27 AUG 2015 Waterfront Meeting

	Speaker	Topic	Time
Lecture Pretests			5
MRD-SD	LT Hightower	Opening Remarks	5
NMCSD Radiology	CDR Lee	Radiologic Interpretation	90 MO's
NMCSD OB/GYN	CDR Heaton	GYN Emergencies/Pelvic Exam	90 IDC's
Fleet Dental	LT Chilcutt	Dental Updates	5
MRD Clinic	CDR Navarette	MRD Clinic Turnover	2
MRD Clinic	HM2 White	Labs and Immunizations	5
University of SD	CDR Buechel	HPV Study	5
MRD-SD	LT Hightower	Updates	5
Lecture Posttests			5
		Total	125

Pre Test

Please start on the quizzes as soon as you find a seat!

Put your name on the quiz and **pass to the end of the row (left) when you are done.** Thank you!

Medical Readiness Division

MRD_SD_GMO@navy.mil
(619) 556-5191
Bldg 116
San Diego, CA 92136

Clinic (619) 556-8114

Sexually Transmitted Infections

STI

- Infections transmitted through oral, vaginal, or anal sex
- Consequences include: infertility, ectopic pregnancy, cancer, relationship strain, increase risk of HIV 3-5x's, pain, death
- U.S. STI rates are the highest in industrialized world and some communities compare to developing countries.

Prevention

- Education and counseling
- Identification
- Diagnosis and treatment
- Evaluation and treatment of partners
- Preexposure vaccination (HPV, Hepatitis B, Hepatitis A)

Prevention strategies

- Delay onset of sexual activity
- Limit # of sexual partners
- Limit exposure to high risk partners
- Increase use of condoms
- Partner notification and treatment (expedited partner therapy – legal in 27 states)
- Immunization (Hepatitis B & HPV)

Prevention strategies

- 3 Types of condoms
  - Latex (use only water based lubricants)
  - Polyurethane
    - Twice as expensive as latex
    - Slippage and breakage rates higher than latex
  - Natural membrane
    - Prevents pregnancy
    - Does NOT prevent STD's

Prevention strategies

- Condoms
  - Rates of breakage 2/100
  - Condom failures result from incorrect or inconsistent use rather than condom breakage
  - Latex or Polyurethane
  - Natural Membrane does not prevent STD transmission and should not be recommended

5 P's of Prevention

- Partners
- Prevention of pregnancy
- Protection from STD's
- Practices
- Past history of STD's

Prevention

- Counsel with
  - Respect
  - Compassion
  - Nonjudgemental attitude

Nonoxynol - 9

- Increases UTI's
- Increases risk of HIV through disruption of genital epithelium
- Not recommended for STI prevention

Routine Screening Recommendations

- Sexually active women < 26 yo need routine chlamydia screening
- Sexually active adolescents need routine gonorrhea testing
- Women with developmental disabilities
- HIV screening for women adolescents-64 yo who are or have been sex active

Routine Screening Recommendations

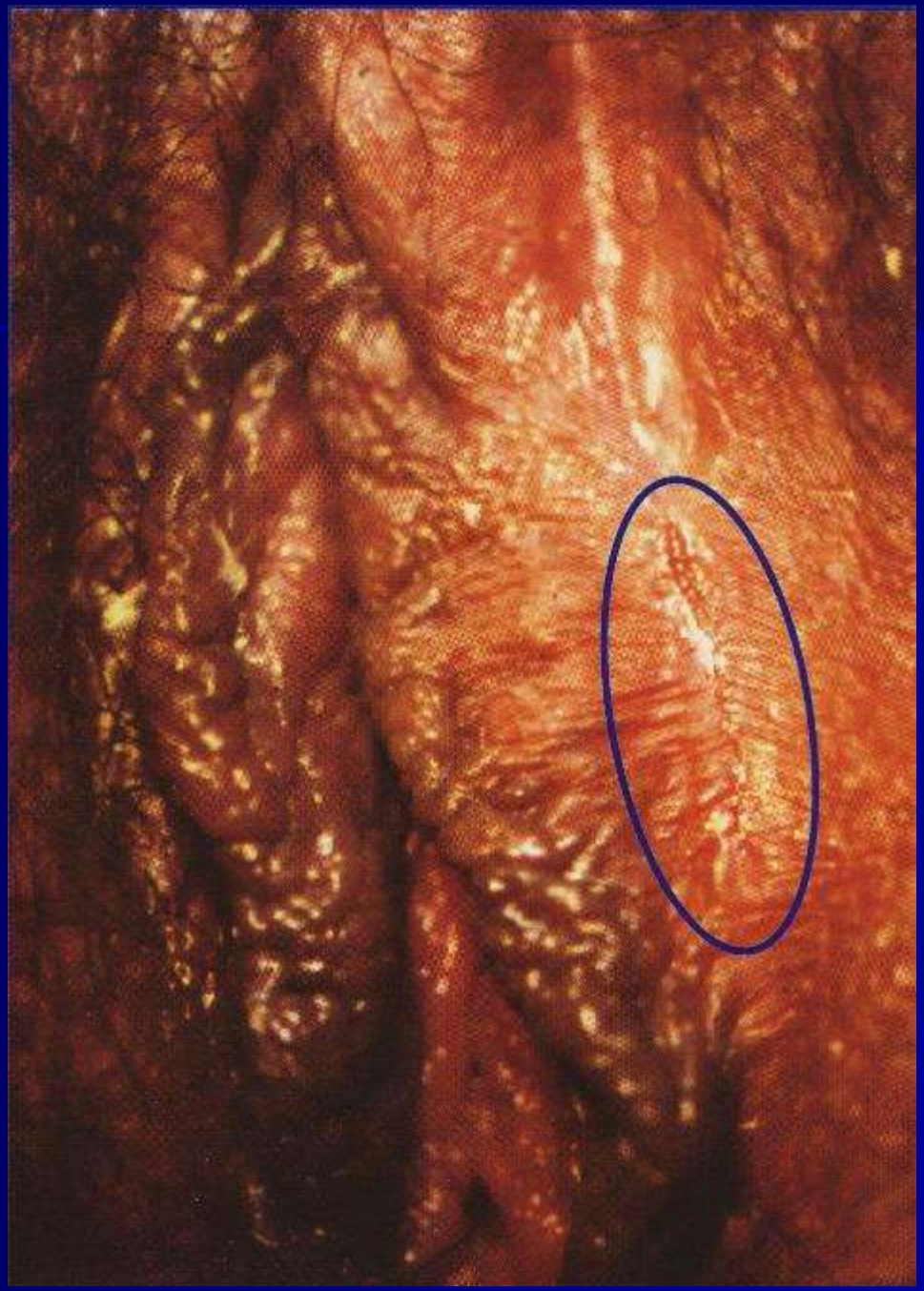
- Adolescents are at higher risks b/c:
  - Frequently have unprotected intercourse
  - Biologically more susceptible
  - Limited duration of sexual partners
  - Face multiple obstacles to using health care

Disease Characterized by Genital Ulcers

- **Herpes**
  - Prevalence = 50 million in U.S.
- **Syphilis**
  - More prevalent in metropolitan areas
  - Etiology = *T. pallidum*
- **Chancroid**
  - High rates of HIV coinfection
  - Etiology = *Haemophilus ducreyi*

Herpes

- **Presentation**
  - Classic vesicles/ulcers absent in many cases
  - Many women are asymptomatic
  - Recurrence is less common with HSV 1
- **Diagnostic test**
  - cell culture or PCR is the preferred test
  - Negative test does not r/o HSV



Herpes

- **First clinical episode**
  - Acyclovir, 400 mg orally 3 times a day for 7-10 d
  - Famciclovir, 250 mg orally 3 times a day for 7-10d
  - Valcyclovir, 1 gram orally twice a day for 7-10 days
- **Recurrences**
  - Acyclovir, 800 mg orally 2 times a day for 5 days
  - Famciclovir, 1 gram orally twice a day for 1 day
  - Valcyclovir, 1 gram orally daily for 5 days

Herpes

- **Suppressive therapy**
  - *reduces recurrences by 70-80%*
  - Acyclovir, 400 mg orally twice a day
  - Famciclovir, 250 mg orally twice a day
  - Valcyclovir, 500mg or 1 gram orally once a day

  - Note: topical therapy has minimal benefit and is discouraged.

Comparing HSV 1 and 2

	HSV 1	HSV 2
Recurrence in first year	60%	90%
# of recurrences	4 total	4 recurrences per year the 1st year then decrease 1 / year

Herpes in pregnancy

	Risk of vertical transmission to baby
Primary outbreak at time of delivery	30-60%
Recurrent outbreak at time of delivery	3%
Pts with h.o. recurrent disease and no visible lesions	2 per 10,000

Syphilis

- **Presentation**
  - Primary
    - Ulcer or chancre
  - Secondary
    - Skin rash, lymphadenopathy, mucocutaneous lesions
  - Tertiary
    - Cardiac or ophthalmic, auditory abnls, gummatous lesions
  - Latent
    - No symptoms, diagnosed by serology

Syphilis

- **Diagnostic tests**
  - Presumptive dx by RPR, VDRL, FTA-ABS, TP-PA
  - Dark-field examinations and direct fluorescent antibody tests of lesion exudate or tissue

Syphilis

- **Treatment**
  - Early primary, secondary, or latent < 1 yr
    - Benzathine penicillin G 2.4 million units IM x 1
    - Alternative Doxy 100mg bid for 14 days
  - Tertiary or late latent syphilis or latent syphilis of unknown duration
    - Benzathine PCN G 2.4 million units IM Q wk x 3
    - Alternative Doxy 100mg bid for 28 days
  - Neurosyphilis
    - Aqueous crystalline PCN G 4 million units IV Q 4 hours for 10-14 days

Chancroid

- **Presentation**
  - A painful genital ulcer and tender supportive inguinal adenopathy
  - Mostly found in Africa and Caribbean
- **Diagnostic test**
  - Etiology = *Haemophilus ducreyi*
  - PCR and culture media not readily available
  - Probable dx when no hsv and no syphilis

Chancroid

- **Treatment**
  - Azithromycin, 1 gram po x 1
  - Ceftriaxone 250 mg IM
  - Ciprofloxacin 500mg po BID for 3 days
  - Erythromycin 500mg TID for 7 days

Disease Characterized by Cervicitis or Urethritis

- **Chlamydia**
  - Most frequently reported infectious disease in U.S.
  - Highest prevalence in persons < 25 yo
- **Gonorrhea**
  - 700,000 new infections in U.S. each year
  - Highest prevalence in persons < 25 yo
- **Trichomoniasis**

Chlamydia

- **Presentation**
  - Asymptomatic infxn common
  - All sexually active women < 25 yo should be screened annually
- **Evaluation**
  - Urine or swab specimens
  - NAATs are most sensitive of endocervix
  - Abstain for 1 week after treatment
  - No Test of cure indicated
  - Encourage retesting in 3 months (if pregnant retest in 3 weeks).

Chlamydia

- **Treatment**
  - Azithromycin, 1 gram orally x 1
  - Doxycyline 100mg po BID for 7 d (if –HCG)
  - Alternatives: erythromycin, ofloxacin, levofloxicin
  - Presumptive treatment for other infxns not recommended
  - Retest in 3 months (not considered TOC)
  - Retest in 3 weeks if pregnant

Gonorrhea

- **Presentation**
  - Frequently asymptomatic
- **Evaluation**
  - ACOG recommends annual screening in sexually active adolescents
  - Can screen with urine as well
  - Should routinely for chlamydia as well unless NAAT was negative
  - Repeat testing in 3 months

Gonorrhea

- **Treatment**
  - Ceftriaxone, 250 mg IM x 1 (best)
  - PLUS azithromycin or doxy

Trichomoniasis

- **Presentation**
- **Evaluation**
  - Microscopy

Trichomoniasis

- **Treatment**
  - Metronidazole, 2 grams orally x 1
  - Tinidazole, 2 grams orally x 1
  - ALT → Metronidazole 500mg bid for 7 d

PID

Pelvic Inflammatory Disease

Pelvic Inflammatory Disease

- Uterine tenderness, adnexal tenderness, or cervical motion tenderness
- Additional criteria
  - Temp > 101, abnl discharge or wbc's on wet prep, elevated esr or C-reactive protein, lab documentation of gc or ct
- Most pts have mucopurulent discharge

Pelvic Inflammatory Disease

- Criteria for hospitalization
  - Surgical emergencies cannot be excluded
  - Patient is pregnant
  - Patient does not respond to oral abx
  - Severe illness, nausea and vomiting or high fever
  - Tuboovarian abscess

PID treatment

Inpt treatment

-Cefotetan 2 g IV Q 12 hours OR
Cefoxitin 2 g IV Q 6 hours PLUS

Doxycycline 100mg po or IV Q 12 hrs

Outpt treatment

-Ceftriaxone 250 mg IM x 1 PLUS
doxycycline 100mg po BID x 14 days

Human Papillomavirus Infection

- Infxn with HPV occurs in up to 80% of sexually active women by age 50
- Mostly a transient infection
- Subtypes 6 and 11 cause warts
  - Treatment with TCA, podophyllin, imiquimod, cryotherapy, laser, electrocautery

Quadrivalent Human Papillomavirus Vaccine

- Gardasil (subtypes 6, 11, 16 and 18)
- 9-26 y.o.
- 0, 2 months, 6 months
- Protects against 90% of warts and 70% of cervical cancer

More Vaccinations

Hepatits B vaccination should be recommended for all pts being evaluated for STDs.

Hepatitis A and B are recommended for all MSM, IVDA's, and HIV positive pts.

Hepatitis B

- Up to 60 % of hepatitis B may arise from sexual transmission
- Hepatitis B testing should be offered to all pts with STD's, adolescents, and nonimmunized sexual assault victims.

Hepatitis C

- Can be sexually transmitted
- Offer at-risk women testing
- 5% vertical transmission rate
- Can breastfeed unless cracked nipples or bleeding.

HIV

- Percent of HIV pts are increasingly women (7% in 1985 to 27% in 2004)
- CDC recommends routine screening of all women aged 13-64

APGO Educational Series on Women's Health Issues

Contraception

Patient Counseling and Management

APGO *Educational Series on Women's Health Education*

Learning Objectives

At the end of this presentation, participants should be able to:

- List methods of contraception available in US
- Describe contraindications and risks/benefits
- Outline noncontraceptive health benefits
- Discuss contraceptive options and counsel patients based upon their individual profiles
- List elements of patient-centered contraceptive decision making and counseling
- Identify unintended pregnancy rates for contraceptive methods

Introduction

- Most American women spend >30 years in the reproductive stage of life[1]
  - ~37% of pregnancies are unintended[2]
  - 14% of births are unwanted[2]
  - ~30% of women will have an abortion by age 45[3]
- Spacing children decreases infant morbidity and mortality[4,5]
- Successful family planning has a positive impact on women, couples, families, and society
- **Family planning increases readiness!**

1. Forrest JD. *Obstet Gynecol.* 1993;82:105-111.
2. Mosher WD, et al. *National Health Statistics Reports.* No. 55, July 2012.
3. Jones RK, et al. *Obstet Gynecol.* 2011;117:1358-1366.
4. Klerman LV, et al. *Am J Public Health.*1998;88:1182-1185.
5. Conde-Agudelo A, et al. *JAMA.* 2006;295:1809-1823.

Contraception

- Benefits typically far outweigh health risks
- Side effects can often be managed or relieved
- Variety of options available:
  - Long-Acting Reversible Contraceptives
    - IUCs, implant
  - Combination hormonal or progestin-only
    - Pill, patch, vaginal ring, injectable
  - Emergency contraception
  - Barrier methods
    - Condoms, diaphragm, cervical cap, sponge
  - Female or male sterilization
  - Fertility awareness

IUCs=intrauterine contraceptives

Health Benefits

- Barrier effect
  - Condoms reduce transmission of infectious agents[1]
- Endometrial cancer
  - Risk significantly **reduced** with combined hormonal contraception (CHC), depot medroxyprogesterone acetate (DMPA), and non-medicated IUCs[2-5]
- Ovarian cancer
  - Risk reduced by CHC[3,6,7]
  - Even in women with BRCA1 and BRCA2 mutations[8]

1. Grimes DA, et al. *Am J Obstet Gynecol.* 1995;172:227-235.
2. The Cancer and Steroid Hormone Study…. *JAMA.* 1987;257:796-800.
3. Burkman R, et al. *Am J Obstet Gynecol.* 2004;190:S5-S22.
4. Black A, et al. *J Obstet Gynaecol Can.* 2004;26:236-242.
5. Andersson K, et al. al. *Contraception.* 1994;49:56-72.
6. Ness RB, et al. *Am J Epidemiol.* 2000;152:233-241.
7. Westhoff C, et al. *Am J Epidemiol.* 2000;152:242-246.
8. Milne RL, et al. *Cancer Epidemiol Biomarkers Prev.* 2005;14:350-356.

Other Benefits

- Withdrawal bleeding and dysmenorrhea
  - **Regulated** and **reduced** with use of CHC[1-3]
- Menstrual blood loss in menorrhagia
  - **Reduced** with use of CHC, DMPA, and levonorgestrel IUC[4-10]
- Acne
  - Treated with CHC[11]
- Perimenopause
  - Lighter, predictable bleeding; vasomotor symptom relief; positive effect on bone mineral density[12-14]

1. Kaunitz AM. 2007Feb7. 44 PowerPoint slides.
2. Davis AR, et al. *Obstet Gynecol*. 2005;106:97-104.
3. Ryden J, et al. *Practical Gynecology: A Guide for the Primary Care Physician;* 2008.
4. Nelson A, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
5. Dean G, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
6. Fedele L, et al. *Fertil Steril.* 1997;68:426-429.
7. Hubacher D, et al. *Obstet Gynecol Surv.* 2002;57:120-128.
8. Davis A, et al. *Obstet Gynecol.* 2000;96:913-920.
9. Marjoribanks J, et al. *Cochrane Database Syst Rev*. 2006;2:CD003855.
10. Lethaby AE, et al. *Cochrane Database Syst Rev.* 2005;4:CD002126.
11. Arowojolu AO, et al. *Cochrane Database Syst Rev.* 2012;7:CD004425.
12. Best KA, et al. *In: Gynecology for the Primary Care Physician*; 2007.
13. Kaunitz AM. *Am J Obstet Gynecol.* 2001; 185:S32-S37.
14. Kaunitz AM. *N Engl J Med.* 2008;358:1262-1270.

Effectiveness of Family Planning Methods

Most Effective

Less than 1 pregnancy per 100 women in a year

6-12 pregnancies per 100 women in a year

18 or more pregnancies per 100 women in a year

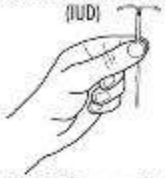
Least Effective

Reversible

Implant

0.05 %*

Intrauterine Device (IUD)



LNG - 0.2 % Copper T - 0.8 %

Permanent

Male Sterilization (Vasectomy)

0.15 %

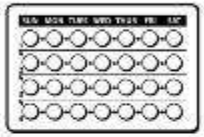
Female Sterilization (Abdominal, Laparoscopic, Hysteroscopic)

0.5 %

Injectable

6 %

Pill



9 %

Patch

9 %

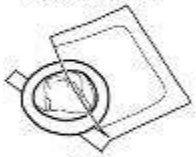
Ring

9 %

Diaphragm

12 %

Male Condom



18 %

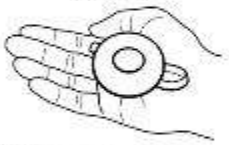
Female Condom

21 %

Withdrawal

22 %

Sponge

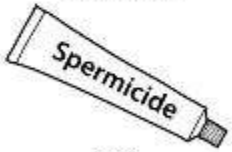


24 % parous women
12 % nulliparous women

Fertility-Awareness Based Methods

24 %

Spermicide



28 %

* The percentages indicate the number out of every 100 women who experienced an unintended pregnancy within the first year of typical use of each contraceptive method.

How to make your method most effective

After procedure, little or nothing to do or remember.

Vasectomy and hysteroscopic sterilization: Use another method for first 3 months.

Injectable: Get repeat injections on time.

Pills: Take a pill each day.

Patch, Ring: Keep in place, change on time.

Diaphragm: Use correctly every time you have sex.

Condoms, sponge, withdrawal, spermicides: Use correctly every time you have sex.

Fertility awareness-based methods: Abstain or use condoms on fertile days. Newest methods (Standard Days Method and TwoDay Method) may be the easiest to use and consequently more effective.

CS 242797

CONDOMS SHOULD ALWAYS BE USED TO REDUCE THE RISK OF SEXUALLY TRANSMITTED INFECTIONS.

Other Methods of Contraception

Lactational Amenorrhea Method: LAM is a highly effective, temporary method of contraception.

Emergency Contraception: Emergency contraceptive pills or a copper IUD after unprotected intercourse substantially reduces risk of pregnancy.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Adapted from World Health Organization (WHO) Department of Reproductive Health and Research, Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (CCP). Knowledge for health project. Family planning: a global handbook for providers (2011 update). Baltimore, MD; Geneva, Switzerland: CCP and WHO; 2011; and Trussell J. Contraceptive failure in the United States. Contraception 2011;83:397–404.

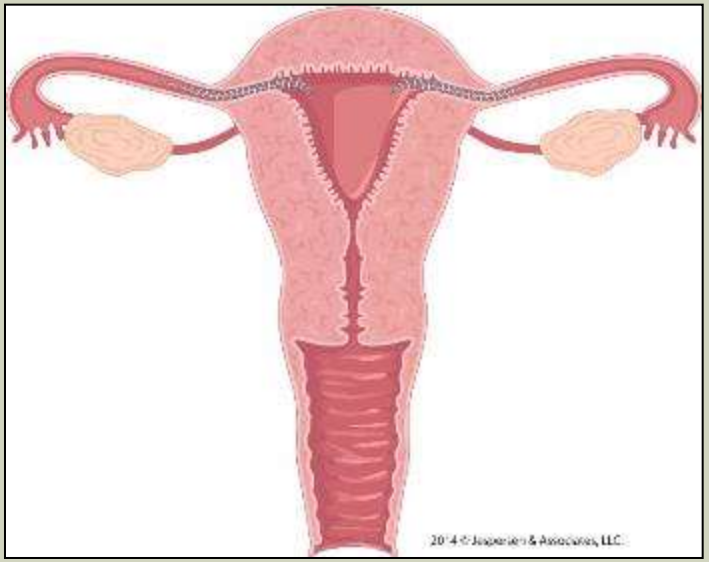
Sterilization

- **Most common** form of contraception reported by US females >30 years; 2nd most popular method for all ages[1]
- Types of procedures: tubal sterilization, vasectomy, hysterectomy[2]
- Benefits:
  - Perceived permanence
  - User controlled; confidential
  - Alternative to contraindicated methods (eg, estrogen-containing)

1. Jones J, et al. *National Health Statistics Reports.* 2012;60.
2. Roncari D, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.

Sterilization: Female Sterilization

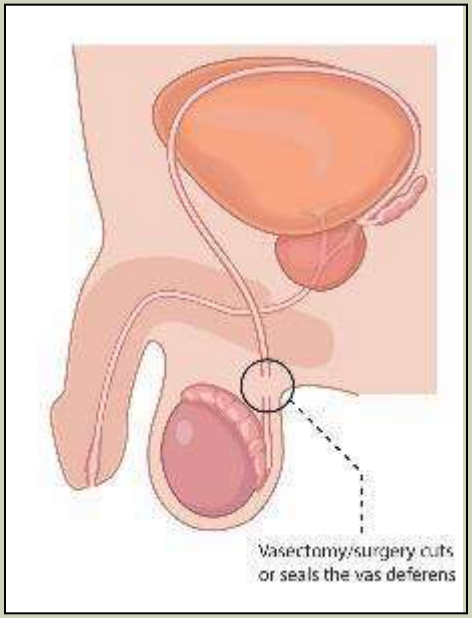
- Electrocautery of portion of fallopian tubes, ligation with excision, or occlusion with rings, clips, or insertion of coils[1-4]
- No changes in menstruation[1,5]
- Surgical risks[1,4]
- Hysteroscopic approach with placement of inserts (Essure)
  - No incisions or general anesthesia; office procedure[6]
- Tubal sterilization decreases risk of ovarian cancer[4,7]



1. Ryden J, et al. *Practical Gynecology for the Primary Care Physician.* 2008.
2. Roncari D, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
3. Fortin CA, et al. *J Obstet Gynaecol Can*. 2004;26:368-376.
4. ACOG Practice Bulletin No. 33. *Obstet Gynecol.* 2013;121(2Pt1):392-404.
5. Peterson HB. *Obstet Gynecol*. 2008;111:189-203.
6. US FDA . Medical devices: Essure permanent birth control.
7. Westhoff C, et al. *Fertil Steril.* 2000;73:913-922.

Sterilization: Male - Vasectomy

- Occlusion of vas deferens under local anesthesia in office setting
- Low complication rate[1,2]
- Does not provide immediate contraception[1-3]
  - Sperm may remain in vas up to 3 months after procedure
  - Schedule testing of ejaculate to determine negative for sperm
  - Backup contraception required during this time



1. Fortin CA, et al. *J Obstet Gynaecol Can*. 2004;26:368-376.
2. ACOG Education Pamphlet AP011. *Sterilization for Women and Men.* 2011.
3. Roncari D, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.

Long-Acting Reversible Contraceptives (LARC)

- IUCs and implant in top tier of contraceptive efficacy
  - Comparable to male/female sterilization[1]
- May be referred to as “reversible sterilization” when discussing permanent contraceptive options[2]
- Both ACOG and AAP recommend LARC methods as **first-line** contraception for teens[3,4]

AAP=American Academy of Pediatrics; ACOG=American College of Obstetricians and Gynecologists; IUCs=intrauterine contraceptives.

1. US Department of Health and Human Services, Centers for Disease Control and Prevention. 2011.
2. Grimes DA, et al. *Contraception.* 2008;77:6-9.
3. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 598, 2014.
4. American Academy of Pediatrics (AAP). *Pediatrics.* 2014;134:e:1244-e1256.

Contraceptive Choice Study

- When cost, access, and knowledge barriers are removed, teens and adults are more likely to chose LARC methods[1,2]

N=5087 women; ages 14-45

1. Secura GM, et al. *Am J Obstet Gynecol.* 2010;203:115.e1-e7.
2. Peipert JF, et al. *Obstet Gynecol.* 2011;117:1105-1113.

Intrauterine Contraceptives (IUCs)

- Highly effective; convenient; noncontraceptive benefits[1,2]
- Three IUCs available in US:
  - Copper T 380A – ParaGard, up to 10 years of use; cumulative 10-year pregnancy rate ~2%[3]
  - Levonorgestrel-releasing IUCs
    - Mirena: 52 mg, up to 5 years of use; cumulative pregnancy rate <1%[4]
    - Skyla: 13.5 mg, up to 3 years of use; cumulative pregnancy rate 0.9%[5]
- Can be inserted at any time in menstrual cycle, provided woman is not pregnant

1. Curtis KM, et al. *Contraception.* 2007;75(6Suppl):S60-S69 .
2. Varma R, et al. *Eur J Obstet Gynecol Reprod Biol.* 2006;125:9-28.
3. Dean G, et al. In: Hatcher R, et al. *Contraceptive Technology;* 2011.
4. Andersson K, et al. *Contraception.* 1994;49:56-72.
5. Skyla Prescribing Information; 2012.

IUCs: Infection and Infertility

- Earlier concerns about infection and infertility are no longer appropriate[1]:
  - Rapid return to fertility after IUC discontinuation[2,3]
  - Prophylactic antibiotics at time of insertion appear unwarranted except in populations of women with high prevalence of STIs[4]
  - No increased risk of upper genital tract infection in women who had undetected chlamydial infections at time of IUC insertion[5-6]

1. Walsh T, et al. *Lancet.* 1998;351:1005-1008.
2. Skjeldestad F, et al. *Adv Contracept*. 1988;4:179-184.
3. Wilson JC. *Am J Obstet Gynecol*. 1989;160:391-396.
4. Grimes DA, et al. *Cochrane Database Syst Rev.* 2001;2:CD001327.
5. Faunders A, et al. *Contraception.* 1998;58:105-109.
6. Skjeldestad FE, et al.*Contraception.* 1996;54:209-212.

IUCs: Benefits

- Nonmedicated copper IUC associated with 40% reduction in risk of endometrial cancer[1]
- 52-mg levonorgestrel IUC reduces measured blood loss by ~90% in patients with heavy menstrual bleeding
  - Comparable benefit to endometrial ablation techniques[2] and superior benefit to oral medications (progestins, NSAIDs)[3]
- Levonorgestrel IUC can be used to prevent endometrial hyperplasia

1. Andersson K, et al. *Contraception.* 1994;49:56-72.
2. Marjoribanks J, et al. *Cochrane Database* Syst Rev. 2006;2:CD003855.
3. Milsom I, et al. *Am J Obstet Gynecol*. 1991;164:879-883.

Progestin Implant

Etonogestrel 68 mg - Nexplanon

- Rod implanted subdermally for up to 3 years[1]
- 3-year failure rate: 0.38%[1]
- Return to fertility after removal:
  - Days to weeks[1,2]
- Common side effects: irregular bleeding/ spotting, headache, minimal weight gain[2]
- Health benefits:
  - Potential decrease in dysmenorrhea and PMS[2]

1. Nexplanon Prescribing Infromation. Merck & Co., Inc.
2. Raymond EG. In: Hatcher RA, et al. *Contraceptive Technology*; 2011.

LARC Method Bleeding Patterns

- Irregular bleeding/spotting is most common side effect[1,2]
- Copper-T IUC may cause heavier, longer bleeding and cramping[1]
- Amenorrhea may develop with LNG IUC and implant[1,2]
  - Many women may perceive this as a health benefit
- Early discontinuation due to changes in bleeding patterns
- Anticipatory counseling about expected side effects may help women continue method

1. Dean G, Schwarz EB. In: Hatcher RA, Trussell J, Nelson AL, et al, eds. *Contraceptive Technology.* 20th revised ed. New York, NY: Ardent Media; 2011, pp 147-191.

2. Raymond EG. n: Hatcher RA, Trussell J, Nelson AL, et al, eds. *Contraceptive Technology.* 20th revised ed. New York, NY: Ardent Media; 2011, pp 193-207.

Hormonal Contraceptives

- Combination hormonal – pill, patch, vaginal ring
  - COCs are most commonly used method among American women <35 years[1]
  - Various dose, cycle combinations of estrogen/progestin
- Progestin-only – pill, long-acting depot injection, implant, levonorgestrel IUCs
  - Candidates include women with cardiovascular risk factors, diabetes, lipid disorders, estrogen-related side effects, migraine headaches,[2] and those who are postpartum or breastfeeding[3,4]

1. Jones J, et al. *Natl Health Statistics Reports.* No. 60, October 28, 2012.
2. Black A, et al. *J Obstet Gynaecol Can*. 2004;26:236-242.
3. McCann MF, et al. *Contraception.* 1994;50(6Suppl 1):S9-S13.
4. Truitt ST, et al. *Cochrane Database Syst Rev.*2003;2:CD003988.

Combination Oral Contraceptives (COCs)

- 10-50 mcg of estrogen (ethinyl estradiol or equivalent dose of mestranol) + progestin
  - Suppress pituitary gonadotropin secretion
  - Progestin more effective ovulation inhibitor; also causes changes in cervical mucus and endometrium, hindering sperm transport and embryo implantation (if ovulation occurs)[1,2]
- Monophasic (constant doses of hormones) or multiphasic (varying doses of hormones) ± placebo and/or ferrous fumarate phase
- Continuous and extended regimens

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
2. Best KA, et al. In: Stovall TG, et al. *Gynecology for the Primary Care Physician;* 2007.

COCs: Overview

- Many brands and generics
- Relatively effective: 8% failure rate during first year of use, since most women do not take them perfectly[1]
- Fertility returns soon after discontinuation[2]
- Noncontraceptive benefits[2]

1. Trussell J. In: Hatcher RA, et al. *Contraceptive Technology*; 2011.
2. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.

Initiation of COCs

- Combination COCs can be initiated in 3 ways:
  - On first day of menses[1]
  - On first Sunday after menses begin[1]
  - "Quick Start" = **immediately,** regardless of timing of menses
    - Test for pregnancy
    - Advise woman to use backup contraception for first 7 days
    - Provide EC if indicated[1,2]

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
2. Westhoff C, et al. *Contraception.* 2002;66:141-145.

Counseling for Missed Pills

If She…	What Should She Do?	How Should She Take the Rest of the Pills in Her Pack?	Does She Need to Use Back-up Contraception?	Does She Need EC?
Misses 1 pill within 12 hours of time she was supposed to take it (including if she vomits within 2 hours of taking a pill)	Take it immediately	At the usual time	No	No
Misses 1 pill >12 hours after she was supposed to take it	Take it immediately	At the usual time	Yes, use condoms or abstain from sex for the next 7 days	No
Misses >1 pill (including if she suffers from vomiting and diarrhea for ≥2 days)	Take the current day's pill plus the last forgotten pill	At the usual time	Yes, use condoms or abstain from sex until she has taken 7 pills in a row	Yes, if she had intercourse during the previous 7 days

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.

COC Side Effects

- Nausea, breast tenderness, menstrual changes
- Breakthrough bleeding occurs in 25% of women within first 3 months of use[1,2]
  - Become less frequent with time
- Advise patients that early side effects are common and not dangerous
  - With regular, consistent use, side effects should abate

1. Best KA, et al. In: Stovall TG, et al. *Gynecology for the Primary Care Physician*; 2007.
2. Black A, et al. *J Obstet Gynaecol Can.* 2004;26:220-236.

COC Side Effects

- If unscheduled bleeding continues after 3 months of COC use, evaluate patient for other potential causes:
  - Cervical or endometrial infection or neoplasia
  - Pregnancy
  - Polyps
  - Fibroids
  - Use of medications that interfere with estrogen metabolism (eg, tobacco, antiepileptics, rifampin, St. John's Wort)[1]
- If patient experiences prolonged spotting/bleeding (ie, ≥7 days) on extended-use COC, advise her to take 3-day pill holiday[2]

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
2. Best KA, et al. In: Stovall TG, et al. *Gynecology for the Primary Care Physician*; 2007.

COC Side Effects

- Some long-term COC users may experience amenorrhea, which is not medically harmful and may be beneficial[1]
- Inadvertent use of COCs during early pregnancy is **not associated** with increased risk for fetal anomalies or miscarriage[1]
- No consistent association with weight gain or headaches[1]
- If problems or nonadherence due to side effects, make formulation adjustment

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.

COC Health Risks

Today's low-dose COC formulations (≤50 mcg estrogen) are safe for most healthy women and have been extensively studied[1]

- Breast Cancer
  - Large British, US, Canadian studies found no increased risk with former or current use[2-6]
  - Results are inconsistent from studies of COC use among BRCA-positive women[7,8]

1. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.
2. Hannaford PC, et al. *Br Med J* . 2007;335:651-660.
3. Vessey M, et al. *Contraception.* 2013;88:678-683.
4. Marchbanks PA, et al. *N Engl J Med*. 2002;346:2025-2032.
5. Gill JK, et al. *Cancer Causes Control.* 2006;17:1155-1162.
6. Silvera SA, et al. *Cancer Causes Control.* 2005;16:1059-1063.
7. Milne RL, et al. *Cancer Epidemiol Biomarkers Prev.* 2005;14:350-356.
8. Narod SA, et al. *J Natl Cancer Inst.* 2002;94:1773-1779.

COC Health Risks

Cervical Neoplasia

- 24 epidemiological studies: Almost double risk for invasive cervical cancer in women taking COCs for ≥5 years vs never users[1]
- After stopping COCs, risk at 10 years declined to that of never users[1]
- Reanalysis found other factors to be: younger age at first intercourse, younger age at first full-term pregnancy, increasing parity, increasing number of sexual partners, and increasing duration of COC use[2]

1. International Collaboration of Epidemiological Studies of Cervical Cancer. *Lancet.* 2007;370:1609-1621.
2. International Collaboration of Epidemiological Studies of Cervical Cancer. Int J Cancer. 2007;120:885-891.

COC Health Risks

Venous Thromboembolism (VTE)

- Varying reports regarding risk associated with estrogen dose or type of progestin[1-7]

	Low-Dose COC Users[8]	Pregnant Women[9]	Postpartum Women[9]
VTE Incidence per 100,000 Woman-Years	10-15	95.8	511

- VTE risk further increased with COCs if specific thromboembolic risk factors or underlying diseases[10]
- VTE fatalities are low (1%-2%)[8,10]

1. Westhoff CL. *Am J Obstet Gynecol*. 1998;179 (3 Suppl1) : S38-S42.
2. Gallo MF, et al. *Contraception.* 2005;71:162-169.
3. Lidegaard Ø , et al. *Contraception.* 2011;343:d6423.
4. Lidegaard Ø, et al. *Contraception.* 1998;57:291-301.
5. Lidegaard Ø, et al. *Contraception.* 2002;65:187-196.
6. Sidney S, et al. *Contraception.* 2004;70:3-10.
7. ACOG . Committee Opinion No. 540, November 2012.
8. Best KA, et al. In: Stovall TG, et al. *Gynecology for the Primary Care Physician;* 2007.
9. Heit JA, et al. *Ann Intern Med*. 2005;143:697-706.
10. Nelson AL, et al. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.

COC Health Risks

Stroke

- Low-dose formulations do not increase risk of thrombotic or hemorrhagic stroke in healthy, nonsmoking women[1-3]
- Risk increased in women with predisposing diseases/other risk factors

Myocardial Infarction

- Risk of MI substantially increased among COC users >35 who smoke[4-9]

Metabolic Effects

- Oral estrogen increases triglyceride levels[10]

1. Lidegaard Ø, et al. *Contraception.* 2002;65:197-205.
2. Siritho S, et al. *Stroke.* 2003;34:1575-1580.
3. Schwartz SM, et al. *Stroke.* 1998;29:2277-2284.
4. Khader YS, et al. Contraception. 2003;68:11-17.
5. Rosenberg L, et al. *Arch Intern Med.* 2001;161:1065-1070.
6. Sidney S, et al. Circulation. 1998;98:1058-1063.
7. WHO. *Lancet*. 1997;349:12020-1209.
8. Baillargeon J-P, et al. *J Clin Endocrinol Metab.* 2005;90:3863-3870.
9. Margolis KL, et al. *Fertil Steril.* 2007;88:310-316.
10. Westhoff CL. *Am J Obstet Gynecol.* 1998;179(3Suppl1):S38-S42

Contraceptive Patch and Ring

- Transdermal patch: Ortho Evra
- Vaginal ring: NuvaRing
- Combined hormone delivery systems
- Typically used on 28-day cycle or continuously
- Time is needed to achieve steady-state hormone levels; advise use of backup contraception for first week[1-3]

1. Ortho Evra PI. Janssen Pharmaceuticals, Inc; 2014.
2. NuvaRing PI. Merck & Co, Inc. 2013.
3. Kaunitz AM. In: Stovall TG, et al. *Gynecology for the Primary Care Physician*; 2008.

Contraceptive Patch and Ring

- Transdermal patch produces higher estrogen exposure; vaginal ring produces lowest exposure vs COCs[1]
- Postmarketing surveillance found 2-fold increase in risk of non-fatal VTE with patch vs COCs[2]
- Noncontraceptive benefits, overall side effects, and contraindications similar to COCs[3]

1. Van den Heuvel MW, et al. Contraception.2005;71:168-174.
2. Boston Collaborative Drug Surveillance Program.
3. Nanda K. In: Hatcher RA, et al. *Contraceptive Technology;* 2011.

Progestin-Only Contraceptives

- Candidates: older women with cardiovascular risk factors, diabetes, lipid disorders, estrogen-related side effects, estrogen contraindications such as migraine headaches with aura[1], taking anticonvulsants, and those who are postpartum or breastfeeding[2]
- Lactating women:
  - No decrease in milk production shown[1]
- Common side effects: Irregular bleeding/spotting[3]

1. Black A, et al. *J Obstet Gynaecol Can*. 2004;26:236-242.
2. Nor-QD facts and comparisons. Drugs.com.
3. Kaunitz AM. UpToDate; 2013.

Progestin-Only Contraceptives

Pill – Norethindrone 0.35 mg (i.e. Micronor)

- One progestin-only pill (POP) formulation currently marketed in US (Micronor, Nor-QD, generics)
- Amount of progestin < low-dose COC formulations
- Taken continuously for 28 days
- Needs to be taken consistently:
  - Delay of ≥3 hours requires back-up contraception for 48 hours[1,2]
- Prescribe 2 pills daily in women with normal ovulatory function (ie, if not postpartum or lactating)

1. Nor-QD facts and comparisons at Drugs.com.
2. Kaunitz AM. UpToDate; 2013.

Progestin-Only Contraceptives

Depot Medroxyprogesterone Actetate (DMPA)

- Q 3 months: deep intramuscular (150 mg, Depo-Provera)[1]
- 3% first-year failure rate with typical use[3]
- >50% of women amenorrheic by 1 year; menses and fertility may be delayed after discontinuation[1-3]
- Common side effects: Headache, reduced libido, acne, weight gain[1-3]

1. DEPO-PROVERA Contraceptive Injection PI. Pfizer, Inc. 2006.
2. depo-subQ provera 104 PI. Pfizer, Inc.; 2013.
3. Bartz D, et al. In: Hatcher RA, et al. *Contraceptive Technology*; 2011.

Progestin-Only Contraceptives

DMPA Injection

- Bone mineral density:
  - Decreased with current use[1,2]
  - Not linked to fractures or post-menopausal osteoporosis[3]
  - Appears to fully recover after discontinuation[3,4-10]
- No apparent impact on cervical, ovarian, breast cancer risks[3]
- Significantly reduces endometrial cancer risk[3]

1. DEPO-PROVERA Contraceptive Injection PI. Pfizer, Inc. 2006.
2. depo-subQ provera 104 PI. Pfizer, Inc.; 2013.
3. Black A, et al. *J Obstet Gynaecol Can.* 2004;26: 236-242.
4. Kaunitz AM, et al. *Contraception.* 2008;77:67-76.
5. Rosenberg L, et al. *Contraception.* 2007;76:425-431.
6. Kaunitz AM, et al. *Contraception*. 2006;74:90-99.
7. Scholes D, et al. *Arch Pediatr Adolesc Med.* 2005;159:139-144.
8. Scholes D, et al. *Epidemiol*. 2002;13:581-587.
9. Petitti DB, et al. *Obstet Gynecol*. 2000;95:736-744.
10. Orr-Walker BJ, et al. *Clin Endocrinol*. 1998;49:615-618.

Emergency Contraception (EC)

- Prevents pregnancy after intercourse[1,2]
- Begin within 72 hours of unprotected sex to reduce risk of pregnancy by at least 75%[1]
- Side effects: Breakthrough bleeding out of cycle[1]
- Hormonal ECs do not affect established pregnancy nor harm fetus if taken inadvertently during early gestation[3]
- Women using less-effective contraception should be educated to keep advance supply of EC

1. Trussell J, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011,
2. Rodrigues I, et al. *Am J Obstet Gynecol.* 2001;184:531-537.
3. ACOG Education Pamphlet AP114. *Emergency Contraception.* 2007.

EC Pills

Plan B One-Step and Generics
1.5 mg Levonorgestrel (LNG) Tablet

- Approved for OTC sale without prescription or age restriction[1]

ella
30-mg Ulipristal Acetate (UPA) Tablet

- Prescription only
- Two phase III trials demonstrated UPA more effective in women with high BMI (>26 kg/m^2) than LNG EC[2]

1. Office of Population Research, Princeton University, and the Association of Reproductive Health Professionals. Emergency contraception. 2014.
2. Glasier A, et al. *Contraception.* 2011;84:363-367.

EC: Copper IUC

- Most effective EC option; used off-label as EC in US
- When inserted up to 7 days after unprotected intercourse or 5 days after ovulation has <1% failure rate[1]
- Nonhormonal method that can remain for primary contraception for 10 years
- Reported continuation rate of 94% at 12 months[2]

1. Trussell J, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
2. Wu S, et al. *BJOG.*2010;117(10):1205-1210.

Barrier Methods

- Male and female condoms, diaphragm, cervical cap, sponge, spermicides
- Reduce risk of STIs
- Dual protection: Used with other methods (eg, COCs)[1]
- Particularly appropriate for women in stable relationships who can predict when they will have intercourse

1. Martinez G, et al. *Vital Health Stat 23.*2011;31:1-35.

Barrier Methods: Male Condoms

- Latex, polyurethane, or animal
- Lubricated or unlubricated
- OTC, inexpensive
- Available in various sizes
- Do NOT use latex condoms with:
  - Oil-based lubricants (petroleum jelly, baby or mineral oil)
  - Vaginal estrogen or antifungal creams[1]
- Failure rate ~15% over first year of typical use[2]
- Condoms often used incorrectly[3]

1. Warner L, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
2. Trussell J. In: Hatcher RA, et al. Contraceptive Technology. 2011.
3. Warner L, et al. *Sex Transm Dis.* 1998;25:273-277.

