11 Rheumatology

ARTHROCENTESIS

Indications: Diagnosis, therapeutic
Contraindications: Overlying infection, bleeding diathesis, prosthetic joint

Sites

Knee: knee 150 medial, 1cm below fem condyle
Shoulder: int rotate, inf-lat coracoid
Wrist: 20 palmar flex, ulnar dev, distal to rad sty
Ankle: plant flex, med to TA & ankle
Elbow: 90 flex, palm down, prox to rad head

Complications

- Usual: pain, infection, bleeding, allergy
- Poor sampling, unable to perform, recurrence
- Steroids: ***bone necrosis***

	Gross	Visc	Cell/m³	PMN%	Cryst
Normal					
Arthritis	|	|	< 180	< 10	-ve
OA	| Clear	| High	200-2K	< 10	Var
Other[1]	|	Low	2k-5K	Var	-ve
Inflammatory					
Gout[2]	| Clear/	|	|	|	Needle [3]
Pseudo	| Cloudy	| Low	| 200-50K	| **> 70**	Rhomboid
Infectious					
Bacteria	Cloudy	Var	2K- > 50K	> 90	-ve
Other					
PVNS	|	|			|
Blood	| Bloody	| Low			| -ve

OA Osteoarthritis; Var Variable; Pseudo Pseudogout; PVNS Pigmented villonodular synovitis
[1] Rheumatoid, psoriatic, reactive, spondyloarthropathy
[2] Traditionally SA > 50K cells, 90% PMN vs gout 20K, 70%
[3] Both pseudo/gout bifringent

ARTHRITIS

Septic Arthritis

Routes

- haem
- contiguous
- post-op
- trauma
- direct

Dx

- No clear features
- ***Traditionally > 50K white cells, > 90% PMN***
- (vs inflamm alone 20K, 70%)

Mx

- ***Flucloxacillin*** 2g, washout

DDx

- FB
- OA
- OM
- RA
- Fracture
- Haemarthrosis
- Crystal arthropathies
- Isch necrosis
- Reactive Arthritis

Risk Factors

- RA
- Gout
- Phx
- Immunocompromised incl DM
- Prosthesis

Septic Arthritis in Children

Kocher's Criteria

	Interpretation
T > 38.5C	0 = 0.2%
ESR > 40	1 = 3%
WCC > 12	2 = 40%
NWB	3 = 93%
	4 = 99%

Reactive Arthritis (Reitter's Syndrome)

- Triad of 1. large jt arthritis
  2. eye inflammation
  3. urethritis/cervicitis
  "can't see, can't wee can't climb a tree"
- Trigger = GI eg salmonella, shigella, campylobacter, STIs

Crystal Arthropathies

- Pseudogout Ca pyrophosphate
- Gout: Urate
- ***Traditionally 20K cells, 70% PMN***

LOW BACK PAIN

DDx

<30: Ank Spond, OA, OM, Discitis, Abscess
>30: Ca, renal/pancreatitis, Aortic Aneurysm
> 60: OP/OA/RA, Paget's, Spinal stenosis, AMI, dissection

VASCULITIS

Classification

1. Large
   - Takayasu
   - Giant cell arteritis (GCA)
2. Medium
   - Polyarteritis Nodosa
   - **Kawasaki's**
3. Small
   - Wegner's
   - HSP
   - Churg-strauss

GCA

- Sx: jaw claudication, skip lesions, scalp tenderness, visual
- Vis sx: ***methylpred*** IV 1g for 3 days
- No vis sx: ***pred*** 50mg PO 4 weeks
- ***Aspirin***

Kawasaki

- < 5yo mostly
- Mortality 1%, coronary art aneurysm 10-18% (40% wk1)
- Complications: myocarditis, pericarditis, thrombocytopenia
- ***IVIG*** 2g/kg over 10hrs
- ***Aspirin*** 3-5mg/kg
- Warfarin for Giant aneurysms (> 8mm ID)

Diagnostic Criteria

Fever for ≥ 5 days & 4/5 of ***SCEMP***:
- **S**kin: polymorphous rash, late desquamation of digits
- **C**ervical lymphadenopathy
- **E**yes: bilateral conjunctivitis (non-exudative, limbic sparing)
- **M**ucous membrane changes (cracked lips)
- **P**eripheral: oedema hands/feet

