird could be so stressed that it could die during restraint

Free Movement of the Sternum is Essential for Respiration

- Birds possess no diaphragm and the lungs do not expand and contract
- They breathe through expansion/contraction of air sacs facilitated by intercostal muscles
- Undue pressure on the thorax/sternum would restrict breathing
- When holding, cup hand around bird, never close fingers around chest
  - Must allow for free movement of sternum

Restraint

- During handling monitor bird for signs of stress, discomfort or breathing difficulty
- Due to struggling a bird could contort or twist in such a way as to constrict air passages
- If in a towel, efforts to escape could lead to hyperthermia
  - Be alert if bird breathes heavily during handling
- If in discomfort, release bird until breathing returns to normal

Restraint

- Amount of restraint varies with each bird
- Hand raised baby birds that are being hand fed require minimal restraint
  - If recently hand fed do not apply pressure to crop, due to risk of aspiration of food
  - Always evaluate crop fullness before handling
  - If crop is full put a small amount of pressure on right side of neck (location of esophagus) to prevent backflow
- Wild-caught or untamed parrots may require one or two assistants for handling

Restraint

- Overzealous restraint could lead to fracture or dislocations
- "White-faced" birds such as macaws or African greys may develop bruises on sides of face during handling
  - Avoid applying pressure to those areas
  - The bruises are harmless and will resolve but the clients will believe that it was due to mishandling

Preparation for Capture

- Do not allow the client to handle or restrain bird during exam as you are liable if injury occurs
  - Caution them not to kiss or pet the bird during exam
- Make sure the exam room doors are closed
- Remove any perches or toys in cage that may interfere with capture
- Darkening room may facilitate capture
- Evaluate opening for removal of bird (and towel)
  - If too small may require removal of top or bottom of carrier

Towels vs. Gloves

- Towels
  - Hands are hidden behind towel and protected
  - Can drape towel over bird so wings are protected
  - Bird does not see hands so does not become "hand shy"
  - One person can conduct exam in all but the large parrots

Towels vs. Gloves

- Gloves
  - Grabbing a bird with gloves appears rough
  - Bird may associate gloved hand with bare hand leading to “hand shyness”
  - Gloves are difficult to clean if several birds are seen daily
  - Two people are required to handle bird
  - Gloves will not protect wings
  - Gloves are essential part of falconry but not for restraint
    - Used to protect falconers hand as it functions as a perch

Capture and Restraint of Small Birds

- Budgies, finches, canaries are captured bare-handed (or with a paper towel if preferred)
- Reach for the head and cup your hand around their body
- No pressure on chest, free movement of sternum is essential

Capture and Restraint of Large Birds

- Lovebirds, conures and larger require a towel
- Amazons, cockatoos, etc. require the help of an assistant
- Tame Bird
  - Can drape towel over them while they are on table or owner
  - Reach for head and wrap in towel
  - Rest bird on inside of forearm or on table
  - Hold head using one of the four techniques

Capture and Restraint of Large Birds

- Wild or untamed large bird
  - Be patient
  - Grab head from behind, when facing away from you or climbing
  - Bird lying on back could be scooped up using both hands protected by towel
  - Your technique will improve over time…..out of necessity

Methods of Holding Bird's Head

- Crook index finger behind back of head, gently place thumb underneath lower mandible

  (My preferred method)

Methods of Holding Bird's Head

- Gently circle neck with thumb and index finger in the manner of a tubular restraint collar

Methods of Holding Bird's Head

- Thumb and index finger on either side of temporomandibular joint

Methods of Holding Bird's Head

- Extend head between middle and index finger

Methods of Holding Bird's Head

- "Helmet grip"

Physical Examination

- Many different methods of performing the examination
- I prefer to start with the head and work downward

Head

- Evaluate feathers on head
  - Check for normal development/good quality feathers
  - Poor development or bare patches could indicate metabolic or systemic disease
  - Traumatic feather loss
    - Plucked by other birds-black stumps present
    - Rubbing of head on cage/cage objects
  - Abnormal crest feathers in cockatoos
    - Sign of psittacine beak and feather disease syndrome

Cere

- Normally dry and slightly flaky
- No unusual swellings should be noted
- Cere color is used to determine sex in budgies
  - Varies with color mutations and age
- Brown hypertrophy of cere
  - May occlude nares
  - Due to hormonal stimulation in females
  - Estrogen-secreting gonadal tumors in males