Barrier Methods: Female Condom – FC2

- Synthetic nitrile
- Much more expensive than male condom; OTC
- Acts as vaginal liner, end of sheath remains outside to cover vulva[1]
- Failure rate ~21% over first year of typical use[2]
- Should not be used with male condom – possibility of adherence and slippage[1]

1. Female Health Company. About FC2.
2. Trussell J. In: Hatcher RA, et al. Contraceptive Technology. 2011.

Barrier Methods: Diaphragm

- Silicone dome-shaped cup
- Prescription-only; several sizes
- Cup positioned to completely cover cervix and fit behind pubic bone and posterior vaginal fornix
- Used with spermicide[1]
- No STI protection; may be used with male condom[1]
- Left in place 6 to 24 hours[1]
- First-year pregnancy rate for typical use is 16%[2]
- Side effects: UTIs, vaginal irritation, recurrent yeast infections, bacterial vaginosis [1]

1. Cates W Jr, et al. In: Hatcher RA, et al. *Contraceptive Technology*. 2011.
2. Trussell J. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.

Barrier Methods: Cervical Cap - FemCap

- Prescription-only, silicone
- Deeper, smaller cup than diaphragm
- Three sizes
- Used with spermicide[1]
- Can leave in place for up to 48 hours[2]
- First-year failure rate: 32% for parous women; 16% for nulliparous women[3]

1. Gallo MF, et al. *Cochrane Database Syst Rev.* 2002;4:CD003551.
2. Cates W Jr, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
3. Trussell J. In: Hatcher RA, et al. Contraceptive Technology. 2011.

Barrier Methods: Sponge - Today

- Nonprescription
- Polyurethane sponge impregnated with spermicide[1,2]
- Inserted up to 24 hours before intercourse
- Kept in place for 6 hours after last encounter[1,2]
- Higher discontinuation/pregnancy rates than diaphragm[2]; first-year failure rate: 11%[3]

1. Cates W Jr, et al. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
2. How Do You Use the Today Sponge. Mayer Laboratories, Inc.
3. Trussell J. In: Hatcher RA, et al. Contraceptive Technology. 2011.

Barrier Methods: Spermicides

- Chemical contraceptive barrier:[1] surfactants (nonoxynol-9, octoxynol-9) destroy sperm's cell membrane[2]
- Can be used alone or with other barriers
- Insert into vagina 5-90 minutes before intercourse; kept in place at least 6-8 hours afterwards[3]
- Failure rate during first year of typical use of spermicides alone ~29%[4]
- Efficacy may be dose-related, based on concentration[5]
- Do not protect against STIs and HIV
  - May increase risk of contracting HIV[6]

1. ACOG Education Pamphlet AP022. *Barrier Methods.* 2011.
2. Glasier A, et al. *Contraception.* 2011;84:363-367.
3. US FDA. Birth control: Medicines to help you. 2013.
4. Trussell J. In: Hatcher RA, et al. *Contraceptive Technology.* 2011.
5. Raymond EG, et al. *Obstet Gynecol*. 2004;103:430-439.
6. US FDA. Warning. 2007.

Fertility Awareness-Based Methods

- Periodic abstinence
- Patients need to identify potentially fertile days and abstain from intercourse or use barrier methods on those days
- Best for women with regular menstrual cycles[1]
- Vaginitis or cervicitis can affect signs of fertility[1]
- ~25% failure rate during first year of use[2]

1. Jennings VH, et al. In: Hatcher RA, et al. *Contraceptive Technology. 2011.*
2. Russell J. In: Harcher RA, et al. *Contraceptive Technology.*2011.

Contraception in Women with Medical Problems

- World Health Organization (WHO) lists conditions where pregnancy may exacerbate risk to woman's health[1]
- Determine contraceptive methods that are safest, given woman's underlying diseases or conditions
- ACOG Practice Bulletin Number 73 provides a consolidated summary of "clinical considerations and recommendations"[2]

1. WHO. *Medical Eligibility Criteria for Contraceptive Use*. 2010.
2. ACOG Practice Bulletin No. 73. *Obstet Gynecol*. 2006;107:1453-1472.

Contraception in Women with Medical Problems

Migraines

- Women who have migraines with aura are more likely to have strokes[1-6]
- Chinese review of 3,901 stroke patients reported COCs and migraine were significant risk factors for stroke[7]
- Some women experience estrogen “withdrawal” migraines in relation to menses, associated specifically with estrogen fluctuations[8]
  - Use of extended cycle or continuous COCs may control hormonal fluctuations and are treatment option for contraception and migraine control[9]

1. Stang PE, et al. *Neurology*. 2005;64:1573-1577.
2. Kurth T, et al. *Neurology.* 2005;64:1020-1026.
3. Etminan M, et al. *BMJ.* 2005;330:63.
4. Carolei A, et al. *Lancet.* 1996;347:1503-1506.
5. Donaghy M, et al. *J Neurol Neurosurg Psychiatry*.2002;73:747-750.
6. Tzourio C, et al. *BMJ.* 1995;310:830-833.
7. Liu XF, et al. *Chin Med Sci J.* 2005;20:35-39 .
8. MacGregor EA, et al. *Neurology.* 2006;67:2154-2158.
9. Loder EW, et al. *Headache.* 2005;45:224-231.

Contraception in Women with Medical Problems

Migraines

- WHO[1]:
  - Advocates caution (category 2 or 3) in use of hormonal contraception in migraineurs <35 years
  - Disapproves use (category 3 or 4) in women >35 years
  - Contraindicates use (category 4) in women with aura
- Clinicians need to review predisposing factors and migraine patterns before prescribing
- Appropriate alternatives: Progestin-only, intrauterine, and barrier methods[2]

1. WHO. *Medical Eligibility Criteria for Contraceptive Use*. 2010.
2. Teal SB, et al. *Obstet Gynecol Clin N Am*. 2007;34:113-126.

Contraception in Women with Medical Problems

Obesity

- COCs and patch may be less effective in obese women[1]
- Obesity, COCs, age = independent risk factors for VTE[1,2]
- Progestin-only contraception does not appear to increase VTE risk[3]
- Contraceptives for obese women >35 years: DMPA, progestin implant, IUC, vasectomy of partner; barrier methods[2]
- Ulipristal acetate preferred oral EC in obese women[4]

1. ACOG Practice Bulletin No. 73. *Obstet Gynecol.* 2006;107:1453-1472.
2. Grimes DA, et al. *Contraception*. 2005;72:1-4.
3. Teal SB, et al. *Obstet Gynecol Clin N Am*. 2007;34:113-126.
4. Glasier A, et al. *Contraception.*2011;84:363-367.

Contraception in Women with Medical Problems

Drug Interactions: Antiepileptics

- Hepatic enzyme inducers decrease contraceptive blood levels of estrogen and progestin in users of COCs, patch, POPs, implant[1-3]
- Simplest option: Switch to DMPA or IUC (copper or levonorgestrel)[1-3]

Antiepileptic Drugs that May Reduce Contraceptive Efficacy via Enzyme Induction
carbamazepine
felbamate
oxcarbazepine
phenobarbital
phenytoin
primidone
topiramate

1. ACOG Practice Bulletin No. 73. *Obstet Gynecol*. 2006;107:1453-1472.
2. O'Brien MD, et al. *Epilepsia.* 2006;47:1419-1422.
3. Kaunitz AM; 2007 Feb7. 39 PowerPoint slides.

Contraception in Women with Medical Problems

Drug Interactions: Infectious Diseases

- Rifampin reduces COC hormone levels[1]
- Various antiviral agents can have hepatic enzyme effects, acting as substrates, inducers, or inhibitors[1-3]
- Select contraceptive methods (eg, IUCs, DMPA) that bypass potential for drug interactions[3]
- Ampicillin, doxycycline, fluconazole, metronidazole, quinolones, and tetracycline do not decrease hormone levels in women using COCs[2]
- Vaginal miconazole does not affect ring efficacy[2]

1. ACOG Practice Bulletin No. 73. *Obstet Gynecol*. 2006;107:1453-1472.
2. Teal SB, et al. *Obstet Gynecol Clin N Am.* 2007;34:113-126.
3. Johns Cupp M, et al. *Am Fam Phys* .1998;57:107-116.

Contraception in Women with Medical Problems

Systemic Lupus Erythematosus

- Reluctance to use COCs due to concerns of disease flares, venous thromboses[1]
- Two 2005 studies conducted in US and Mexico:[2,3]
  - Rates of disease flare similar for COCs, POPs, and copper IUC; no differences in disease activity among 3 treatment groups over 1-year follow-up[3]
  - Thromboses in Mexican trial: 2 with POPs, 2 with COCs[3]
  - Rates of disease flare similar in COC and placebo groups[2]

1. Teal SB, et al. *Obstet Gynecol Clin N Am.* 2007;34:113-126.
2. Petri M, et al. *N Eng J Med.* 2005;353:2550-2558.
3. Sánchez-Guerrero J, et al. *N Engl J Med.* 2005;353:2539-2549.

Contraception in Women with Medical Problems

Systemic Lupus Erythematosus

- COCs and POPs can be used safely by woman with mild, stable lupus
- If history of vascular or renal disease or if antiphospholipid antibodies present, combination estrogen-progestin contraceptives should be avoided
  - Progestin-only contraceptives represent prudent alternatives[1]
- US Food and Drug Administration has removed immunosuppression as contraindication for copper IUC[2]

1. ACOG Practice Bulletin No. 73. *Obstet Gynecol*. 2006;107:1453-1472.
2. Teal SB, et al. *Obstet Gynecol Clin N Am*. 2007;34:113-126.

Contraindications to Contraceptives

(adapted from WHO[1])

Condition/Personal Characteristics	*Contraindicated Contraceptive Methods*
Postpartum <21 days (breastfeeding and not breastfeeding)	COC, patch, ring (not generally advised, especially in women with other risk factors for DVT)
Smoker ≥35 years old, >15 cigarettes/day	COC, patch, ring
Hypertension (≥160 mmHg systolic or ≥100 mmHg diastolic) and/or with vascular disease	COC, patch, ring
Past or current DVT, PE; DVT/PE and using anticoagulants; known thrombophilia	COC, patch, ring
Major surgery with prolonged immobilization	COC, patch, ring
Previous or current ischemic heart disease; complicated valvular heart disease	COC, patch, ring
Migraine with aura	COC, patch, ring
Systemic lupus erythematosis antiphospholipid Ab+	COC, patch, ring

COC=combined oral contraceptives; DVT=deep vein thrombosis; IUC=intrauterine contraception; PE=pulmonary embolism.

1. WHO. *Medical Eligibility Criteria for Contraceptive Use*. 2010.

Contraindications to Contraceptives

(adapted from WHO[1])

Condition/Personal Characteristics	*Contraindicated Contraceptive Methods*
Distorted uterine cavity,unexplained vaginal bleeding	Copper and progestin IUC
Current breast cancer	All combination estrogen-progestin and progestin-only methods
Active viral hepatitis; severe cirrhosis; hepatocellular adenoma; malignant tumor	COC, patch, ring
Cervical or endometrial cancer	Copper and progestin IUCs
Postseptic abortion; puerperal sepsis	Copper and progestin IUC
Current PID; gonorrhea, chlamydia, purulent cervicitis	Copper and progestin IUC
Active gestational trophoblastic disease	Copper and progestin IUC
Pelvic tuberculosis	Copper and progestin IUC
Pregnancy	All forms of contraception

COC=combined oral contraceptives; IUC=intrauterine contraceptive; PID=pelvic inflammatory disease.

1. WHO. *Medical Eligibility Criteria for Contraceptive Use*. 2010.

Patient-Centered Contraceptive Decision Making

Consider…

- Effectiveness (typical use failure rate) and side effects
- Likelihood and ability of patient to adhere to regimen
- Importance of patient not becoming pregnant at this time
- Age and frequency of intercourse
- Cost of method and ability to pay for it
- Concomitant drug use; health status and habits
- Desired duration; reversible vs. non-reversible method
- Patient's perceptions/misperceptions of risks, benefits of contraceptive use and pregnancy

Counseling for Contraceptive Success

- Counsel thoroughly on all contraceptive options, even if patient states preference for particular contraceptive[1]
- Educate postpartum lactating women on limitations of lactational amenorrhea method
- Many postpartum women experience unplanned pregnancy due to false perception of reduced fertility

1. Lamvu G, et al. *Contraception.*2006;73:399-403.

Strategies for Contraceptive Success

- Encourage LARC methods having top-tier effectiveness
- Avoid “bundling” of unrelated preventive care (eg, Pap test) with contraceptive initiation
- Avoid unnecessary delays of waiting for menstrual period or follow-up exam after pregnancy event
- Uncouple supply refills from follow-up visits for low-risk women

Strategies for Contraceptive Success

- Encourage dual protection, particularly in young women[1]
- Include male partner in counseling when possible and appropriate[2]
- Advise patients to stock EC in advance of need; give ulipristal acetate prescription to obese women[3,4]

1. Berer M. *Reprod Health Matters*. 2006;14:162-170.
2. Beenhakker B, et al. *Contraception.*2004;69:419-423.
3. Raine T, et al. *Obstet Gynecol*. 2000;96:1-7.
4. Lo SS, et al. *Hum Reprod*. 2004;19:2404-2410.

Patient Case #1: Michelle

- 15 yo, G0P0
- Comes to office with her mother for her first gynecologic visit
- Menarche: Age 13
- Periods: Normal
  - Mother says she experiences cramps
- Height: 5’2”
- Weight: 123 lbs
- BMI: 22.5 kg/m^2

Patient Case #1: Michelle (continued)

Do you need to perform an internal pelvic exam on adolescent girls like Michelle?

a. Yes

b. No

c. Yes, because she is experiencing dysmenorrhea

Patient Case #1: Michelle (continued)

Answer: B

- Internal pelvic examination not required for adolescents on first gynecologic visit unless they are experiencing abnormalities; mild dysmenorrhea is within range of normal for adolescents
- Annual screening recommended for chlamydia and gonorrhea in sexually active young women; one-time screening for HIV also advised
- HPV screening not recommended for adolescents

Patient Case #1: Michelle (continued)

When her mother leaves the room and you advise Michelle your conversation is confidential, she reports she is sexually active and is using condoms.

How would you approach contraceptive counseling for this patient? (Select all that apply.)

a. Suggest she continue using condoms alone

b. Suggest she use a dual-protection method

c. Review the chances of pregnancy with condoms

Patient Case #1: Michelle (continued)

Answer: B and C

- Inform her of typical efficacy of condoms (15%) and suggest she use a dual-protection method—condoms for STI protection plus another method with a higher contraceptive efficacy rate than condoms to prevent pregnancy
- Instruct her on how to use condoms correctly

Patient Case #1: Michelle (continued)

Which contraceptive choice would you recommend as first-line for Michelle?

a. Long-acting reversible methods (LARC)

b. Combined oral contraceptives (COCs)

c. Vaginal ring

d. Contraceptive patch

Patient Case #1: Michelle (continued)

Answer: A

- Both ACOG and the American Academy of Pediatrics recommend LARC methods as first-line contraception for sexually active adolescents
- LARC methods are among the most user-friendly, convenient, and discreet contraceptives
- COCs, rings, and patches can be discovered by parents and need to be refilled on a frequent basis, creating the opportunity for missed doses and unplanned pregnancy

Patient Case #1: Michelle (continued)

Since Michelle has mild dysmenorrhea, which LARC method would be most appropriate for her? (Select all that apply.)

a. Levonorgestrel IUC

b. Copper-T IUC

c. Progestin implant

Patient Case #1: Michelle (continued)

Answer: A and C

- Both the levonorgestrel IUC and the progestin implant offer long-term, convenient contraception that is reversible while also having the potential to reduce dysmenorrhea
- The copper-T IUC does not reduce menstruation-related symptoms and is associated with heavier, longer, and more painful periods during early use

Patient Case #2: Bonnie

- 19 yo, G0P0
- Three-month extended regimen COC for 4 months
- Complains of inconvenient irregular bleeding
- Worried she may become pregnant
- Height: 5’6”
- Weight: 167 lbs
- BMI: 27 kg/m^2

Patient Case #2: Bonnie (continued)

Which of the following question(s) is most likely to uncover the cause of Bonnie's unscheduled bleeding and spotting?

a. Do you take your pill at the same time every day?

b. Have you taken an at-home pregnancy test?

c. Do you have access to emergency contraception?

d. Are you using a back-up form of contraception?

Patient Case #2: Bonnie (continued)

Answer: A

- The most likely cause of unscheduled bleeding and spotting is irregular pill use
- Because unscheduled bleeding can also be a sign of pregnancy, especially in the setting of irregular pill use, if patient has not taken an at-home pregnancy test, order a pregnancy test at this visit
- The remaining questions are important to include but can be addressed later in the visit

Patient Case #2: Bonnie (continued)

The medical interview confirms that Bonnie doesn't always take her pill every day at the same time and she occasionally forgets pills and takes two the next day. What other methods would you counsel Bonnie about? (Select all that apply.)

a. Vaginal ring

b. Implant

c. Intrauterine contraception (IUC)

d. Progestin injections

Patient Case #2: Bonnie (continued)

Answer: All of the answers are correct

- All of these methods would be appropriate for Bonnie and would be less user-dependent than daily pills
- The implant and IUC offer long-term, highly convenient birth control and are in the top tier of contraceptive effectiveness

Patient Case #2: Bonnie (continued)

Which method of EC would you tell Bonnie is most effective ?

a. Levonorgestrel 1.5 mg tablet
b. Ulipristal acetate
c. Insertion of a copper-T IUC

Patient Case #2: Bonnie (continued)

Answer: C

- Copper-T IUC is most effective method and provides continuing method of contraception
  - Disadvantage: Inserting IUC requires visit with health care provider
- Prescription UPA (ella) may be more effective oral EC given patient's weight, per recent studies
- Oral levonorgestrel has advantage of being available over the counter without prescription or age restrictions to both men and women
  - May be less effective that UPA in overweight women

Patient Case #2: Bonnie (continued)

What other issues would you discuss with Bonnie at this contraceptive visit?

a. Preventive health screening
b. Her family history of ovarian cancer
c. Her risk of sexually transmitted infections (STIs)
a. Her sexual response

Patient Case #2: Bonnie (continued)

Answer: C

- You would also bring up risk of STIs and counsel her to use male or female condoms along with the pill with new and multiple partners
- The contraceptive visit should focus on choice of method, provision of EC, and use of condoms to prevent STIs

Patient Case #2: Bonnie (continued)

Bonnie decides to continue with her extended-regimen COC.

When would you instruct her to return for a follow-up visit?

a. 3 months
b. 6 months
c. 12 months

Patient Case #2: Bonnie (continued)

Answer: A

- Instruct Bonnie to return in 3 months for follow-up to see if she is taking COCs more consistently or if she should consider switching to a less user-dependent LARC method

Abnormal Uterine Bleeding

Jason Heaton, MD

Introduction

- 1/3 of all outpatient gyn visits are for AUB
- Majority of cases occur just after menarche or in the perimenopausal time period
- Among adolescents, AUB is most frequent cause of urgent admission to the hospital
- World wide affects 50% of menstruating women
- Of the half-million hysterectomies performed in the U.S., 50% or more are for AUB

What is normal?

- Normal uterine bleeding is defined as menses occurring ever 28 days (+/- 7 days) with a mean duration of 4 days with mean EBL of 30cc
- AUB = uterine bleeding that occurs outside of normal menstruation
- DUB (dysfunctional uterine bleeding) = AUB that cannot be attributed to an anatomic, organic, or systemic cause. ACOG prefers the term anovulatory bleeding.

AUB terms

- Oligomenorrhea – bleeding episodes vary from 35 days to 6 months
- Polymenorrhea – regular bleeding occurring at intervals less than 21 days
- Menorrhagia – excessive (>80cc) or prolonged (>7 days) menstruation
- Metrorrhagia – bleeding at irregular intervals
- Menometrorrhagia – heavy bleeding at irregular intervals
- Intermenstrual bleeding – bleeding between menses

Taking a menstrual history

- Menstrual diaries are very helpful determining the frequency and length of the patient's menses
- The amount of blood loss is much more difficult to assess by history
- Studies show that 40% of women with blood loss > 80 cc consider their menses light or moderate while 14% of women with blood loss < 20 cc consider their menses heavy

Why is it so difficult to determine the amount of blood loss?

- Three is great variability of absorption among different sanitary products as well as among different devices in the same package.
- The percent contribution of blood to the total fluid volume of menstrual discharge varies extensively from 1.6% to 81% (mean 36%) → most fluid is from endometrial tissue exudate.

Why is it so difficult to determine the amount of blood loss?

- Bottom line: ask about the passage of blood clots or the degree of inconvenience caused by the bleeding (not the type or # of pads) and check a CBC

Etiologic Bases of anovulatory bleeding

- Bleeding due to estrogen-withdrawal
- Bleeding due to estrogen-breakthrough
- Bleeding due to progesterone-breakthrough

Etiologic Bases of anovulatory bleeding

- Estrogen-withdrawal
  - Results from unexpected decrease in estrogen levels
  - Examples include:
    - Iatrogenic after BSO
    - Recurrent midcycle spotting just before ovulation 2ndary to dip in levels of estrogen
    - Prolonged estrogen withdrawal resulting which occurs in postmenopausal women

Etiologic Bases of anovulatory bleeding

- Estrogen-breakthrough
  - Results from chronic and unopposed estrogenic stimulation of the endometrium. The unabated proliferation results in unsufficient structural support and parts of the endometrium slough at irregular and unpredictable intervals
    - PCOS is classic example (No progesterone withdrawal)

Etiologic Bases of anovulatory bleeding

- Progesterone-breakthrough bleeding
  - Occurs when the progesterone-to-estrogen ratio is relatively high
    - Usually occurs with the use of oral contraceptives. Endometrium atrophies and ulcerates due to the lack of estrogen and is prone to frequent irregular bleeding.

Differential diagnosis of AUB

- Pregnancy
- Infection- ie cervicitis, endometritis
- Trauma- laceration, IUD
- Cancer- cervix, endometrial
- Benign pelvic pathology- polyps, fibroids
- Systemic disease- coagulapathy, endocrine
- Medication/Iatrogenic causes- ocp's, stress

Etiology of AUB relates to age

- Birth
  - Estrogen withdrawal
- Birth to age 9
  - Foreign body, infxn, sarcoma botryoides, trauma, ovarian tumor
- Age 12
  - Blood dyscrasia, hypothlamic immaturity, psychogenic
- Age 13- 45
  - Anovulation, functional, iatrogenic, pregnancy, uterine
- Age 45-55
  - Climacteric, polyps, carcinoma
- Postmenopausal
  - Atrophy, carcinoma, estrogen replacement

Evaluation of AUB

- History
  - Nature of the bleeding
  - When did bleeding start
  - Associated symptoms (pain, fever, discharge?)
  - Personal or family h.o. bleeding disorder
  - Medical problems
  - Medications
  - Sexually active
  - Change in weight

Evaluation of AUB

- Physical exam
  - Thyroid
  - Hirsutism
  - Obesity (BMI > 25 kg/m2)
  - Acanthosis Nigricans
  - Galactorrhea
  - Pregnancy
  - Pelvic exam

Evaluation of AUB

- Laboratory evaluation
  - Pregnancy test
  - TSH & Prolactin (fasting)
  - CBC
  - Other labs may include PT,PTT, DHEAS
  - Cervical cytology
  - Endometrial biopsy – all women over 35 y.o. and younger women if elevated risks of endometrial cancer

Evaluation of AUB

- Imaging studies
  - Ultrasound
  - Saline Infusion Sonography
  - Hysteroscopy
  - HSG

Evaluation of AUB

- Saline infusion sonography
- In one study TVS alone left polyps undiagnosed in 20% of patients.

Evaluation of AUB

- What is the significance of the endometrial thickness in a postmenopausal patient?
- Endometrial stripe 3 mm or less compares favorably to endometrial biopsy

Treatment of AUB

- **MEDICAL THERAPY**
- Iron
- TXA – Lysteda for 5 days during bleeding
- Motrin / Naproxen
- Oral contraceptives, Nuva ring, Ortho Evra
- Mirena IUD

Treatment of AUB

- **Iron**
  - Average woman in ingests enough dietary iron to replace that lost in menstrual blood volumes of up to 60mL per month.
  - Blood loss over 60 mL per month may require supplementation

Treatment of AUB

- **More on TXA (Lysteda)**
  - Tranexamic acid (TA) reduces menstrual blood loss by 41% (used commonly outside of North America). The dose is 1 gram PO QID for days 1-4 of menses

Treatment of AUB

- **More on Motrin / Naproxen**
  - NSAIDs reduce MBL by 20-50%
  - REMEMBER: 70% of blood loss occurs in first 2 days of menses

Treatment of AUB

- **More on Mirena IUD**
  - reduce volume of bleeding by 79-94%
  - 76% of pts chose to continue it compared to 22% of oral norethindrone
  - 64-82% of pts who received the IUD but were also scheduled for hysterectomies elected to cancel the surgery due to satisfaction with IUD.

Treatment of AUB

- **Oral Contraceptives**
  - Useful for ovulatory and anovulatory bleeding
  - Reduces menses by about 50%
  - Acute bleeding may be treated with 1 tab TID for 7 days and then a 5 day withdrawal bleed before starting a new pack

Treatment of AUB
summary of medical rx

- **Ovulatory AUB**
  - OCP, Progestin IUD, tranexamic acid, NSAIDs, GnRH agonist
  - **Anovulatory AUB**
    - Cyclic progestins or OCP's

Treatment of AUB

- Surgical treatment
  - Endometrial Ablation
    - Morbidity uncommom
    - Uterine perforation 14 / 1000
    - Fluid overload 2 / 1000
  - Hysterectomy
    - Morbidity 15%
  - Note: Dilatation and Curettage is only useful in acute setting

Treatment of AUB

- **Endometrial ablation**
  - Balloon ablation i.e. ThermaChoice Uterine Balloon
  - Cryoablation i.e. Her Option Uterine Cryoablation
  - Radiofrequence probe (vesicovaginal fistulas)
  - Unipolar electrodes
  - Bipolar electrodes (i.e. Novasure)
  - Microwave
  - Diode laser (costly)
  - Photodynamic therapy

Treatment of AUB

- Endometrial ablation
  - 90% of patients are satisfied
  - At 5 years, 80% had no further surgery and 91 % had not had a hysterectomy
  - Another study showed that at 5 years, 34% of women who underwent ablation then had hysterectomy
  - Ablation is 50% less costly than hysterectomy (even better if include reduced morbidity and faster return of the pt to work)

Treatment of AUB

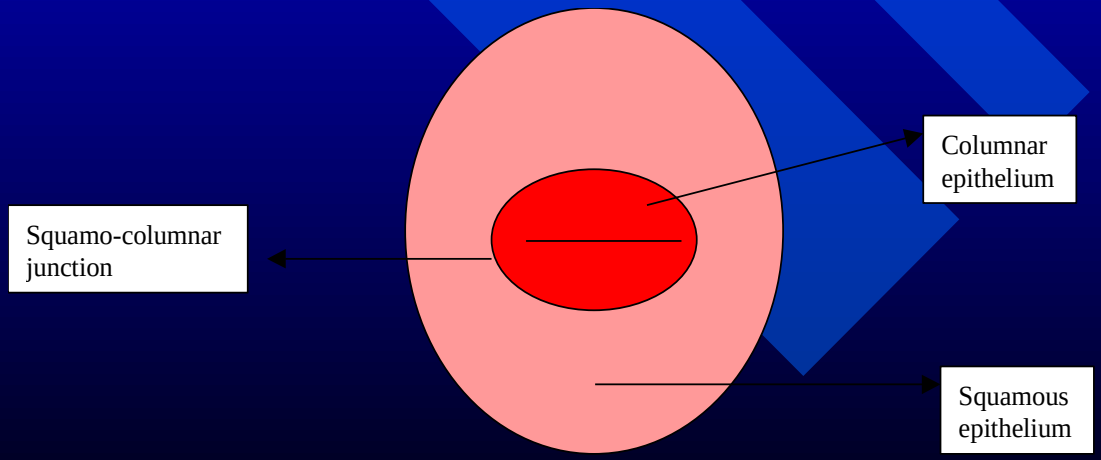
- Hysterectomy
  - Most common surgical treatment for AUB.
  - 550,000 hysterectomies performed each year in U.S.
  - 40% performed for AUB
  - 50% of uterine specimens show no uterine abnormality

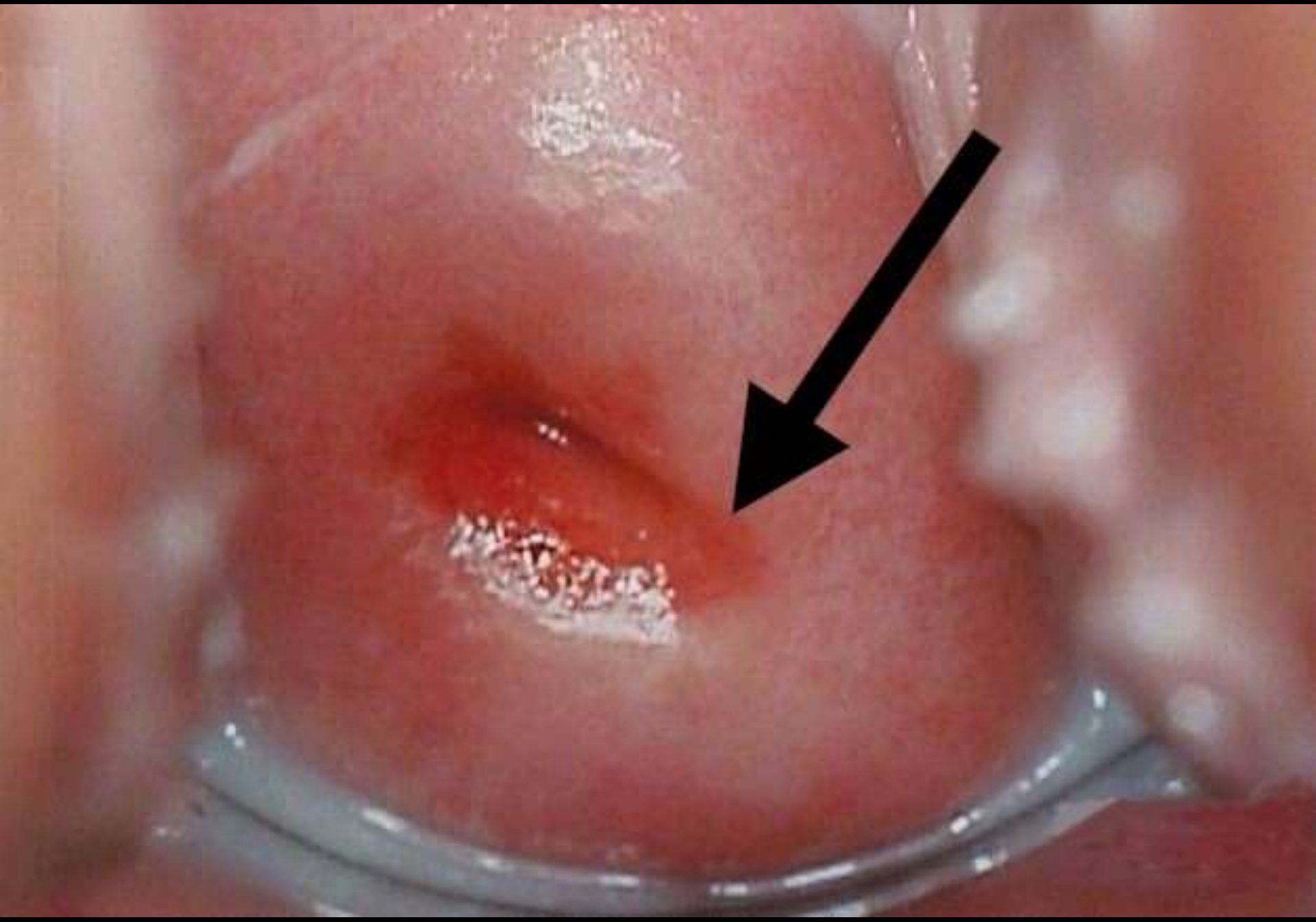
Pap Smear Update

CDR Jason Heaton, MC, USN
Dept of Obstetrics and Gynecology
NMCSD
619-453-6980

Pelvic Exam and Pap Smear

- Correct size speculum; good lighting
- Sampling technique: OK to use gel /KY on spec
  - blot off excess discharge; during menses OK
  - visualize entire transformation zone
  - ectocervical then endocervical collection
  - immediate VIGOROUS rinse in thin prep soln





POLYP - benign

Not benign

Screening Guidelines

- Annual Exam for ALL women
- 21 yrs old – initial pap smear
- 21-29 yrs old – q 3 yrs, if normal
- 30 and older – every 5 years PAP and HPV (preferred) OR PAP only every 3
- Abnormal Pap – see ASCCP guidelines

HPV Vaccine

- Gardasil – non-infectious, recombinant, quadrivalent vaccine; specific for HPV subtypes 6,11 (warts) and 16, 18 (cancer)
- Females age 9-26 yo; for disease prevention, not treatment (already infected)
  - Dysplasia patients can receive vaccine
- 3 dose schedule – 0, 2 mos, 6 mos
- Very safe, very effective

Success Strategies

- Single POC for all well woman exams
  - Organized, knowledgeable, approachable
- Tickler file for pap F/U; colpo appts; vaccines
- Contact your referral clinic to determine their preferences, how to expedite consults, how to help each other, and for ANY QUESTIONS
- American Society for Colposcopy and Cervical Pathology – www.asccp.org

NAVAL MEDICAL CENTER
SAN DIEGO
THE PRIDE OF NAVY MEDICINE

OPERATIONAL MEDICINE:
RADIOLOGY INTRODUCTION

MIKE H. LEE, M.D.

Terminal Objectives

- Understand the different imaging modalities commonly encountered in clinical practice
- Be able to conduct an initial read of a plain film radiographic image
- Be able to state when to order imaging for some common primary care complaints

Enabling Objectives

- Understand the different imaging modalities commonly encountered in clinical practice
  - Be able to state the basics of how different images are obtained
  - Be able to state the advantages and disadvantages of each modality

The Different Imaging Modalities Overview

- X-Ray (CR/DR)
- Computed Tomography (CT)
- Magnetic Resonance (MR)
- Ultrasound (US)
- Nuclear Medicine (Nuc)
  - Bone scan, Biliary scan
  - Positron Emission Tomography

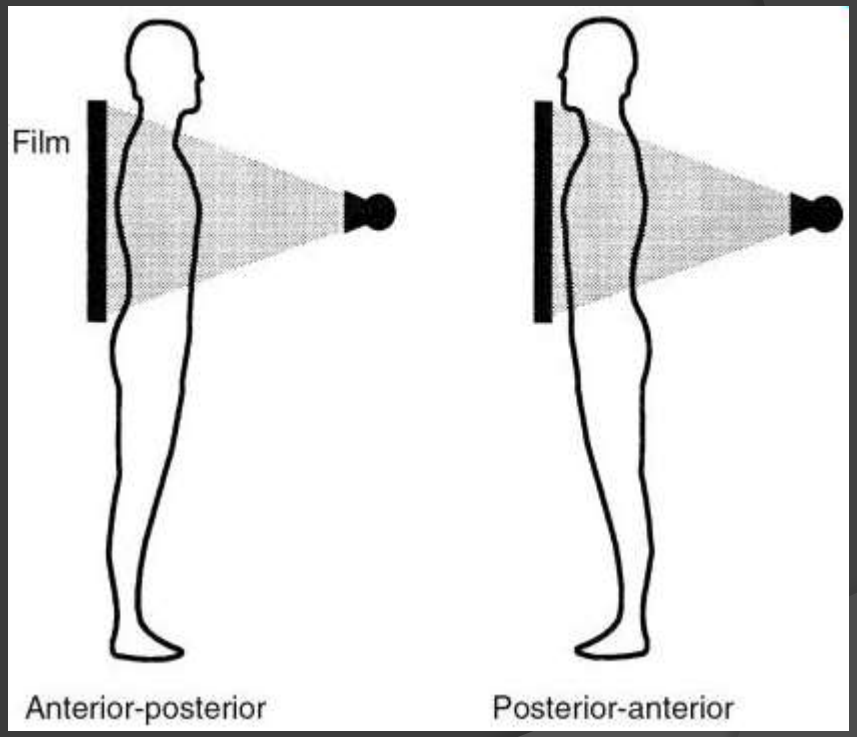
- One is not “better” than the other…

The Different Imaging Modalities
X-Ray

- Overview
  - Uses: Single Pulse, Ionizing Radiation
    - Radiation dose low, but not negligible
  - Good for: high contrast (bones, air spaces)
  - Bad for: soft tissue, overlapping structures

X-Ray Views

- Single shot using ionizing radiation
  - If the beam hits the anterior first, it is called “anterior-posterior” or AP
  - If the beam his the posterior first, it is called “posterior-anterior” or PA
  - If the beam comes on sideways, it is a lateral view

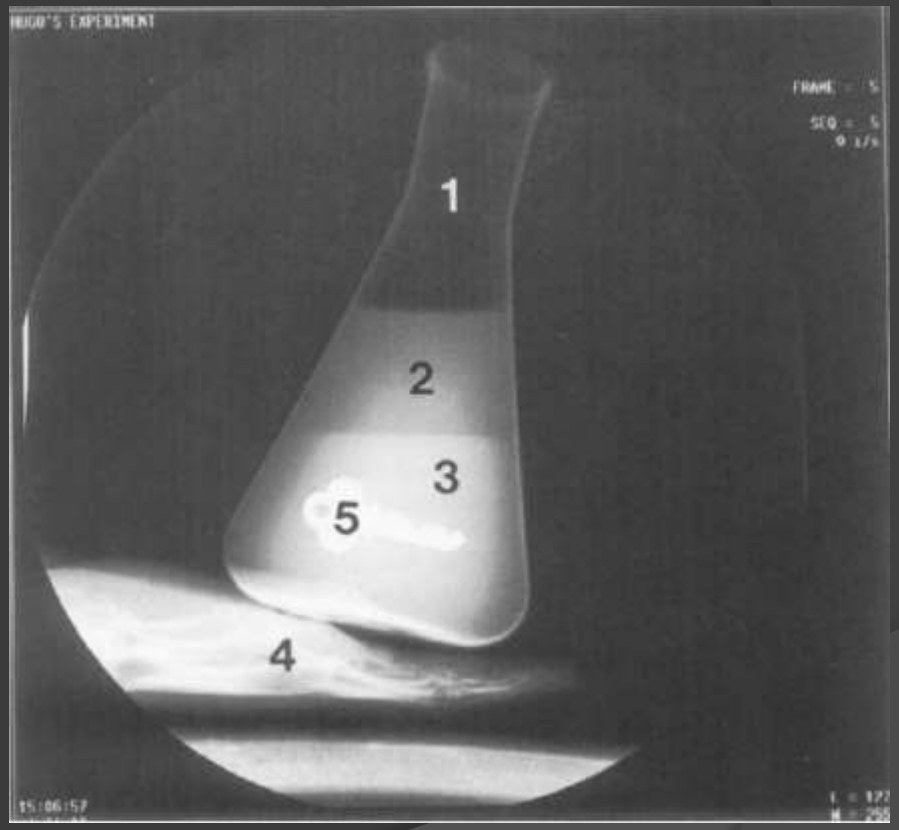


X-Ray (XR) Film

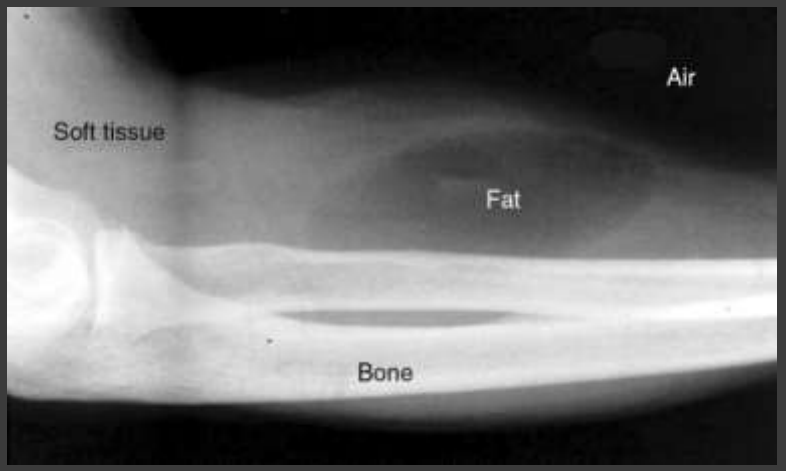
- X-Ray film is white to start
- Turns dark if hit by rays
  - The more rays get through, the darker it will be
- Dense materials (bone, metal) block rays
  - The film stays light
- Less dense materials (air, water) block fewer rays
  - The film darkens

XR - The Five Densities

- There are 5 basic radiographic densities
  1. Air (darkest)
  2. Fat
  3. Fluid/Blood/Soft Tissue
  4. Bone
  5. Metal/Contrast

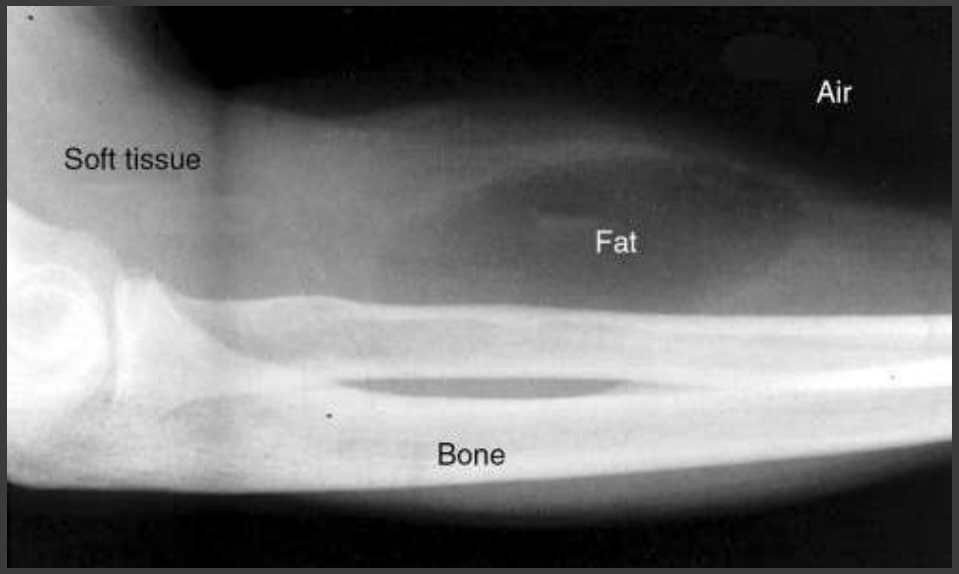


XR - The Five Densities



- There are 5 basic radiographic densities
  1. Air (darkest)
  2. Fat
  3. Fluid/Blood/Soft Tissue
  4. Bone
  5. Metal

XR - Differentiation

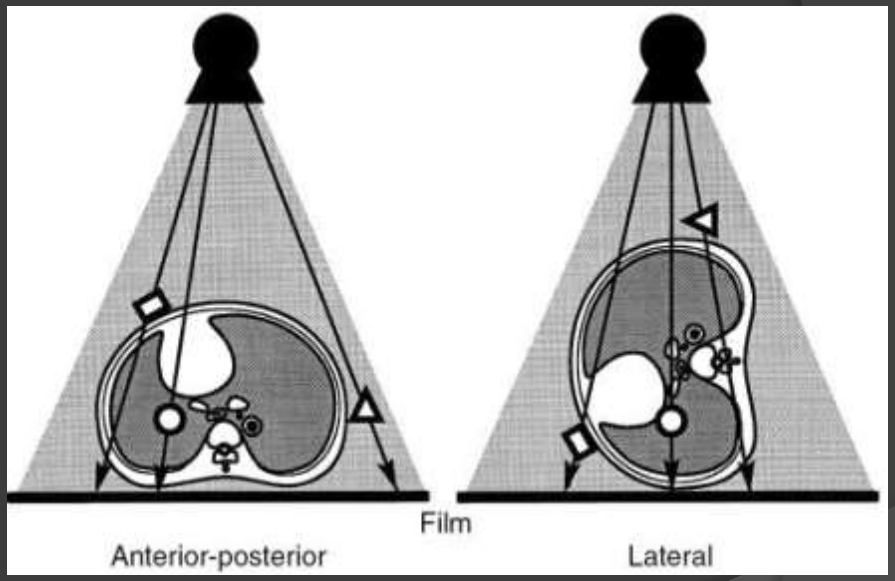


- X-Ray can only differentiate structures if there is a difference in their radiographic density
  - In this image the fat pocket is clearly seen compared to the muscle since they are of different densities
  - But the different muscles are not clearly defined from each other since they are the same density