Incomplete KD

- same rate of coronary aneurysm as complete KD
- ***Any age unexplained fever > 5 days + 2 features***
- ***Any infant fever > 7 days***
- < 6m = ↑ risk of coronary aneurysm ∴ lower threshold to tx

Henoch-Schonlein Purpura (HSP)

- Most common childhood vasculitis
- Mx ***check urine*** & treat AKI/nephrotic syndrome
- Ex Triad: ***Purpura, ABdo pain, Arthritis***
- Mod-severe: ***pred*** 1-2mg/kg/day (no Δ course)

Prognosis

- 4-week duration (rash last to go)
- 25% recurrence (90% renal comp in <2m)

Examination

- Lower limb ***target lesions*** is hallmark (purpura common)
- Associated
  - arthralgia
  - abdo pain
  - ***nephrotic syndrome*** (main concern)
  - generalised oedema

12 Immunology

HYPERSENSITIVITY REACTIONS

Type 1 Immediate incl ***Anaphylaxis***
Type 2 Cytotoxic eg ABO incompatibility, ITP
Type 3 Immune complex eg Post-strep GN, RA
Type 4 Delayed/Cell med eg dermatitis, MS

Management of Urticaria

Kids

- ***Promethazine*** 0.2-0.5 mg/kg (>2yo)
- ***Cetirizine*** 0.2mg/kg (>1yo)
- ***Loratidine*** 2.5, 5, 10mg (1-2,2-12,>30kg)

Adult

- ***Promethazine*** 10-25mg
- ***Cetirizine*** 10mg
- ***Loratidine*** 10mg

Promethazine: Phenergan; Cetirizine: Zyrtec

ANAPHYLAXIS

Definition

1. Acute skin feat + resp or cv or persistent GI
2. No skin - Bronchospasm/airway obst/ BP

- biphasic reaction more common with food

Risk Factors for Death

- Delayed adrenaline
- Remote location
- Upright posture
- Misdiagnosis
- Asthma/CAD
- Systemic mastocytosis
- Health illiterate
- Careless

Management

1 Remove allergen
2 Lay flat
3 O_2
4 0.9%***NS*** 20ml/kg
5 ***Salbutamol*** if wheeze 5mg neb
  ± ***Pred*** 1mg/kg max 50mg for ***persist wheeze***
6 ***Adrenaline***
  - Initial dose
    - kids 0.01mg/kg max 0.5mg
    - adults 0.5mg
    - preg 0.3mg
  - ***Infusion*** 1ml of 1:1,000 in 100ml NS = 10mcg/ml
    Start at 0.5 ml/kg/hr = 5 mcg/kg/hr
    ∴ 90kg = 45ml/hr = 7.5 mcg/min
  - ***Nebulised*** 5mg (5ml 1:1000)

Refractory Anaphylaxis

- More ***saline***
- ***Glucagon*** 1-2mg if cardiogenic shock
- Vasopressor; ***noradrenaline*** 5-20 mcg/min, ***metaraminol***
- ***Methylene blue*** 1-2mg/kg bolus (can cause anaphylaxis)
- Prolonged CPR

ANGIOEDEMA

Pathophysiology

- Due to too much ***bradykinin***
- C1 esterase inhibitor (C1E-INH) & ACE-I break ↓ bradykinin

Types

- Type 1: ↓ C1E-INH, most common (85%), m=f
- Type 2: dysfunctional C1-INH, 15%, m=f
- Type 3: Non-C1-INH related, rare, F>M

Cause

- Idiopathic
- Drugs: ***ACE-I, ARB, Gliptins, tPA, NSAIDs***
- Food: peanuts, shellfish, strawberries
- Hereditary: ***C1-INH esterase def***

Effects

- 80% bowel = pain
- 20% head/neck
  - Type 1 60% face, oral cavity, extremities
  - Type 2 25% floor of mouth, base of tongue slow response to Tx
  - Type 3 15% type 2 + supraglottic region

Management

- ***Adrenaline*** has marginal effect (minimal harm)
- ***Icatibant***: 1st line 30mg SC
- ***C1E-INH conc***: 1st line if preg, 500-1000 units
- ***FFP*** 2u (worse before better intubate 1st)
- ***Aminocaproic acid*** 8g
- ***Danzol*** 100-200mg