Cere Sex Determination

Male

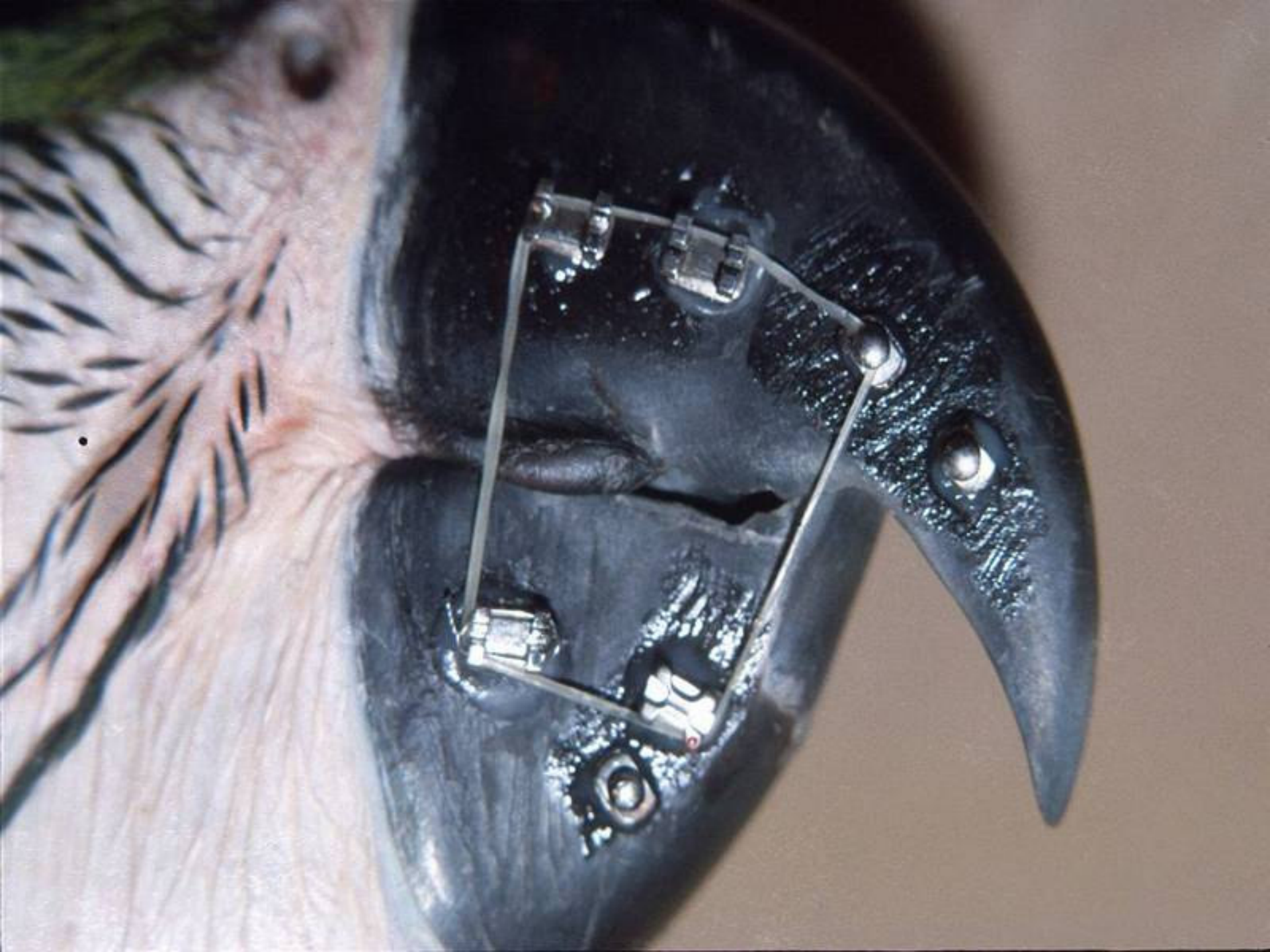
Female

Nares

- Should be similar in size, shape and symmetry in cere
- Nostrils are normally open with no discharge
- Staining of feathers above nostrils due to nasal discharge and rhinitis
  - May see actual discharge
  - Discharges should be evaluated microscopically
- Enlarged nares due to chronic rhinitis/injury
- Chronic nasal discharge can lead to grooves in beak

Beak

- Smooth, clean with some degree of flakiness
- Fatty liver disease in budgies causes beak changes
  - Overgrown, deteriorating beak with hemorrhages
  - These birds should be handled with extreme caution as their systems are extremely compromised
- Crustiness on beak may be due to external parasites (mites in budgies)
- Malocclusion (usually twisting of upper beak)
  - Heredity, trauma, malnutrition, systemic disease
  - Control through frequent beak trimming



Mouth

- Take care when opening mouths of cockatoos and macaws
  - Margins of beak thin, may clamp down on device and damage beak
- Epithelium is smooth, dry and odor free
- Greyish cast and pungent odor may be found in mouth with bacterial infections

Mouth

- Off-white lesions may be seen in mouth
  - Squamous cell metaplasia due to vitamin A deficiency
  - Bacterial infection
  - Candidiasis
    - Common in young hand fed birds
  - Trichomoniasis
  - Avian Pox

Choanal Slit

- Margins sharp, clean, bordered by numerous pointed papillae
- Lack of papillae, blunted papillae, thickened margins and/or white plaques indicate a vitamin A deficiency
  - Ample opportunity for secondary bacterial infections

Choanal Slit

- Choanal viral papillomas
  - Seen in Amazons, macaws, hawk-headed parrots
  - Appears as a vegetative growth in the choanal slit
  - May be quite extensive and wide spread in the oral cavity
  - May be adjacent to the glottis interfering with breathing

Eyes

- May see discharges, conjunctivitis, matting of feathers around eyes, periophthalmic swelling
  - *Mycoplasma* causes these changes in budgies and cockatiels
  - Chlamydiosis may be manifested by conjunctivitis in cockatiels
- Avian pox may cause lid deformations and corneal ulcerations
  - Was seen in wild-caught imported blue-fronted Amazons
- Cataracts hereditary in canaries

Eyes

- Infectious diseases are the most commonly reported eye problems in pet birds
- Traumatic eye lesions are most common in raptors
- Eyelid and nictitating membrane neoplasms are relatively uncommon in birds, but have been described
- Menace response is equivocal, at best, in birds and its absence is not diagnostic
- Pupil cannot be dilated with atropine