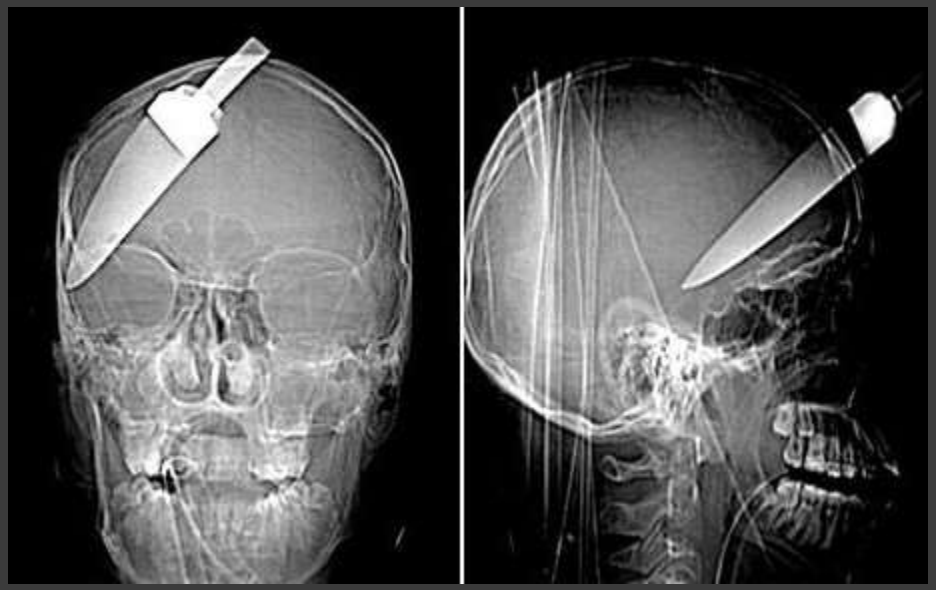
XR - Differentiation

XR - Projections

- X-Ray images are 2D representations of 3D objects
  - Similar to shadows
- Like shadows, when structures overlap, there is no way to tell which is on top
  - Use two views to localize objects



XR - Projections



The Different Imaging Modalities X-Ray

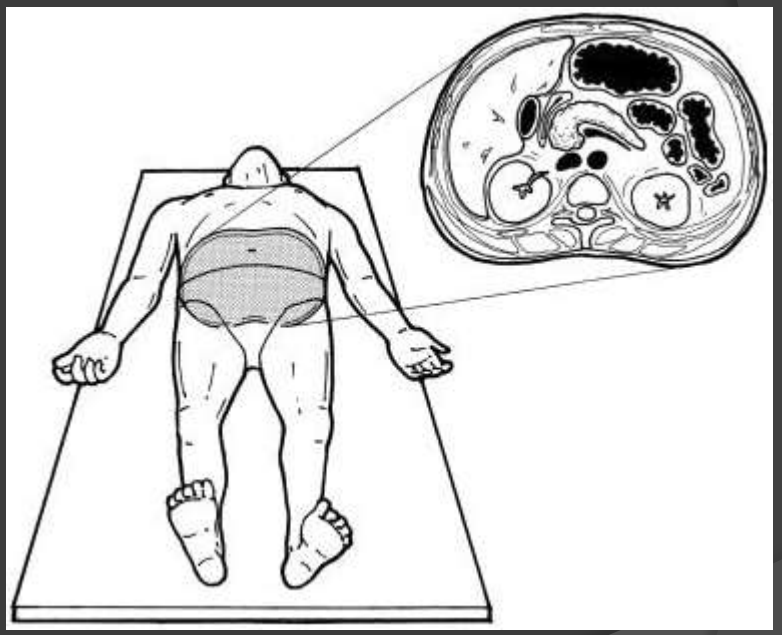
- Summary
  - Uses: Single Pulse, Ionizing Radiation
    - Radiation dose low, but present
  - Good for: bones, airspaces
  - Bad for: soft tissue, overlapping structures

The Different Imaging Modalities CT

- Overview
  - Uses: Multiple Pulse, Ionizing Radiation
    - Radiation dose high
  - Good for: bones, airspaces, some soft tissue, overlapping structures
  - Bad for: some soft tissue

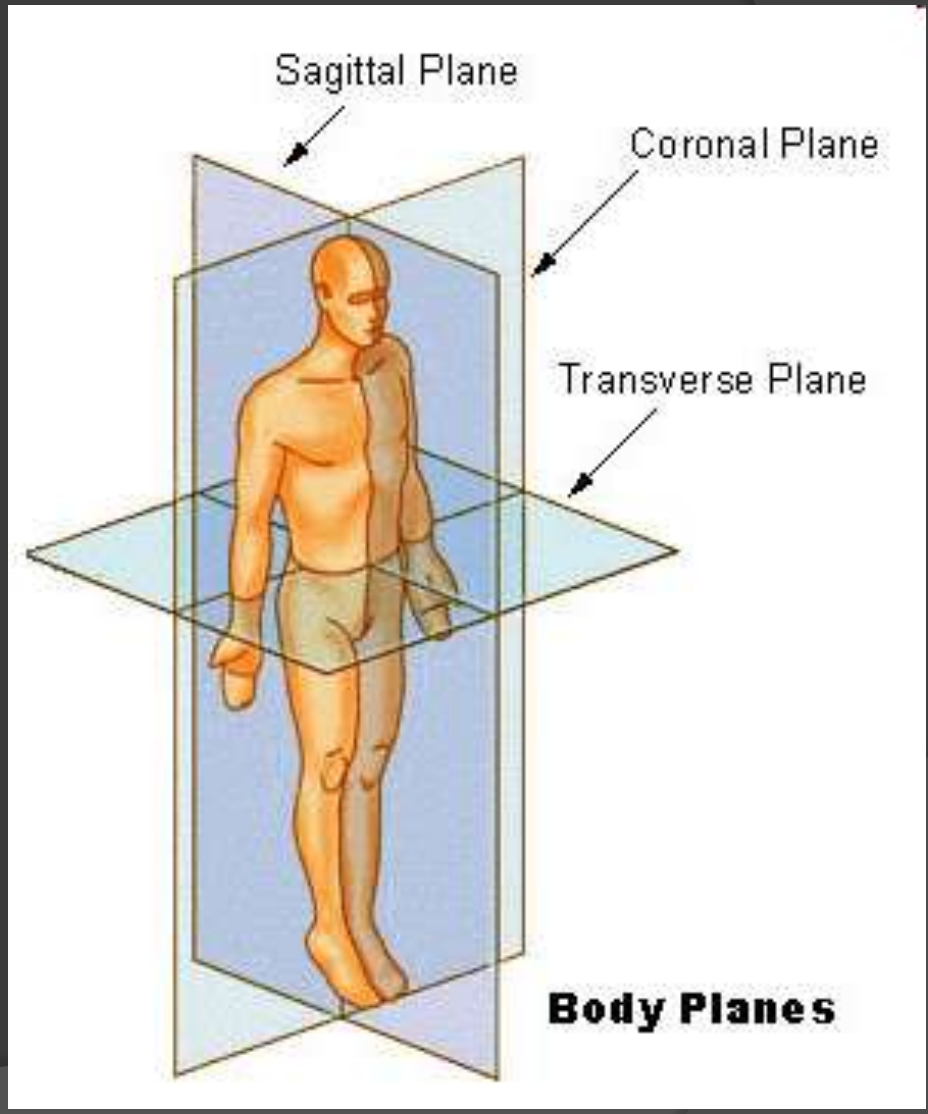
CT Views

- Multiple “slices” presented as if the patient’s feet were coming out of the screen
  - The patient’s left side is shown on the right side of the image



CT Views

- CT can cut the slices in different planes
  - Coronal
  - Axial
  - Sagittal

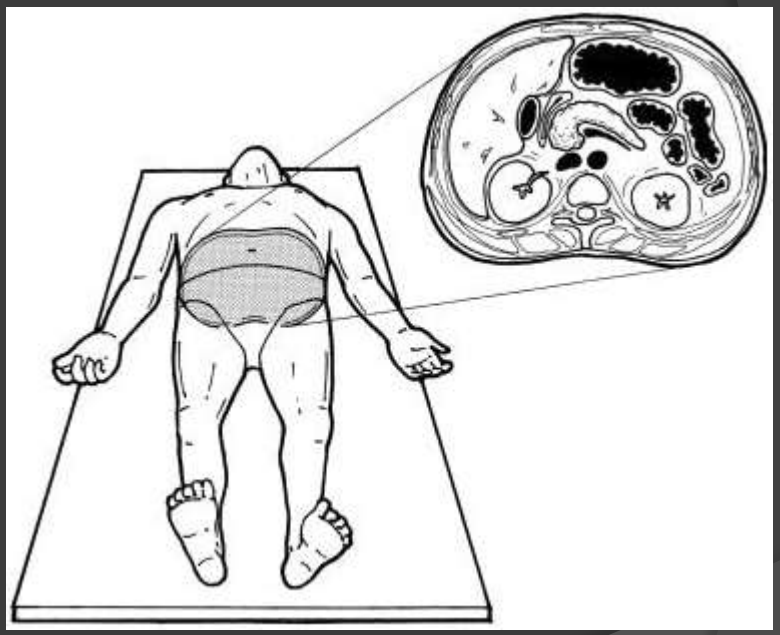


CT Views

- Postprocessing in different planes
  - Coronal
  - Sagittal
  - Custom

CT Views

- CT has the same densities as XR
  - Since CT uses slices and not shadows, more can be seen
  - Reconstruction possible
  - Can be “windowed” to make certain densities stand out more



CT Views

- CT has the same densities as XR
  - Since CT uses slices and not shadows, more can be seen
  - Can be “windowed” to make certain densities stand out more

The Different Imaging Modalities CT

- Summary
  - Uses: Multiple Pulse, Ionizing Radiation
    - Radiation dose high
  - Good for: bones, airspaces, some soft tissue, overlapping structures
  - Bad for: some soft tissue

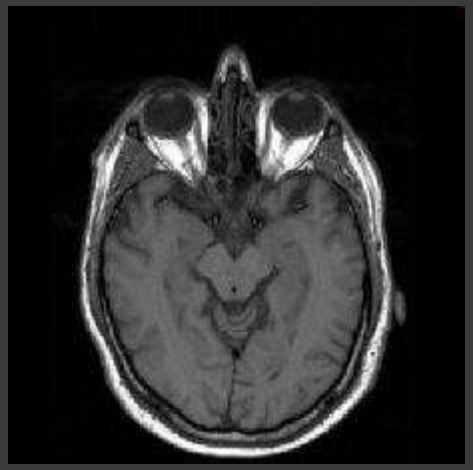
The Different Imaging Modalities MR

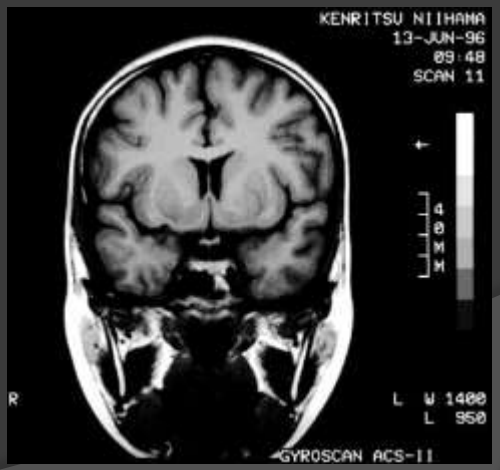
- Overview
  - Uses: Non-Ionizing Radiation
    - No radiation, but takes a long time
  - Good for: soft tissue
  - Bad for: people who can’t hold still, people with metal in their bodies

MR Views

- Same as CT, multiple slices in multiple imaging planes
- Very good at defining soft tissue
  - Strokes, tumors, neuroimaging, etc.

MR Views




KENRITSU NIIHAMA
13-JUN-96
09:48
SCAN 11
40MM
R
L W 1400
L 950
GYROSCAN ACS-II

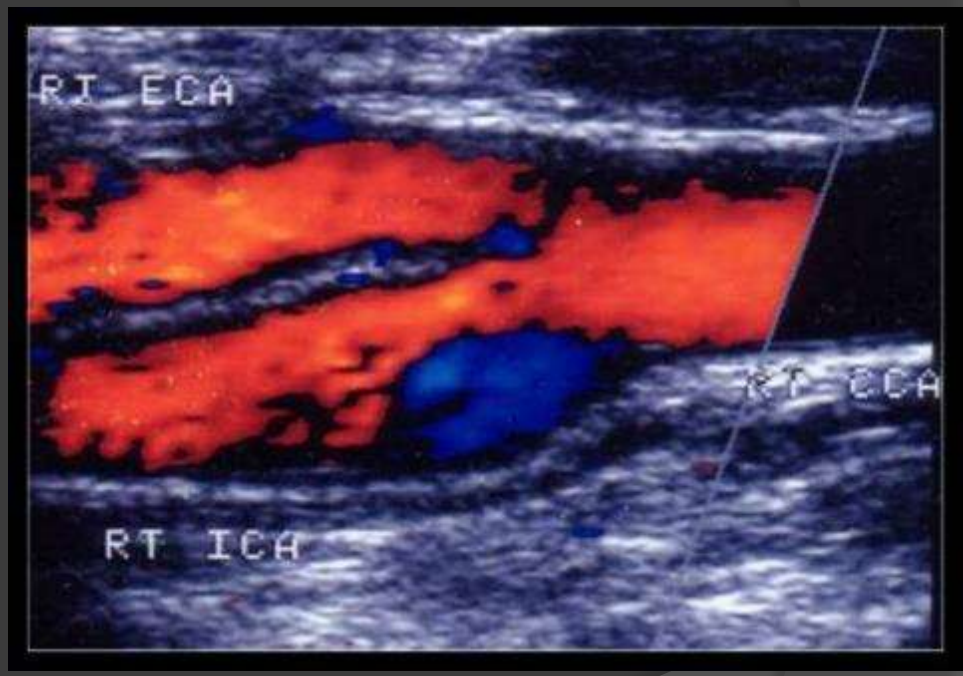
The Different Imaging Modalities MR

- Summary
  - Uses: Non-Ionizing Radiation
    - No radiation, but takes a long time
  - Good for: soft tissue
  - Bad for: people who can’t hold still, people with ferrous substance in their bodies

The Different Imaging Modalities U/S

- Overview
  - Uses: Sound Waves
    - No radiation, but can't go very deep
  - Good for: determining fluid vs. solid, abdominal imaging, assessing flow (doppler)
  - Bad for: things underneath bones (chest), things in chambers of air (chest), deep things

Ultrasound



Imaging Modalities Summary

Modality	Uses	Good	Bad
X-Ray	Low Rad	Bones, airspaces	Soft tissue, overlapping things
CT	High Rad	Almost everything	Some soft tissue
MR	No Rad	Soft tissue	Takes long time, metal
U/S	No Rad	Soft tissue, abdomen	Deep structures

Enabling Objectives

- Be able to conduct an initial read of a plain film radiographic image
  - Develop a system for a “pre-read” of all films
  - Understand a system for reviewing a chest X-Ray
  - Be able to correlate basic radiographic images with anatomy

The “Pre-Read”

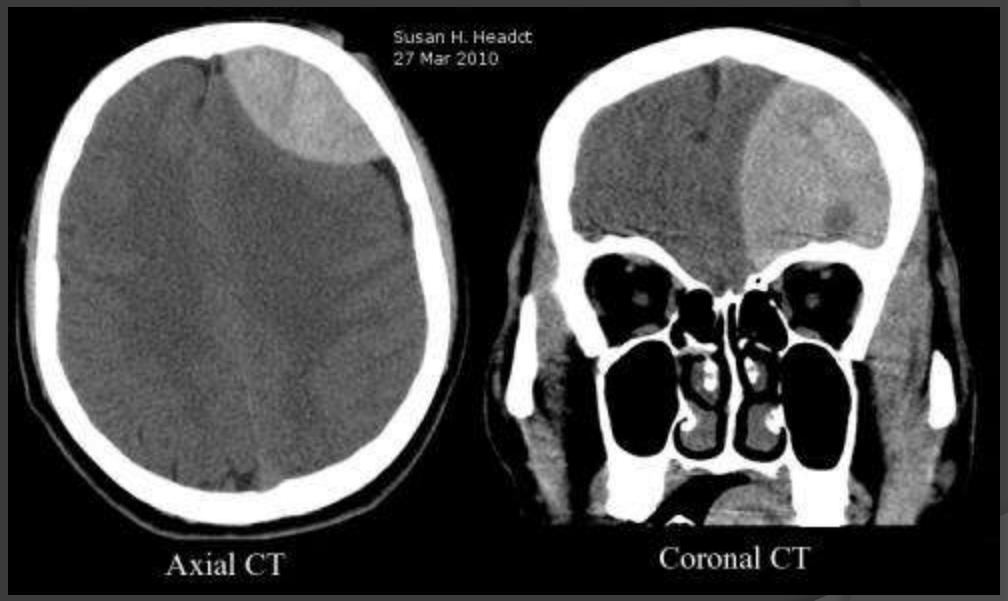
- Before you do anything else, you must:
  - Confirm image is from the correct patient
  - Confirm image is from the correct date
  - Confirm image is of the correct body part
  - Confirm image is of the correct type
  - Confirm image has number of views you expect
  - Check to see if any comparison films are there

Pre-read Example

- Right Patient?
  - We are looking at a film from Winchester the Cat
- Right date?
  - It is from 26 March 10
- Right number of images/type/part?
  - It is a single lateral x-ray view of the chest
- Any comparisons?
  - There is a prior X-ray of the elbow from 18 Nov 2009

Pre-read Example

- Right Patient?
  - We are looking at a film from Susan H. Headct
- Right date?
  - It is from 27 March 10
- Right number of images/type/part?
  - It is a two view, axial and coronal CT of the head
- Any comparisons?
  - There are no comparison images



Pre-read Example

- Right Patient?
  - We are looking at a film from John Q. Fakename
- Right date?
  - It is from 26 March 10
- Right number of images/type/part?
  - It is a single AP x-ray view of the pelvis
- Any comparisons?
  - There are no prior comparison images

Reading a Chest X-Ray

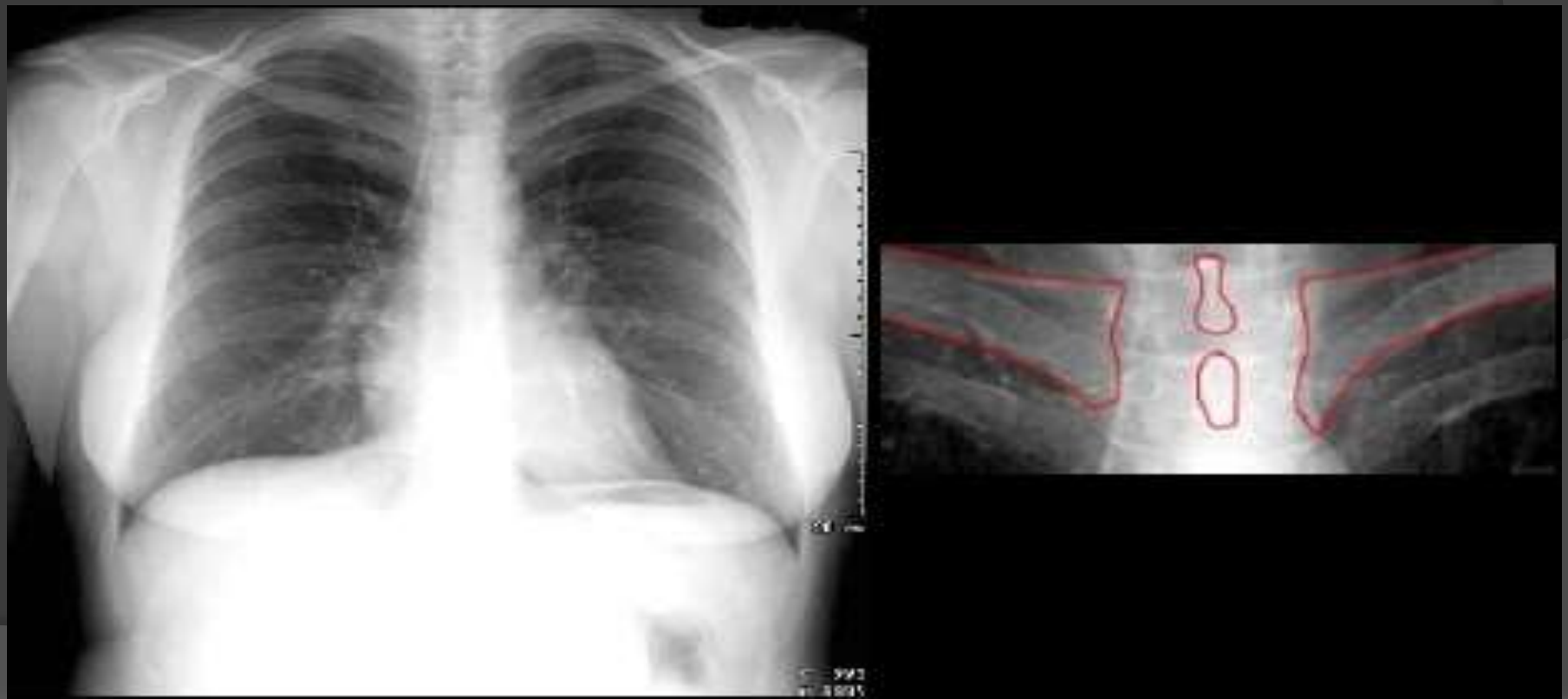
- Step #1 – Do your pre-read
- Step #2 – Assess the technical adequacy of the film
- Step #3 – Conduct a systematic evaluation of the film

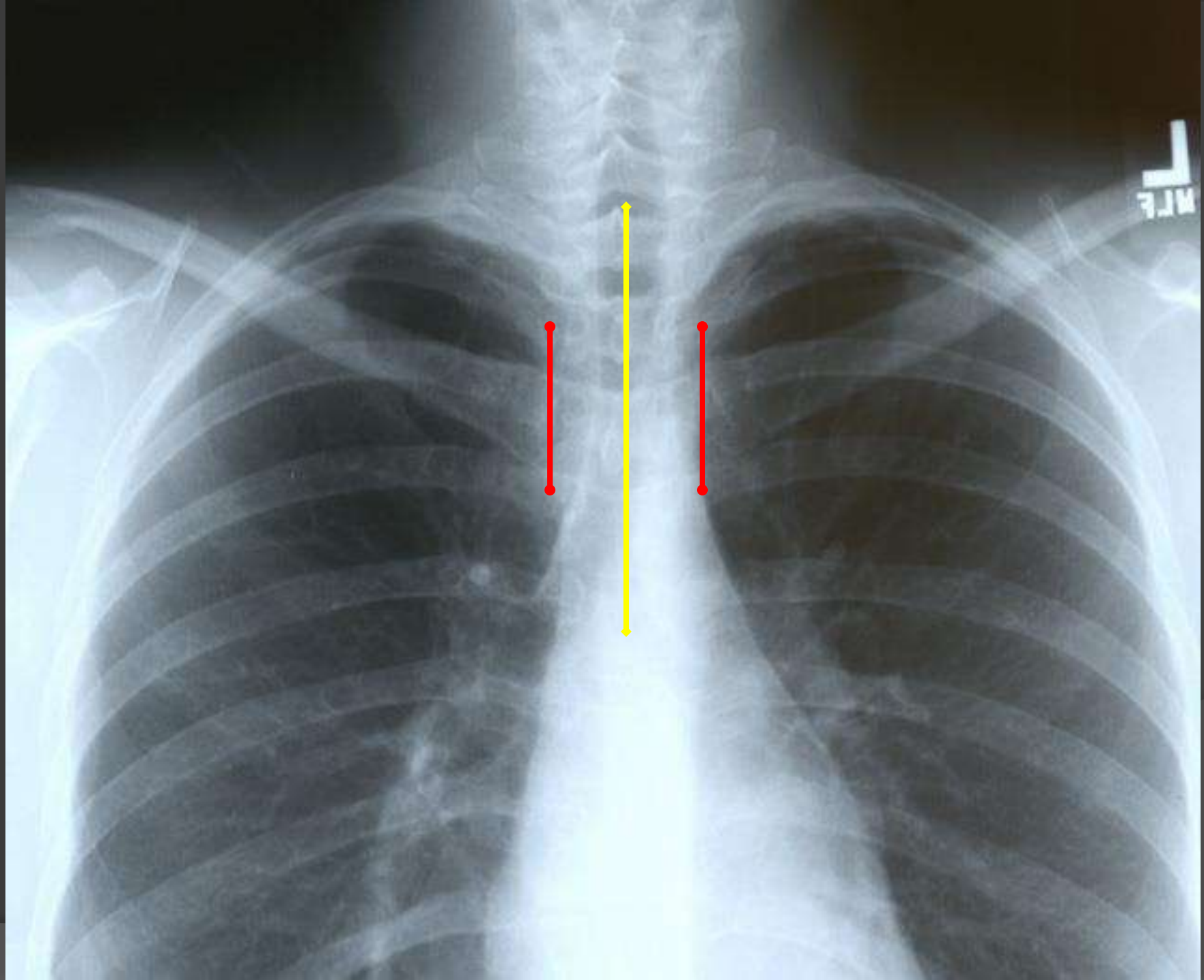
Assessing Technical Adequacy

- Examples
  - Rotation – are the clavicles flush with the sternum?
  - Inspiration – was the patient taking a deep enough breath?
  - Penetration – was the X-ray pulse strong enough, or perhaps too strong?

Assessing Technical Adequacy Rotation

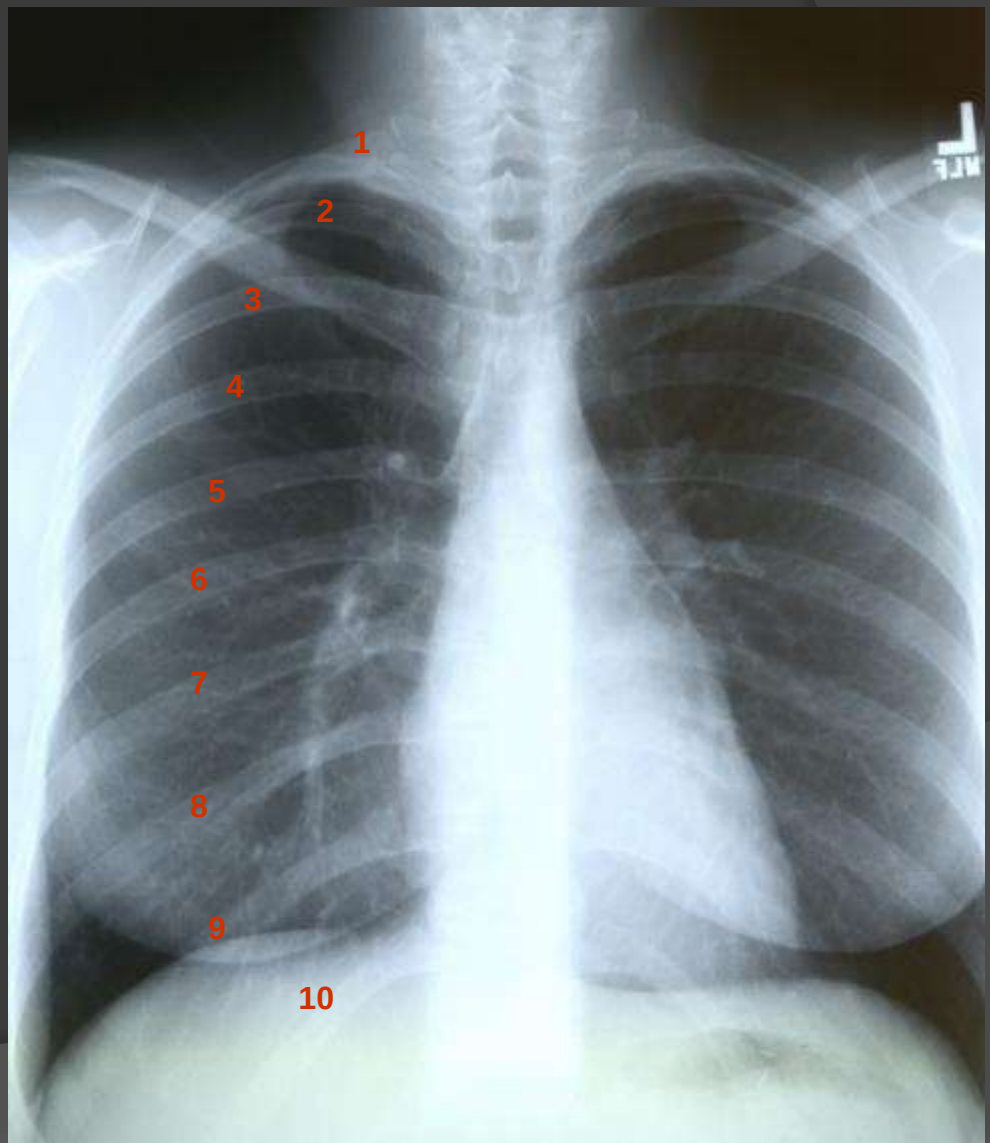
- Loot at the clavicles relative to the vertebral column
  - They should be equally spaced

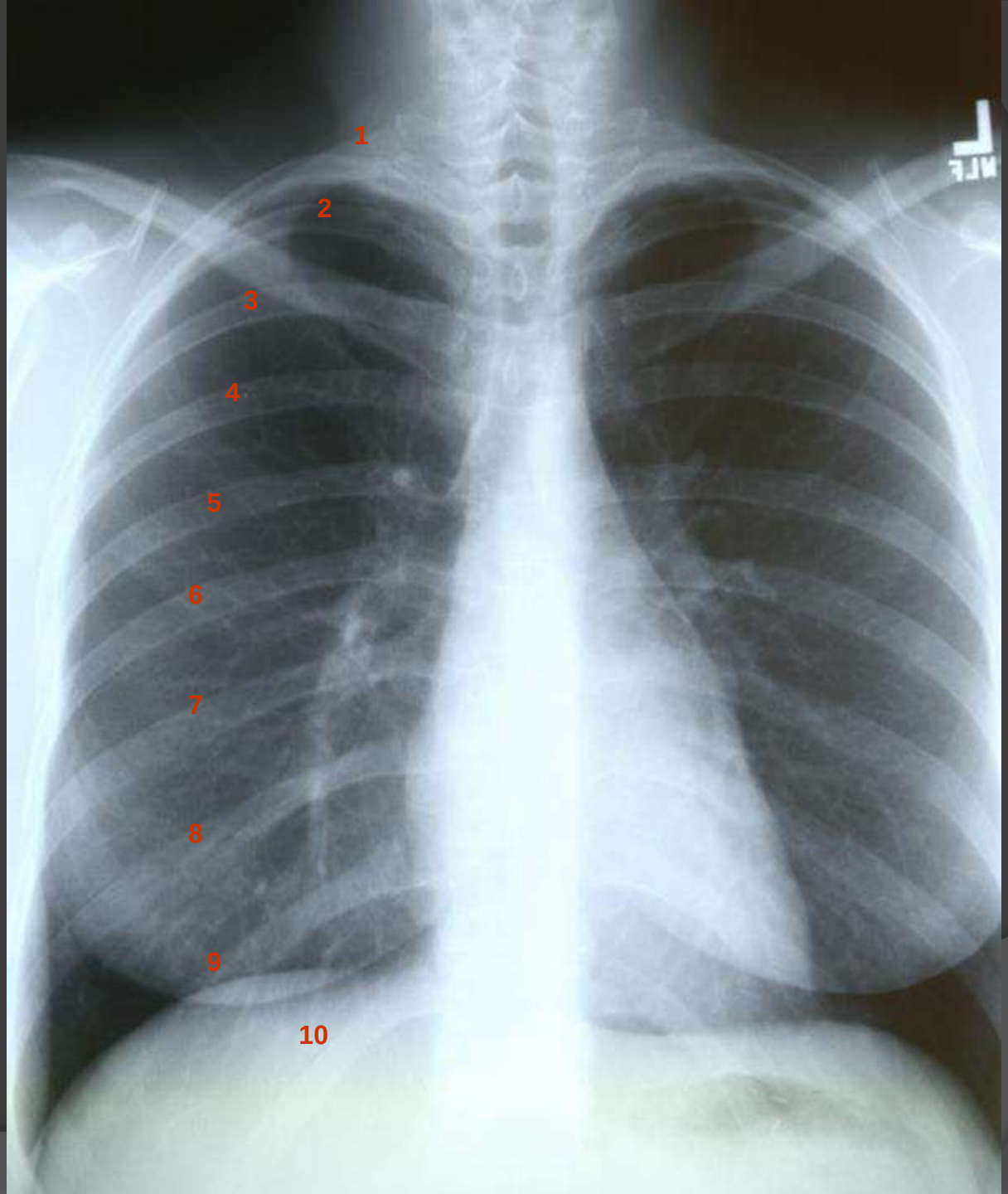




Assessing Technical Adequacy Inspiration

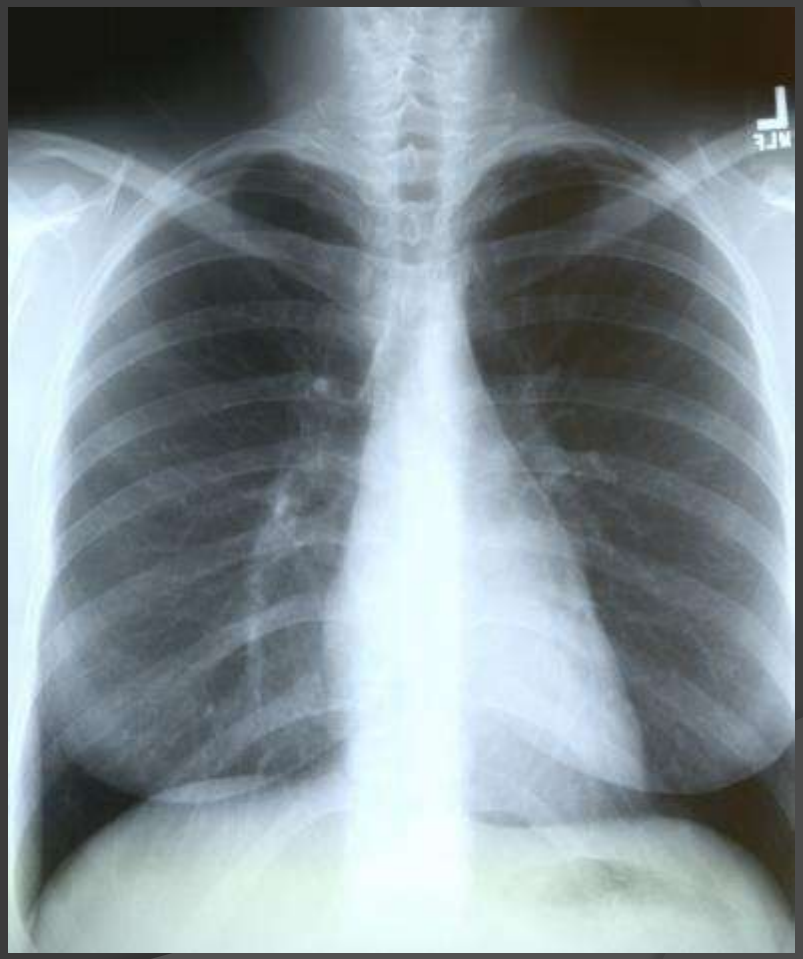
- Look at the ribs
  - You should be able to count 9-10 ribs
  - Count the ribs starting where they come out from the vertebral bodies
  - Remember you will see both the anterior and posterior portions of the rib




1
2
3
4
5
6
7
8
9
10

Assessing Technical Adequacy Penetration

- Should see ribs through the heart
- Should barely see the spine through the heart
- Should see pulmonary vessel “haziness” nearly to the edges of the lungs



Assessing Technical Adequacy Penetration

- Over-penetrated Film
  - Lung fields darker than normal
  - Can still see the spine into the abdomen
  - No lung “haziness”

Assessing Technical Adequacy Penetration

- Under-penetrated Film
  - Diaphragms is obscured
  - Can’t see spine through heart

Reading a Chest X-Ray

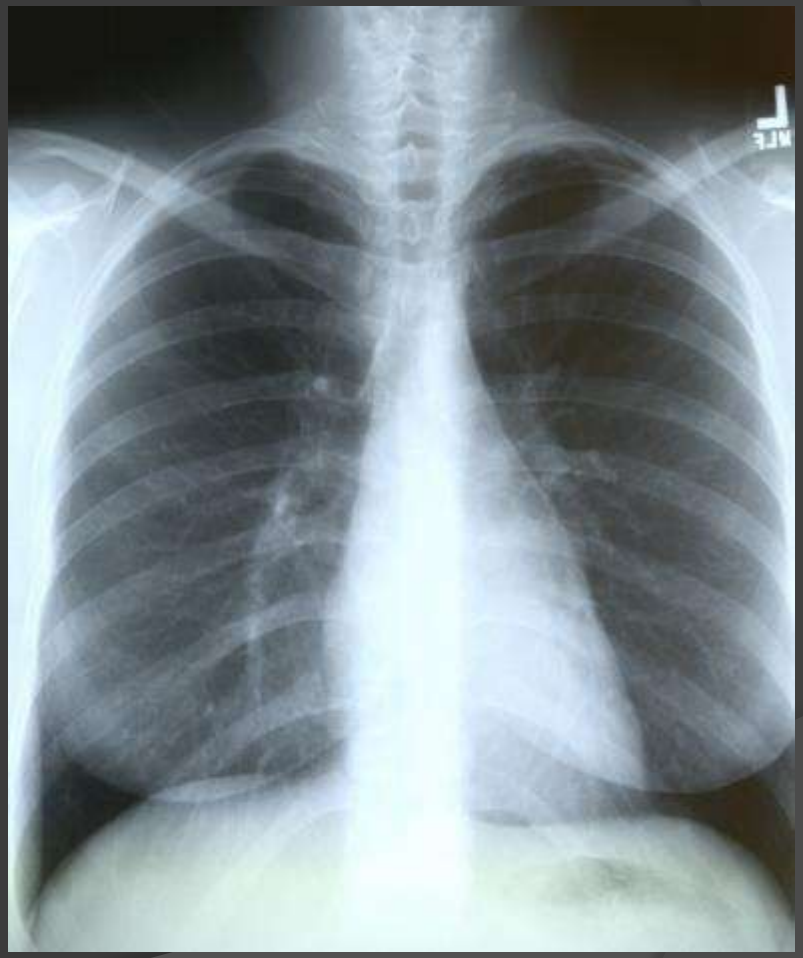
- Step #1 – Do your pre-read
- Step #2 – Assess the technical adequacy of the film
- Step #3 – Conduct a systematic evaluation of the film

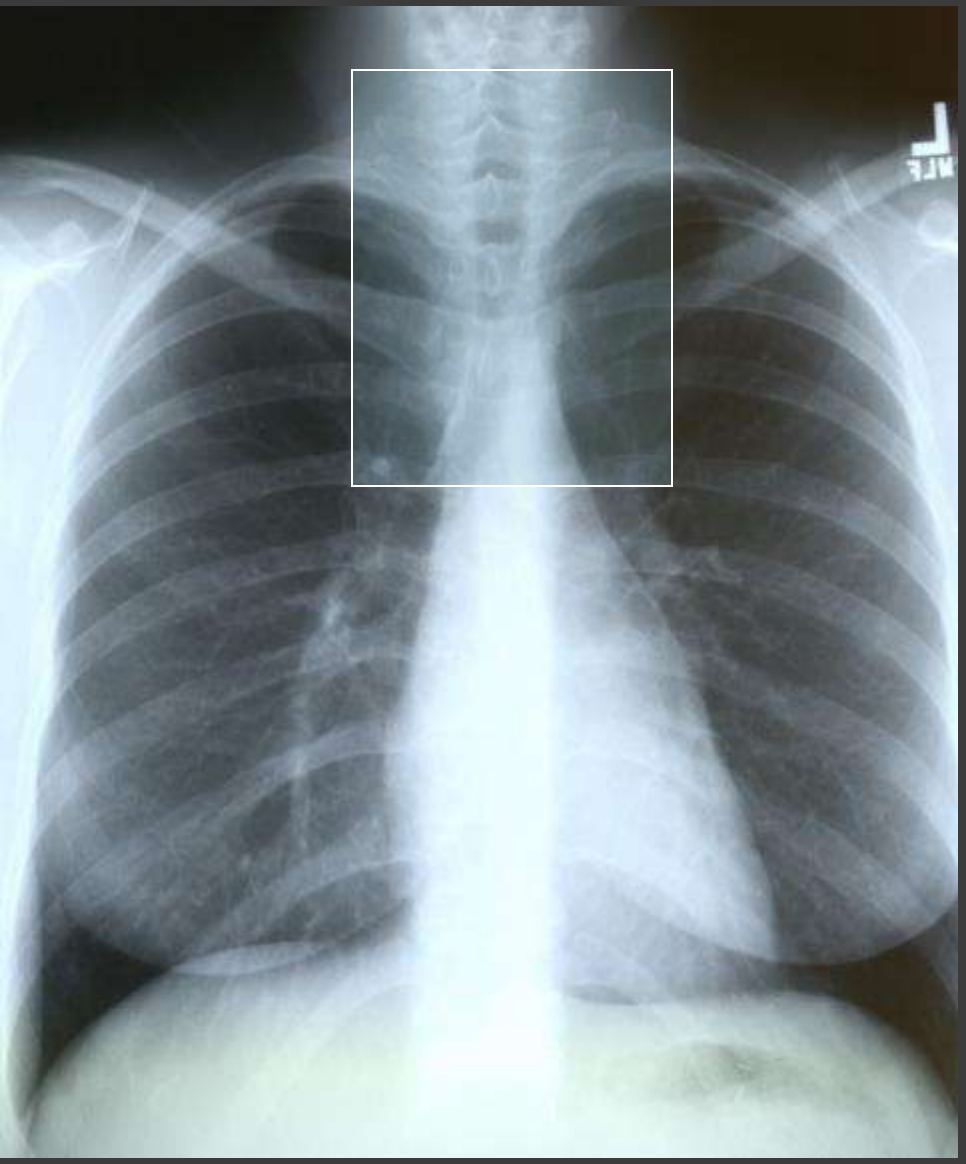
A Systematic Method for CXR

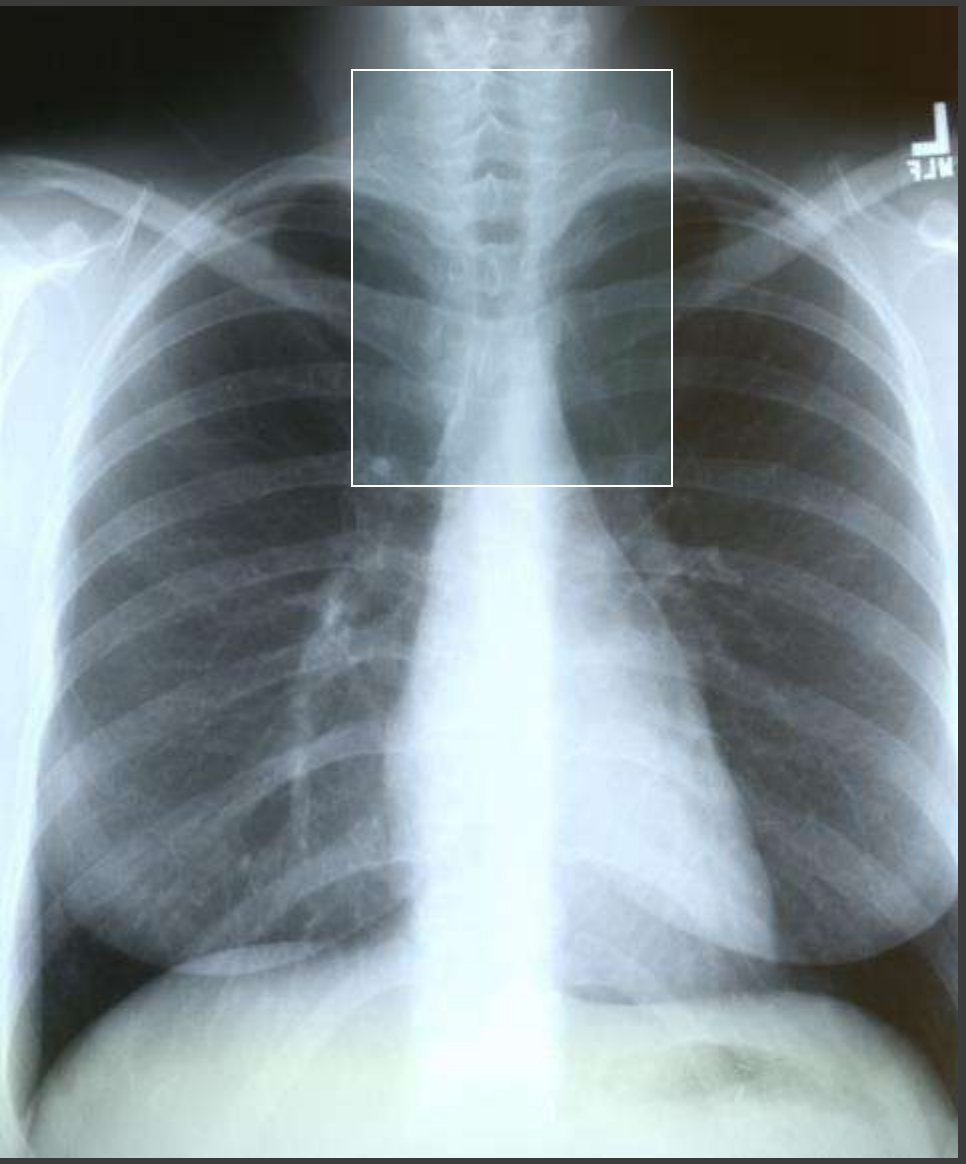
- ABCDE
  - A – Airways / Airspaces
  - B – Bones / Soft Tissues
  - C – Cardiac Shadow
  - D – Diaphragm
  - E – Everything Else

A – Airway / Airspace

- Follow the trachea down
  - Is it midline?
  - Is it irregular?
- Look at the airspaces
  - Do the blood vessels go all the way to the edge?
  - Are there any patches of white indicating fluid/pus in the lungs?





