DISCLAIMER:
As before, I copied/pasted these pictures from Dr. Meuten’s slides. Please don’t distribute to anyone other than classmates. If corrections need to be made, please let me know.
psst. yor earz are broke
Identify condition. Presenting problem.
• Male pseudohermaphroditism
  – Reproductive problems
  – Problem w/ external genitalia appearance
Dx. Genotype. Describe gonads. Species affected. CS.
• Male pseudohermaphroditism (XX)
• Gonads: hypoplastic testicles
  – No normal male development
  – May be abdominal or small descended
• Goat, pig, dog
• CS= variable phenotype; may have clitoral-like enlargement of prepuce
Presenting complaint(s). PE findings. Ddx. How would you work up to differentiate?
• CC: small testes, abnormal libido, infertility
• PE: small flabby testicles, small scrotum, abnormal prepuce
• Ddx: testicular hypoplasia, testicular degeneration (uni- or bilateral)
• Dx plan:
  – Is it cryptorchid = unilateral or bilateral hypoplasia
  – Were testicles, fertility, libido ever normal =
    • Yes = degeneration
    • No = hypoplasia
  – Patient age = young favors hypoplasia
  – Species ? Mule = hypoplasia
  – Odds: degeneration much more common
Describe. Dx.
• Gonadal tissue of both sexes
  – Top left = female
  – Bottom right = male
• True hermaphroditism
Describe. Dx. Future complications.
• Uterus and testicles
• Persistent Mullerian duct syndrome
  – Abdominal testes attached to uterine horns
  – Prostate and portion of cranial vagina
  – External genitalia = MALE
  – d/t lack of mullerian duct inhibiting activity
• Complications: pyometra, sertoli cell tumor
Dx.
• Phimosis
  – Inability to extrude penis
Kiss me under the Mistletoe...hehe.
Dx. Pathogenesis. CS. Etiologic agents for bull, boar, stallion
• Orchitis
• Initial necrosis/inflamm of testicle ⇒ septic abscess (suppurative orchitis)
  – If chronic = testicular degeneration, fibrosis, +/- abscess/granuloma
• Bull = brucella, mycobacterium, corynebacterium pyogenes, staph
• Boar = brucella, c. pyogenes, staph
• Stallion = strongyle migration
Dx. Species affected.
• Epididymitis
  – Dog and ram, NOT stallion
Dx. CC. lesion(s).
• Testicular torsion
• Abdominal pain
• Acute congestion/swelling => strangulation, hemorrhage, ischemic necrosis
• Seminoma: white, soft (lymphoma-looking)
• Dogs ONLY: common in old/cryptorchid
• Malignant (worst bio behavior)
  – Most likely to met (10-20%)
• Sertoli cell tumor: white, dry, firm
• Malignant: 10-15% met; more locally aggressive than interstitial cell tumors
• Dogs ONLY: common in cryptorchids
• Seq: hyperestrogenism
  – Nonreg anemia, pancytopenia
  – Alopecia, thin epidermis, whispy collagen
  – Dec libido, gynecomastia (manboobs), squamous metaplasia of prostate
  – Ddx: cushings, hypothyroid
• Interstitial (Leydig) cell tumor: yellow, soft, hemorrhage