Ear

- Ear infections are uncommon, but do occur
- In my experience otitis externa is most often seen in lovebirds
- May occasionally see discharge or swellings, matted feathers around ear in otitis cases
- Self mutilation of the ear may occur due to pruritis
- Some neonates may have a membrane covering the ear

Neck/Trachea

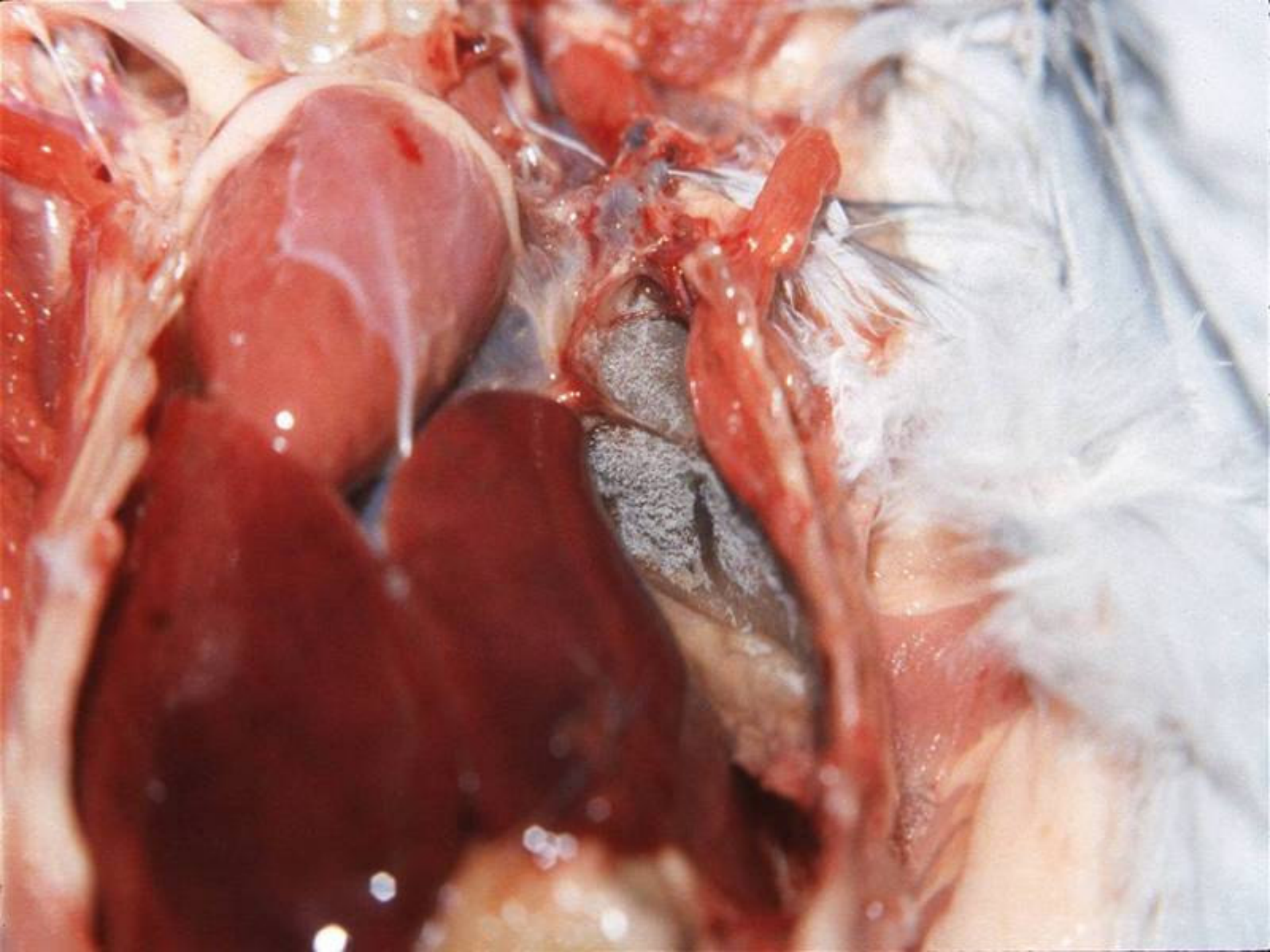
- Palpate for any unusual swellings or abnormalities, such as abscesses or neoplasms
- Tracheal transillumination for air sac mites
  - Canaries and finches

Respiratory Tract

- When handling listen for any respiratory sounds such as wheezing, clicking, moist respirations
- You should develop a feel for the normal distress sounds of the various types of birds as you could be fooled into thinking a normal sound is signs of disease
  - Pionus parrot
  - African Grey

Respiratory Tract

- If at any time during the handling the bird begins to show distress or increased abnormal respirations the bird should be released and allowed to rest
- In severe cases providing oxygen may ease recovery



Crop

- Palpate contents
  - Empty, fluid, food, gas, foreign body, mass?
- Take care if fluid is present to prevent backflow
- Crop wall is relatively thin
- Crop wall can be thickened in candidiasis
  - Especially with young birds (cockatiels)
- Crop burn/fistulas in hand fed birds