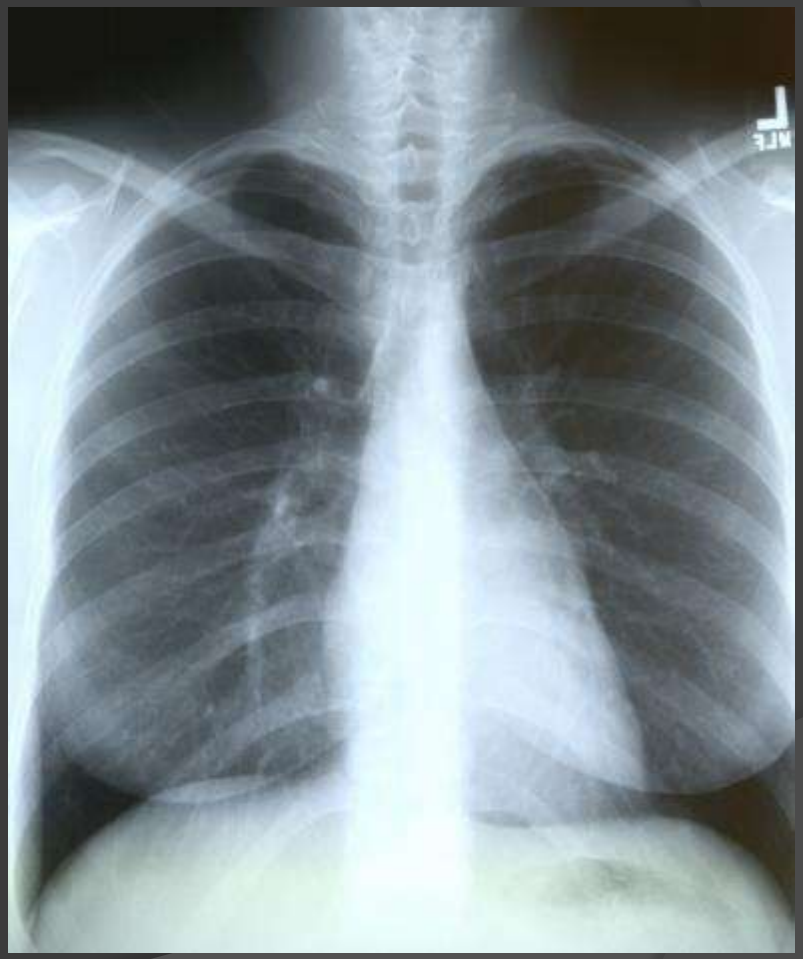



LEFT


L
TP

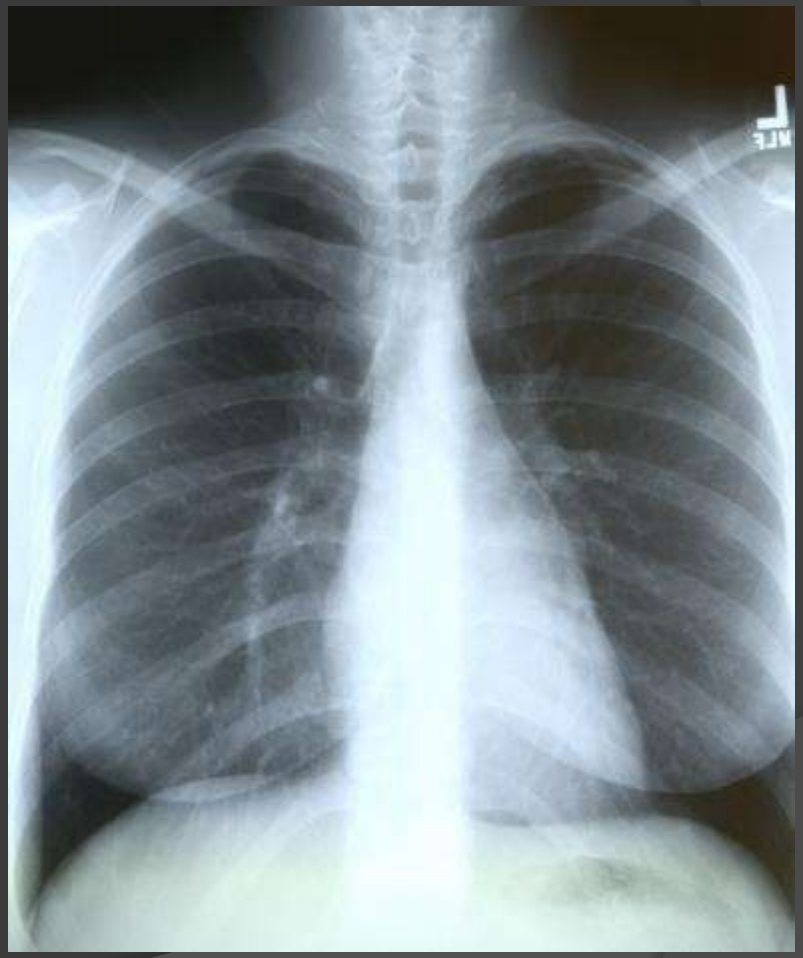
B - Bones

- Look at the clavicles, ribs, vertebrae, humerus bones (if in the picture)
  - Anything asymmetric is usually bad
  - Follow the contour of the bone you are interested in



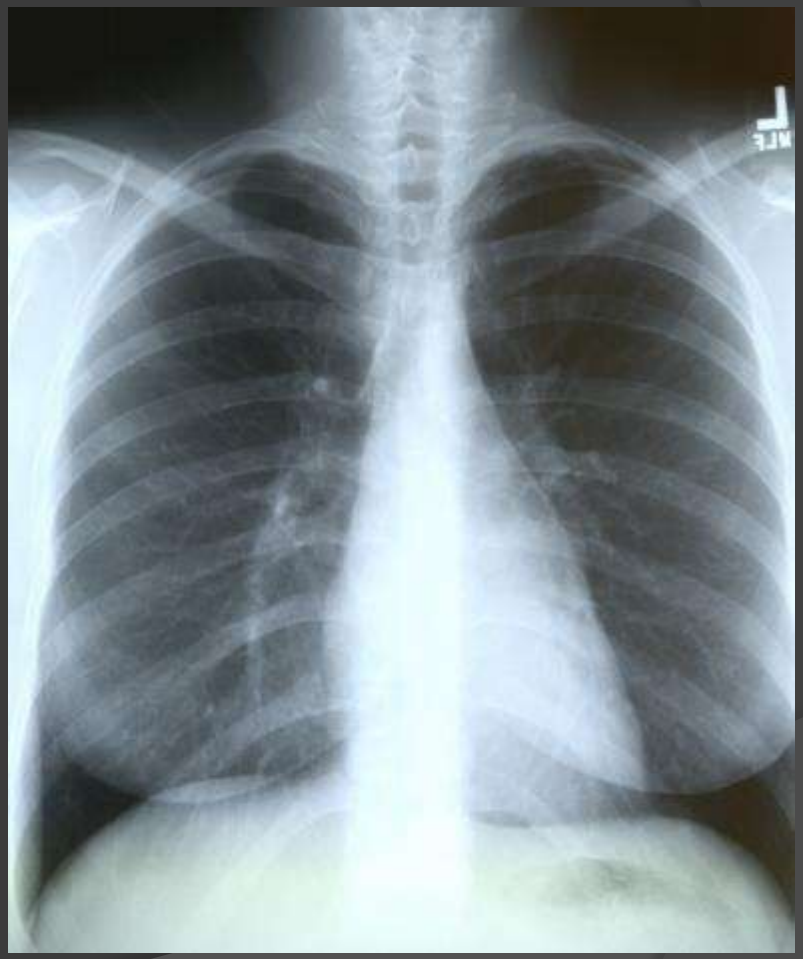
C – Cardiac Shadow

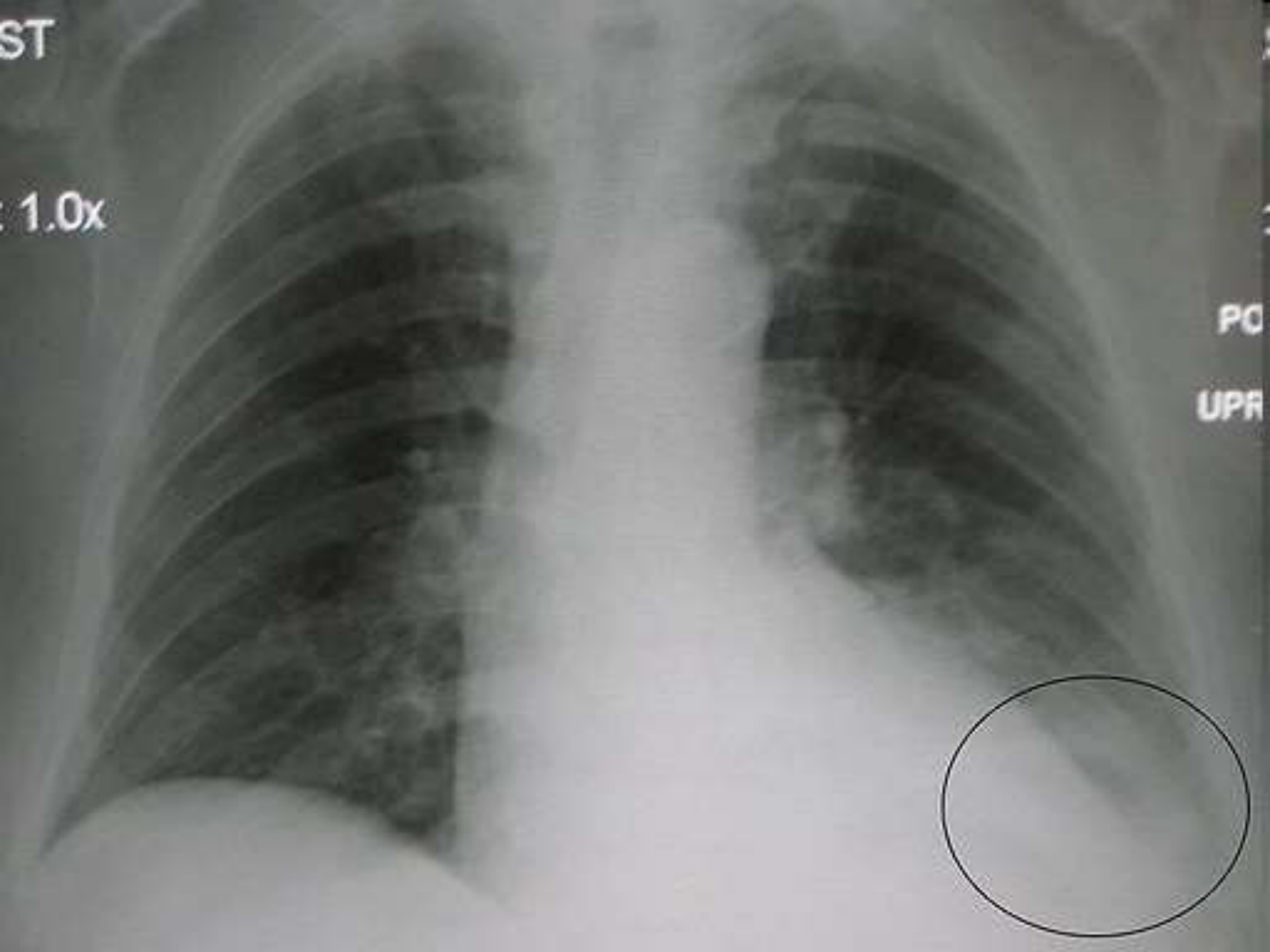
- Can you see the entire heart?
  - If it looks too big could be:
    - Bad image (AP film, moving patient)
    - Bad inspiration
      - Flattens the chest and makes the heart look bigger
    - Bad heart
      - CHF, cardiomyopathy, etc



D – Diaphragm

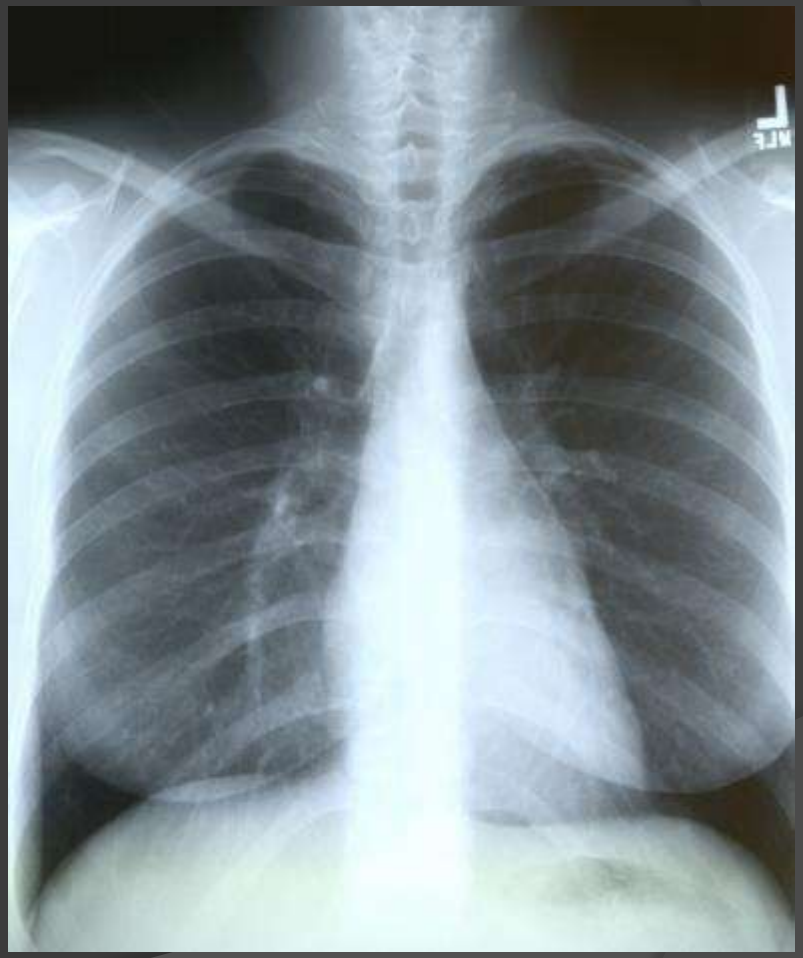
- Can you see both domes of the diaphragm?
  - Right is higher because of liver
  - If there is any effusion, it will blunt the “costo-phrenic angle”

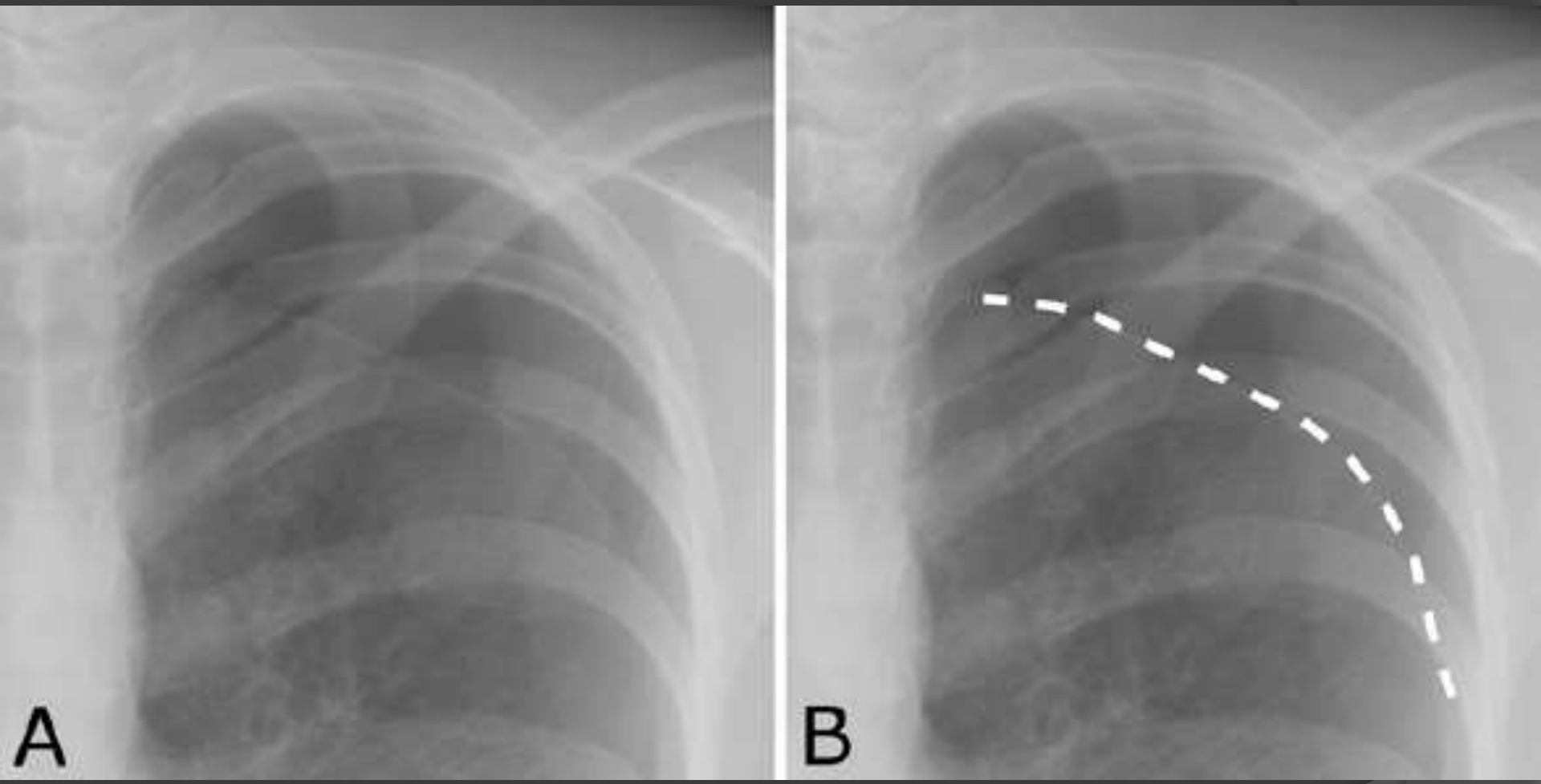


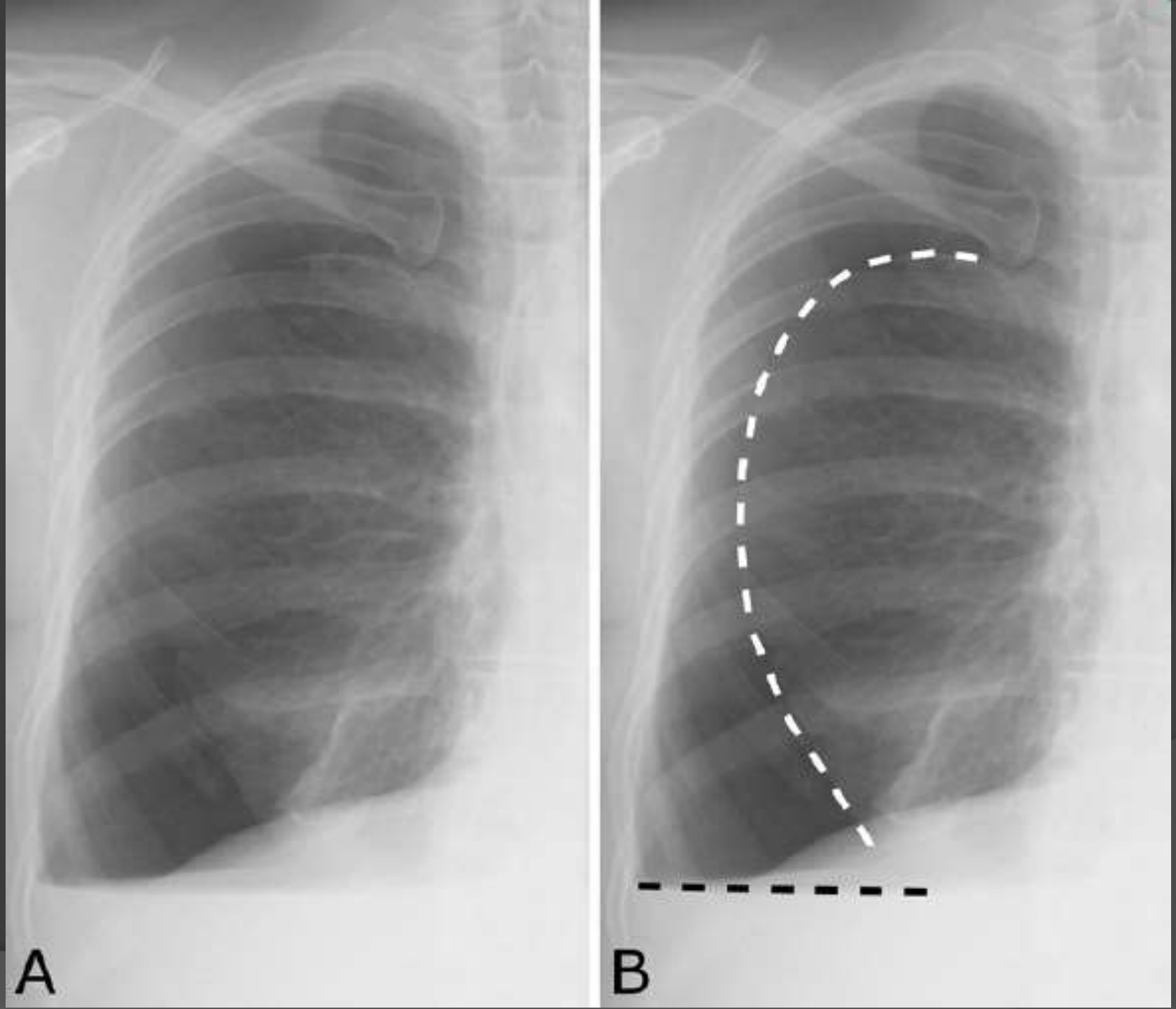

ST
1.0x
PO
UPR

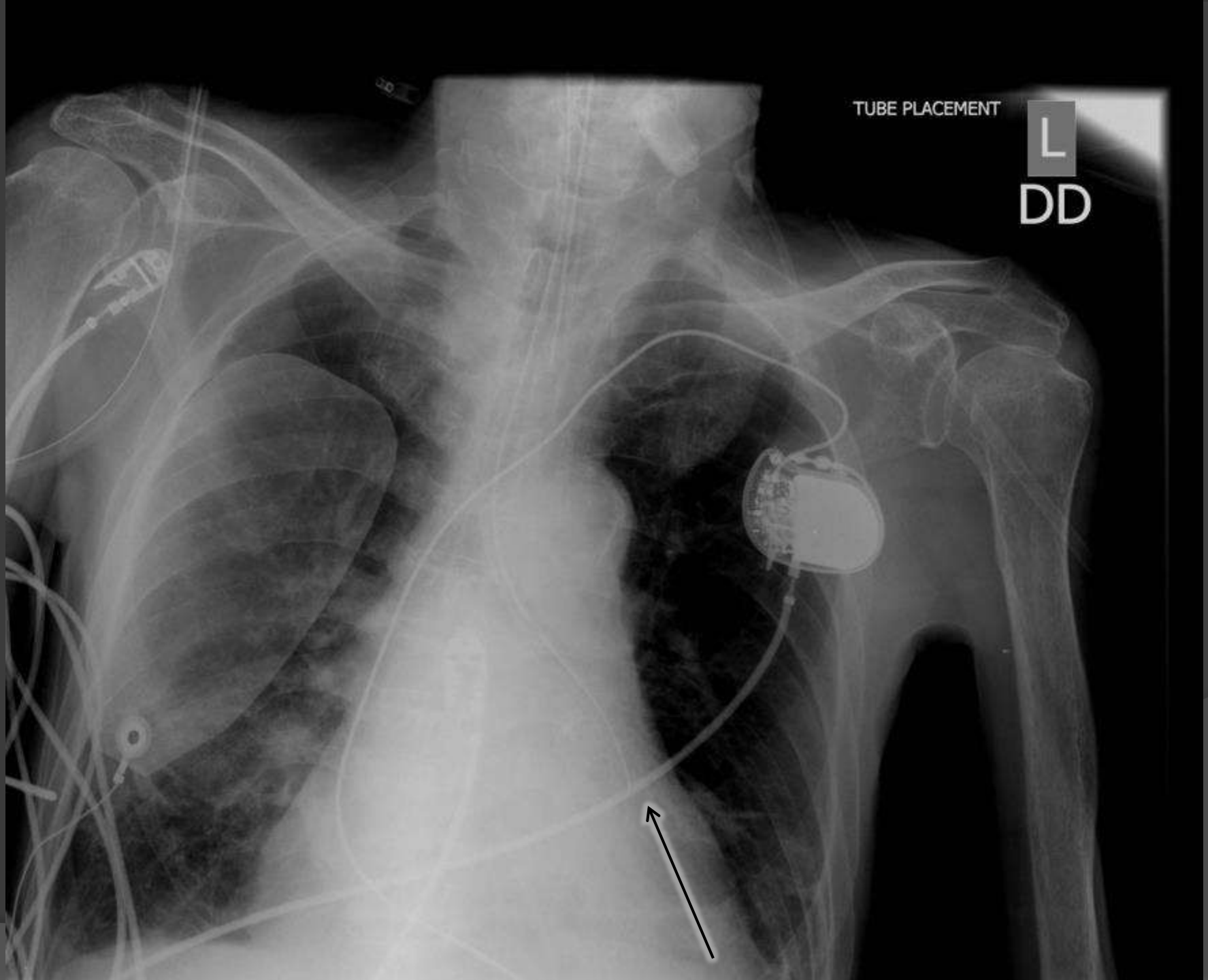
E – Everything Else

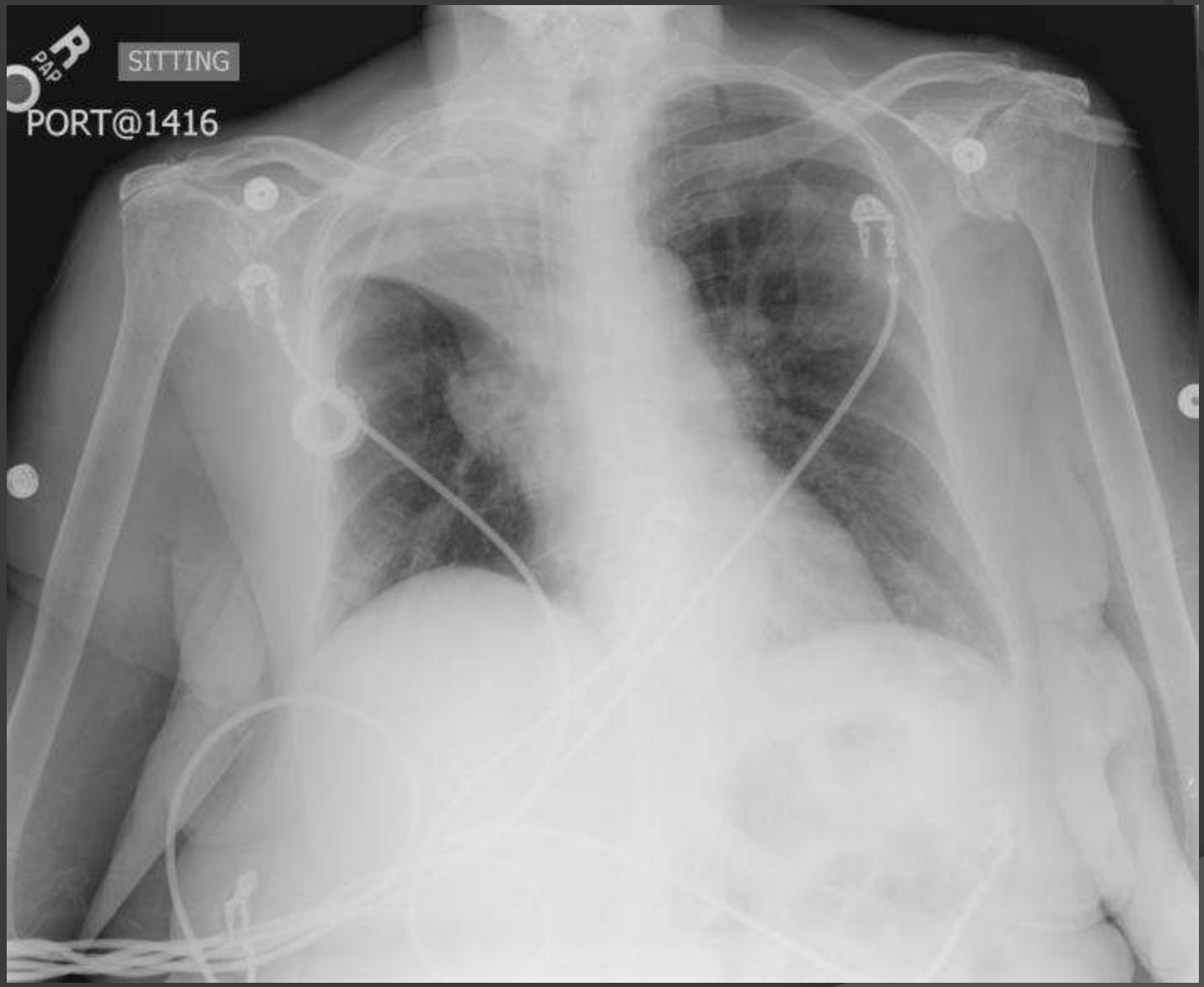
- Take one more look for any asymmetry.
- Look specifically for any easily seen but often overlooked abnormalities
  - Pneumothorax
  - Pleural Effusion
  - Pneumonia

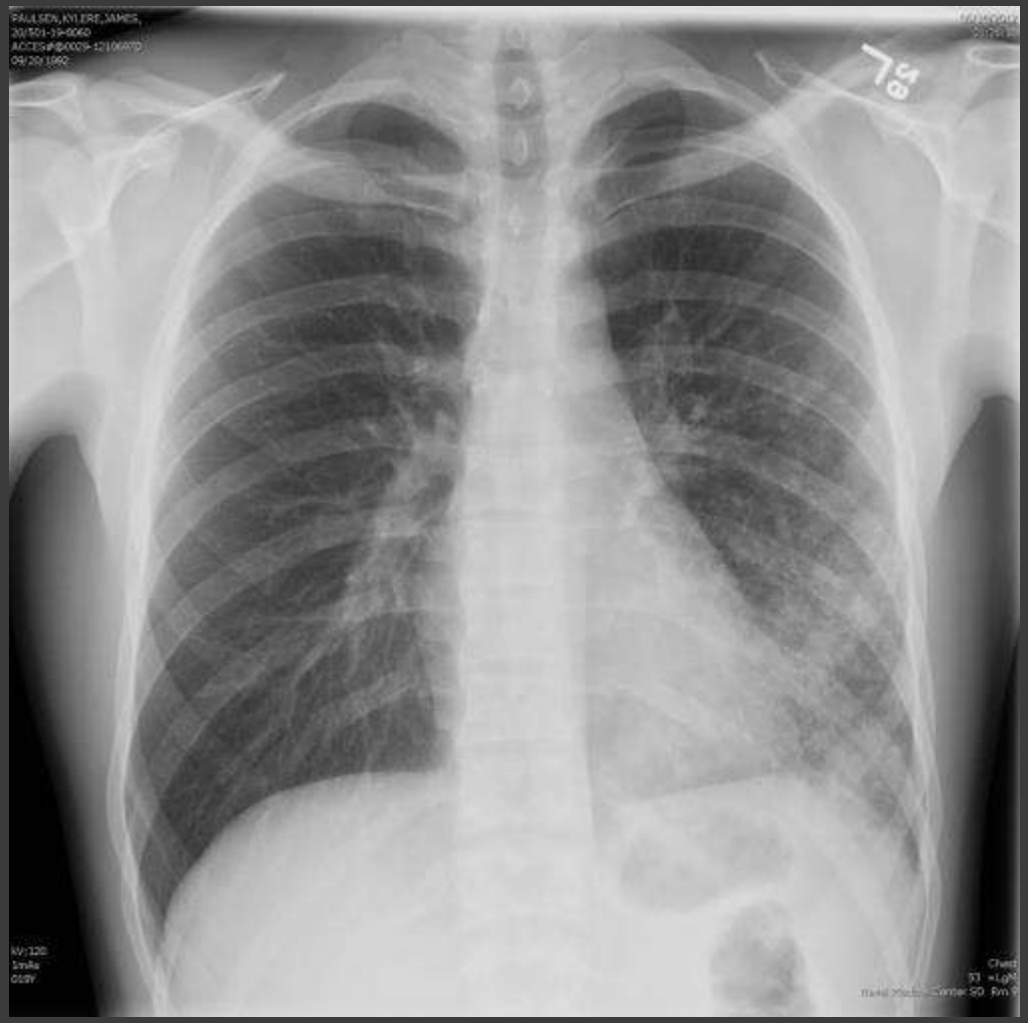


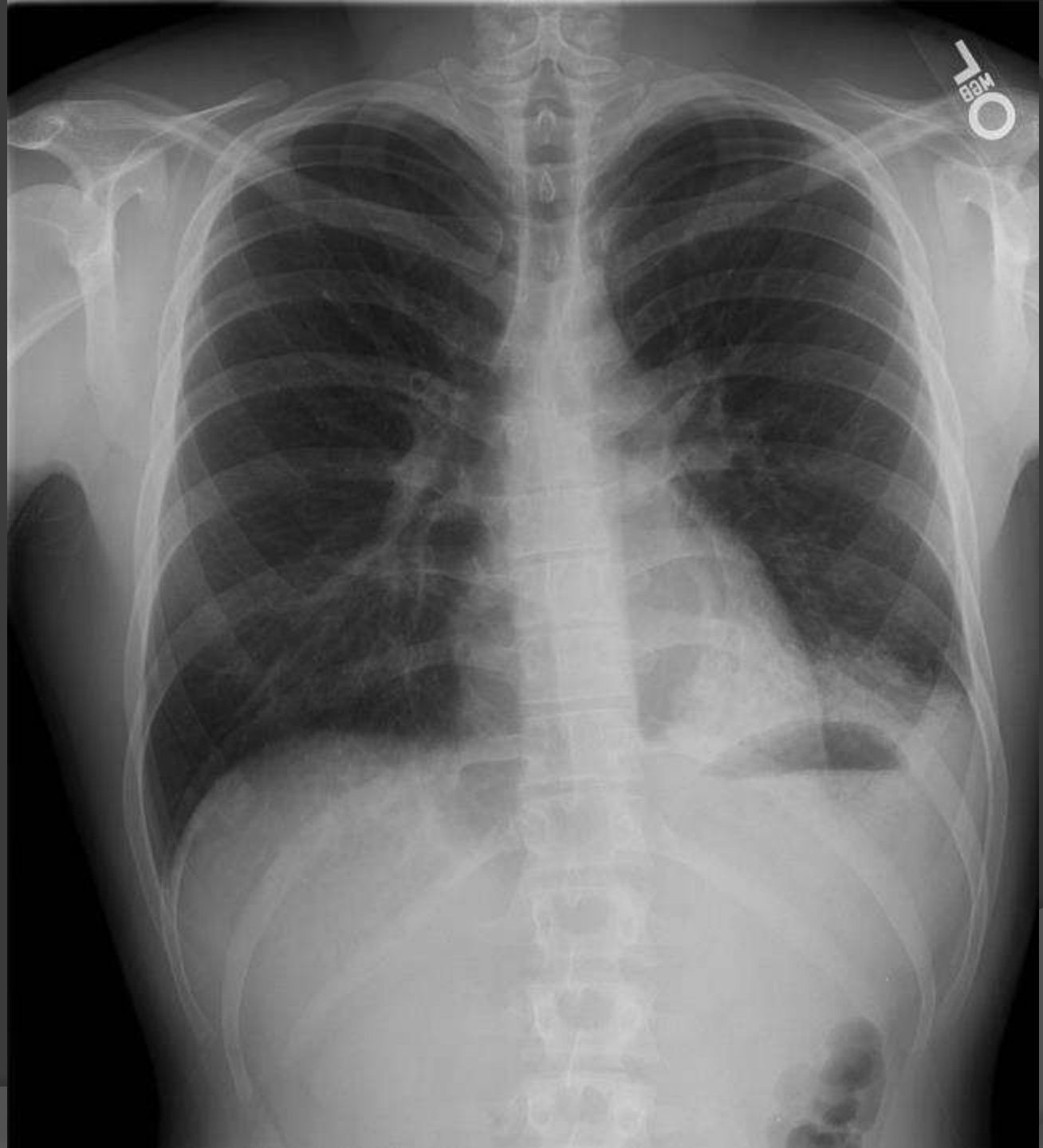

A
B

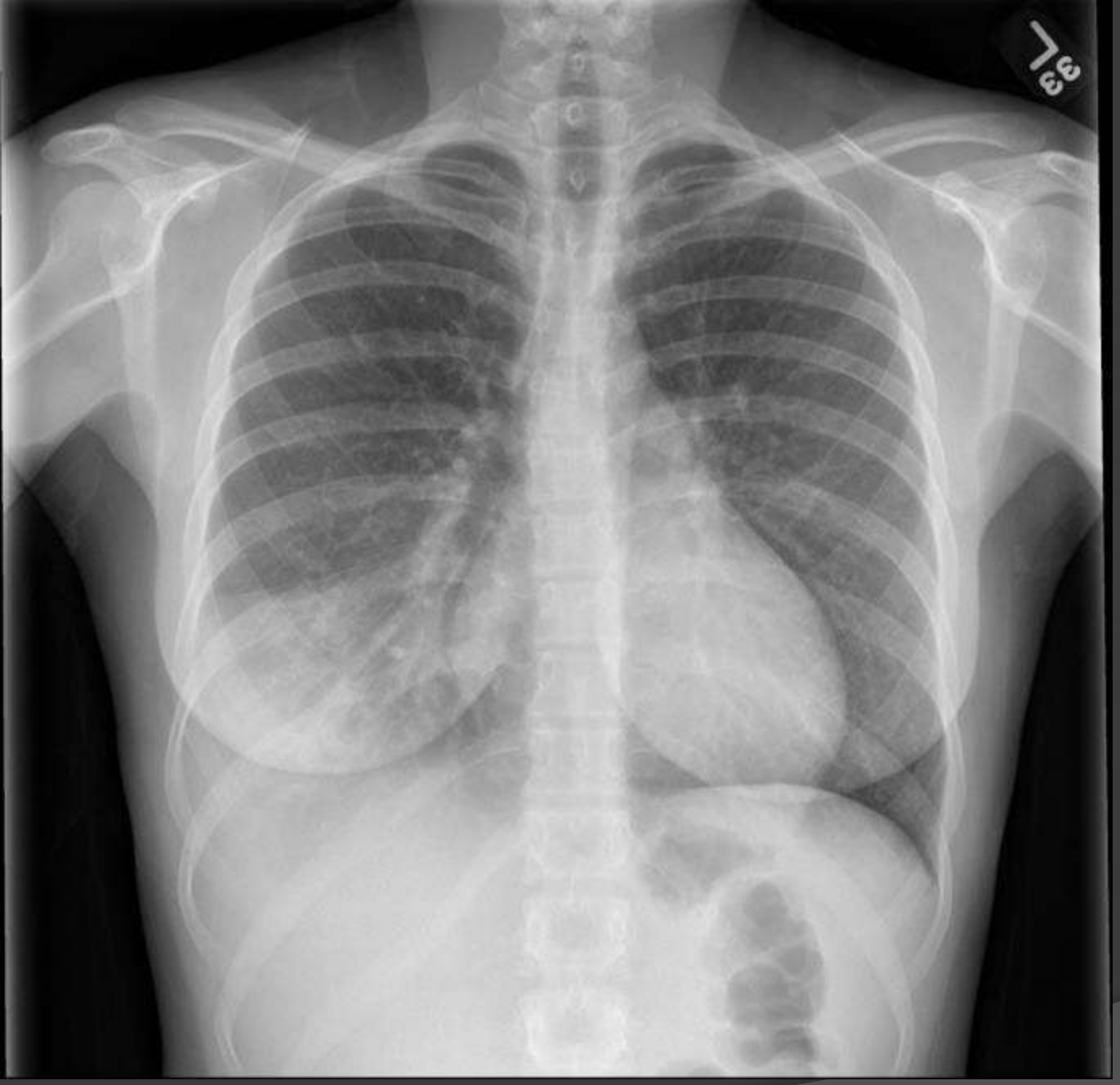

A
B


TUBE PLACEMENT
L
DD

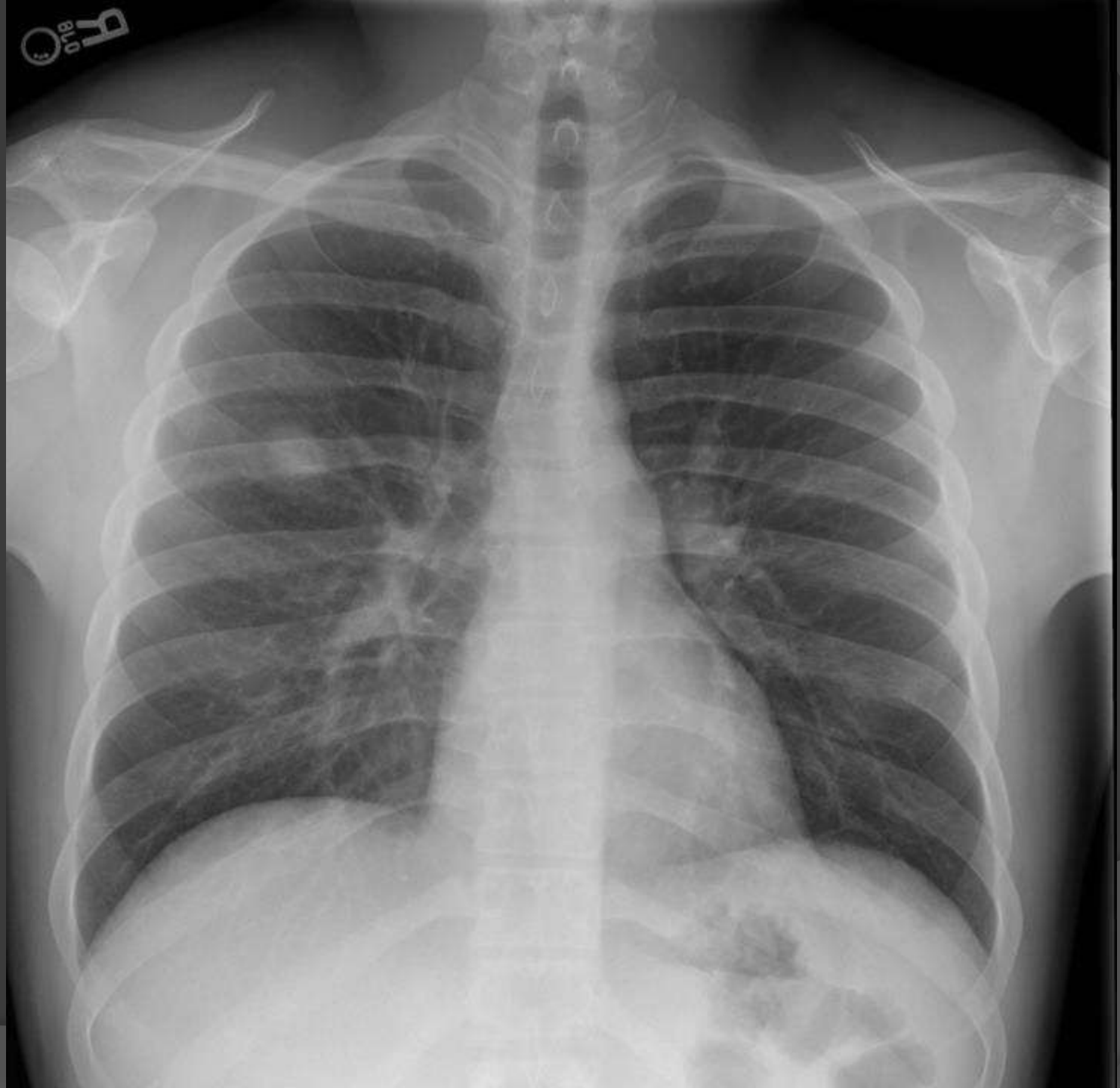

R
PAP
SITTING
PORT@1416




L
PBM




L



Where to find help

- American College of Radiology (ACR)
  - Publishes “Appropriateness Criteria”
    - www.acr.org
  - For a given scenario, gives appropriateness on a 1-9 scale (higher is better) as well as level of radiation needed for the study
- Your supervising physician

Accreditation
ACR Education
ACR Store
Economics & Health Policy
Government Relations
Legal / Business Practices
Meetings and Events

Special Sections

- Cardiac CT Proficiency Examination
- ACR Appropriateness Criteria®
- ACR Radiation Oncology Section

Breast Imaging

Cardiac Imaging

Gastrointestinal Imaging

Musculoskeletal Imaging

Acute Hand and Wrist Trauma
Acute Trauma to the Knee* (Revised)
Avascular Necrosis (Osteonecrosis) of the Hip (Revised)
Chronic Ankle Pain (Revised)
Chronic Elbow Pain
Chronic Foot Pain* (Revised)
Chronic Hip Pain
Chronic Neck Pain*
Chronic Wrist Pain (Revised)
Follow-up of Malignant or Aggressive Musculoskeletal Tumor
Imaging after Total Hip Arthroplasty
Imaging after Total Knee Arthroplasty
Metastatic Bone Disease (Revised)

American College of Radiology
ACR Appropriateness Criteria®

Clinical Condition: Suspected Ankle Fractures

Variant 1: Patient Meeting Ottawa Rules.