• Dogs, Bulls

• Benign: round, rubbery, distinctly demarcated, yellow/tan/orange
  – Often incidental during castration
• Sperm granuloma: foreign body rxn to sperm released from extravasated sperm
• Bull, stallion, dog, ram
• MNGC (FB rxn) => testicular mineralization
  – White chalky discrete areas/streaks
• Etiol:
  – Trauma
  – Obstruction of duct system => spermatocele (cystic dilation of epididymis) => spermatids leaking out into adjacent tissue
  – Infectious epididymitis (usually tail)
  – Adenomyosis: prolif of epidydymal epith d/t hyperestrogenemia
Dx. Describe gross/histo lesion.
• Testicular degeneration
• Gross: Small, atrophic, fibrotic testicle, +/- mineralized, disproportionately large epididymis
• Histo: no spermatids, MNGCs/FB rxn
Dx. Etiologies.
• Testicular degeneration
• Moderate:
  – Inc temp: cryptorchid, scrotal hernia, test edema, scrotal inflamm, inc ambient temp
  – Infectious epididymitis/orchitis, periorchitis
  – Pyrexia from systemic dz: K9 distemper, RMSF(dogs), MCF(ruminants), pseudorabies (pigs)
• Severe:
  – Ischemia: vasculitis (strongyle migration, RMSF), spermatic cord torsion
  – Age
  – Hormonal: inc FSH/LH d/t hypothalamic/pit lesion (Sertoli tumor => contralateral atrophy)
  – obstruction of ductular system
  – Nutritional: Zn, VitA def, malnutrition
  – Toxins: gentamicin, chemotx, alkylating agents, metals, tox plants
  – trauma
Dx. Etiol. Sequelae.
• Epididymitis
• Ram etiol:
  – Brucella ovis: breeding (older) rams, venereal transmission (heterosexual or homosexual)
  – Hemophilus-histophilus-actinobacillus complex: yearling rams, found in unmated rams
• Dog etiol:
  – E.coli: ascending urogenous
  – Brucella: hematogenous
• Seq:
  – supperative epididymitis (abscess, esp tail) => sperm granuloma + orchitis + testicular degeneration/atrophy
  – Chronic epididymitis: enlarged firm epididymis (w/ spermatocoeles), degenerate/atrophic testicles
Dx. Etiol. CS. Sequelae.
• Funiculitis: inflammation of spermatic cord
  – Characterized by exuberant granulation tissue enclosing multiple small abscesses and many fistulae
  – AKA: “scirrhous cord”
• Etiol: castration => ascending infection (staph)
• CS: postcastration swelling, discharge, anorexia
• Seq: peritonitis, septic shock, tetanus
Dx. Pathogenesis. Species affected.
• Mesothelioma:
  – Shaggy protuberances in scrotal sac; non-inflammm; shiny
  – More common in abd/thor cavity
  – Extension from peritoneal cavity through inguinal canal
  – Dogs, calves
• CLINICAL SCENERIO:
  – Enlarged prostate
  – Stranguria
  – Straining to defacate
  – Constipation
  – Wt. loss
• Ddx (4)
• Dx plan
• Ddx: (enlarged prostate)
  – Prostatitis
  – Hyperplasia
  – Carcinoma (NOT adenoma: all are malig in vet med)
  – Prostatic cysts +/- osseous metaplasia

• Dx plan:
  – Palpation for symmetry, cytology, prostatic wash, check for mets in regional ln/lungs
Dx. Signalment. Describe condition (pathogenesis, etiology)
• Prostatitis
  – Common, esp in older males
  – Usually ascending from suppurative cystitis
  – Etiol: coliform bact or brucella
  – Usually unilateral enlargement
  – Suppurative prostatitis + hemorrhage/necrosis
Dx. describe (pathogenesis, distribution, tx)
• Prostatic hyperplasia
  – Extremely common in intact male dogs
  – Testosterone => acinar hyperplasia
  – Estrogen => stromal hyperplasia
  – Bilaterally symmetric enlargement
  – Uniform grossly AND cytologically
  – Tx = castration (curative)
  – NOT considered preneoplastic change
Dx. Describe.
• Prostatic carcinoma (NOT adenoma)
  – Uncommon; can be intact or cast male dogs
  – Unilateral enlargement
  – Aggressive: met to lumbar vert and regional Inn
  – Discrete mass +/- hemorrhage
  – Cytology: variable and angry-looking cells
  – May see cancer cachexia and CS sim but more severe than prostatitis
  – NOT preceded by hyperplasia
YIKES!!!! Ddx.
Ddx for enlarged/swollen penis

- Trauma
- Balanoposthitis: Balanitis (penis); posthitis (prepuce)
  - Etiol:
    - Trauma
    - Nonspecific bacterial balanoposthitis
    - Preputial diverticulitis (boar): ulceration, inflammation, hyperkeratosis of preputial diverticulum
    - Ovine ulcerative posthitis (pizzle rot): Corynebacterium renale; high urinary urea levels (organism has urease), common when grazing clover, ulceration of hairless preputial skin => spread to penis
    - Equine coital exanthema (EHV): Pustules over penile body; venereal transmission; RARE
    - Infectious pustular vulvovaginitis (IPV: cattle): Herpesvirus (IBR); pustules/ulcers on penis
    - K9 herpesvirus: Mild balanoposthitis w/o pustule/ulcer
    - Habronemiasis (stallion): Raised ulcerated masses w/ tracts of larval migration; eosinophilic
    - Strongyloides papillosus (bull): Balanoposthitis from larval mig.