Chest

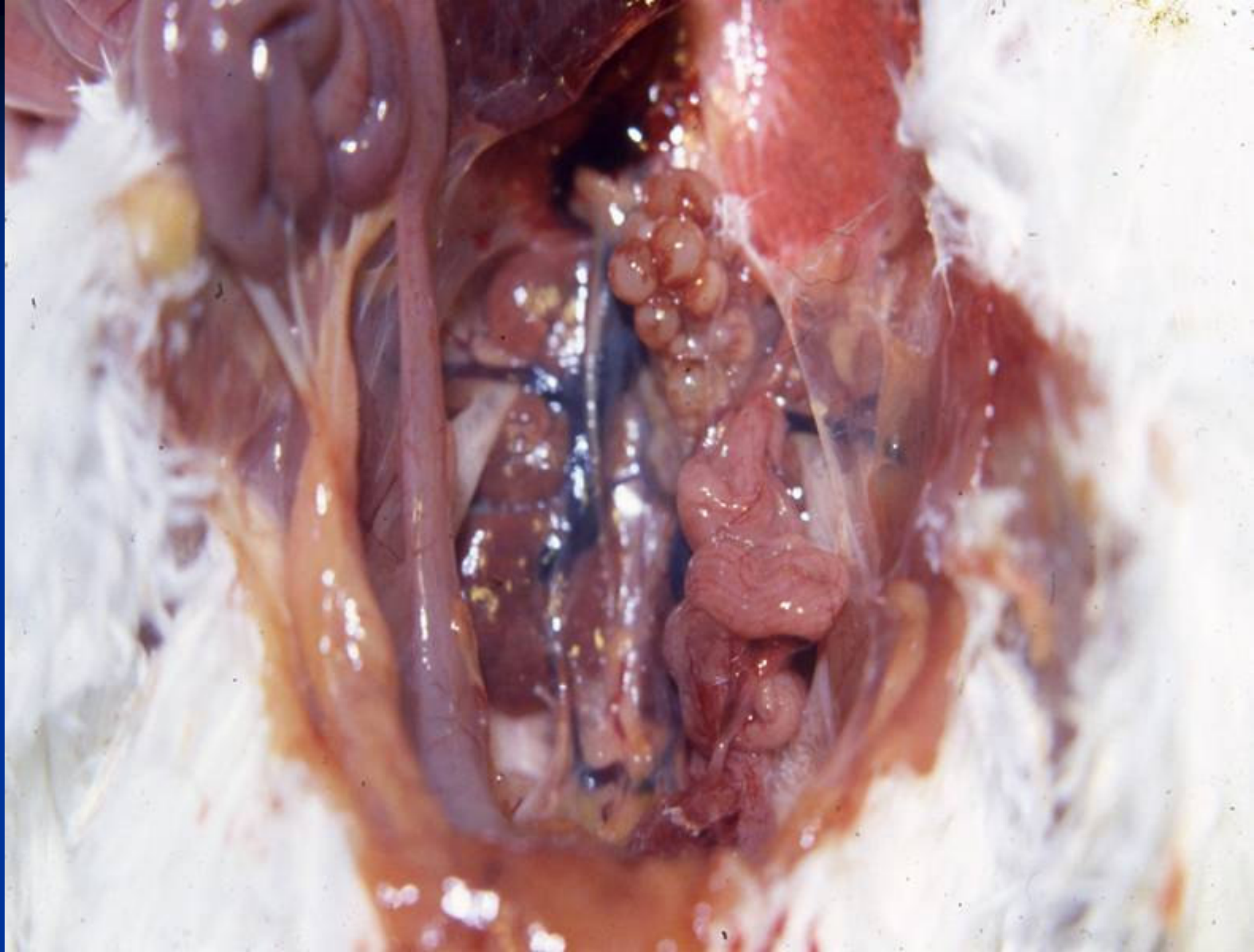
- Pectoral muscles and keelbone should be evaluated
- Sick birds lose muscle mass/weight rapidly
  - One of the initial signs of disease
  - Must handle birds as feather ruffling will disguise a thin bird
- Palpation of pectoral muscles should not serve as only means of evaluating weight
  - Every bird should be weighed on gram scale
  - Weight recorded for future comparisons