1. Inability to bear weight immediately after the injury OR
2. Point tenderness over the medial malleolus, or the posterior edge or inferior tip of the lateral malleolus or talus or calcaneus OR
3. Inability to ambulate for four steps in the emergency department.

Radiologic Procedure	Rating	Comments	RRL*
X-ray ankle	9	AP, lateral, and mortise views.	Min

Rating Scale: 1=Least appropriate, 9=Most appropriate

*Relative Radiation Level

RADIOLOGIC ASSESSMENT OF CHEST, ABDOMEN, AND PELVIS

MIKE H. LEE, M.D.

Acute Abdominal Series

- PA view of the chest
- Supine and upright views of the abdomen and pelvis
- Regular “abdominal series” does not include PA view of the chest
  - Radiation savings

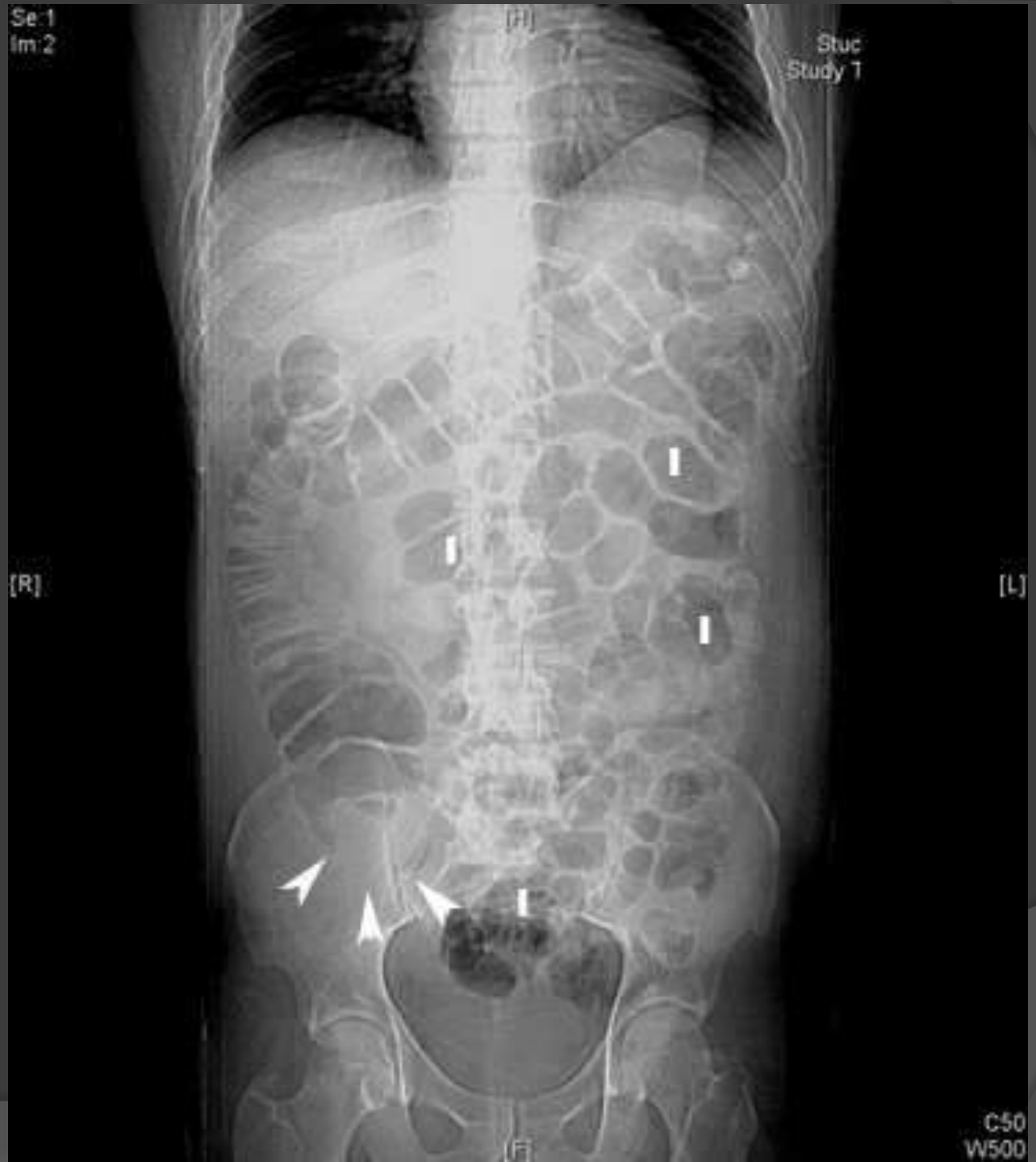
Upright view - Abdomen

- Gravity!
- Free air
- Air fluid levels
- Dilation of small bowel and/or colon


upright

Supine view

- Flat plate (“KUB”)
- Better anatomy evaluation (without gravity)
- Check off list
  - Caliber of bowel
  - Liver, spleen, GB, kidneys, uterus
  - Bones


Se 1
Im 2
[H]
Stuc
Study 1
[R]
[L]
[F]
C50
W500

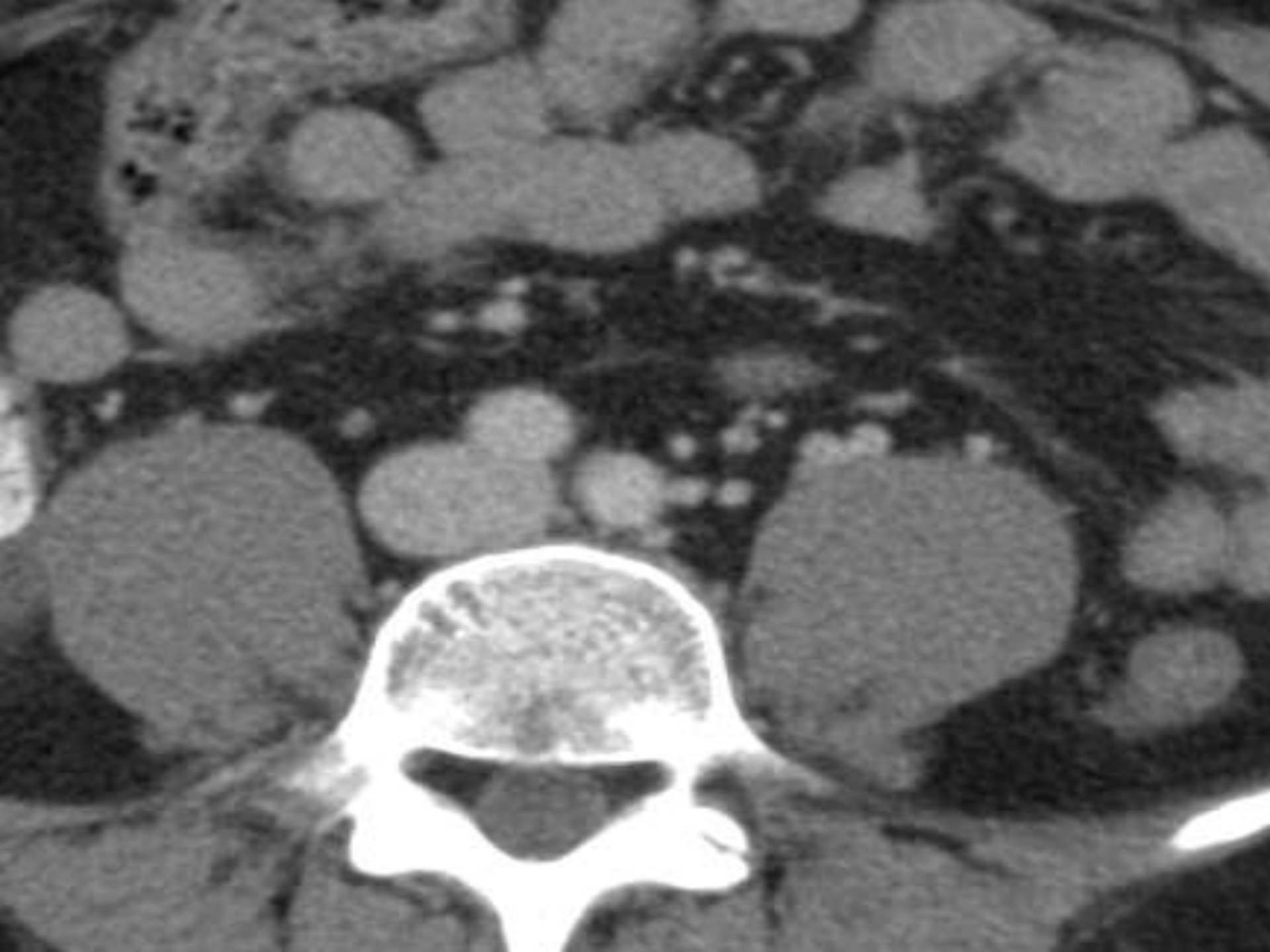

296-KUB
R

CT

- Complex cases
- GI vs. GU
- Emergent vs urgent vs routine
- Protocols

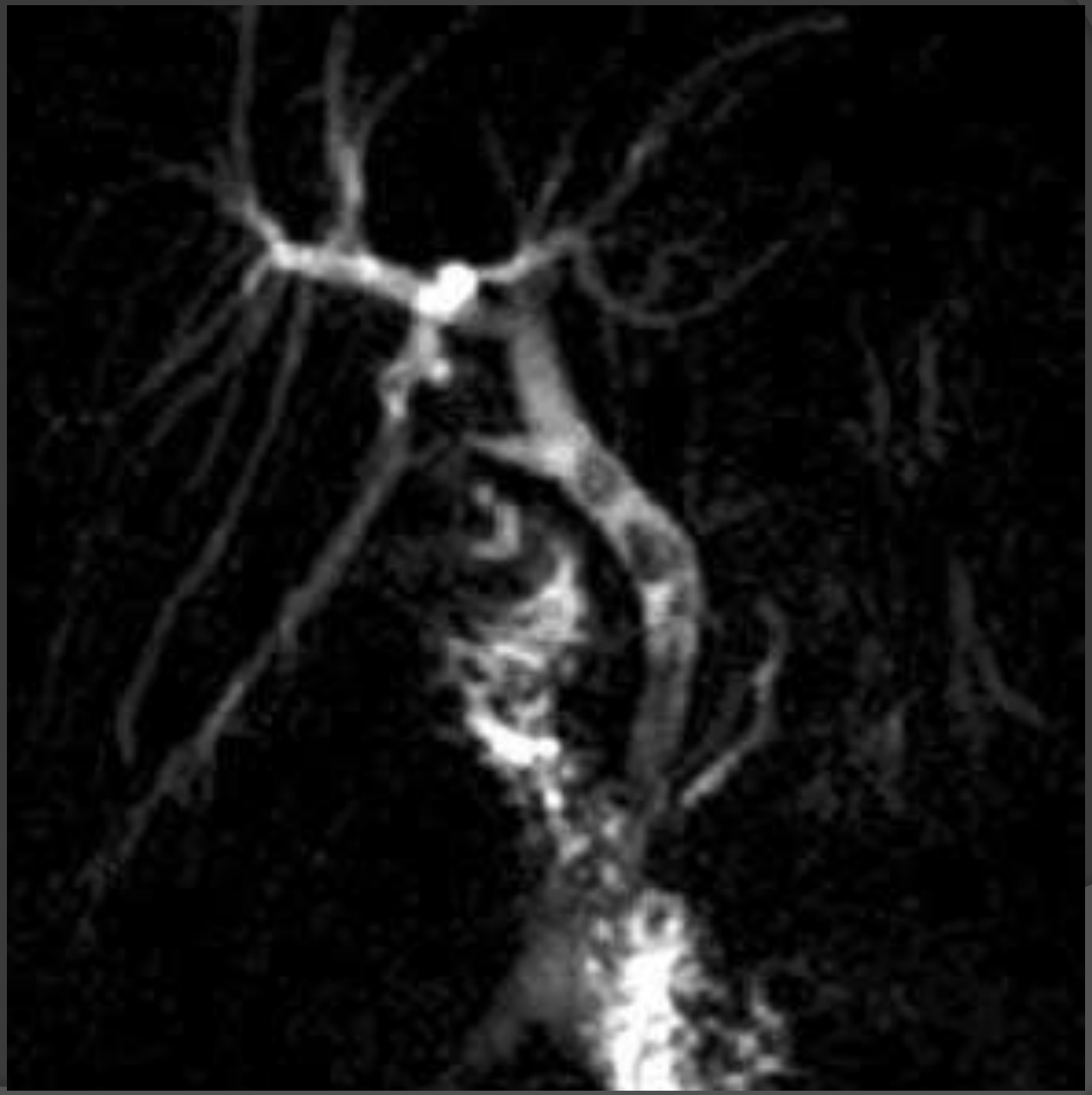
Protocols

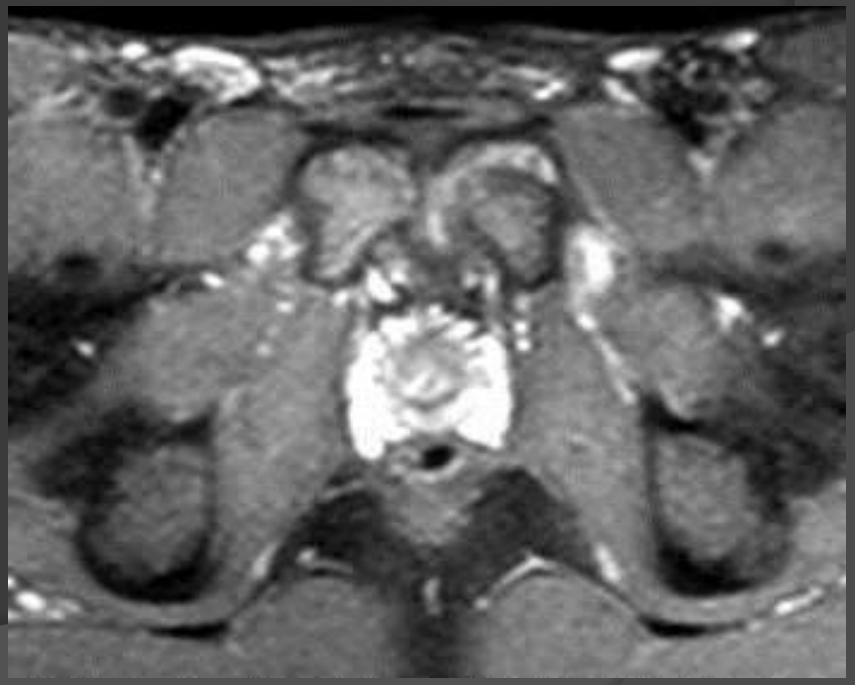
- Urolithiasis (abdomen/pelvis, w/o con)
- “Routine” abdomen
  - 1 L of water soluble contrast PO
  - ~125 cc of Isovue IV
- Image 1-2 hours after completion of PO contrast
- Special circumstances
  - Painless hematuria
  - Liver/pancreas/enterography/rectal contrast



MRI

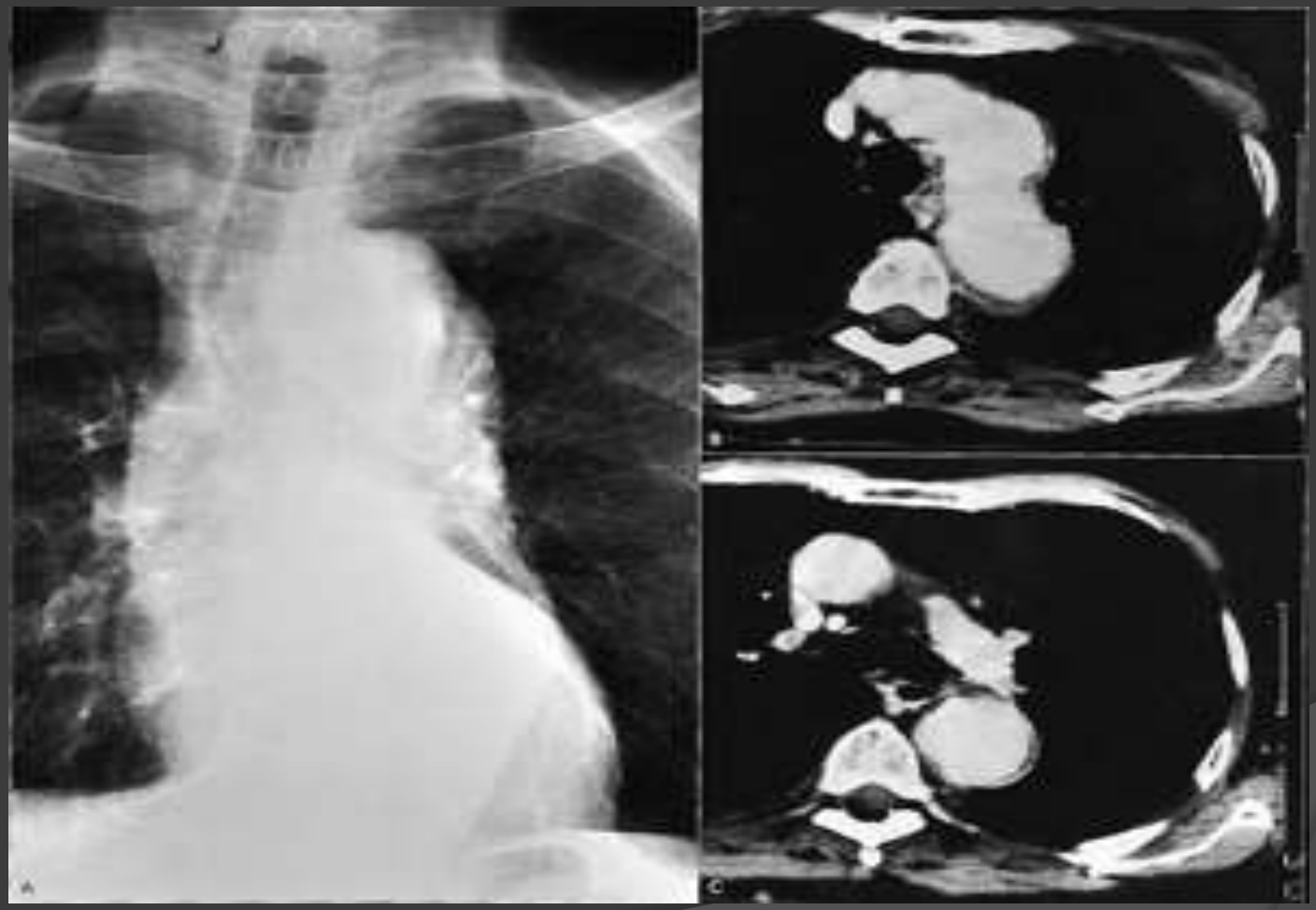
- Abdomen
  - Liver/pancreas/spleen
  - MRCP
- Pelvis
  - Sports hernia
  - Soft tissue pelvis
    - Female (small FOV)

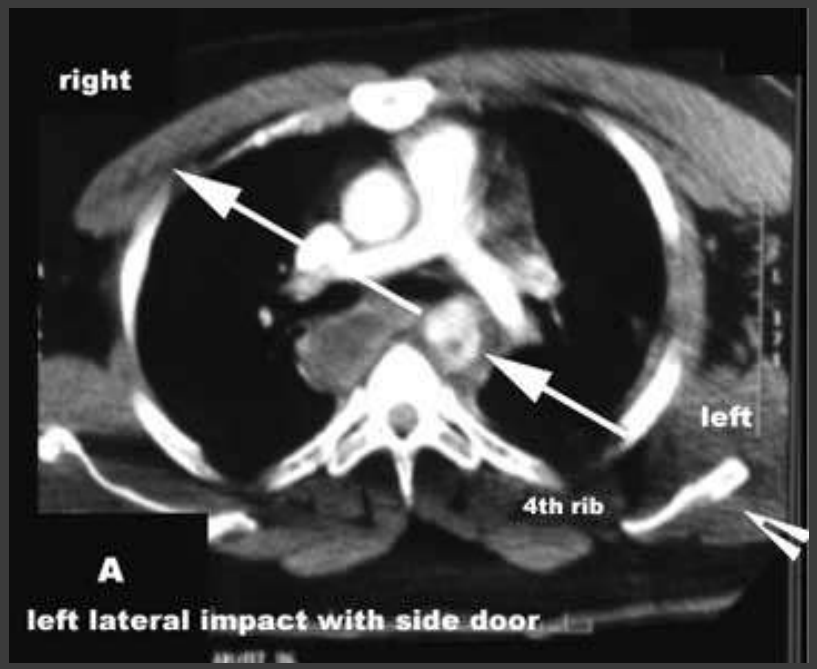


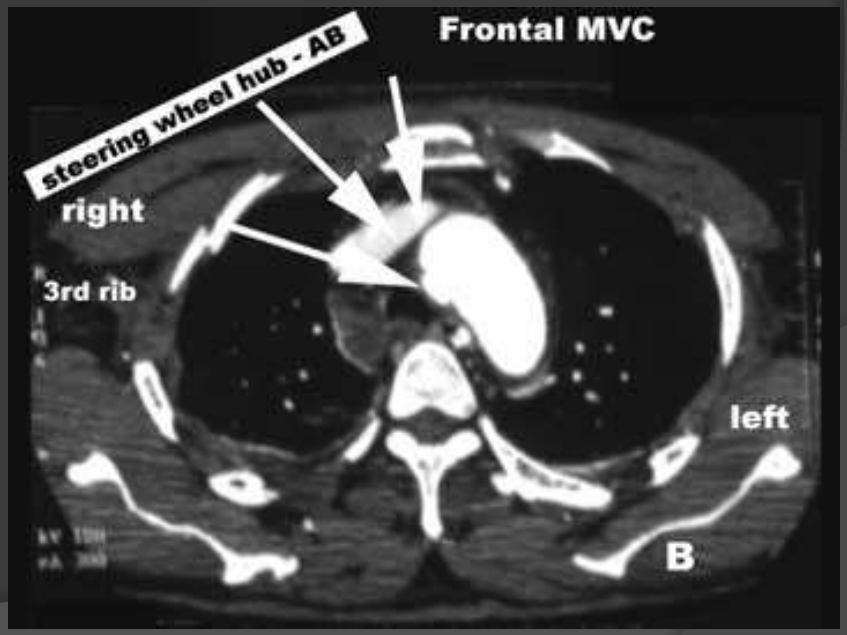


CONCLUSION

- KUB vs AAS
- WHEN TO CONSIDER CT, MR, ETC




right
left
4th rib
A
left lateral impact with side door

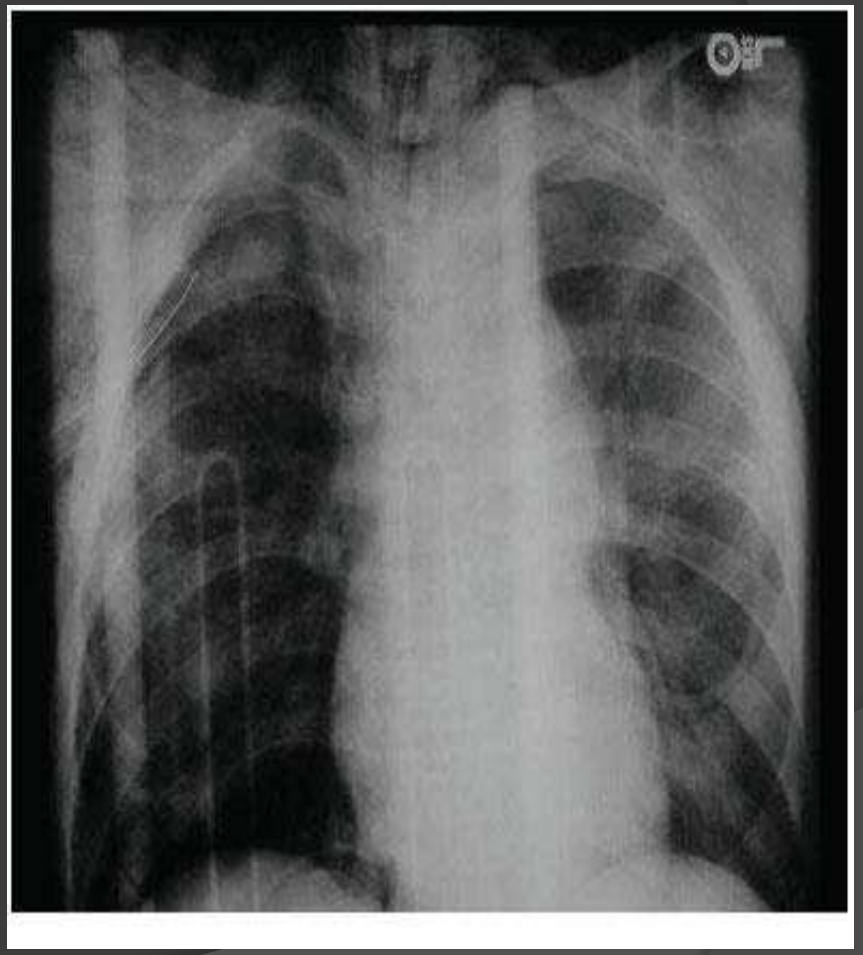

steering wheel hub - AB
Frontal MVC
right
3rd rib
left
B

Aorta Abnormalities

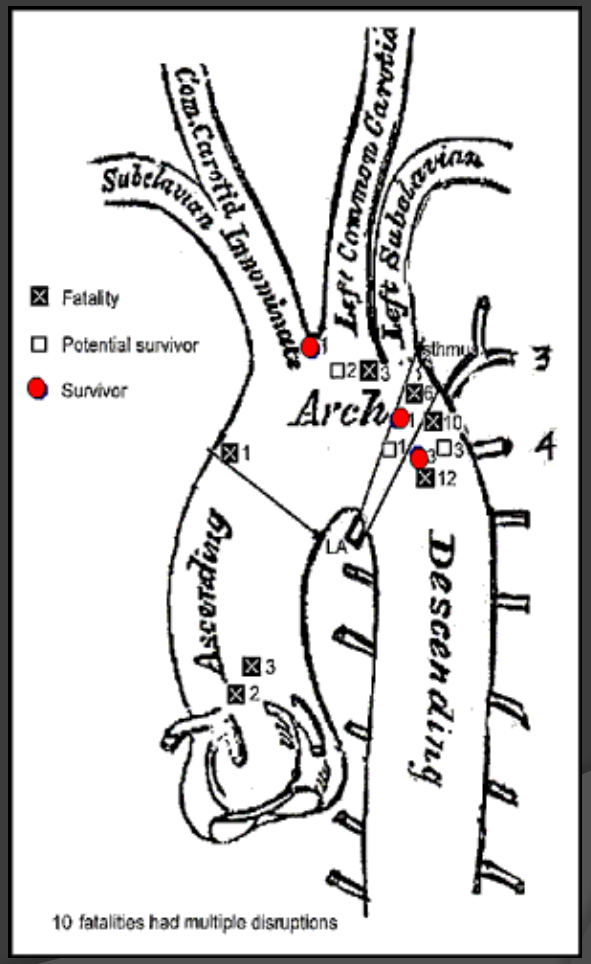
- Plain film findings that correlate with this injury in order: Blunting of aortic knob
- Apical cap
- Widened Mediastinum (> 8 cm)
- Bibasilar hemothorax
- Other less common: first rib fx, left/right bronchial depression, tracheal deviation, retrocardiac density

- Radiographs can also be normal, as mentioned for any finding, so if physical exam concerning, CT.

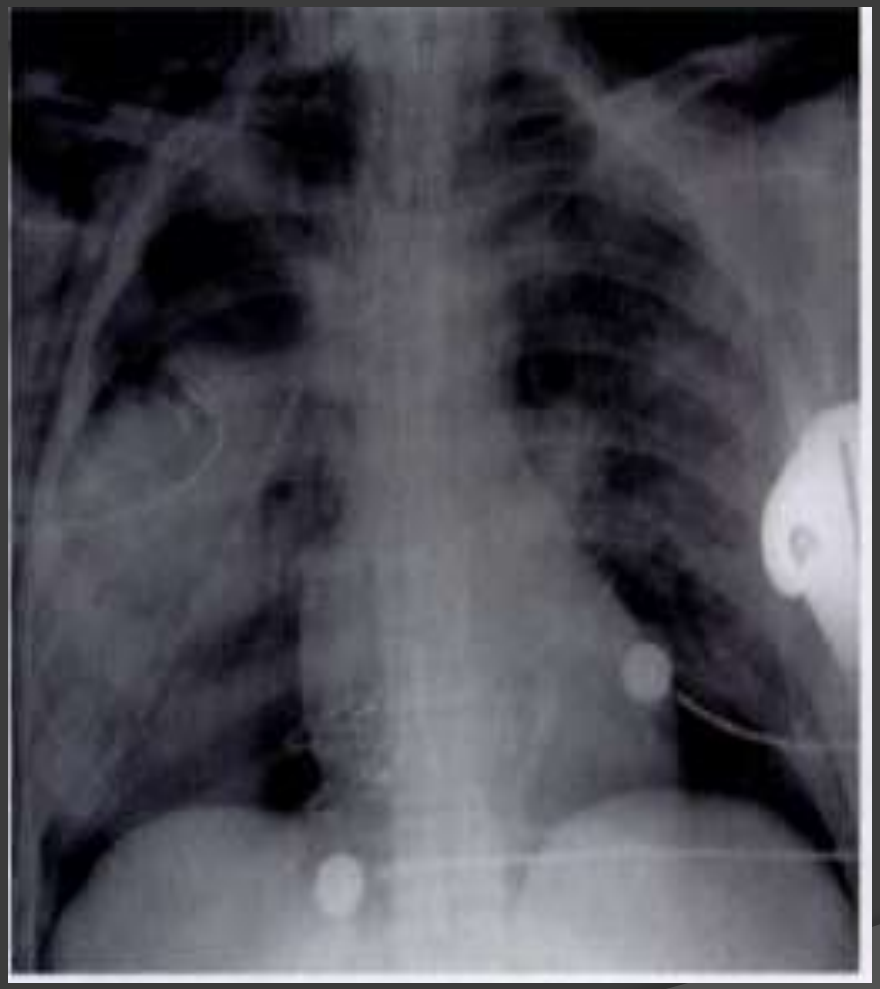
- 3 main locations:
  - Aortic root, most die at the scene
  - Aortic isthmus-90% of injuries
  - Aortic hiatus

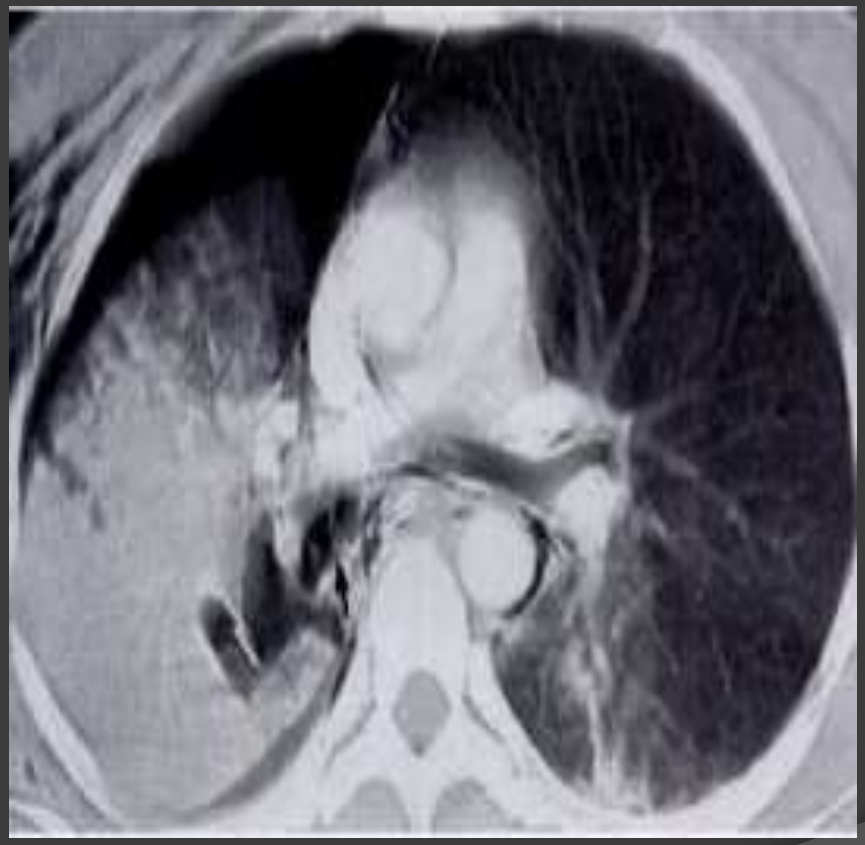



AORTEN
25-SEP


Com.Carotid Innominate
Left Common Carotid
Subclavian
Left Subclavian
Fatality
Potential survivor
Survivor
Arch
Isthmus
LA
Ascending
Descending
10 fatalities had multiple disruptions

CASE #2



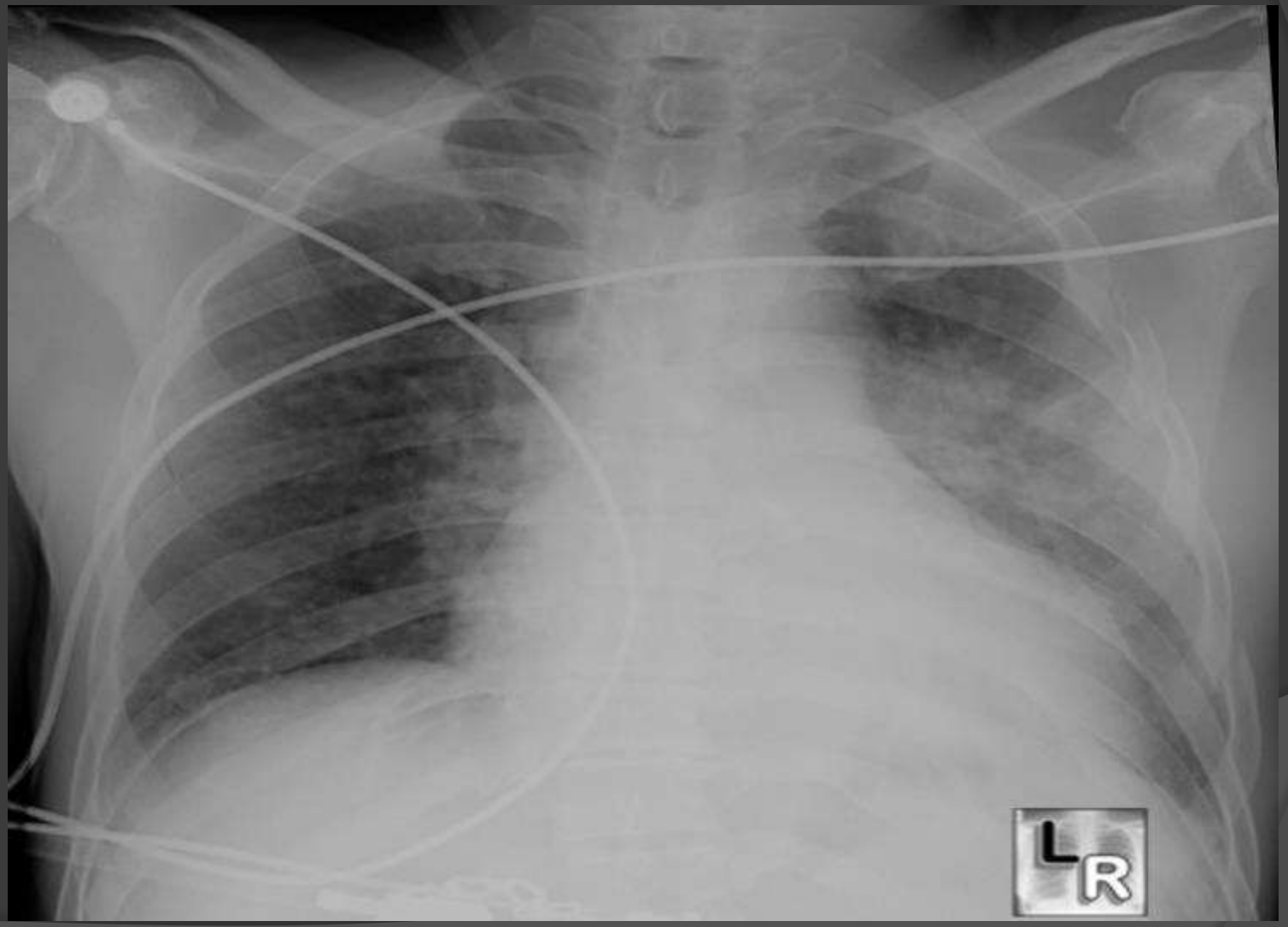


Ruptured bronchus intermedius

Bronchial/Tracheal

- Rare, only 4% of injuries
- deceleration or compression
- may appear as either a pneumothorax that fails to resolve or a persistent air leak through the thoracostomy tube
- partial tear or complete transection of the major airways as a result of penetrating or blunt trauma may result in fallen lung.

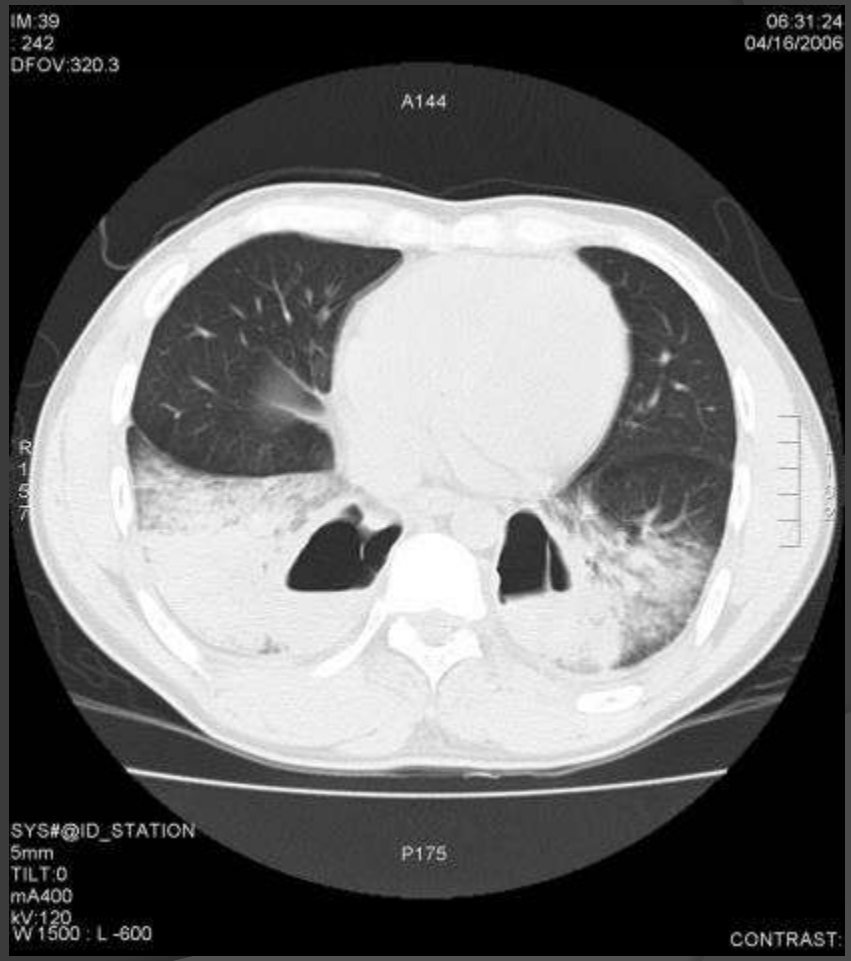
Case #3



Contusions

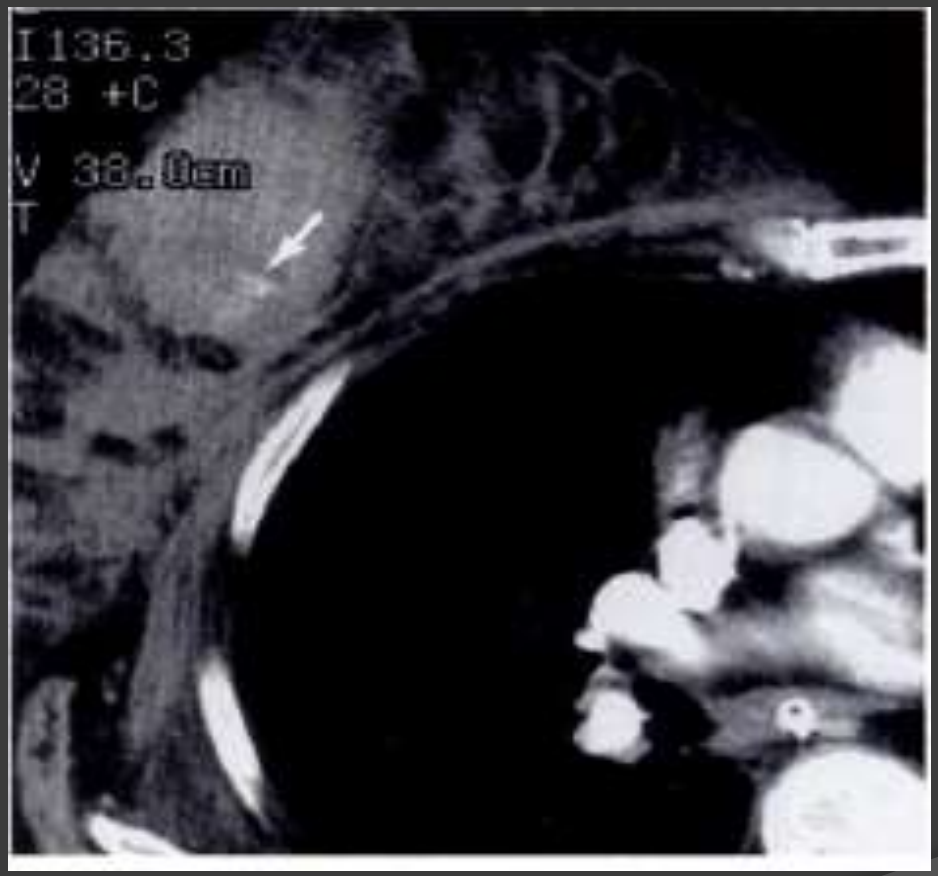
- Airspace process
- Can look like PNA!