- Cancer
DID ANYONE WATER THE TREE?
I DID
I DID
I DID
I DID
I DID

DOG CHRISTMASSES

PYZAM.com
DOUBLE YIKES!!!! Ddx for swollen penis in horse.
– SCC
– Habronemiasis
– Sarcoid
– Granulation tissue: fibroblasts/cytes perpendicular to vessels
– Dx=cytology
Describe each.
• Phimosis (left)
  – Cannot extrude penis
    • swelling/inflamm => obstruction
    • Pain of sufficient magnitude that male won't extrude

• Paraphimosis (right)
  – Inability to retract penis into prepuce
    • “no acepromazine for me please”
Dx. Describe.
• **Ovine ulcerative posthitis (pizzle rot)**
  
  • Corynebacterium renale
    - High urea levels (organism has urease)
    - Grazing clovers
  
  • Ulceration of hairless skin of prepuce => spread to penis (bummer)
- SCC
- Habronemiasis
- Sarcoid
- Granulation tissue (proud flesh)
FNA from horse penis mass. Dx.  Don’t forget Dr. Neel!!!!
• SCC w/ inflammation
  – Degenerate or nondegenerate neutrophils?
Bitch Stole My Fish
Dx. 😞
• Exuberant granulation tissue
  – “Proud Flesh” (I wouldn’t be too proud of this!)
  – Gran tiss runs perpendicular to vessels
Dx. Describe (signalment, gross lesion, etiol, biol behavior)

←No gloves 😇 gross!
• Fibropapillomas of glans penis
  – Young bulls
  – Viral-induced tumor (analogous to venereal warts of humans)
  – Tumors look like warts, can be ulcerated
  – Transmission: homosexual activity b/w bulls
  – Benign but can get 2’ infection or adhesion b/w prepuce/penis
Dog. Ddx
• SCC
• TVT(dx)
• granuloma
• leiomyeoma
Dx. Describe.
• TVT (dog)
  – Multiple proliferative nodules on penis
  – cytology= round cells w/ few cytoplasmic vacuoles
  – Transplantable to female vulva
  – Allogeneic tumor: eventually refected and spontaneously regress, but sometimes met
  – Common in stray dog population

Remember cytology!!!
Describe condition.
• Hematoma (bull)
  – Rupture of tunica albuginea on dorsum of penis (during copulation) => hemorrhage from corpus cavernosum penis (vessels) into surrounding tissues
  – called “fractured penis” but penis NOT broken
  – Usually just distal to sigmoid flexure
  – Common sequelae: 2’ infection (tx ASAP)
  – Do STERILE prep before aspirating for cytology
    • iatrogenic 2’ infection
Of course he smokes the stuff. How else do you think we get off the bloody ground?
Dx.
• Prostatic cysts w/ osseous metaplasia
  – Osseous metaplasia = struvite-like calculi
  – Visible on rads (can’t differentiate from neoplasia)
Dx. Describe (pathogenesis, lesions, test)
• Freemartinism (chimera)
  – Placental blood vessel anastamosis is pregnancy=exchange cells
  – Infertile female co-twin w/ normal bull calf
  – HYPOPLASTIC female system d/t MIS (mullerian inhibitory substance) from male cells
    • Wispy uterine system, small undifferentiated ovaries
  – Infertile, do not cycle, small mammary glands
  – Diagnosis: test length of vagina by inserting probe
    • <8cm = freemartin; CULL
    • >8 cm = 50:50 norm:freemartin
      – Do cytogenetic test to differentiate
Dx. Describe.
• Underdevelopment of tubular tract
  – Genetic or spontaneous failure of parts to form
  – Only major changes affect fertility
    • Persistent hymen, segmental aplasia of paramesonephric ducts
  – Aplastic body of uterus: uterine horns filled w/ mucus d/t aplastic body and no drainage
  – White heifer dz: aplasia of 1 uterine horn
Dx. Significance?
• Ovarian hemorrhage
  – Often at “ovulation tags” = ovulation site adhesions
  – Manually ruptured CL => hemorrhage
    • Rarely seen b/c now use chemicals to rupture CL