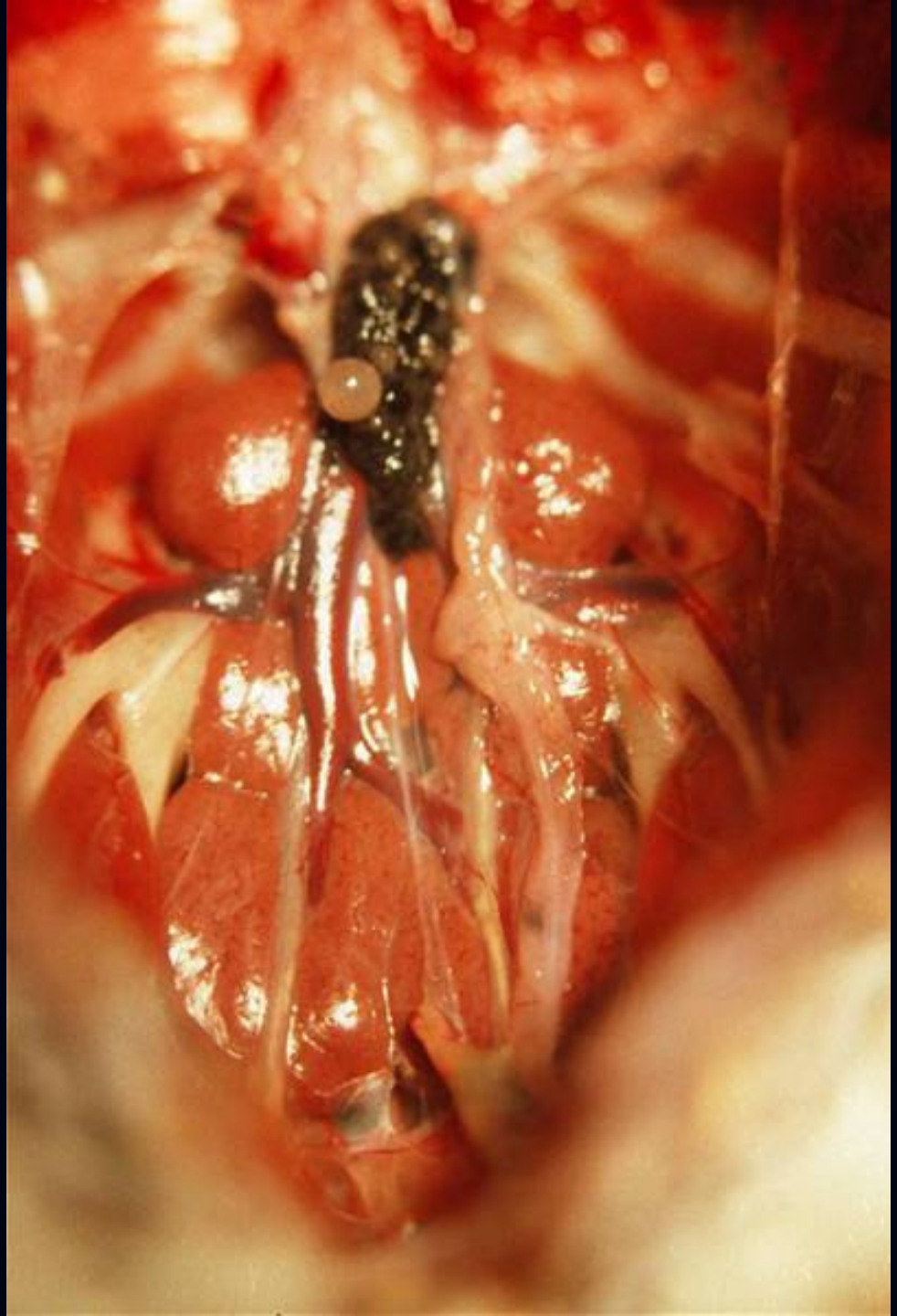
Abdomen

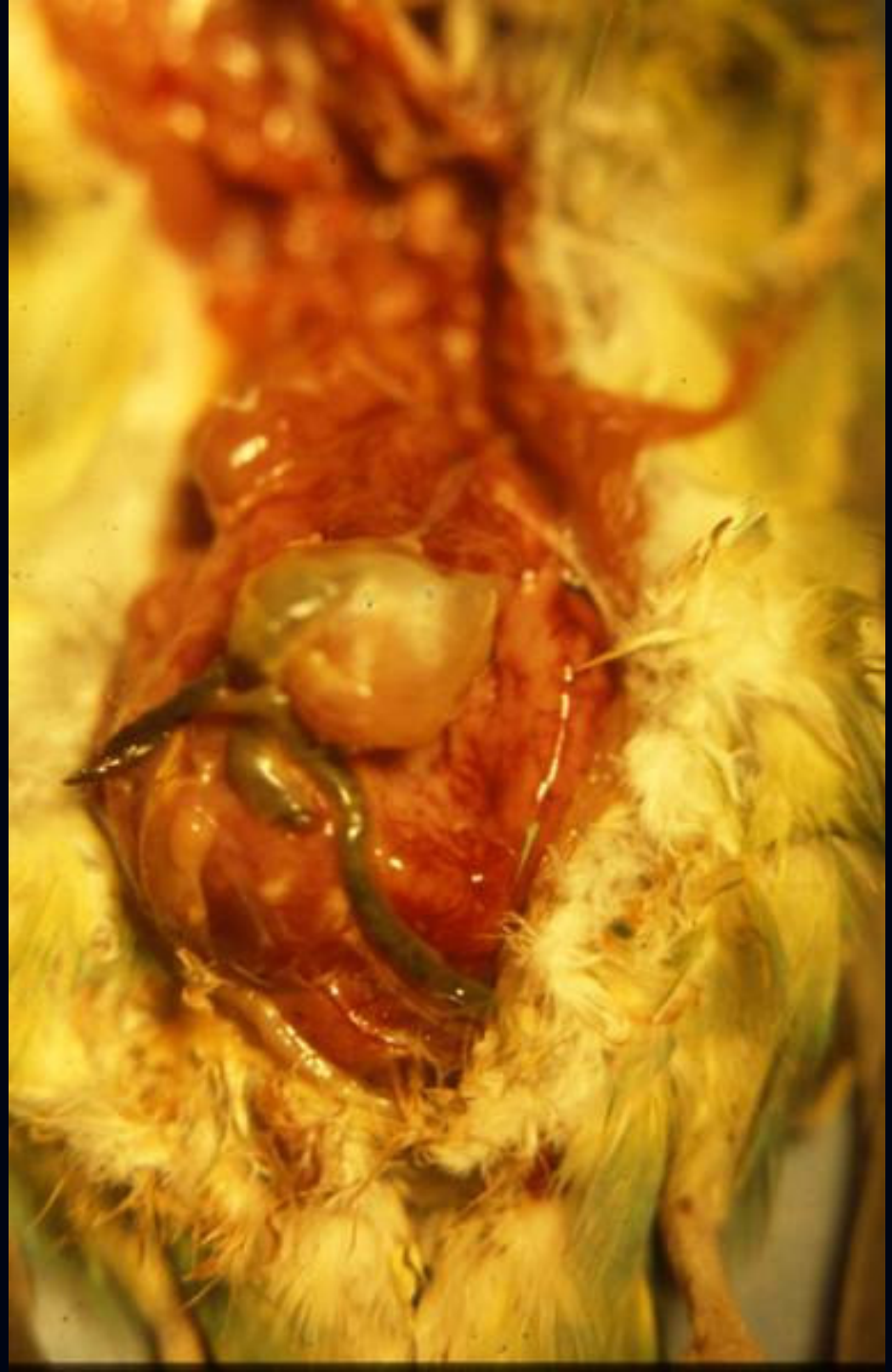
- Abdomen is quite small, little is detectable on palpation, felt as a slight indentation
  - Can detect lipomas/lipogranulomas
  - May detect gizzard-firm mass on left side
    - Especially prominent when displaced
  - Enlarged liver may be palpable
    - Right lobe of enlarged liver protrudes beyond margin of sternum
  - Neoplasms, eggs, enlarged oviduct palpable