LUNG LACERATION

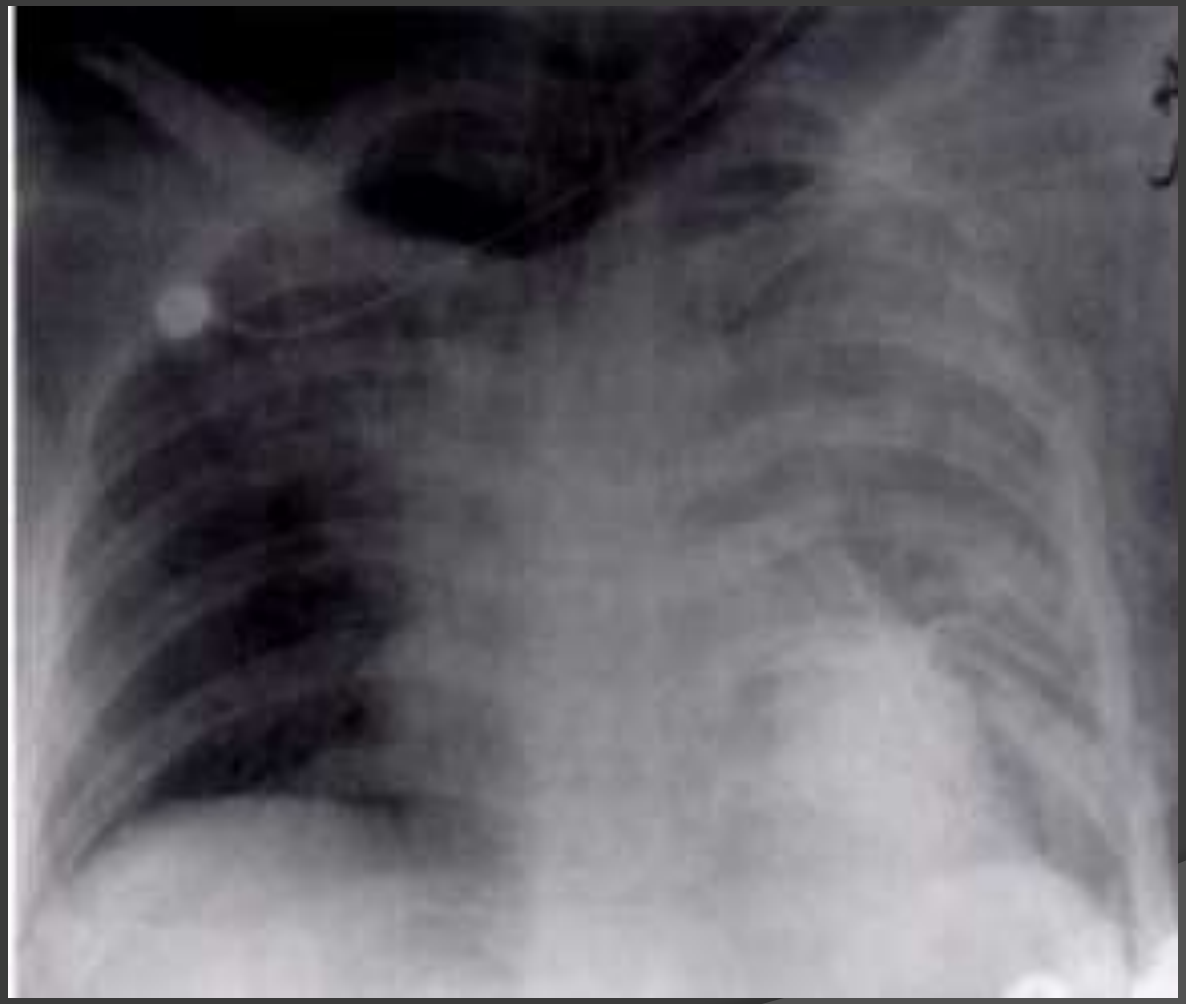


Laceration fills with blood and then air fills it in as it resolves

Contusions, elsewhere



CASE #4



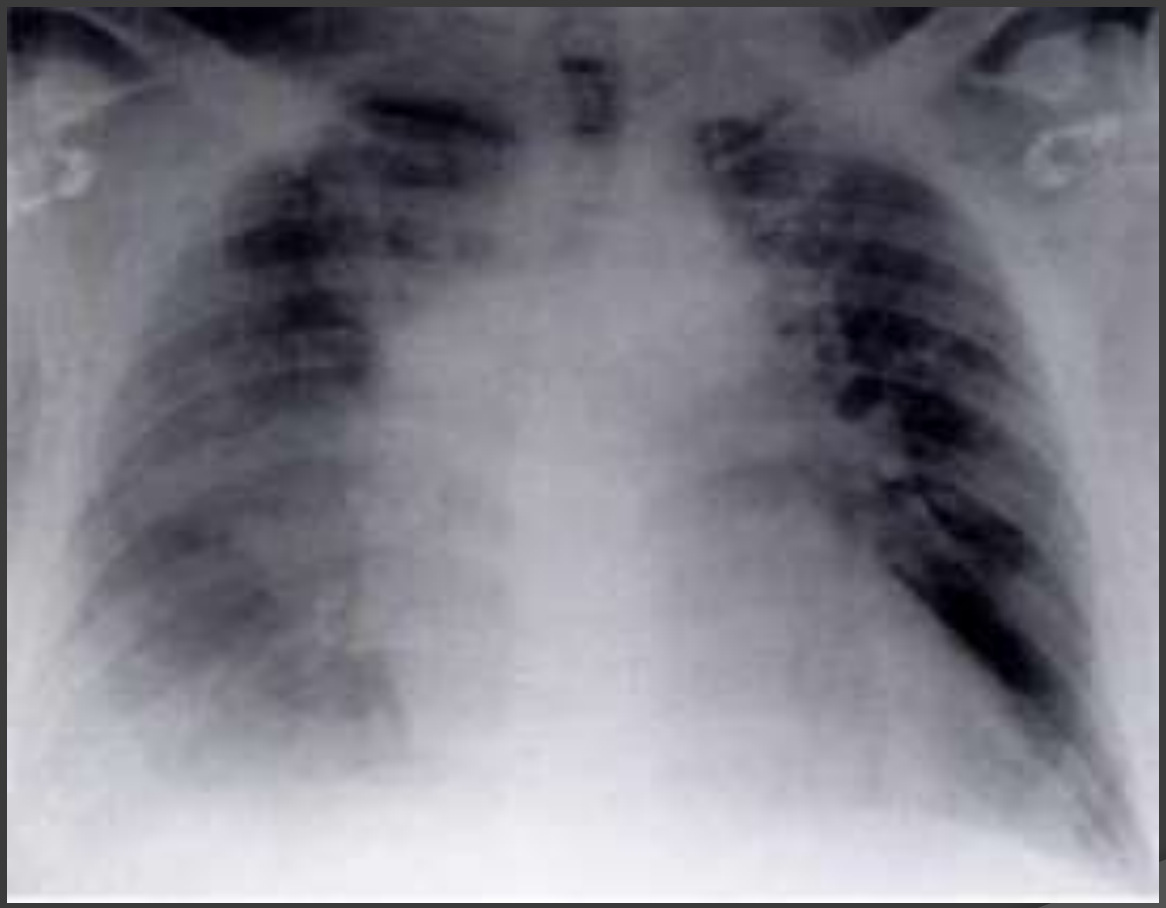
Diaphragmatic rupture

- Left side greater than right (75-90%)-weakest point
- Radial orientation; posterolateral; usually large-10 cm
- On chest film, U shape to NG tube, mediastinal shift, herniation of abd organs

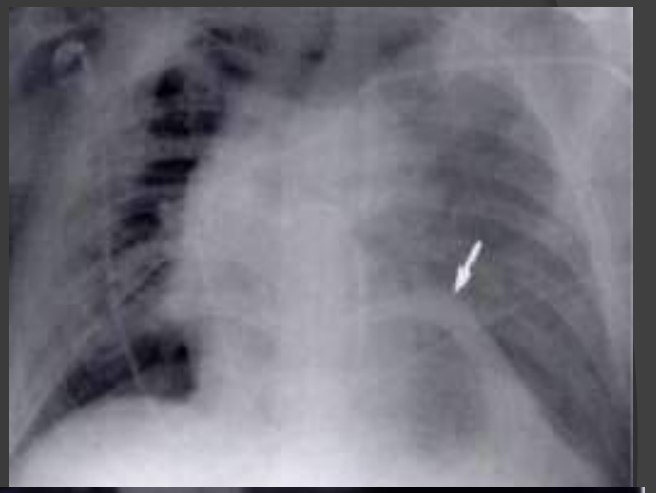
a. b.

Figure 10. Partial tear of the left crus of the diaphragm in a 37-year-old man. **(a)** CT scan displayed with soft-tissue window settings shows disruption of the left crus of the diaphragm (arrow). **(b)** CT scan displayed with bone window settings shows an adjacent vertebral body fracture at this same level.

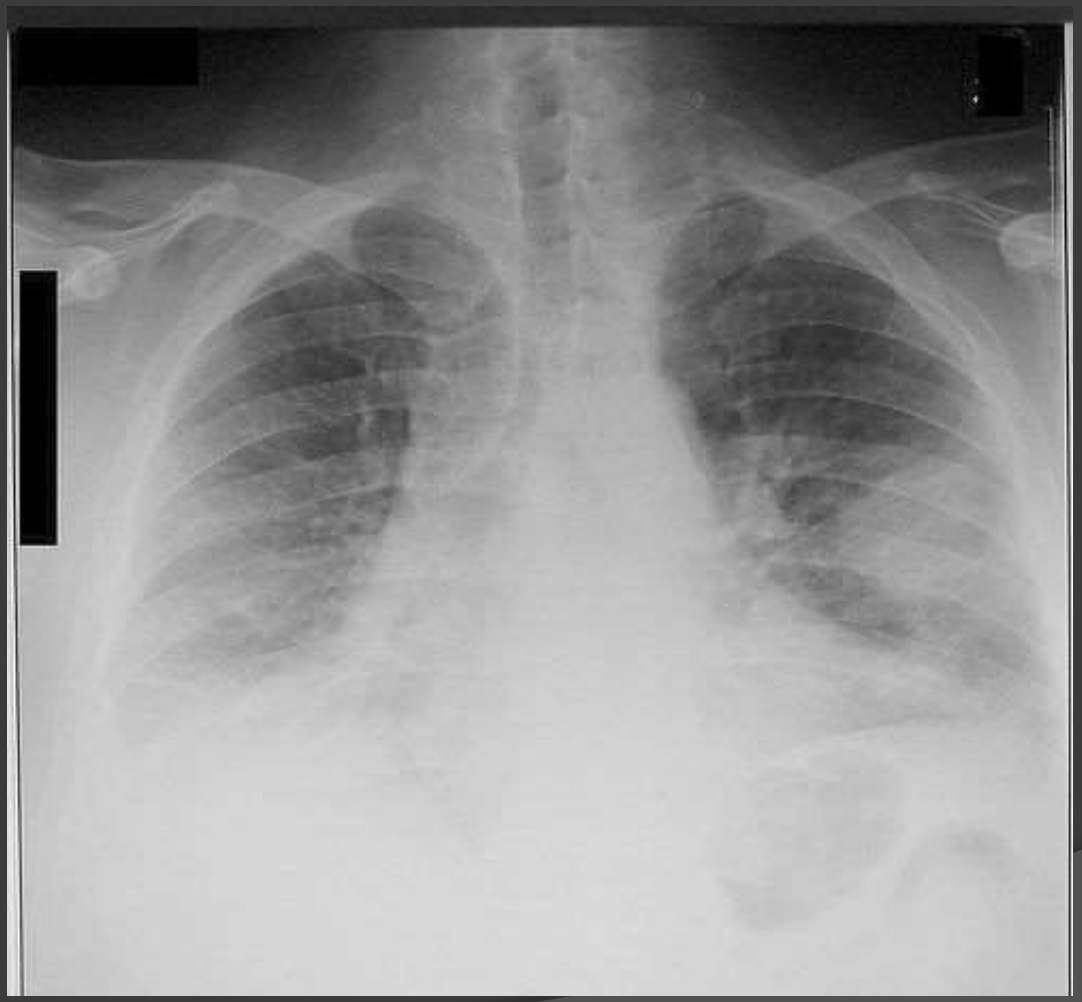
Case #5

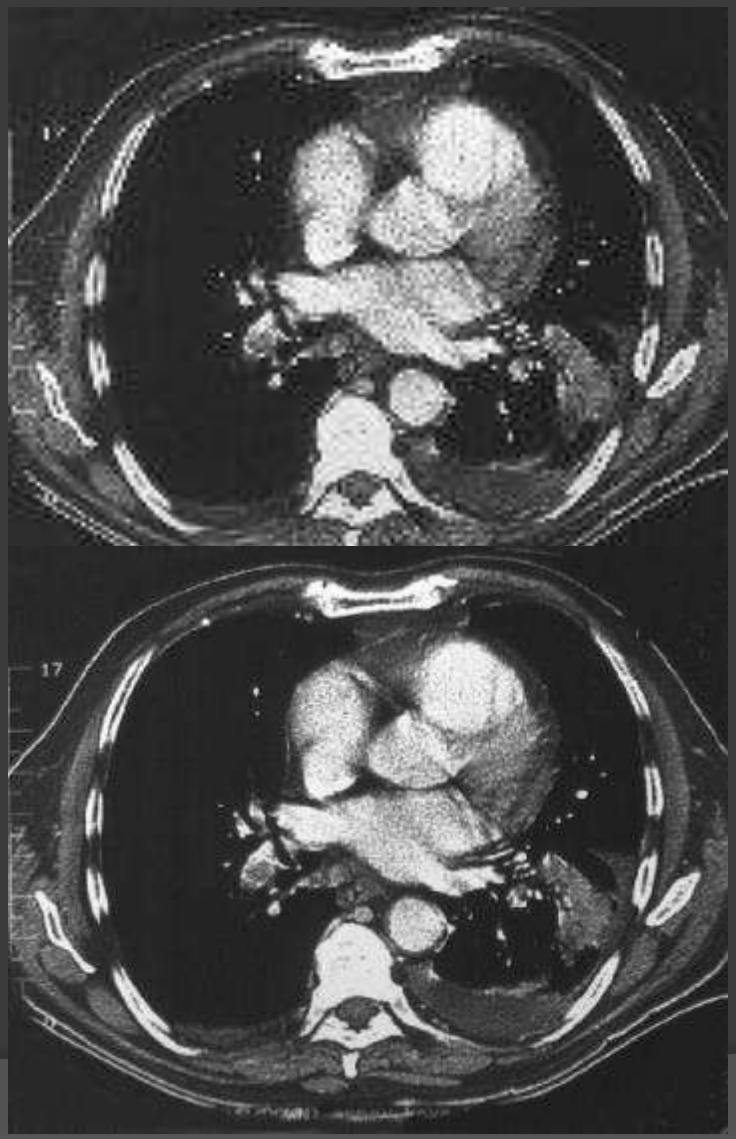


- Esophageal rupture carries a high mortality rate secondary to rapidly developing mediastinitis.



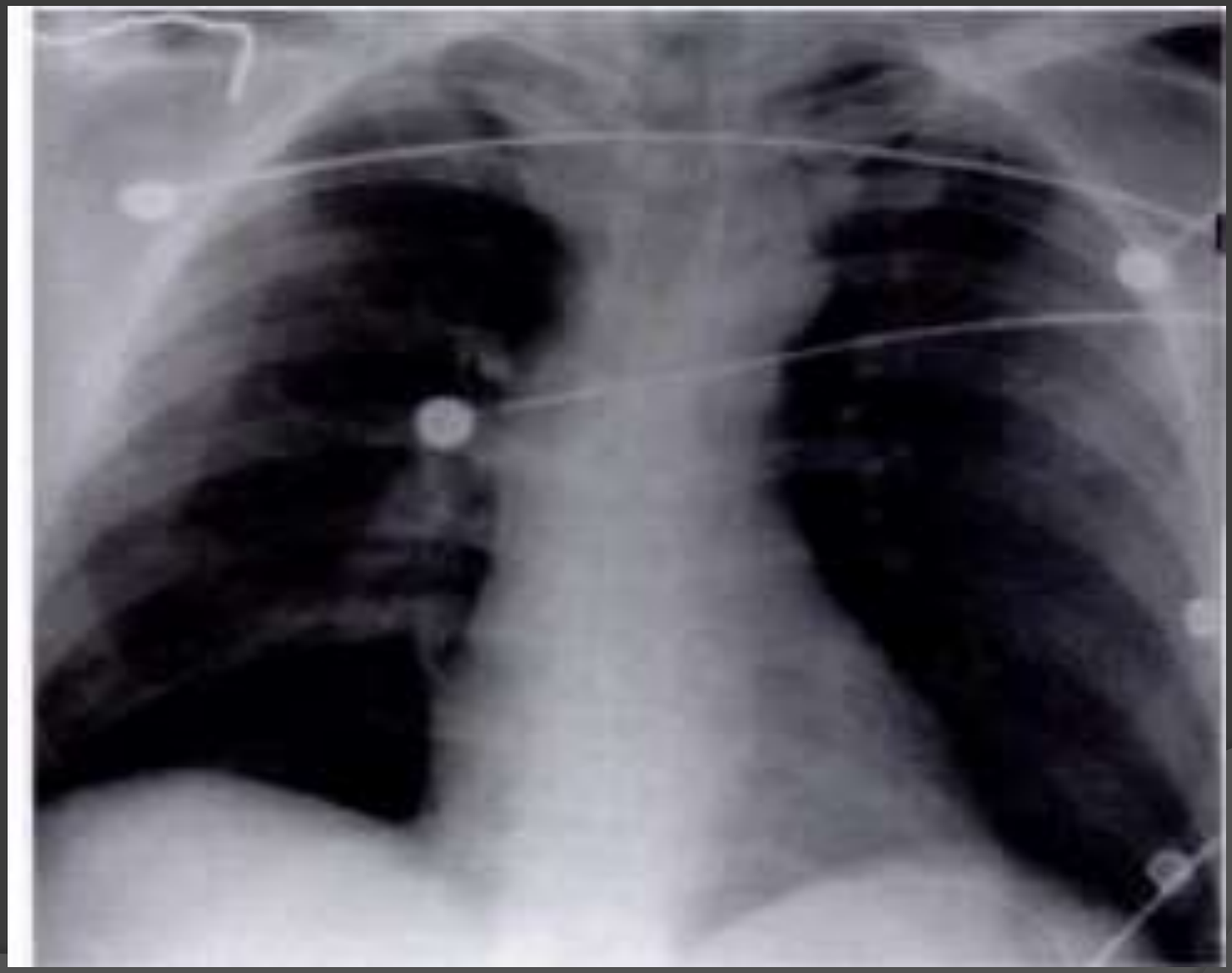
CASE #6



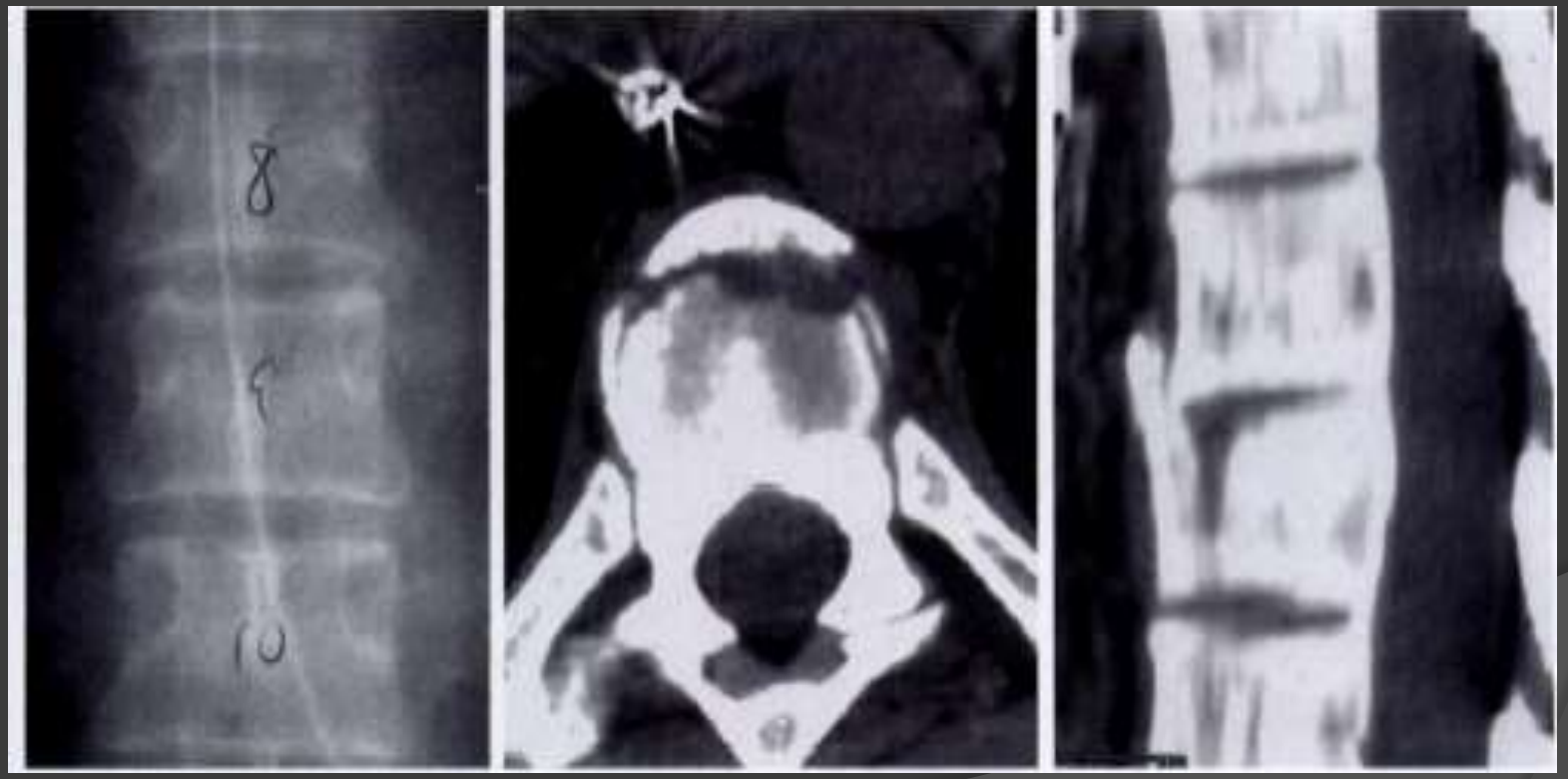


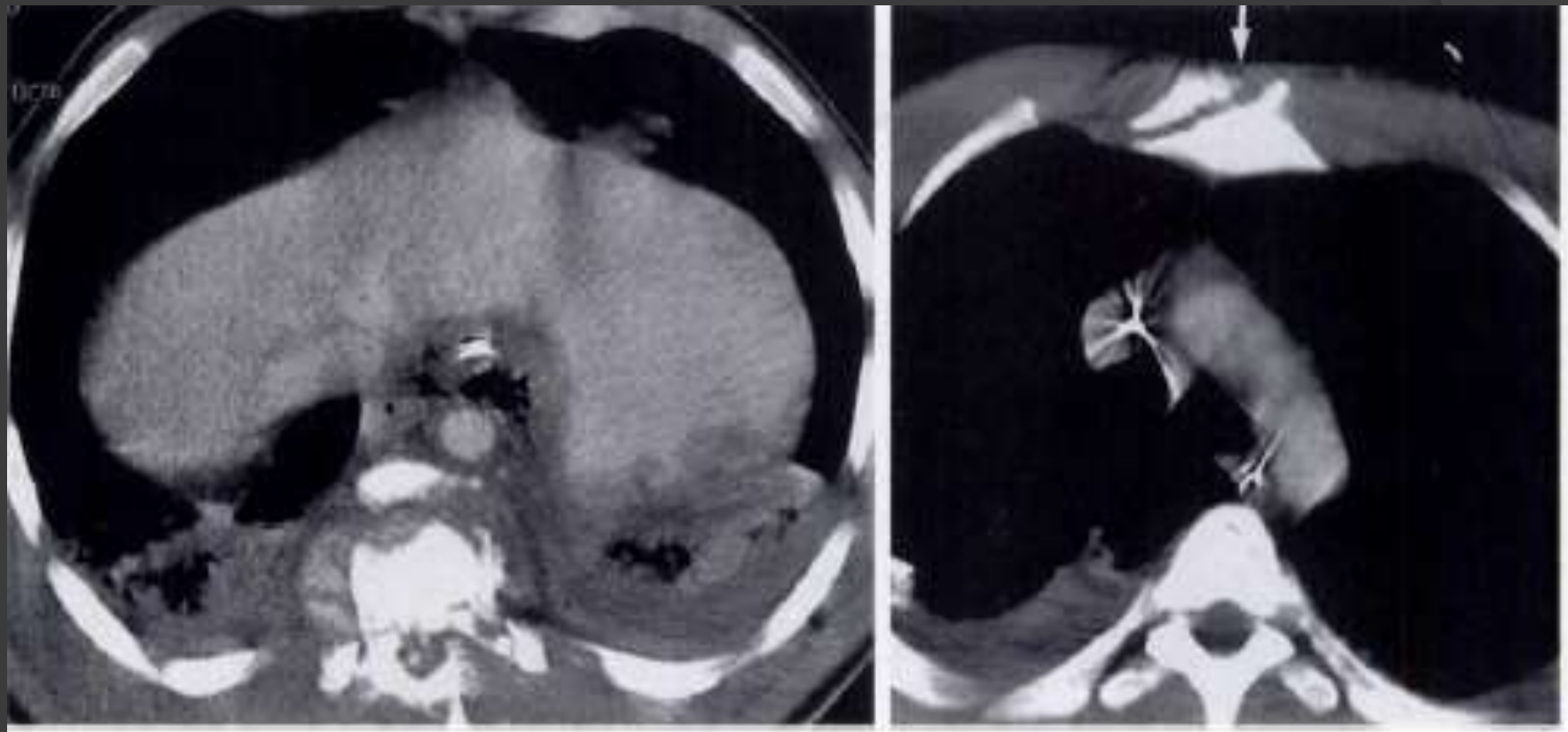
- Hampton's hump/Westermark sign-plain film
- Small unilateral effusion
- Usually subacute from trauma-vasc. Inj; stasis
- Consider other risk factors
- Gas embolism (rare) - diving, surgery; part of DDX is neurologic symptoms
- Fat emboli-usually associated w/ fractures

CASE #7



- Don’t forget about the spine, especially extreme force

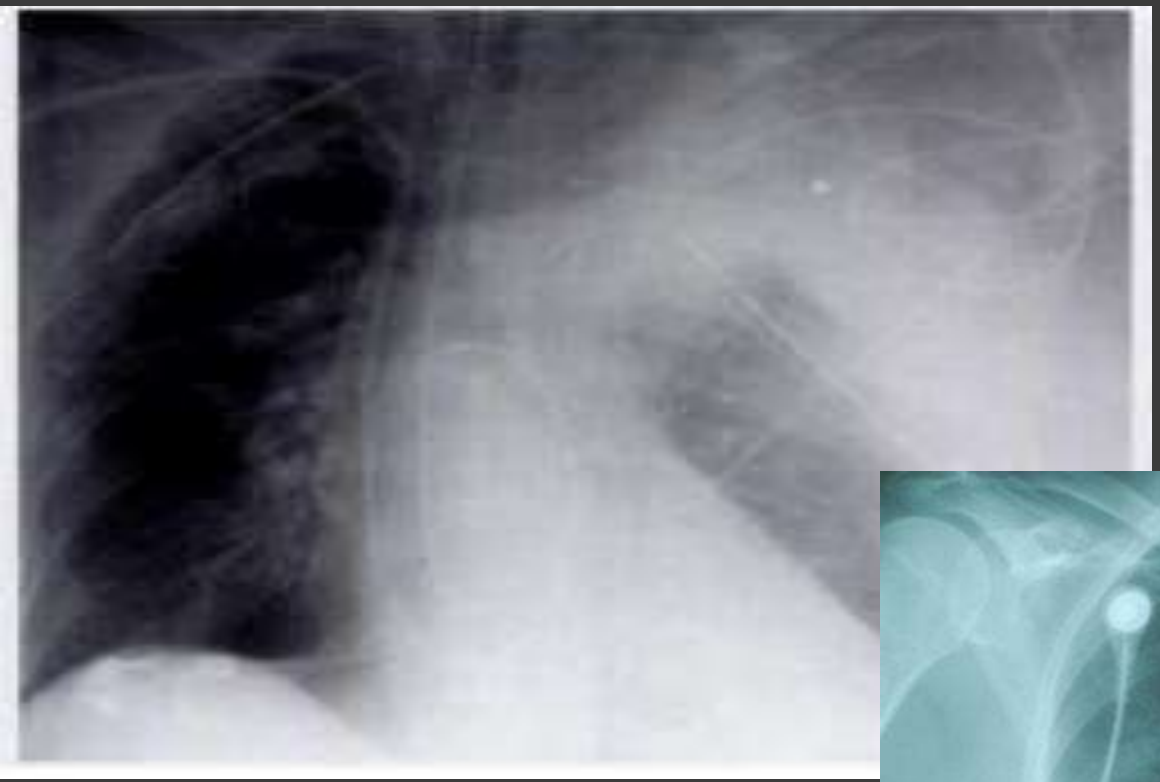


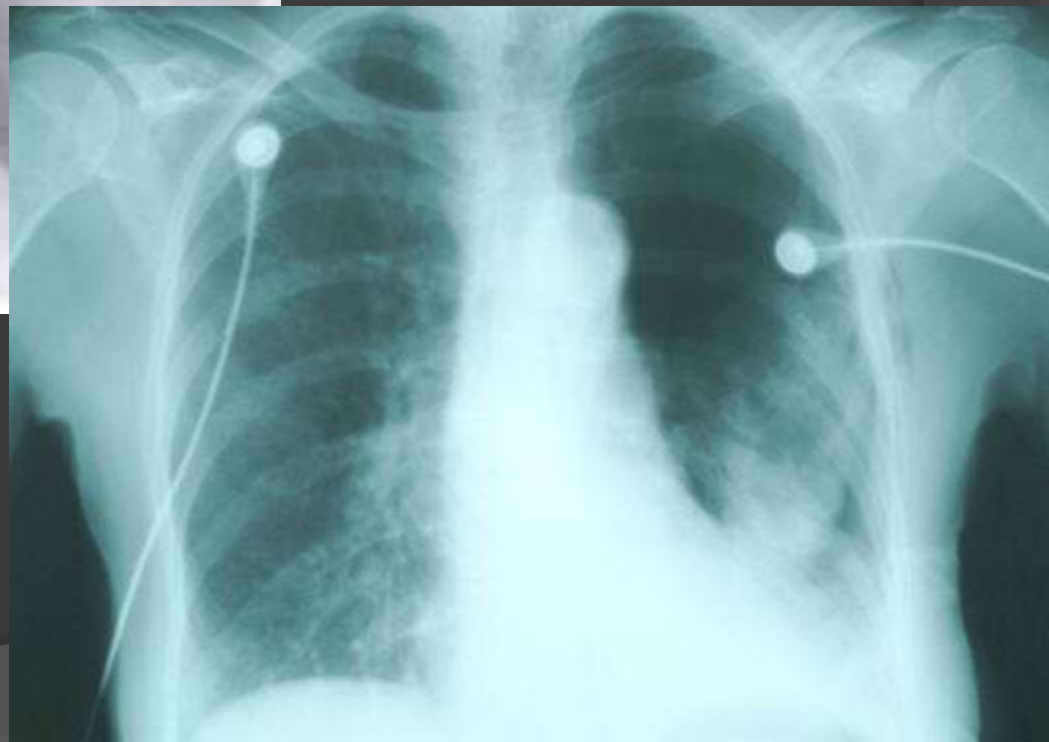


a. b.

Figure 14. Burst fracture of a thoracic vertebral body in a 21-year-old man injured in a high-speed motor vehicle accident. **(a)** CT scan demonstrates a burst fracture of T10 and obliteration of the spinal canal by bone fragments. Pneumomediastinum and bilateral pleural effusions are also present. **(b)** CT scan obtained at a higher level reveals an unsuspected sternal fracture (arrow).

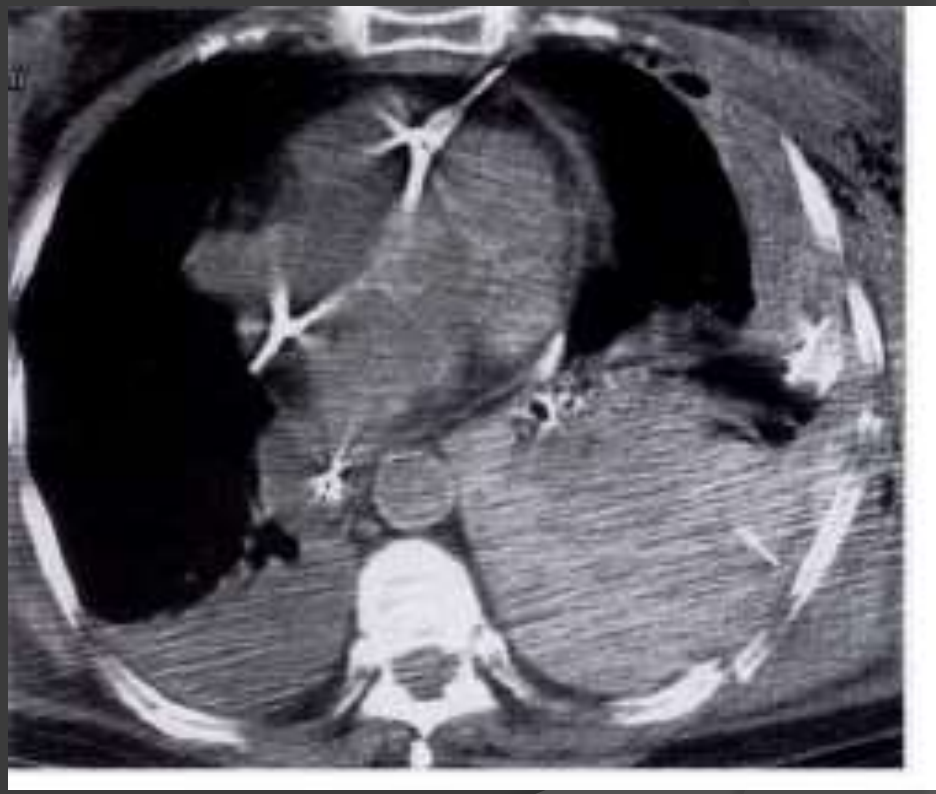
CASE #8





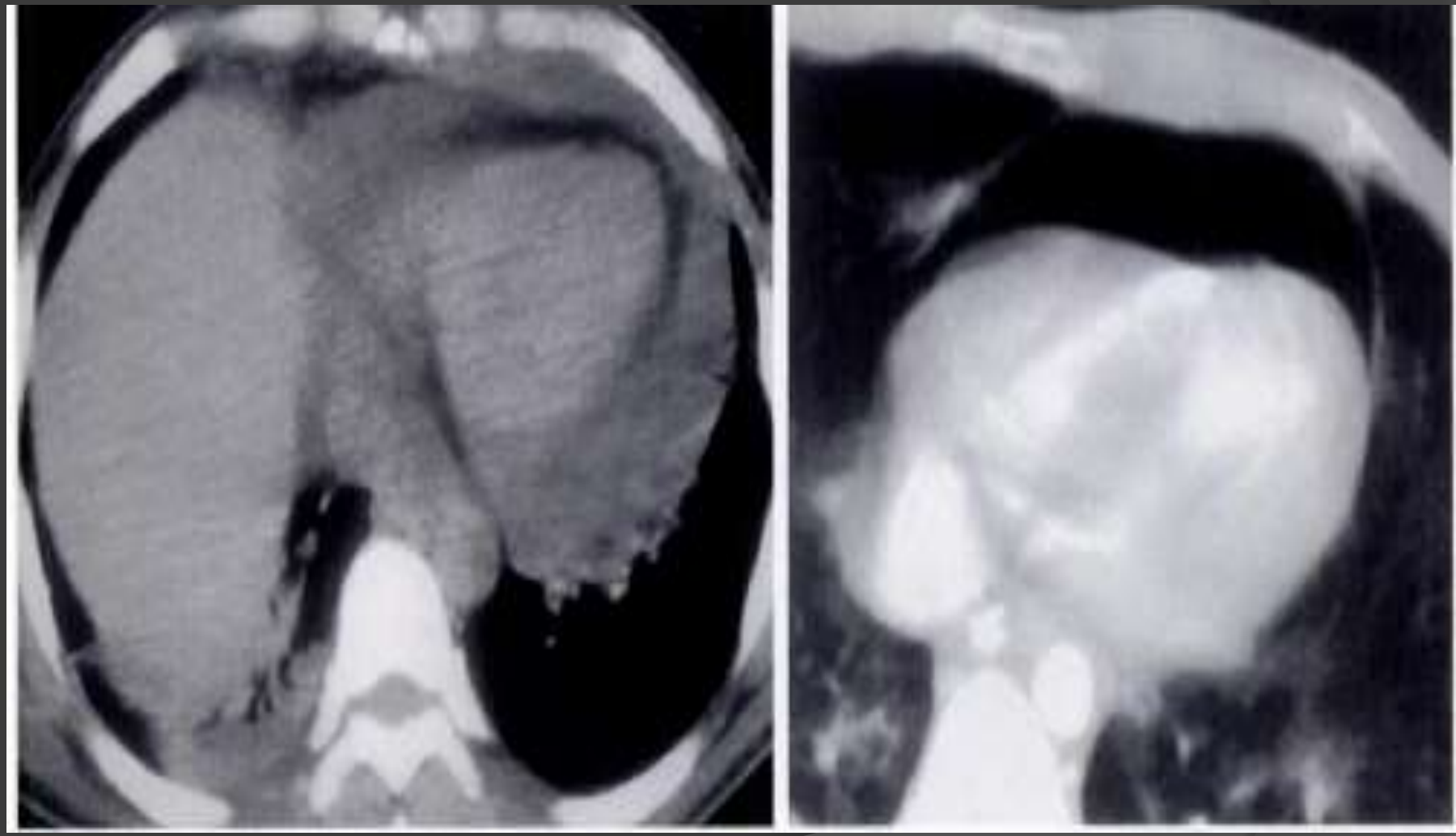
HEMOTHORAX

- Hemothorax can encompass 40% of the lung volume
- Evident when chest tube drains >1500 cc initially
- Usually indicates great vessel, heart rupture, and can be caused by fractures
- Usually an indication for immediate surgery



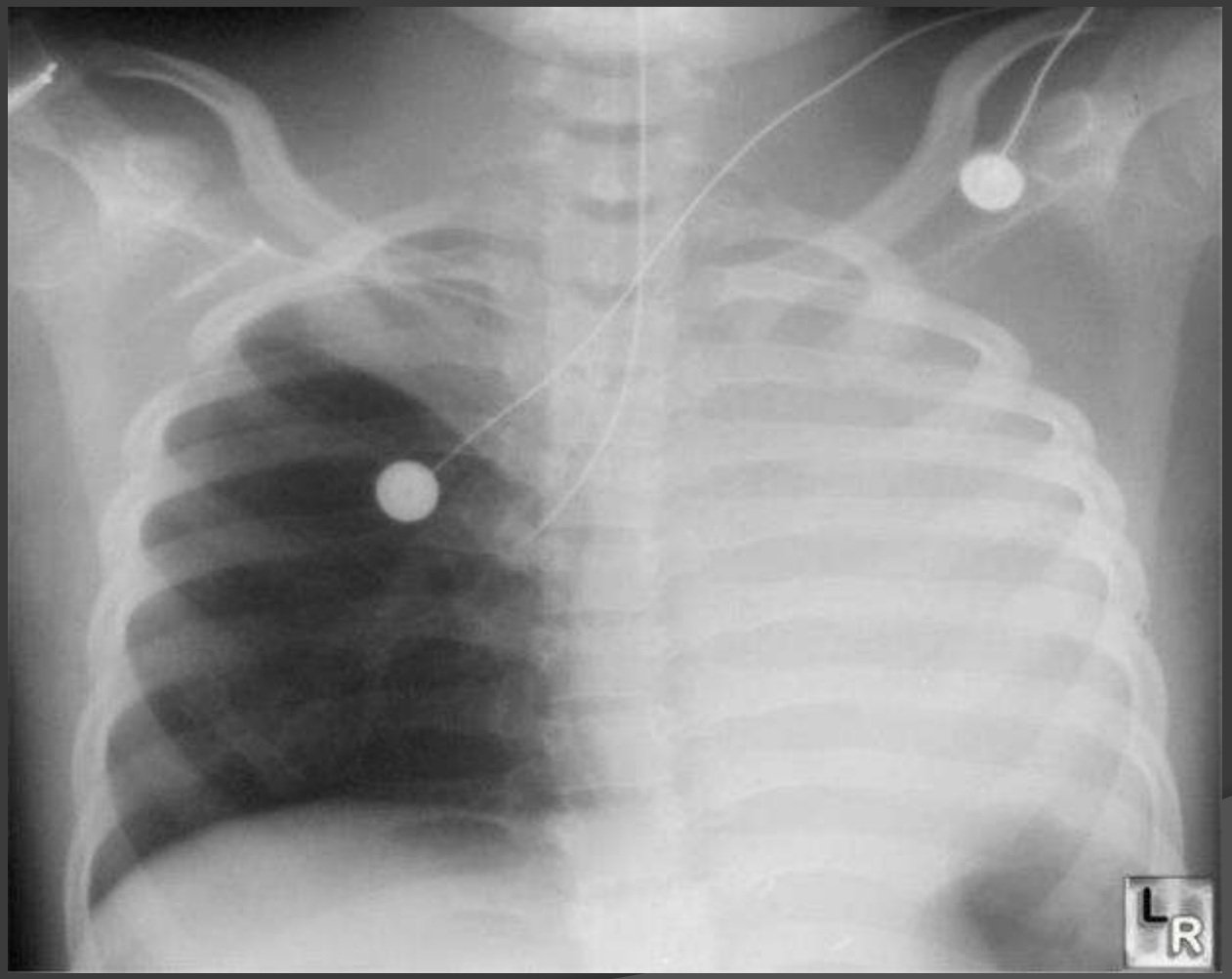
CASE #9

HEART



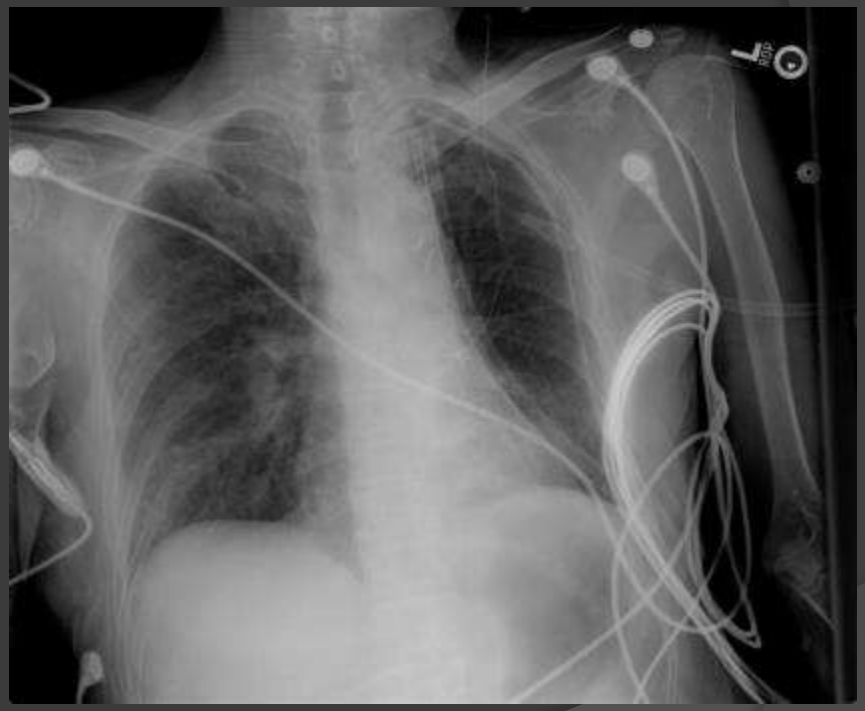
Pericardial effusions leads to cardiac tamponade; subxiphoid decompression

CASE #10

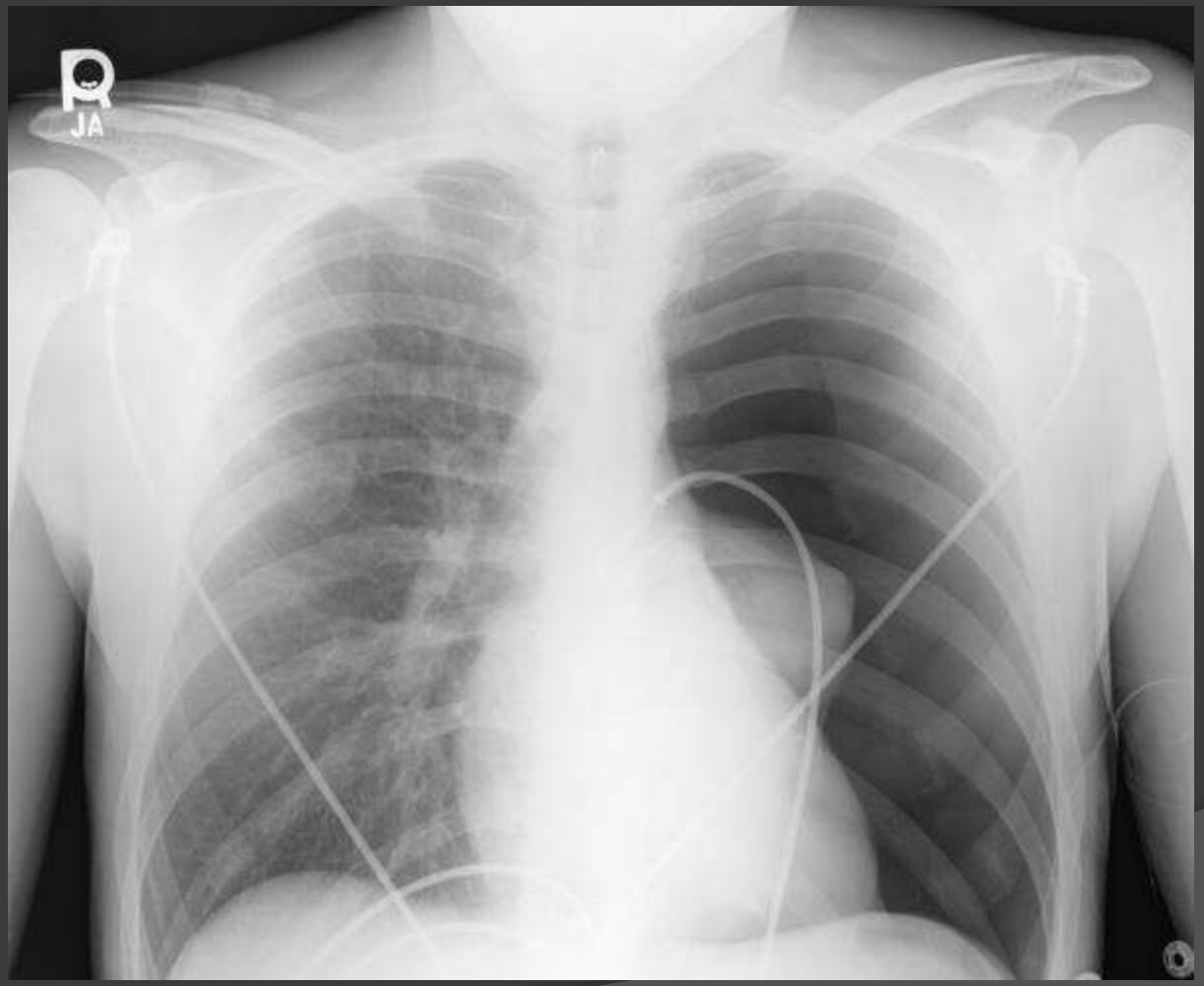


More....