• NGS
Ddx.
• Ovarian hematoma (mare)
• Granulosa cell tumor
• cyst

• Previous pics are hematomas: uncommon
Dx. Describe. Complications.
• Follicular cyst
  – Have functional theca => produce estrogens; can be in estrus
    • Ferrest stuck in follicular phase => hyperestrogenemia
  – Can alter reproductive behavior
    • Anestrus, nymphomania, frequent estrus
Dx. Describe. Complications.
• Luteal cyst
  – Partially luteinized (progesterone)
  – Slightly thicker
  – anestrus
Dx. Complications.
• Cystic CL
  – Common, NGS
  – Ovulation has occurred normally, cow will cycle, ovulate and maintain pregnancy
  – Will only be seen at slaughterhouse/palpation
  – No CS
• Parovarian cysts (cat, dog, horse)
  – Cysts of mesonephric ducts and tubules
  – Soap bubble appearance
  – NGS unless block ovulation fossa = no ovulation, infertile
  – Almost always NGS in mare; must be bilateral and SEVERE (100% of mares have p.cysts)
Dx. Signalment. CS.
• Granulosa cell tumor
  – Enlarged + cystic
  – Horse ONLY: enlarged cystic tumors of ovary
  – Are NOT cystic follicles; normal horse Graafian follicles can be HUGE
  – Asymptomatic OR show stallion behavior (nymphomania)
Dx. Describe.
• **Salpingitis**
  – inflammation
  – Ascending infection from uterus OR
  – hematogenous
RIGHT, I'M GOING TO ASK YOU AGAIN NICELY — LET GO?
• Uterine torsion
  – Gravid uterus only
  – Mostly ruminants (left pic)
  – Less frequent in bitch (right top/bottom pics)
Dx. Species affected.
• Uterine prolapse
  – Goat/cow, esp w/ milk fever
  – bitch
Dx. pathogenesis/etol for ruminant, pig, dog/cat.
• Cystic endometrial hyperplasia
  • Bitch = PROGESTERONE dependent
    – Increased sensitivity to progest. (from active CL) => hyperplasia
    – Multiple variable cystic lesions; swiss cheese
    – May predispose to pyometra; can cause infertility
    – Dx: ultrasound

• Rum/swine = ESTROGEN dependent
  – Cow: inc. estrogen from cystic Graaf foll, estrogenic plants, GCTs
  – Ewe: estrogenic plants (clover)
  – Swine: estrogenic mycotoxins (moldy corn)

• Pseudopregnancy: swollen vulva, enlarged mammary glands, uterine edema/hyperplasia, metaplasia of cervix/vagina, consta
Ddx.  Dx plan.
• Hydrometra
• Mucometra
• Pyometra

• Stick a needle in it, Kohler illumination 😊
Dx. Describe.
• Subinvolution of placental sites
• CS: lochia persista 3-4 wks (normal=1-2wks)
• Placental sites persist as ellipsoid enlargements
• Trophoblast cells infiltrate, hyperplasia b/w placental sites, rupture of uterus possible
• Predispose to metritis
• Tx: spontaneous recovery or spay
• Px: +/- fertile
Dx. Significance.
• Shiny surface, small volume of discharge
• NGS
AND NOW, THE STUFFING...
Describe. Ddx.
• Purulent discharge
• Pyometra, mucometra, metritis, endometritis
Dog/cat. Dx. Describe (pathogenesis, predisposing factors, etiology, CS, clinpath, Px)
• Pyometra
  – Pathogenesis: bacterial introduction (coitus, postpartum, embryonic death) + persistent CL (progesterone: inhibits phagocytosis of bact) => failure to cycle, cervix closed
  – Predisposed by CEH, occurs in metestrus = persistent CL + bacterial infection
  – Etiol: E.coli (pu/pd), proteus, staph, strep
  – CS: vaginal discharge, anorexia, lethargy, abd distention, palpable uterus, pyrexia
    • Extrauterine effects: toxic bone marrow suppression; prerenal azotemia, immune complex glom nephritis
      – These are some sick bitches (and queens) 😞
  – Clinpath: inflamm left shift, norm-norm anemia, prerenal azotemia
    • If ruptured, degen left shift, leukopenia
    • After removal of uterus, WBC continue to rise (jacked-up bone marrow cranking out)
Don’t wanna work on dogs/cats..........make it a cow!!
• Common postcoital (young), postpartum (difficult), early embryonic death
• Etiol: trichomonas, campylobacter, staph, strep, coliforms
• Pathogenesis:
  – Too little PGF2 (no luteolysis) => persistent CL => progesterone => susceptibility of uterus to infection => bacterial endometritis => no cycling/flush, so pus accumulates
Make it a mare!!
• Postcoital/postpartum: common; strep, coliforms, contagious equine metritis (taylorella)