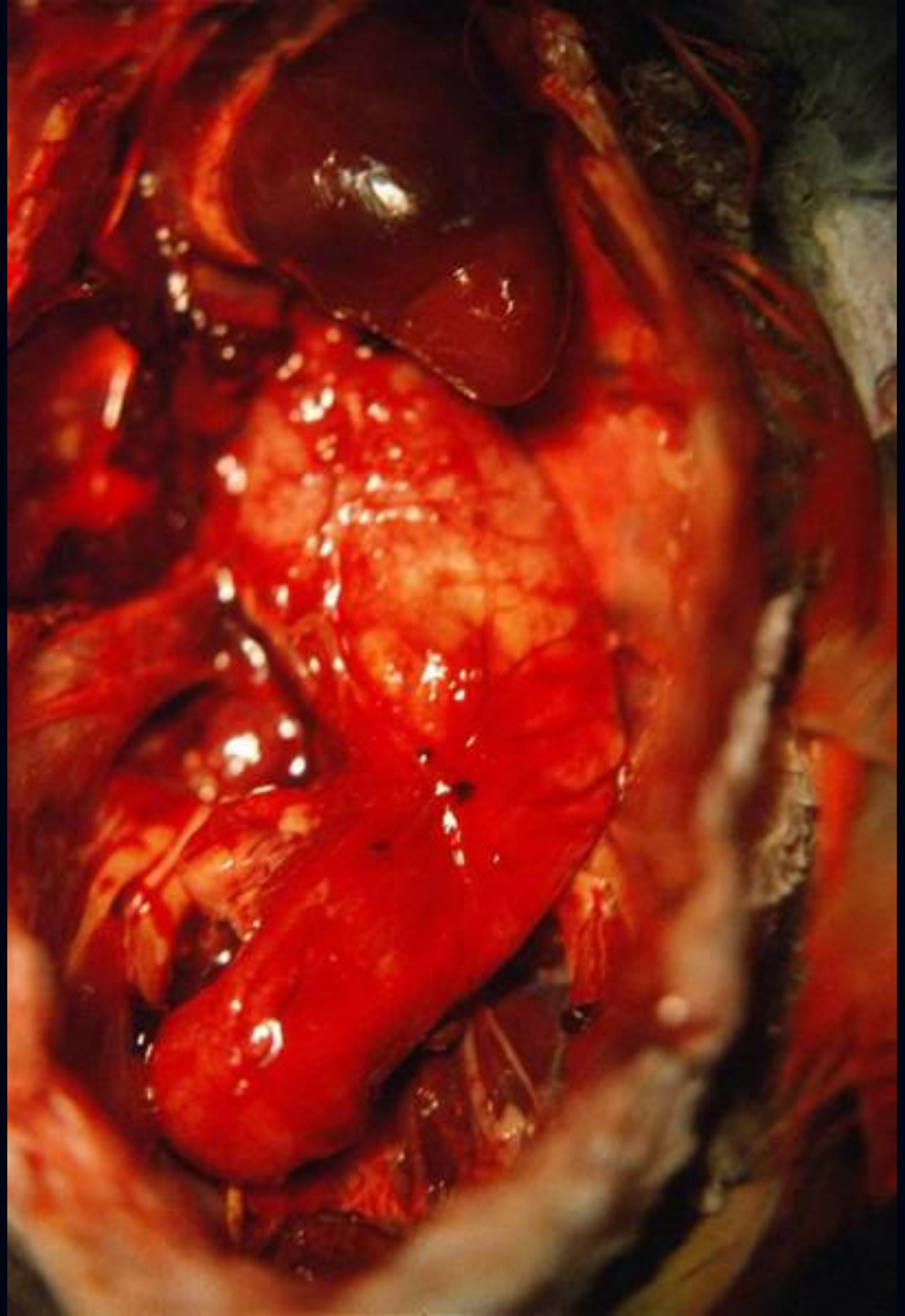
Grossly Enlarged Abdomen

- Reproductive tract disorders (esp. cockatiels)
- Neoplasms
- Obesity
- Ascites
  - Secondary to heart disease, neoplasms, reproductive tract disorders