- Chest x-ray after every line placement and reposition



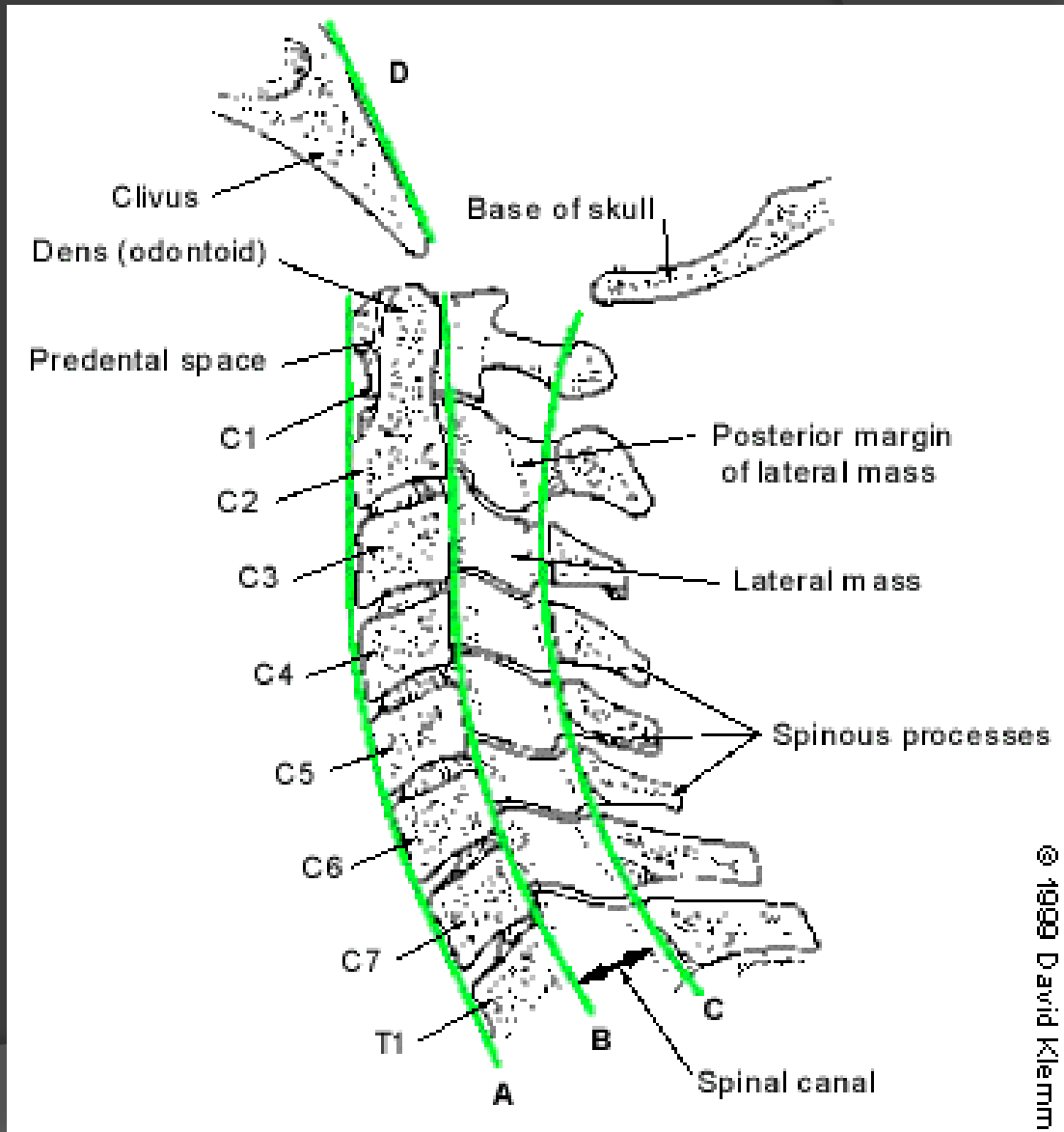
… THE OBVIOUS



Lateral c-spine

- Clivus to top of T1 (? swimmer's view)

- Anterior longitudinal line
- Posterior longitudinal line
- Spinolaminar line
- Spinous process line

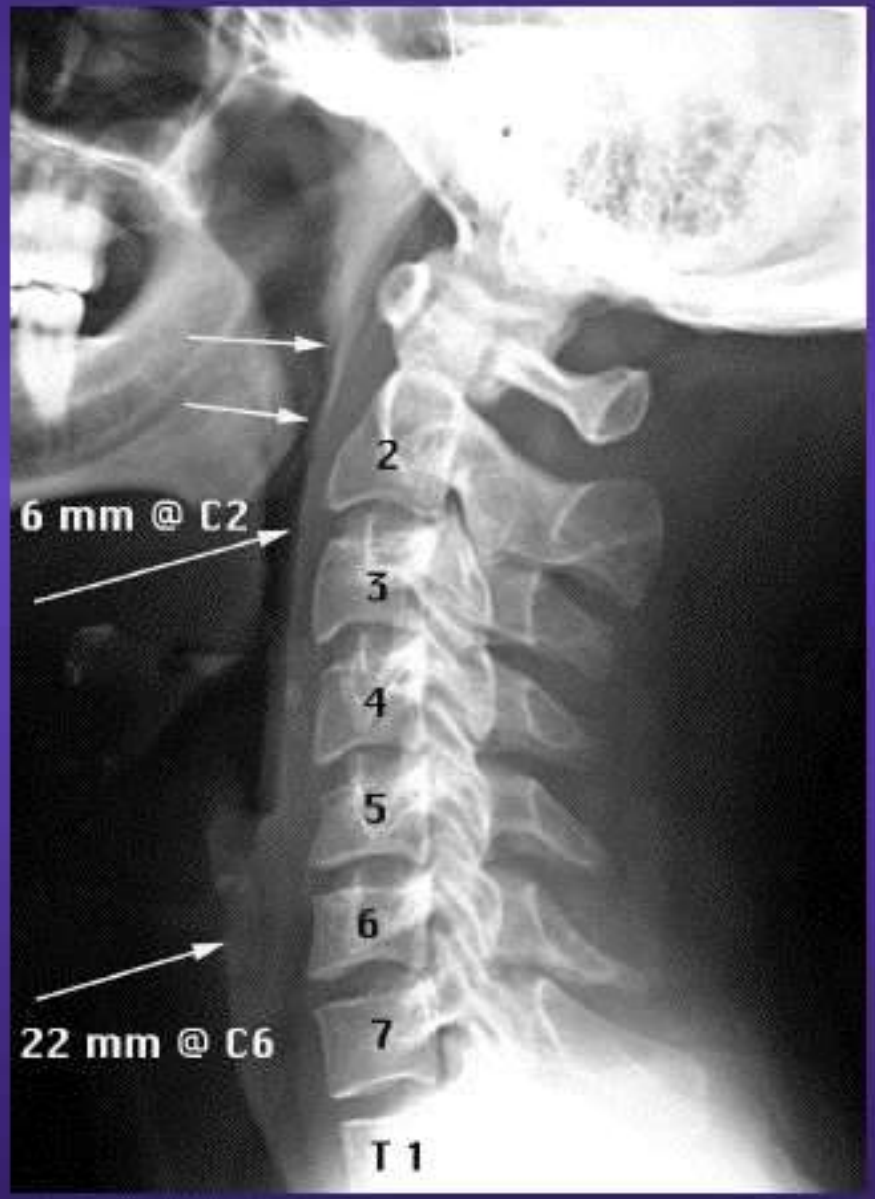


Normal Cross-table Cervical Spine Radiograph

Soft tissue evaluation is essential. However, these measurements are meaningless if the patient is intubated.

SOFT TISSUE CONTOUR anterior to C1-C2: it should be straight or convex posterior (arrows). Anterior convexity should alert you to an occult fracture at this level and unless the patient is readily examinable and asymptomatic, CT should follow.

Then apply the "Six at two, twenty-two at six" rule.



Normal Cross-table Cervical Spine Radiograph

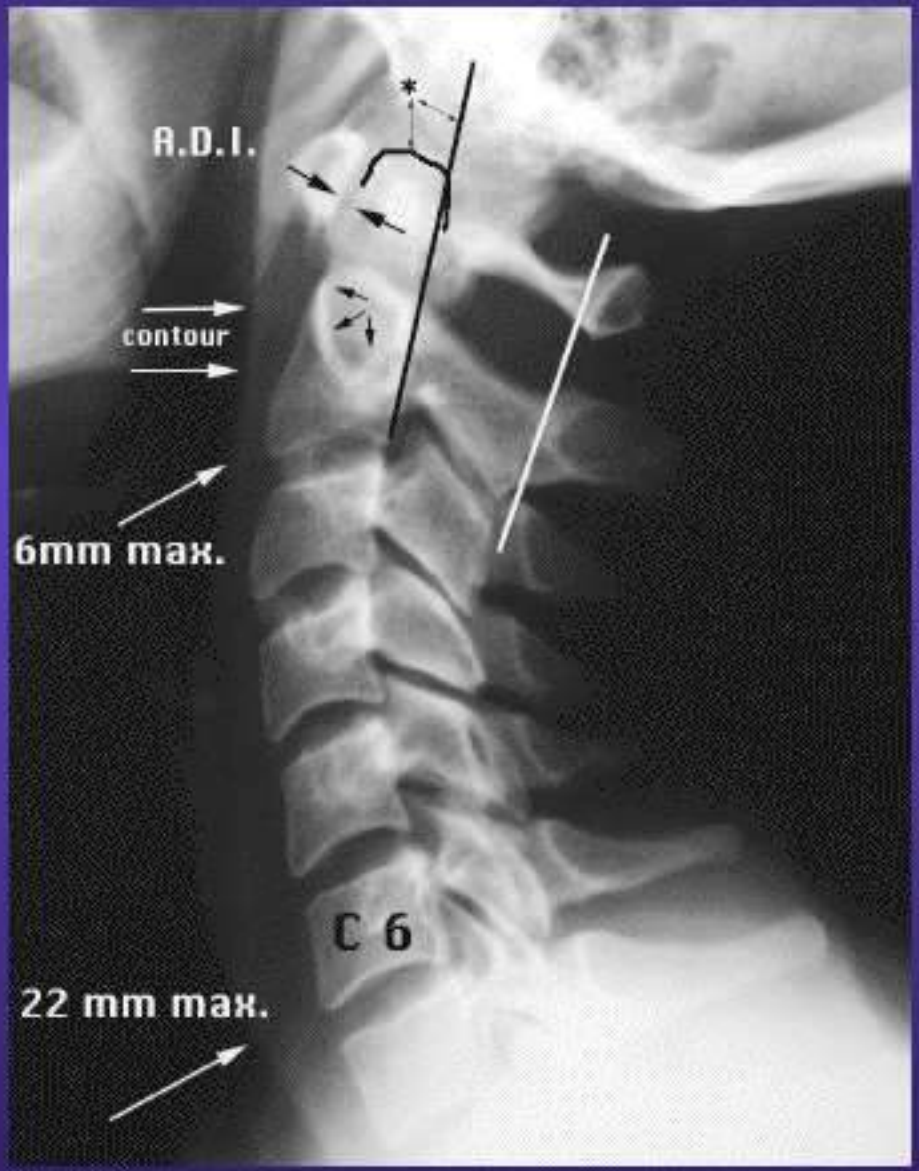
Get in the habit of numbering the vertebral bodies.
The line along the anterior aspect of the vertebral body is less reliable than the others because of normal contour variations, degenerative spurs, DISH, etc.

Draw (mentally or with a pencil) the lines of the posterior vertebral bodies and check for alignment.
Also note any focal kyphosis (abrupt change in angulation)-if present, check the inter-spinous distance for abnormal widening-this may be the only sign of ligamentous injury.
Evaluate the interlaminar lines and facet joints.

Normal Cross-table Cervical Spine Radiograph

Key measurements on the lateral film of the C-spine:

1. Craniocervical junction (AOD)
2. Upper C-spine
   - -ADI
   - -C1-C3 laminal line
3. Soft tissue contours and measurements

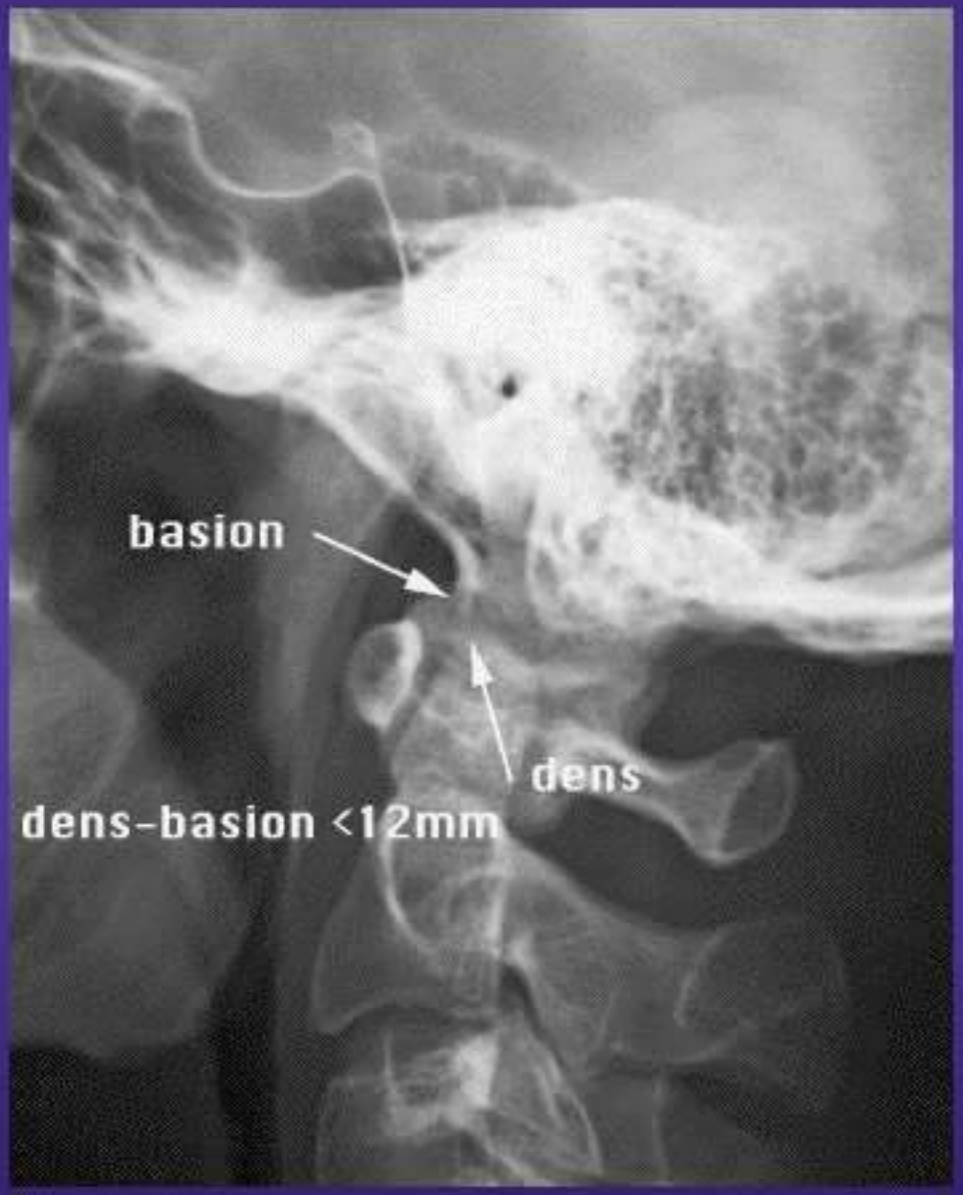


Atlanto-Occipital Dissociation (AOD)

In the evaluation of atlanto-occipital dissociation (AOD), the first task is to identify the top of the dens and the anterior margin of the foramen magnum (basion). Often, you can follow the contour of the clivus to locate the basion; however, in some patients, the line is not straight. If you are not sure, have the tech repeat a coned down film of C1-C2.

AOD: Dens-Basion Distance

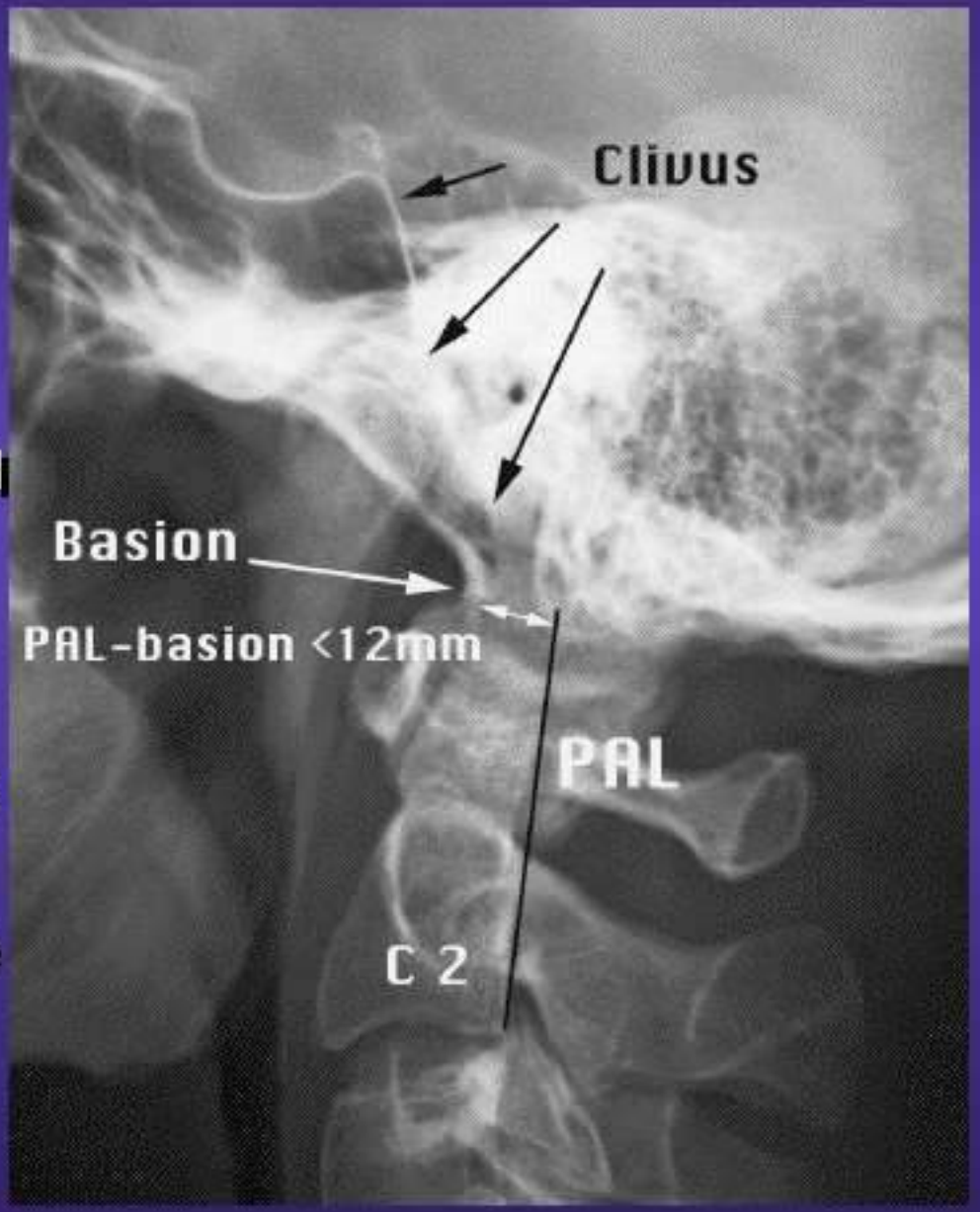
The dens-basion distance should be within 12mm in all individuals from about age 12 on. These measurements usually work in younger patients as well, but 13-14 mm or more may be ok in a very young child and you will need CT with reformations to determine the relative position of the occipital condyles to the lateral masses of C1.



AOD: PAL-Basion Distance

Next draw the posterior axis line (PAL) parallel to the posterior surface of the C2 VERTEBRAL BODY (not parallel to the dens which may curve back as a normal variant).

The position of the basion may vary from 12mm ANTERIOR to the PAL to 4mm POSTERIOR to the PAL and still be normal. The same age restrictions apply as with dens-basion distance.



AOD: Measurements

These two values are quite accurate at predicting the major force vectors which separate skull (occipital condyles) from the C1 lateral masses seen in AOD:

1. Distraction(dens-basion)
2. A-P translation (PAL-basion)

The other described methods in the literature are not even close to this method in accuracy.

C1-C3 Laminar Line

A line between the lamina of C1 and the lamina of C3 is drawn. This line should be no more than 2mm anterior to the lamina of C2. This line is quite useful in detecting subtle hangman's fractures. Always draw it-your eyes aren't that good!

Atlanto-Dens Interval (ADI)

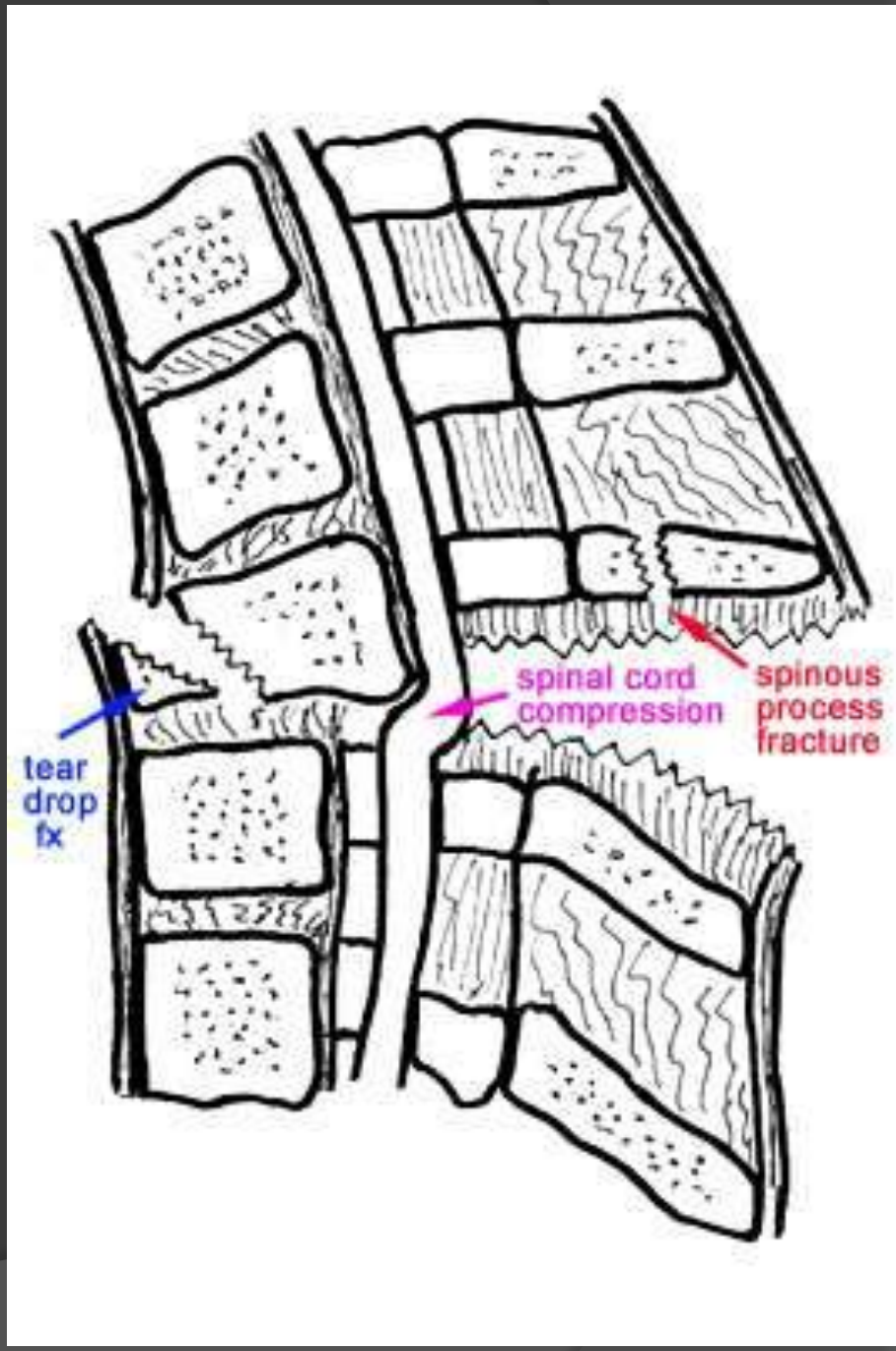
The ADI should be < 2.5-3mm in adults and < 5mm in children. The problem comes with definition of "children"-some of the child features of the C-spine (particularly pseudo-subluxation and ADI) may persist up to the early 20's.

Do not forget the soft tissue measurements AND contours at this level (see appropriate section).


tear
drop
fx

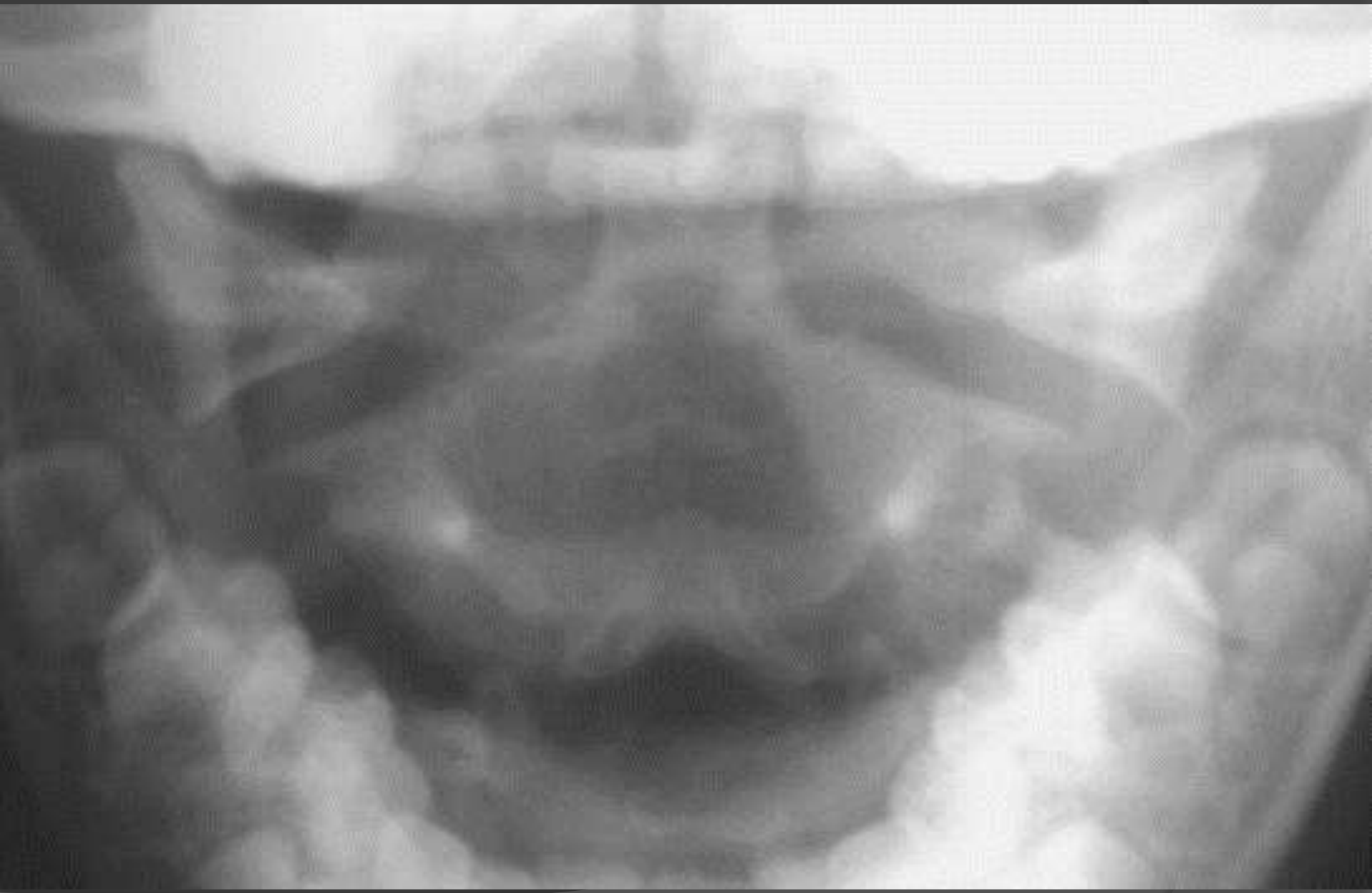
Flexion teardrop fracture

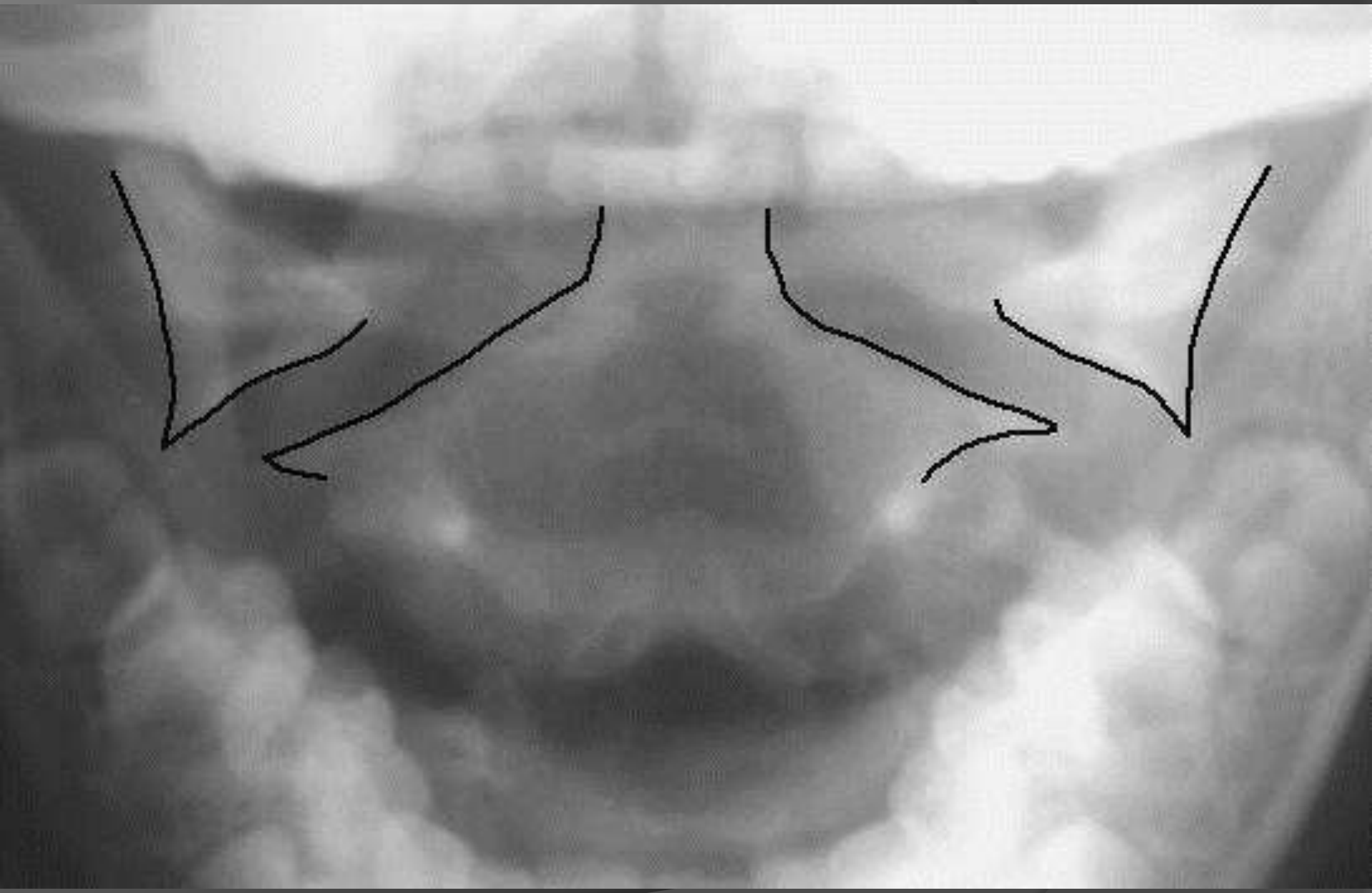
- Unstable
- All ligaments are disrupted
- Posterior subluxation of the vertebral body
- Bilateral subluxed or dislocated facets
- Severe spinal canal compromise



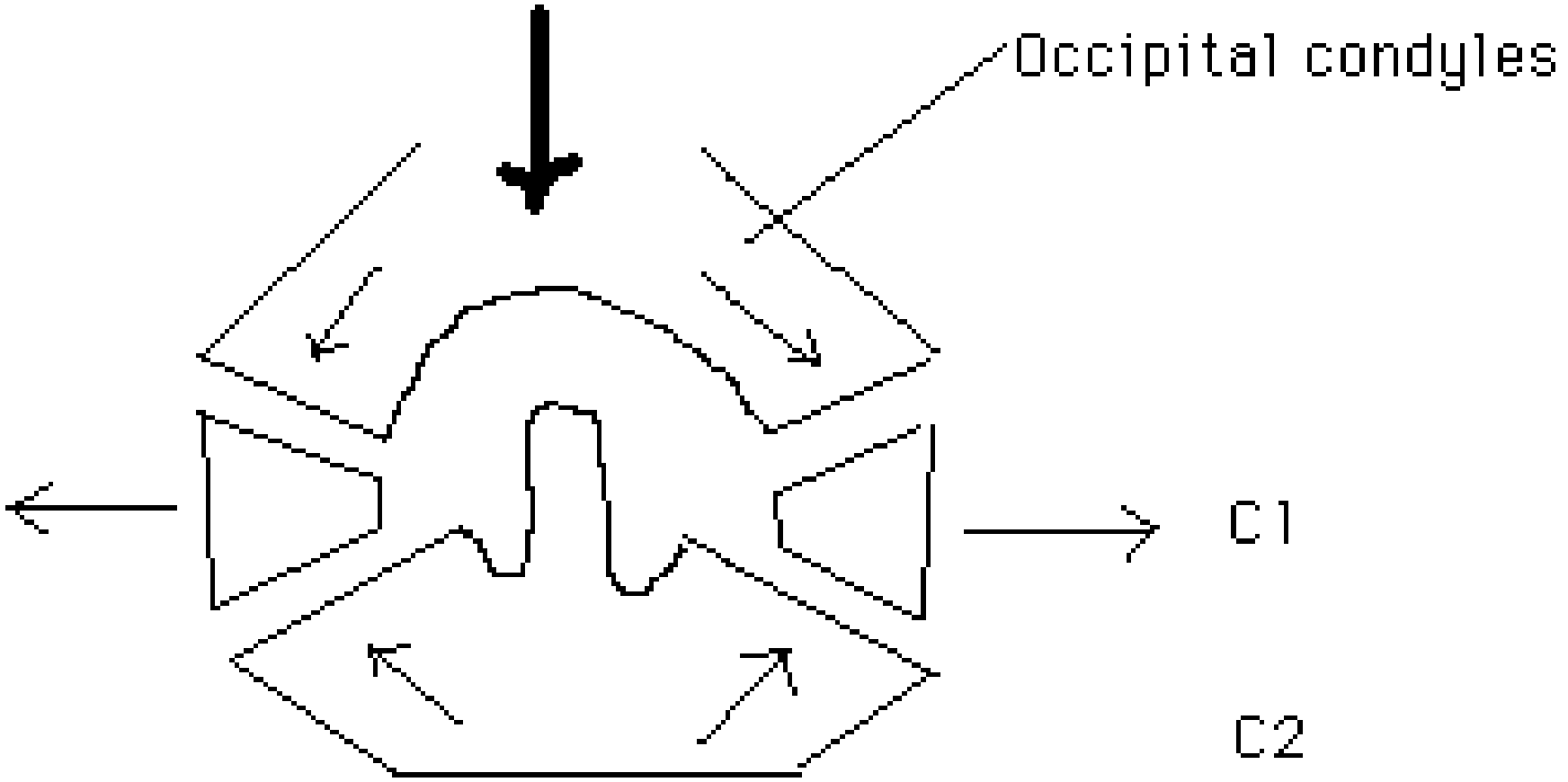
Flexion teardrop fracture

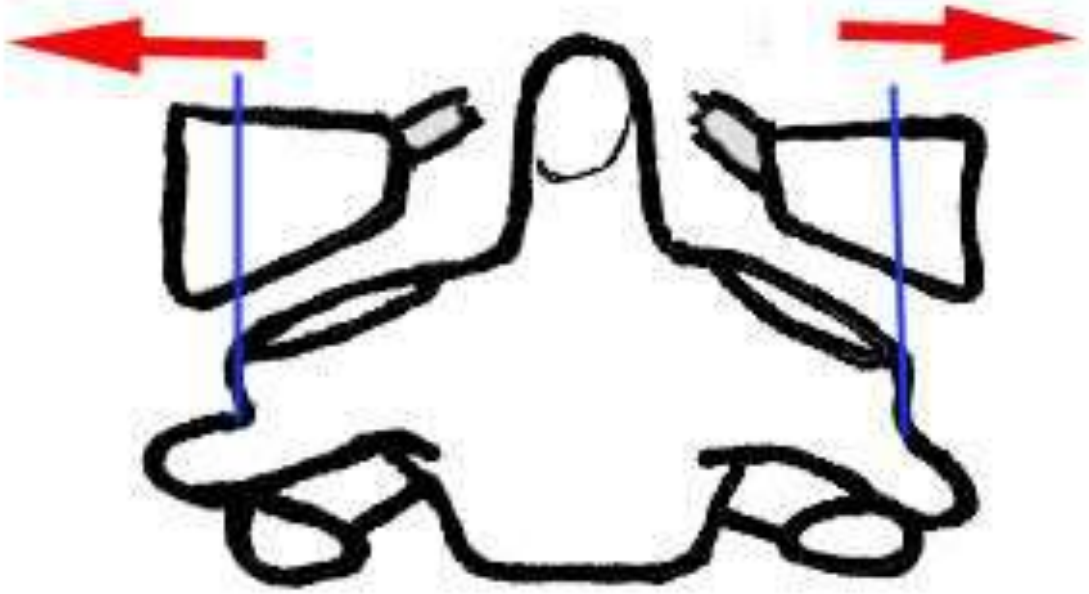
- Combined flexion and compression
- Triangular fragment at anterior-inferior vertebral body.
- 80% sustain neurologic injury (most severe flexion injury compatible with life)
- Presents as “acute anterior cord syndrome”
  - Quadriplegia, loss of anterior column senses, retention of posterior column senses

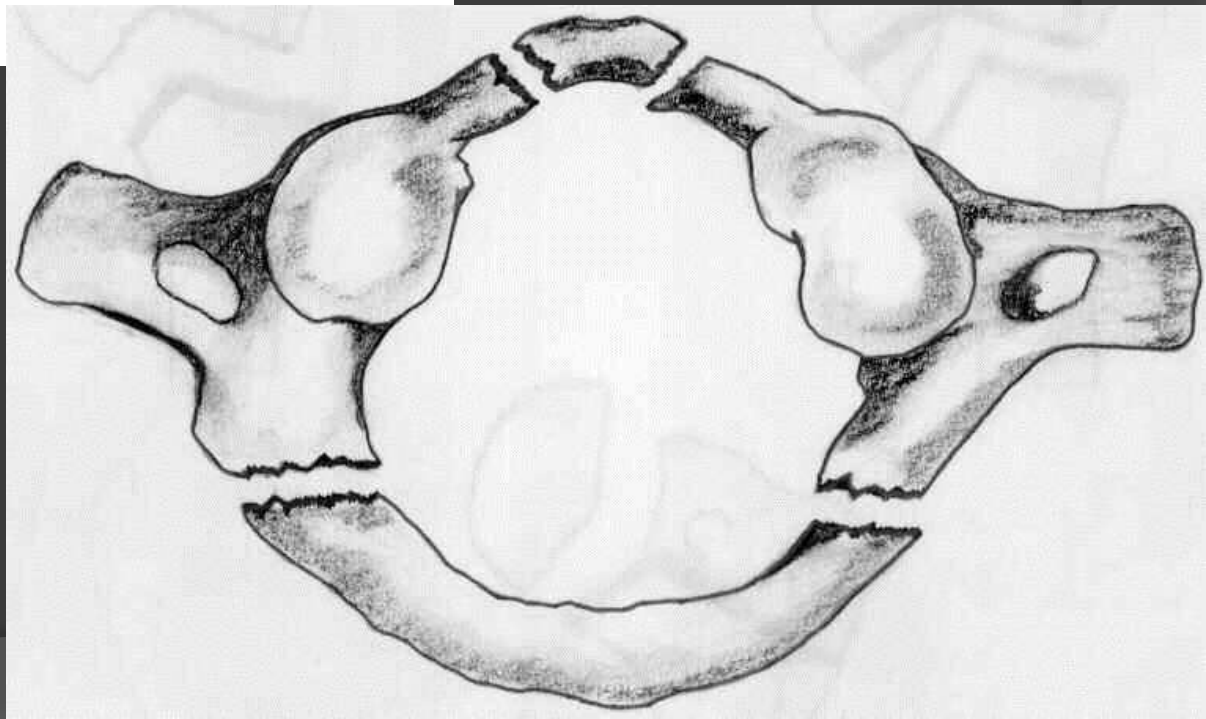




Pathophysiology of Jefferson Burst Fracture







Jefferson Burst Fracture

- C1 ring fracture involving both anterior and posterior arches
- Compression force
- >2 mm bilateral lateral displacement is always abnormal (1-2 mm may be rotation)


L
R

Burst fracture

- Same mechanism as Jefferson's fracture but involving C3-C7.
- Spinal cord injury common (displacement of posterior fragments) – look for posterior bowing of cortex, which is normally concave.
- All patients require CT to evaluate for fragments in relation to spinal canal and look for associated fractures
- May resemble flexion teardrop fractures
  - Flexion teardrop injury usually has small triangular bony fragment anteriorly and inferiorly
  - May not injure both the anterior and posterior ligamentous structures (flexion teardrop does)

