WHAT ARE WE GOING TO DO

Diagnostic process

- We need to know the diseases that have been described. We need to know the science of medicine. What are they, how do they present,
- What are the patterns?
- These conditions occur in predictable patterns !!!!

Diagnostic process

- And we need to know how the art of medicine: how to extract the information (this is fundamental to being a physician)
  - Hx, Px, and relevant and appropriate Ix
  - And we need to interpret the data points that we gather and conclude which is the most likely diagnosis
- But Ix are over used, incorrectly ordered and over relied upon
  - This is particularly true in msk medicine

Problems with the MRI in MSK medicine

- WONDERFUL TECHNOLOGY BUT……
- Cost
  - System can't afford
- WAITS ARE WAY TOO LONG
- AND THEY ARE NOT ALWAYS CORRECT
  - FALSE POSITIVES ABOUND,
  - FALSE NEGATIVES TOO
- ********When they are correct do they change management? *******

FALSE POSITIVE MRI'S

- KNEES MIDDLE AGED – SEE ALL THE TIME
- 76 % of asymptomatic patients over 50 have mensical tear, 91 % of those with OA have mensical tear on MRI
- ALSO, CAN SEE IN YOUNG
  - ACL, MENISCAL TEAR
- It is amazing technology but it is equally amazing how often it does not affect management
  - We need to use wisely (in order to do so we have to be better clinically)

14 YEAR OLD FOOTBALL

- increased BMI, VALGUS KNEES
- ACUTE EVENT, HEMARTHROSIS
- 8/12 LATER, ANTERIOR KNEE PAIN PERSISTS
  - DX. PFPF,, frustratingly persistent
  - MRI, VERY LARGE MENISCAL TEAR
  - THE REST OF THE STORY

HEMARTHROSIS DDX
A USEFUL ASIDE

- ACL
- PCL
- OC INJURY
- PERIPHERAL MENISCAL TEAR
- PATELLAR DISLOCATION
- EXT MECH DISRUPTION

Knee Problems in the office

- PAIN
  - OA
  - PFPS
  - Meniscal tear
  - ACL
- How do you make these diagnoses????

LEARNING THE PATTERNS OF PRESENTATION

- NEED TO GET AWAY FROM THE IDEA THAT ONE THING MAKES THE DIAGNOSIS. IT IS A CLUSTER OF DATA POINTS THAT POINTS TO THE MOST LIKELY DIAGNOSIS
- PHYSICAL EXAM AUGMENTS – (and sometimes helps a lot)
- USEFUL TO KNOW THE CLASSICAL PRESENTATIONS !
  - BUT REALIZE THAT NOT all presentations ARE CLASSICAL

CLASSICAL ACL

- PLANT, PIVOT, LAND (OR SOME ACUTE EVENT)
- POP, SHIFT, DIFFUSE INTENSE PAIN, CANT CONTINUE
- HEMARTHROSIS
- WALKS NORMALLY 2 WEEKS
- RECURRENT INSTABILITY WITH PLANTING/ PIVOTING, OR CANT TRUST KNEE – what if this is absent

CLASSICAL PFPS

- DIFFUSE ANTERIOR (OFTEN RETROPATELLAR) KNEE PAIN (YOUNG FEMALE BUT …)
- TRAUMA/NO TRAUMA
- FLEXED KNEE ACTIVITY
  - RUN, STAIRS, CROUCH, LUNGE, THEATRE SIGN

CLASSICAL OA

- MIDDLE AGE/OLDER, OR SIGNIFICANT TRAUMA IN PAST
- Pain, ACHING, STIFFNESS (sharp?)
- ACTIVITY RELATED, OFTEN delayed
- NO MECHANICAL SYMPTOMS

CLASSICAL MENISCAL TEAR

- TWISTING INJURY, OR SUDDEN ONSET, OR NOT IN OLDER
- SHARP CATCHING JOINT LINE PAIN WITH PIVOTING/LATERAL MOVEMENTS/HS/stub toe
- LOCKING/ CATCHING/ GIVING WAY
- NORMAL XRAY – don't even think about unless normal xray
  - WHAT IS A NORMAL XRAY

TAKING THE HISTORY

- AGE,
- CLARIFY CC (vital), don't talk about the mechanism etc until you know this !!!,
- LOCATION OF PAIN, ? QUALITY
- DURATION, ONSET, AGGRAVATING
- S/L/GWAY
- RX, IX,
- PAST Hx

- The evolving, meandering differential and pattern recognition

14 YR FEMALE COMPLAINS OF HER KNEE

- Dx/ Probability
- COMPLAINS OF PAIN, D/P
- ANTERIOR D/P
  - (MEDIAL JL D/P?)
- 2 YEARS, D/P
  - (1 WEEK D/P?)
- trauma/no trauma D/P

14 FEMALE (CONTINUED)

- STAIRS, CROUCH, KNEEL,SIT (D/P?)
  - Do we need to do anymore?
- SWELLS
- LOCKS
- GWAY
- do we still need to examine ?
- Xray ? MRI?

22 year soccer player

- ACUTE INJURY Right knee (D/P?)
- CUT, POP/ SHIFT, PAIN ++/ NO CONTINUE (D/P?)
  - (COULD CONTINUE D/P?)
- SWELLING +++ 3 HOURS, (NEXT DAY?) D/P?
- NOW CANT TRUST KNEE (D/P)

22 YEAR SOCCER (CONT'D)

- DO WE NEED TO EXAMINE?
  - HOW GOOD ARE YOU AT IT? DOES IT CHANGE YOUR DECISION MAKING?
- DOES HE NEED AN MRI
- DO YOU NEED HELP

58 YEAR OLD MALE

- KNEE pain (D/P)
- POSTERIOR ACHE, STIFF D/P

- ?SHARP D/P
- 5 YEARS, WORSE LATELY D/P
- Activity related

58 male (CONTINUED)

- Locks d/p
- Gives way d/p
- Swells d/p
- What test do we need?

44 male

- left knee Lateral pain
- 4 weeks, sudden onset, crouched and felt "something",

  Sharp pain to squat, pivot, locks -good history of

  Physical exam, tender lat joint line, mc painful,

  Small effusion

  What next? Do we need an mri

30 year female

the more patterns you know the more likely you are to get it right

- 2 years lateral knee pain
- No trauma, no sudden onset,
- Pain to crouch,
- Focal swelling laterally ("lump")
  - Fluctuates with activity
    - No mechanical symptoms –what does this mean
- Physical exam normal except tender mass lateral joint line

Lateral knee pain

- 23 F, lateral knee pain
- 2 year of pain,
- No acute onset, took up running a few yrs ago
- Agg – running (***15 minutes into run !***)
  - Downhill hiking
- No S, L, gway

Physical exam of the knee

- Trying to help us sort through the differential
- Basics: alignment, gait, duckwalk
- Joint above
- Range, effusion
- Stability (acl, pcl, mcl, lcl, PLRI)
- Joint line tenderness, mcmurrays
- Extensor mechanism tender, stable, intact, JT, RPC, PTRKE
- Anything special you want to ask on this

Physical exam

- Focus on:
- range
- Effusion
- Stability
- Joint line tenderness
- Mc murrays
- Extensor mechanism