Grossly Enlarged Abdomen

- Birds with grossly enlarged abdomens and compromised breathing should be handled with extreme caution
  - Stabilize bird before engaging in involved diagnostic procedures
- Enlarged abdomens must be palpated carefully
  - Rough palpation could rupture abdominal air sacs or a cystic mass, leading to sudden death

Vent

- Should be clean and unsoiled
- Staining is usually due to a GI disturbance
  - Diarrhea or abdominal mass
- Cloacal papillomas, cloacal tumors, egg binding, cloacal prolapse can cause staining
  - In Amazons and macaws the vent should be everted to check for presence of papillomas
- An enlarged, dilated vent in female indicates hormonal stimulation/reproductive cycle

Feet/Legs

- Scaly skin similar to reptiles, skin smooth and shining
- Check bottom for pressure sores/ulcerations
  - Due to improper perching/malnutrition
- Hyperkeratosis
  - Vitamin A deficiency
- Gout tophi (esp. budgies and cockatiels)
- Check legs/joints for structural abnormalities

Leg Bands

- Leg bands should be freely moveable
  - No signs of irritation, redness or thickening on the leg
- Chronic irritation can lead to swelling
  - May interfere with normal blood supply to foot
  - Most often seen in canaries due to small clearance between leg and band
  - Clients see bird limping or foot is turning deep red, or in severe cases black

Leg Bands

- Leg bands that are causing irritation or are not freely moveable should be removed
- In fact, if band is not needed for ID remove it
- Whenever a band is removed record information in client record

Leg Bands

- Small bands and most closed bands can be removed with sharp wire cutters
- Stainless steel quarantine open (C) bands should be twisted open
- Stainless steel bands are very difficult to remove
  - Special heavy duty band cutters (preferred), bolt cutters, cutting attachment on small drill
- Risk is involved with band removal
- Only remove bands if you are experienced
- Anesthesia can facilitate the procedure

Leg Bands

- Caution clients not to try to remove band themselves
  - May fracture leg
  - Hemorrhage may occur
  - Underlying bone may be exposed with tight band
- If band is tight or necrosis has developed in foot explain risks and possible outcomes before band is removed
- Antibiotic therapy and bandaging will be needed after removing band that has caused trauma to leg

Wings

- Check range of motion
- Check for fractures, dislocations or old healed fractures and dislocations
- Check wing web for India ink tattoo
  - Was used for identifying surgically sexed birds
  - Males-right wing web, Females-left wing web
- Evaluate feathering
  - Check for abnormal feathers, cysts, stress lines, parasites

Skin

- Skin should be paper thin and slightly flaky
- Excessive flakiness may indicate a nutritional disorder (vitamin A deficiency)
- Check for parasites, dermatitis, self mutilation
- Dehydration can be detected by skin fold elasticity, as in other animals
- The skin of a dehydrated bird will appear dark and have little elasticity
  - Appears almost tight on the face and trunk

Auscultation

- Best done with a pediatric stethoscope
- Heart rate is difficult to evaluate due to rapid beat
- Can detect heart murmurs in large birds
- Can also detect respiratory abnormalities

Weight

- Once a bird become an adult weight should remain relatively constant
- Be certain to evaluate the fullness of the crop, excessive food or hand feeding formula in the crop can falsely increase the weight
- Weight comparisons from yearly examinations should be evaluated as they can provide valuable information as to the state of health

Sex Determination

- Avian reproductive organs are internal and few species have sexually dimorphic coloration
- Sex determination is difficult and mistakes are frequently made
- Surgical sexing vs. DNA blood sexing
- With a few common species of bird a reasonable guess can be made

Sex Determination

- Eclectus parrots are sexually dimorphic
  - Male is green
  - Female is red

Sex Determination

- Canaries
  - Sex can sometimes be visually determined
  - Males – the vent protrudes somewhat
  - Females – the vent is more flush with the surrounding skin
  - Difference is subtle but can be detected with experience
  - Male canaries sing and females do not

Male Canary

Sex Determination

- Budgies
  - Male cere is deep blue
  - Female cere will become brown and crusty when in reproductive condition (brown hypertrophy)
    - Male with testicular tumor may develop brown hypertrophy (feminizing syndrome)
  - Immature female ceres may vary from pale blue to brown
  - Color mutations are more difficult, males have color all around nostril, females have pale rim around nostril
  - Males tend to be more vocal, more likely to talk

Sex Determination

- Cockatiels
  - All immature cockatiels have female coloration
    - Dull coloration on head, bars on underside of wing feathers, speckled tail feathers
    - When males mature and undergo first molt (8 months or so), head coloration brightens, underside of wing feathers lose bars, tail is solid grey
    - Female coloration remains the same at maturity
  - Males whistle and can talk, females do not
    - Some breeders sex birds by activity when young
  - Mutations (lutinos, pearls) are difficult to sex

Male Cockatiel

Sex Determination

- Cockatoos
  - Eye color can be, but not always serve as an indicator of sex
  - Females that become sexually mature develop a red coloration to their irises, which is very distinct from the brown color of the male
  - Not all females develop this color change
  - Thus – red irises = female, brown irises = males, immature females, mature females that have not undergone the color change (and will not)