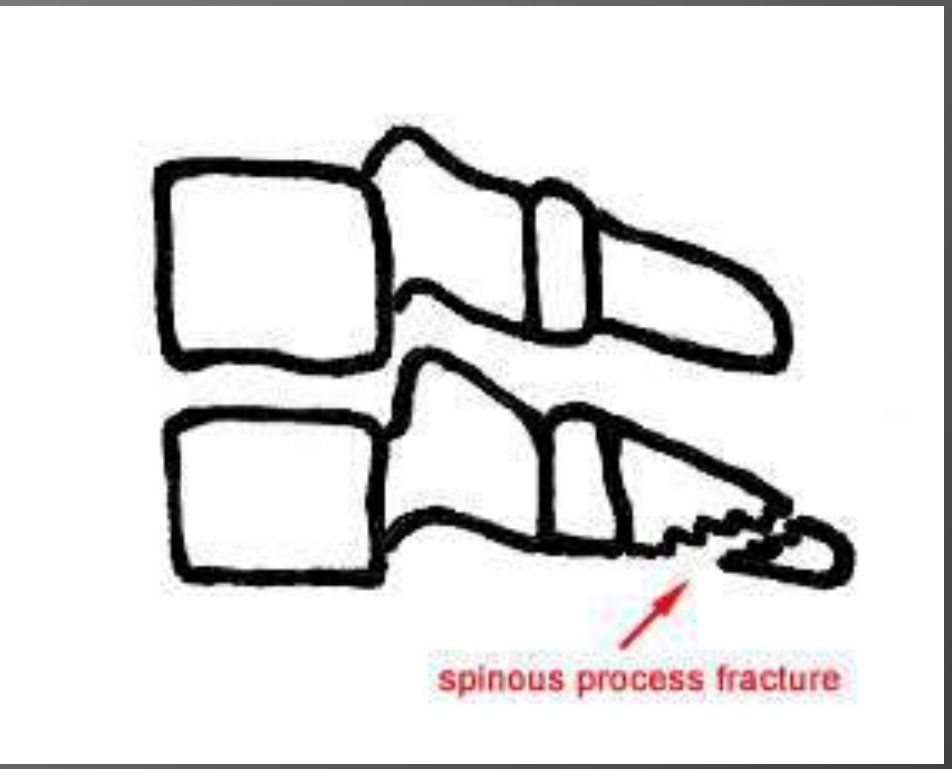
Compression fracture

- Make sure you see to top of T1

Extension teardrop fracture

- Teardrop fragment
  - Avulsion of anterior longitudinal ligament
  - Vertical height of fragment greater than horizontal width


EMBBS

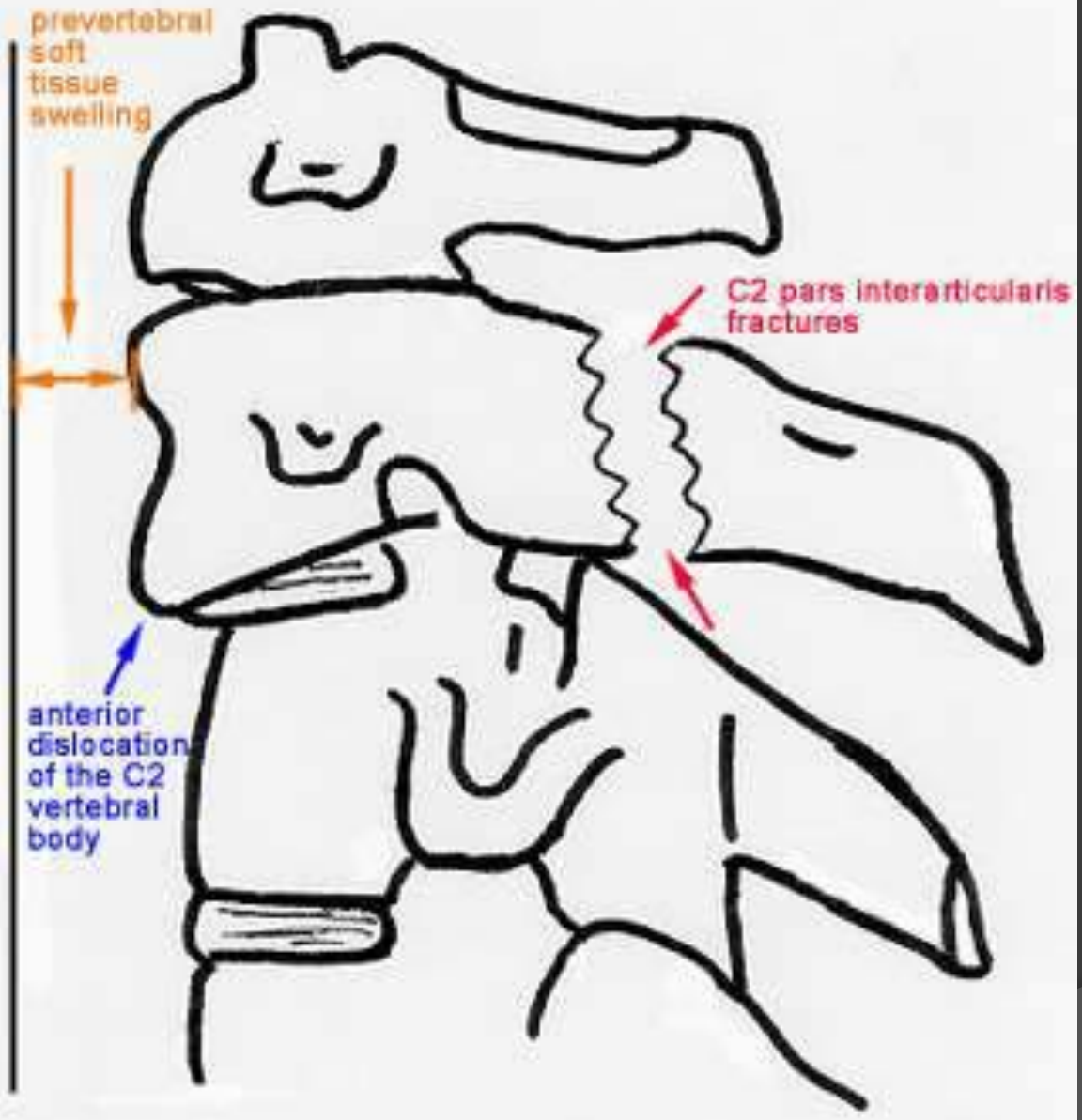


CLAY SHOVELER'S FRACTURE ; AVULSION OF C7 OR T1 SPINOUS PROCESSES, CAUSED BY ABRUPT CONTRACTION OF TRAPEZIUS

Bilateral locked facets

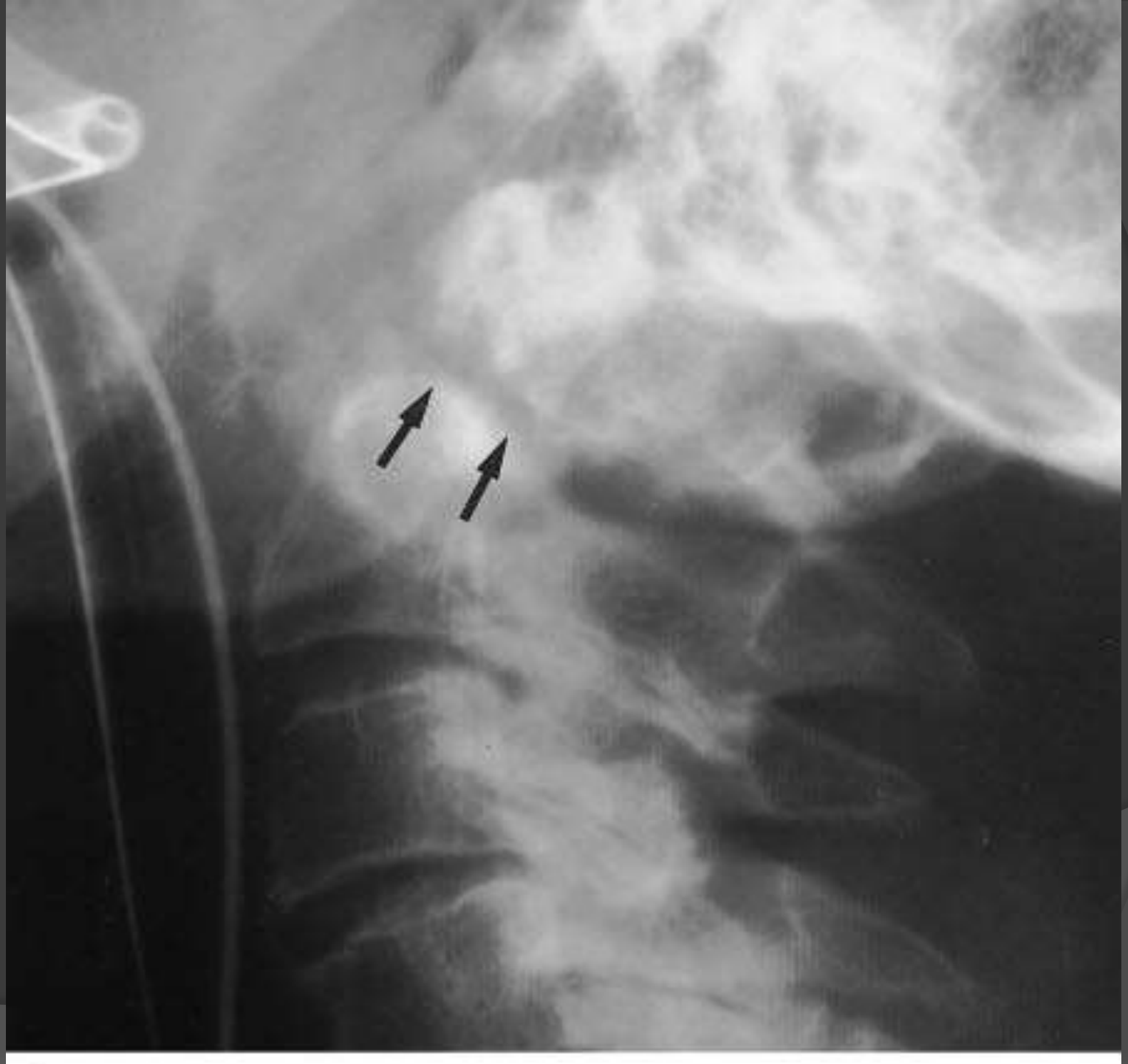
- Usually associated with greater than 50% vertebral body displacement
- High incidence of cord injury
- Disruption of posterior ligament complex, intervertebral disk, and anterior longitudinal ligament
- Unstable

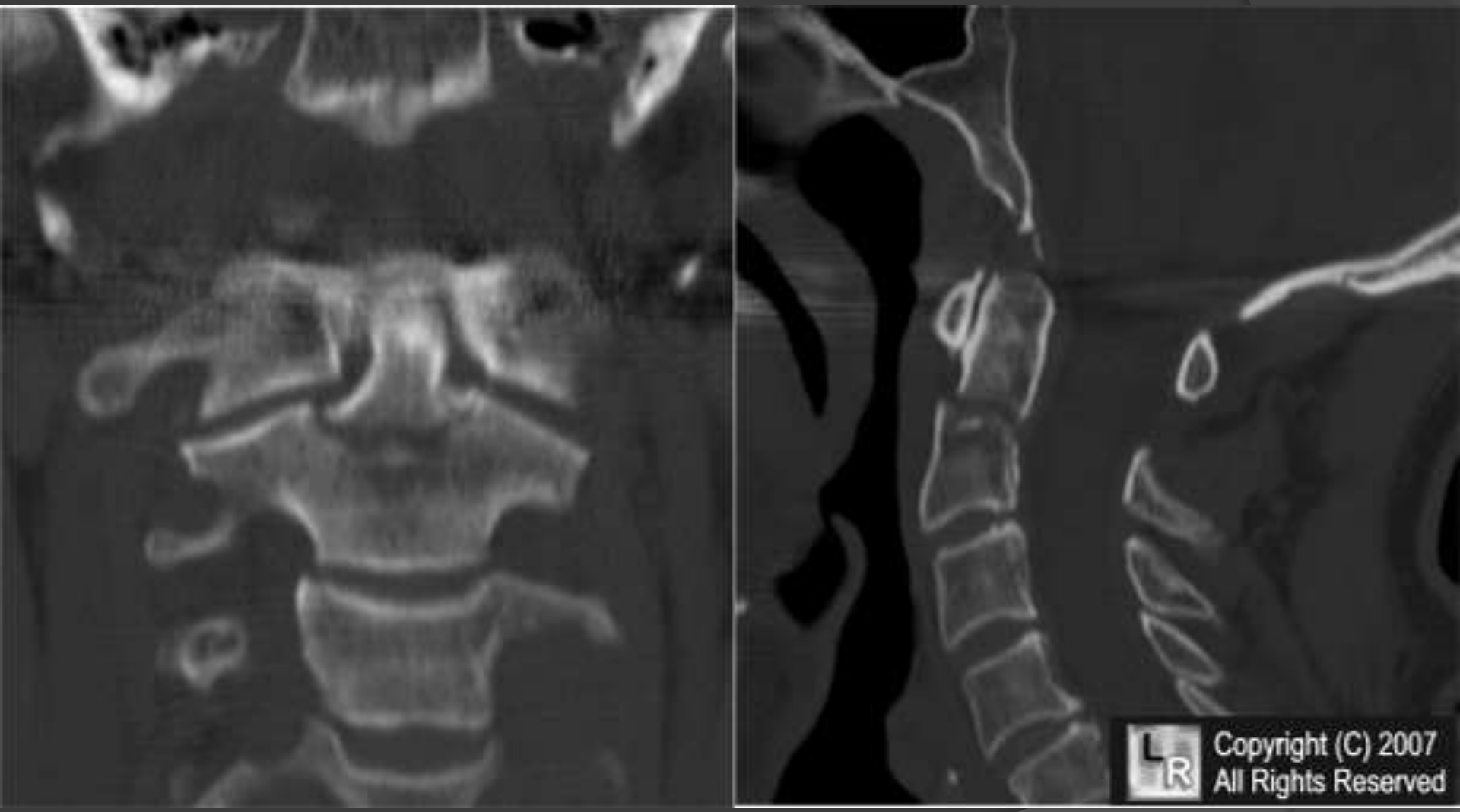

RIGHT


prevertebral soft tissue swelling
C2 pars interarticularis fractures
anterior dislocation of the C2 vertebral body

Hangman's Fracture

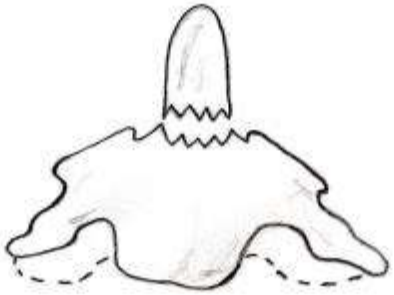
- Hyperextension and traction injury of C2
- Radiographically characterized by interruption of the spinolaminar line
- Anterior dislocation or subluxation of C2 vertebral body
- Avulsion of anterior inferior corner of C2 (ruptured anterior longitudinal ligament)
- Common cervical spine fracture
- Unstable



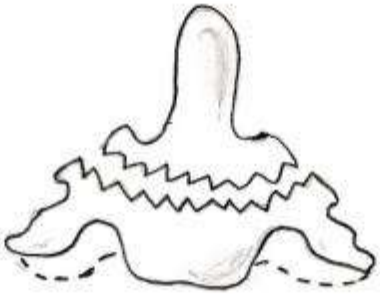

Copyright (C) 2007
All Rights Reserved

A

B



C



Dens fracture

- Type 1-upper part of odontoid (5%)
- Type 2-base of odontoid (65%)
- Type 3-through base of odontoid into body (30%)
- Os odontoideum (congenital or posttraumatic, may be mechanically unstable)

Pearls

- 20% of spinal fractures are multiple
- 5% occur at discontinuous levels
- Most occur in upper (C1-2) and lower (C5-7) cervical spine
- If available be liberal in use of CT

- MRI shows disk herniations and associated cord injuries (all patients with signs/symptoms of cord injury require MRI)
- Look for loss of disk space height to indicate disc compression injuries

UNIVERSITY OF WASHINGTON RADIOLOGY AT HTTP://UWMSK.ORG:8080/MSKTF/STORIES/STORYREADER$943

PRIMER OF DIAGNOSTIC IMAGING 4TH EDITION. WEISLEDER ET AL.

Well Woman!

CDR Rebecca Navarrete, FNP-BC, NC USN
Interim Senior Medical Officer
(619)556-8108/2801
Naval Branch Health Clinic
Naval Base San Diego
2450 Craven St., Bldg. 3300
San Diego, CA 92136

MRD Clinic(Dryside)

Contacts:

-HN Cazares 619-556-8114

Antonio.j.cazares.mil@mail.mil

-HM2 White 619-556-2802

Zachary.m.white16.mil@mail.mil

Labs

- Ensure that orders are getting put in to CHCS.
- Use lab chit if unable to use CHCS.

LABORATORY TEST REQUISITION

Patient Information (Include Name, DOB, Health Record Local #)

Routine: Performed with 12 hrs, the next working day, or the next testing run as appropriate, in lieu of a ASAP and STAT requests

ASAP: Performed and reported via CHCS as soon as possible, following a STAT request. Results reported within 2 hours, microbiology and blood bank excluded

STAT: Highest priority test results reported via CHCS within 1 hour. The use of the term STAT implies a life-threatening situation existing with the patient and test results are critically needed to treat the patient appropriately

Requesting HCP

SSN (last 4 digits)

Requesting Location

Phone #

Date & Time collected

* SF 519 required for pre-transfusion testing and blood products
* SF 517 required for therapeutic phlebotomy, directed donations, apheresis procedures, and mail out tests (502-92-11)
* NMCSD 6530/53 required for referral to pre-deposit autologous program

CHEMISTRY RED or TIGER TOP	ROUTINE	ASAP	STAT
Amylase			
Bilirubin, Neonatal			
Bilirubin, Total			
Chemistry Panel			
Glucose, Fasting			
Glucose, Random			
Iron			
Lipase			
Lipid Panel			
Liver Function Test			
Magnesium			
Panel 1			
Panel 2			
TIBC			
Uric Acid			

SEROLOGY & VIROLOGY RED OR TIGER TOP	ROUTINE	ASAP	STAT
ANA Screen			
Cmcd, Serum			
C-Reactive Protein			
HBSAB			
Hepatitis B Ab			
Hepatitis Panel			
Needlestick Pnl-Source			
Needlestick Pnl-Exposed			
RPR			
Rubella IgG			
Rubeola			

THERAPEUTIC DRUG MONITORING RED TOP ONLY	ROUTINE	ASAP	STAT
Carbamazepine			
Digoxin			
Gentamicin			
Phenobarbital			
Phenytoin			
Theophylline			
Valproic Acid			
Vancomycin			

BLOOD BANK LAVENDER TOP	ROUTINE	ASAP	STAT
ABO & Rh			
Direct Coombs (DAT)			
Antibody Screen			
Prenatal Workup			
Rhig Candidate			

CARDIOLOGY GREEN TOP	ROUTINE	ASAP	STAT
CK			
CKMB			
LDH			
Troponin -			

IMMUNOASSAY	ROUTINE	ASAP	STAT
Beta HCG - Red Top			
Drug Screen - Urine			
Estradiol - Red Top			
HgB A1C - Lav Top			
PSA - Red Top			
T3, Total - Red Top			
T4, Free - Red Top			
TSH - Red Top			

URINE CHEMISTRY Vol:	ROUTINE	ASAP	STAT
Creatinine			
24 HR____ RANDOM____			
Creatinine Clearance			
24 HR____ SERUM____			
Total Protein			
24 HR____ RANDOM____			
Urea Nitrogen (LUN)			
24 HR____ RANDOM____			

URINALYSIS	ROUTINE	ASAP	STAT
Urinalysis			
Urine HCG			
Urine Osmolality			

HEMATOLOGY LAVENDER TOP	ROUTINE	ASAP	STAT
CBC			
Monospot			
Retic Count			
Sed Rate			

COAGULATION Blue Top	ROUTINE	ASAP	STAT
Bleeding Time			
D-Dimer			
PTT Panel			
FDP			
Fibrinogen			
PT (includes INR)			
PTT			
Coag Panel (Mail-Out)			

CSF TUBE NUMBER:	ROUTINE	ASAP	STAT
CSF Cell Count w/ Diff			
CSF Glucose			
CSF Other			
CSF Protein			
VDRL			

OTHER BODY FLUIDS SOURCE:	ROUTINE	ASAP	STAT
BF Cell Count w/ Diff			
BF Glucose			
BF LDH			
BF pH			
BF Protein			

MISC TESTS	ROUTINE	ASAP	STAT
Lactic Acid (on ice)			
*gray top			

HIV

Nmcsd 6401/117 (Rev 03-03)

Other Items

- Throat Cultures, Rapid Strep and Flu Cultures
  - Do you have the supplies?
  - If not, do you have HMs that could come with Pt and do the swabs?
- EKGs
  - Tuesdays @ 1300.
  - Or, anytime with ship HM.

Immunizations

- MUST have Medical Record with Pt.
- Please scrub Immz record for all Immz needs, not just deployment needs.
- Check CDC website for AOR vaccinations.
- Yellow Fever is only required for South America and Africa.
- Call ahead for bigger groups.

- Please call ahead if you are going to send a Pt over (not for appointments).
  - 619-556-8114

NMCSD Optometry Clinics

- 6 clinics

* NMCSD	0600-1600
*North Island	0700-1600
*MCRD	0700-1530
*NTC	0700-1530
*Naval Station	0630-1530
*Miramar	0630-1600

Walk-In Clinic

- Naval Station (AM only)
  - Tuesday
  - Thursday
  - Friday
- Miramar (AM only)
  - Tuesday
  - Thursday

**********First come, First Serve**********

POC

- LT Brent Collins
  - DIVO, NAVAL STATION 32ND ST. OPTOMETRY DEPARTMENT
  - FLEET LIASION COORDINATOR
  - 619-556-8065/8063
  - brent.d.collins2.mil@mail.mil

Fleet Dental

Sara A. Chilcutt LT DC USN
Fleet Division Officer/ Fleet Liaison Officer
NBHC Naval Base San Diego
Fleet Office: (619) 556-4797
Front Desk: (619) 556-8239/40
sara.a.chilcutt.mil@mail.mil

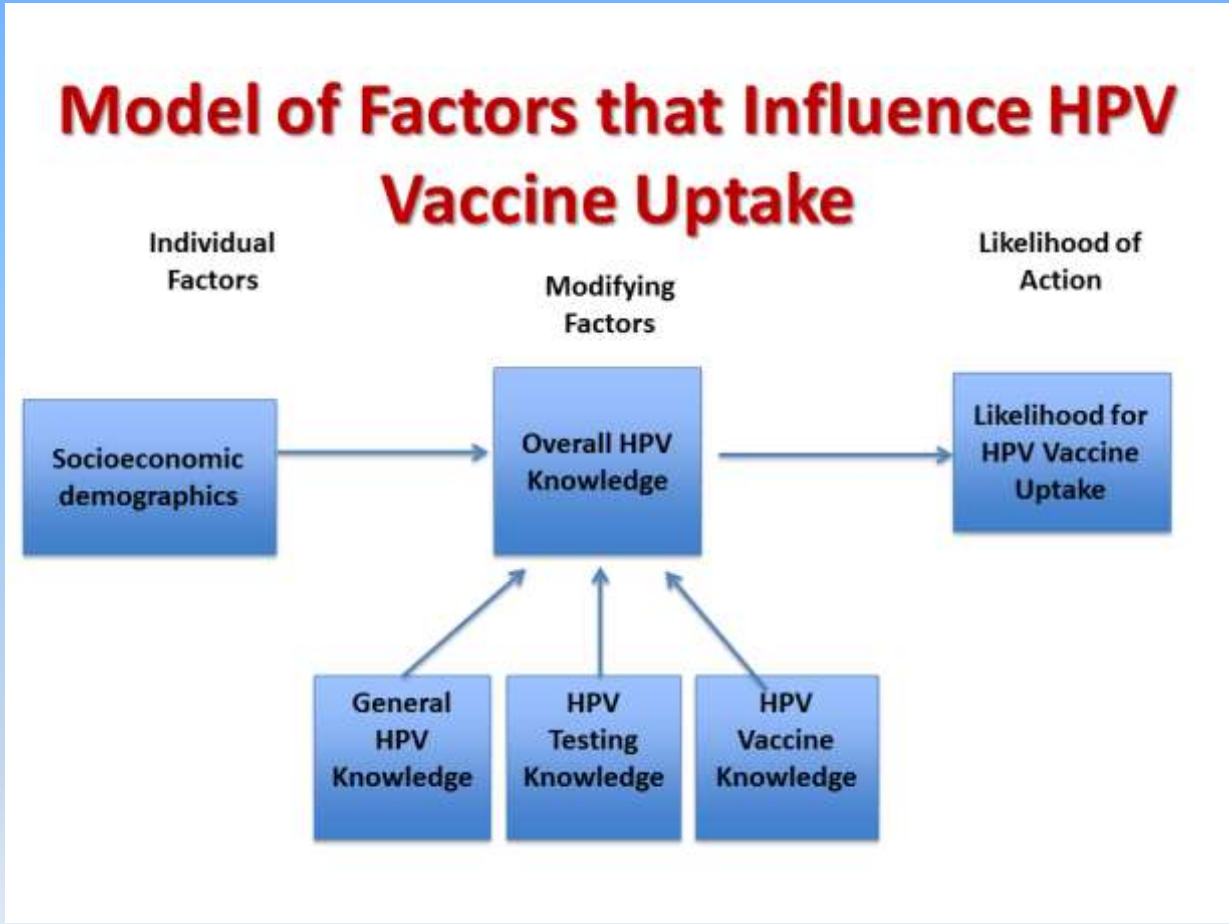
HPV Knowledge and HPV Vaccine Uptake Among U.S. Navy Personnel 18 to 26 Years of Age

Jennifer Buechel, CDR, NC, USN

Introduction

- PhD Candidate at the University of San Diego, California
- Federally funded grant under the Tri-Service Nursing Research Program (TSNRP)
- Survey sponsorship from Commander, Naval Surface Force, U.S. Pacific Fleet (COMNAVSURFPAC)
- Study recruitment phase began late May 2015

Study Purpose



Study Methods

- Inclusion Criteria:
  - Active duty (or reserve on active status) in the U.S. Navy
  - 18 to 26 years of age
  - *Goal of 250 participants*
- Data Collection:
  - Electronic survey using Max Survey software
- Recruitment Strategies:
  - First: Batch emails
  - Second: Advertisements
  - Third: In-person solicitation

Contact Information

CDR Buechel

Email: jbuechel@sandiego.edu

Primary #: 734-250-4190

Secondary #: 619-825-7385

Medical Readiness Division

MRD_SD_GMO@navy.mil

(619) 556-5191

Bldg 116

San Diego, CA 92136

Active Duty Clinic-Gen Surgery

- Director, MRD CDR Hoang has volunteered to see common general surgery pathology on Fridays at Dept of Surgery, NMCSD to fast track fleet referrals, including:
  - Soft tissue (lipoma, epidermal inclusion cyst, pilonidal cyst);
  - Anal disease (hemorrhoid, anal/rectal abscess);
  - Screening colonoscopy
  - Symptomatic cholelithiasis
  - Hernia (ventral, incisional, inguinal, umbilical)

  - Gen surg matrix referral rules still apply.

- Conditions requiring long term follow up will not be included in active duty clinic, unless discussed with MRD Physician Supervisors.

- Include “forward to Dr. Hoang” in body of the referral.

Upcoming Meetings

- September 30th @ 1000-1200
  - Ortho emergencies + Splint/Cast basics
  - EKG Interpretation
- October 28th @ 1000-1200
  - Optho Emergencies
  - Prev Med Programs/INSURV
  - ACR
- November **19th** @ 1000-1200
  - Fluid/Electrolyte Management
- December NO MEETING!

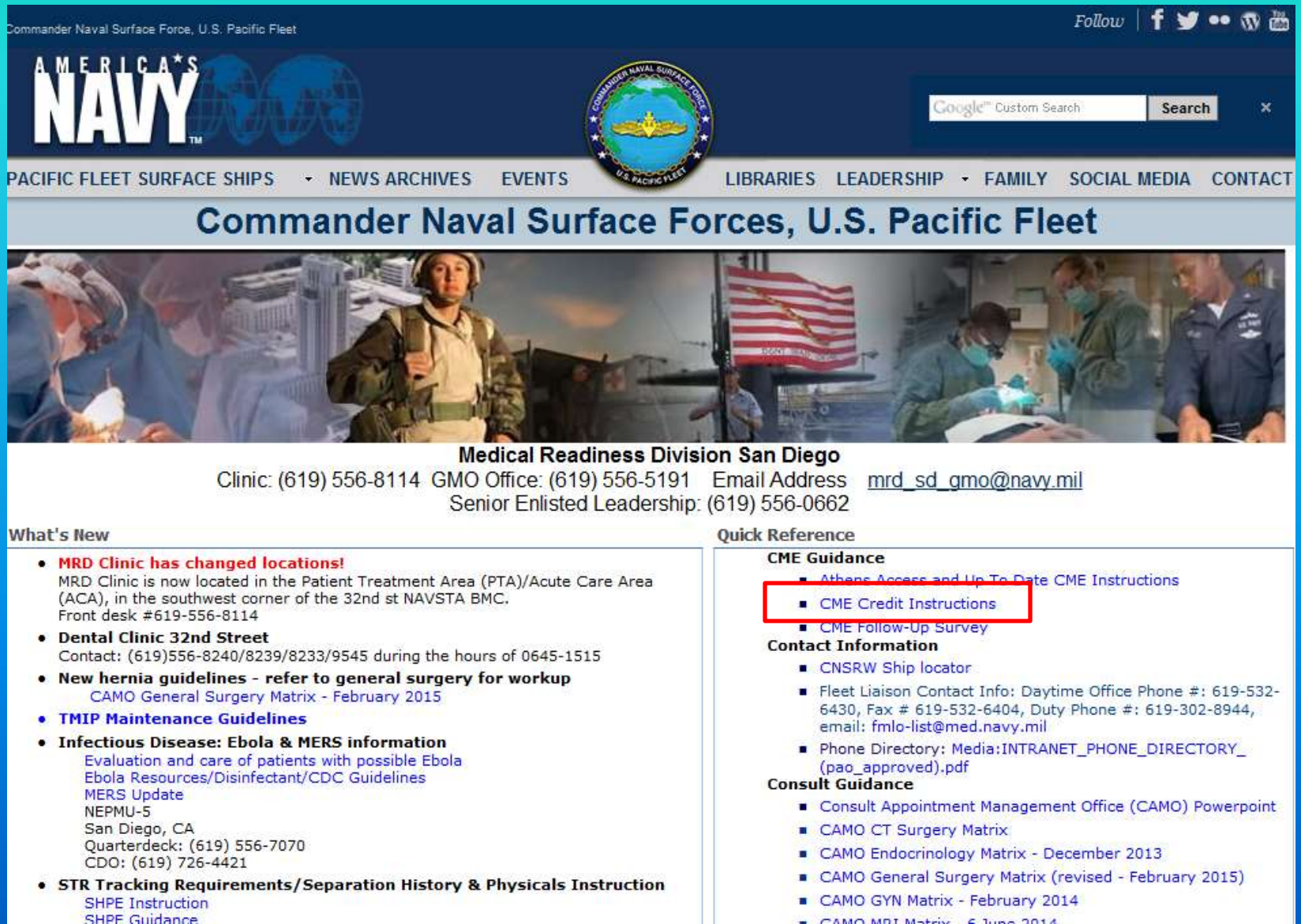
CME – Registration Help

<u>Following the meeting:</u>

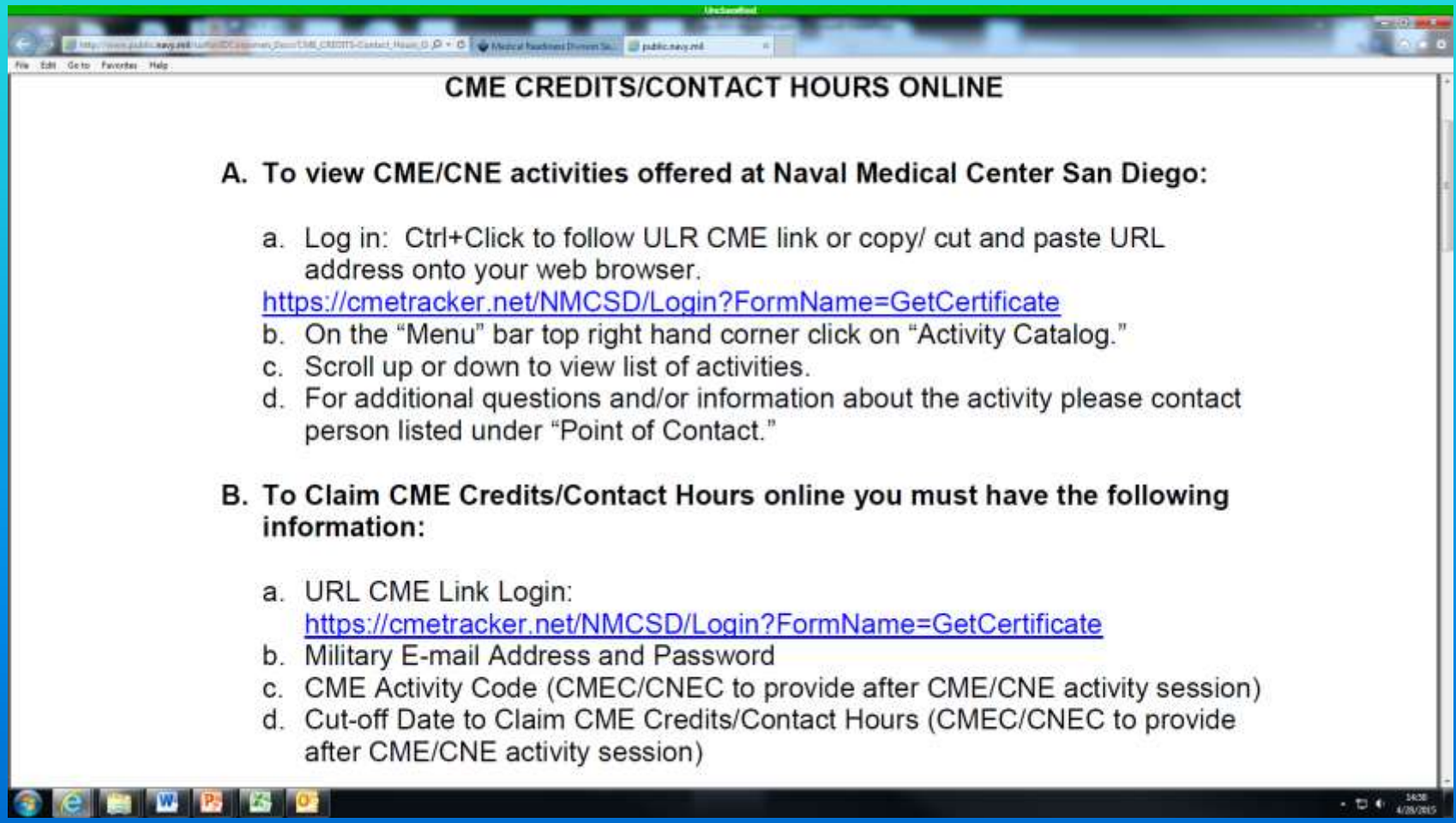
Computers in lobby

Register and/or Login to redeem CME's

CME – how to


Commander Naval Surface Force, U.S. Pacific Fleet
Follow
AMERICA'S NAVY
Google™ Custom Search
Search
PACIFIC FLEET SURFACE SHIPS
NEWS ARCHIVES
EVENTS
LIBRARIES
LEADERSHIP
FAMILY
SOCIAL MEDIA
CONTACT
Commander Naval Surface Forces, U.S. Pacific Fleet
Medical Readiness Division San Diego
Clinic: (619) 556-8114 GMO Office: (619) 556-5191 Email Address mrd_sd_gmo@navy.mil
Senior Enlisted Leadership: (619) 556-0662
What's New
MRD Clinic has changed locations!
MRD Clinic is now located in the Patient Treatment Area (PTA)/Acute Care Area (ACA), in the southwest corner of the 32nd st NAVSTA BMC.
Front desk #619-556-8114
Dental Clinic 32nd Street
Contact: (619)556-8240/8239/8233/9545 during the hours of 0645-1515
New hernia guidelines - refer to general surgery for workup
CAMO General Surgery Matrix - February 2015
TMIP Maintenance Guidelines
Infectious Disease: Ebola & MERS information
Evaluation and care of patients with possible Ebola
Ebola Resources/Disinfectant/CDC Guidelines
MERS Update
NEPMU-5
San Diego, CA
Quarterdeck: (619) 556-7070
CDO: (619) 726-4421
STR Tracking Requirements/Separation History & Physicals Instruction
SHPE Instruction
Quick Reference
CME Guidance
Athens Access and Up To Date CME Instructions
CME Credit Instructions
CME Follow-Up Survey
Contact Information
CNSRW Ship locator
Fleet Liaison Contact Info: Daytime Office Phone #: 619-532-6430, Fax # 619-532-6404, Duty Phone #: 619-302-8944, email: fmlo-list@med.navy.mil
Phone Directory: Media:INTRANET_PHONE_DIRECTORY_(pao_approved).pdf
Consult Guidance
Consult Appointment Management Office (CAMO) Powerpoint
CAMO CT Surgery Matrix
CAMO Endocrinology Matrix - December 2013
CAMO General Surgery Matrix (revised - February 2015)
CAMO GYN Matrix - February 2014

CME – how to



CME CREDITS/CONTACT HOURS ONLINE

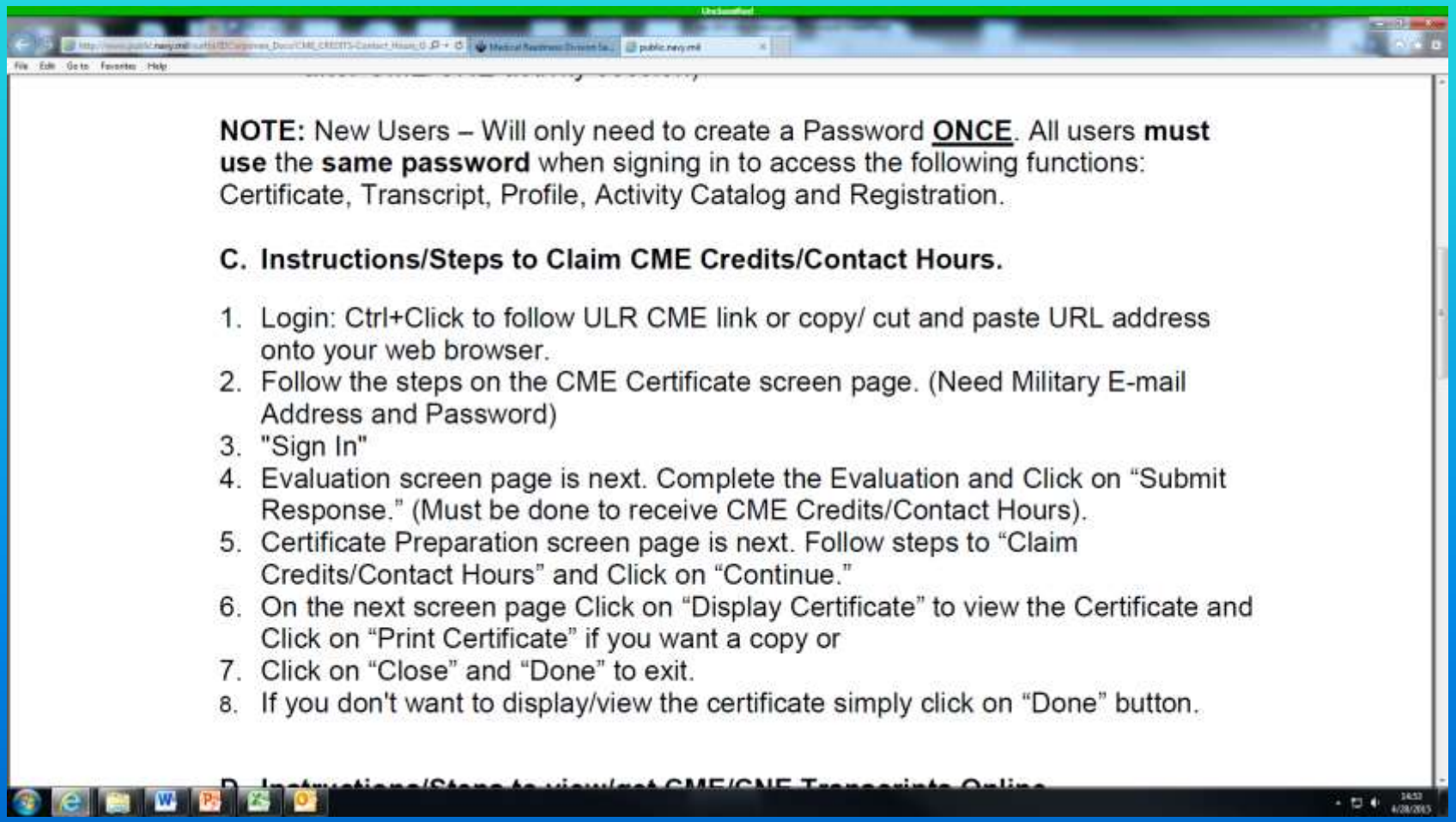
A. To view CME/CNE activities offered at Naval Medical Center San Diego:

a. Log in: Ctrl+Click to follow ULR CME link or copy/ cut and paste URL address onto your web browser.
https://cmetracker.net/NMCSD/Login?FormName=GetCertificate
b. On the "Menu" bar top right hand corner click on "Activity Catalog."
c. Scroll up or down to view list of activities.
d. For additional questions and/or information about the activity please contact person listed under "Point of Contact."

B. To Claim CME Credits/Contact Hours online you must have the following information:

a. URL CME Link Login:
https://cmetracker.net/NMCSD/Login?FormName=GetCertificate
b. Military E-mail Address and Password
c. CME Activity Code (CMEC/CNEC to provide after CME/CNE activity session)
d. Cut-off Date to Claim CME Credits/Contact Hours (CMEC/CNEC to provide after CME/CNE activity session)

CME – how to



NOTE: New Users – Will only need to create a Password **ONCE**. All users **must use** the **same password** when signing in to access the following functions: Certificate, Transcript, Profile, Activity Catalog and Registration.

C. Instructions/Steps to Claim CME Credits/Contact Hours.

1. Login: Ctrl+Click to follow ULR CME link or copy/ cut and paste URL address onto your web browser.
2. Follow the steps on the CME Certificate screen page. (Need Military E-mail Address and Password)
3. "Sign In"
4. Evaluation screen page is next. Complete the Evaluation and Click on "Submit Response." (Must be done to receive CME Credits/Contact Hours).
5. Certificate Preparation screen page is next. Follow steps to "Claim Credits/Contact Hours" and Click on "Continue."
6. On the next screen page Click on "Display Certificate" to view the Certificate and Click on "Print Certificate" if you want a copy or
7. Click on "Close" and "Done" to exit.
8. If you don't want to display/view the certificate simply click on "Done" button.

CME – how to


NAVAL MEDICAL CENTER
SAN DIEGO
THE PRIDE OF NAVY MEDICINE
My Profile
My Certificate
My Transcript
My Registrations
Activity Catalog
CME Certificate
Sign In
Welcome!
To evaluate the program and display your certificate, please follow the steps below:
1. Enter your Military Email Address: joseph.legrew@navy.mil
2. Please select one of the following:
I already have a password, and my password is:
Forgot Password?
I am a new user (You'll create a password later)
3. Enter CME Activity Code 7755
4. Sign In
(be sure your browser allows pop-ups)
If you would like to view or print a past certificate, please click here
*Note-Reprint of certificates valid only for certificates received after 10-1-11

CME Information

- CME Code (To claim credit online): **8016**
- Closing Date (To claim credit online): **03 SEP 2015**
- To complete CME
  - Log onto the MRD IDC website and click on the CME credit link

    or
  - Go to NMCSD SEAT SharePoint site (via citrix or NMCSD/BMC computer) and click on MRDSD Waterfront Meeting

    http://nmcsd-as-spfe05/sites/dpe/setd/Lists/cmesurvey/Item/newifs.aspx?List=be0f840e%2D0489%2D4b5a%2Db8de%2D9c4cd1a323e5&Web=0901130e%2Dd444%2D45b8%2D8bc7%2D5b9ec10dca77

Post Tests

Please put your name on the quiz!

CME Code:

8016