• Predisposed by poor conformation of vaginal vault/perinium (windsuckers😊)

• Any chronic inflamm => endometrial scarring, fibrosis, infertility

• Uterus full of pus but NO CL, continue to cycle, cervix open
Dx. Describe. Significance.
• Vaginitis (inflammation)
• Postcoital vagenitis: common, NGS
• Trauma during parturition (common) pressure necrosis => necrotic vaginitis (previous pic)
Dx. Describe lesion. etiol.
• Vulvitis
• Blisters along vulvular lips
• Herpesvirus
Dx.
• SCC
  – Thick plaques, NO ulceration
Dx. Sequelae.
• Ovarian adenoma/adenocarcinoma (bitch)
  – Discrete mass + implantation mets on abd serosa
  – Ascites from mets breaking off and plugging lymphatics
• Teratoma (germ cell tumor)
  – Uncommon
  – Many different cell lines involved
Dx. Sequelae.
• Dysgerminoma (germ cell tumor)
  – Equivalent of seminoma in males
  – Uncommon
  – Seq: paraneoplastic hypertrophic osteopathy in mares
Mare. Ddx.
• Granulosa cell tumor: sex cord stromal cell tumor (most likely)
• Dysgerminoma
• Ovarian hematoma
• Taratoma
• NOT cystic ovary!!!!
Dog. Dx.
• Granulosa cell tumor (sex cord stromal cell tumor)
  – Much more aggressive/malignant in dogs/cats as compared to mares
  – Most common ovarian tumor in vetmed
• Leiomyoma
• Firm, raised, white to pink, often multiple
• Anywhere along tract
• Almost always benign
Dx. Describe characteristics/features.
• SCC
  – Assoc w/ nonpig skin; UV radiation
  – Most common in cow; also sheep/horse
  – Locally invasive/infilitrative but slow to met
  – Often ulcerative = papillomatous appearance
  – Can remove surgically
Dx. Describe. Predisposing site
• LSA
  – Predisposing site for cattle: Inn, abomasum, R heart, uterus, CNS, ocular
  – Can appear red w/ hyperemia/trauma
  – Bleeding ulcers
    • 30d postparturition = normal, stress
    • >60d postparturition = think lymphoma
• NGS: shiny, glistening
Dx. Describe.
• Mummification: (antepartum death)
  – Resorption of fluid from conceptus in a sterile uterus w/ CLOSED cervix =>
    • mummified fetus: shrunken mass of wrinkled skin over a mass of bones
Dx. Describe.
• Maceration: (antepartum death)
  – degeneration and disintegration of fetus, usually w/ OPEN cervix
  – Rapid bacterial decomposition => emphysema and maceration
  – Usually Corynebacterium (overgrows)
Describe fetal death in terms of timing and how to determine when death occurred.
• **ANTEPARTUM:**
  – Atelectic lungs (check floatation in WATER=sink)
  – no thrombosis of umbilical aa
  – no milk in stomach, squamous epithelium in alveoli= from fetal skin, ‘inhaled’ w/ amniotic fluid

• **INTRAPARTUM:** (dystocia)
  – SQ edema, edema on head= heart f(x) during birth
  – Aerated lungs (if head got out and fetus could breathe); check floatation (WATER, NOT FORMALIN)

• **NEONATAL:**
  – Thrombosis of umbilical aa
  – Aerated lungs (float in water)
  – Milk in stomach if able to suckle
  – Soil in hooves or eponychium rubbed off hooves if able to stand
Dx. Describe. significance?
• Amnionic plaques (cow, horse)
  – White shiny plaques on amniotic surface
  – May be brownish in horse
• NGS
Dx. Describe. Significance?
• Mineralization (horse)
  – On fetal side of amniotic sac
  – Multiple hard white foci along placental vessels
• NGS
Dx. Describe. Significance.
• Hippomane (horse)
  – Soft calculi in allantoic cavity
  – Desquamated epi cells/protein
  – Ca/PO4 laminae
Not so funny now that you have scurvy, is it?