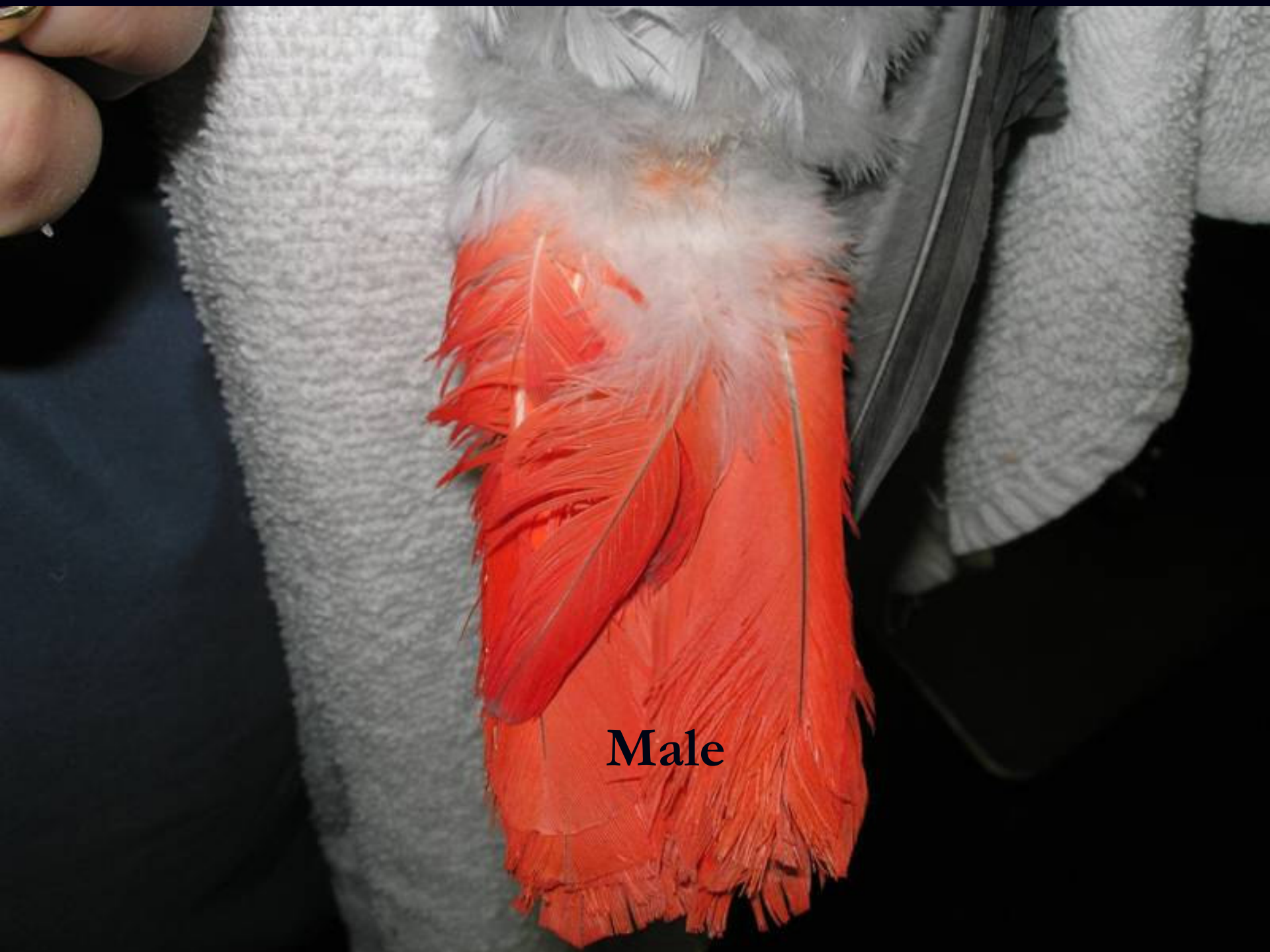
Sex Determination

- African grey parrots
  - This one is a bit of a stretch
  - Males
    - Broader beak
    - No red tips on vent feathers
  - Females
    - Narrower beak
    - Red tips on vent feathers


Female


Male


Female


Male

Sex Determination

- Spectacled Amazon
  - Males
    - Red color on coverlets extend all the way to the end of the wing
  - Females
    - Green coverlets at end of wing (2-3), remainder red


JULIE
TECHNICIAN

Sex Determination

- Numerous other questionable techniques
  - Pelvic sexing
    - Females wide, males narrow
  - Head shape
  - Eye shape
  - Beak width
  - Pendulum

Age Determination

- Owners of hand raised birds will know exact hatch dates
- Birds that have been domestically bred will have a closed band with the year of hatching
  - Rotated 90˚and two number designation “98”
  - USDA quarantine leg bands have no date
- Can make a relative guess is young or old, but difficult to provide an accurate age for mature birds

Age Determination

- Young bird have a dark iris, which gradually lightens as they mature
- When adults the iris is typically light in color
- Budgies – distinguishing feature are the black lines on top of the head that extend from the cere (parallel to it) backwards
  - Young birds – lines extend from the cere back
  - Maturing bird – feathers develop that cover the lines so they begin to disappear until gone

Age Determination

- When bird is mature it is virtually impossible to determine age
  - Some birds become more color intense as they age but an age still cannot be determined, rather a general idea
    - Yellow napes – nape develops as they age
    - Double yellow head – head becomes more yellow with age
- Sally – 128 years old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