

ACNE

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THE SKIN INVESTMENT CLINIC WILTSHIRE

THE SKIN
INVESTMENT
CLINIC



ACNE VULGARIS

- 85% of adolescents in UK are affected by Acne Vulgaris
- Adult Female Acne prevalence varies with age;
 - 45% women in their 20s,
 - 26% in their 30s
 - 12% in their 40s
- Frequently Familial – severe & persistent Acne seen in successive generations

ACNE VULGARIS

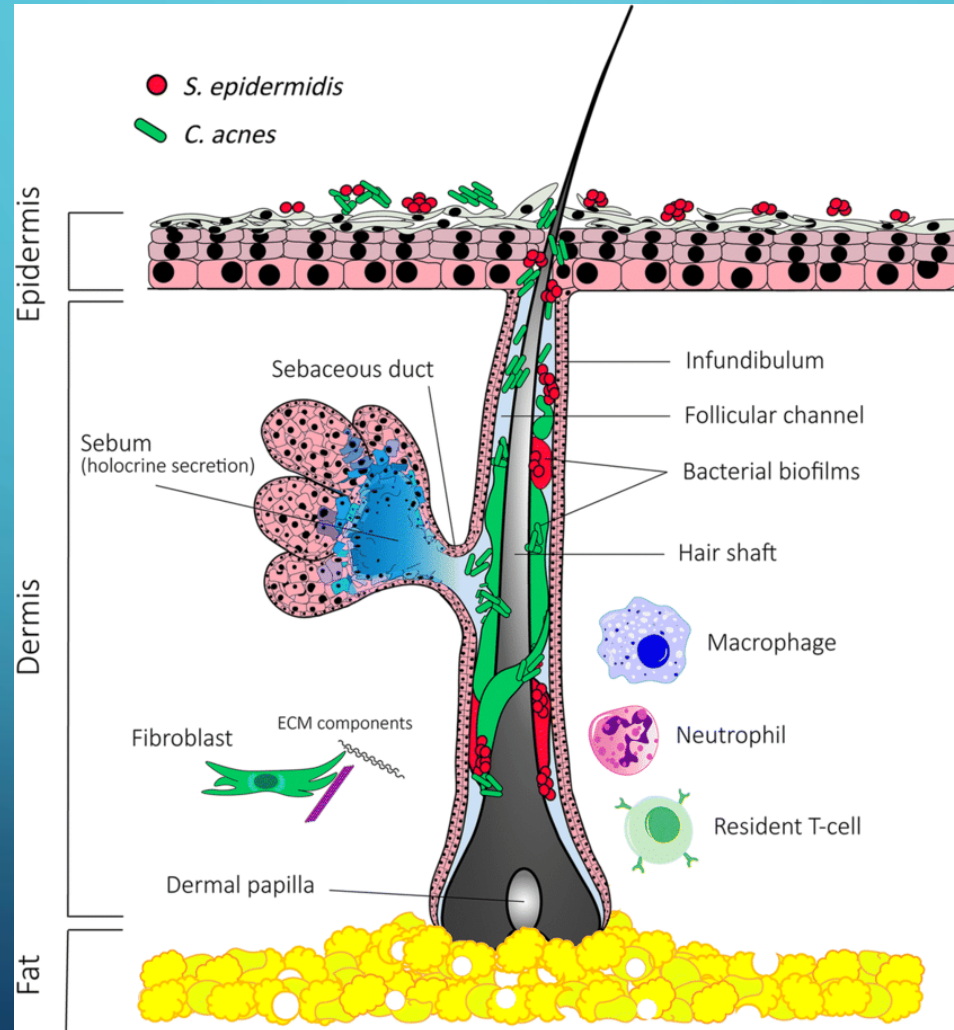
- Common chronic skin condition characterized by the inflammation of the pilosebaceous unit (hair follicle & accompanying sebaceous glands)
- Primarily affects areas with a high density of sebaceous glands ie. Face, Upper Chest & Back

PATHOGENESIS

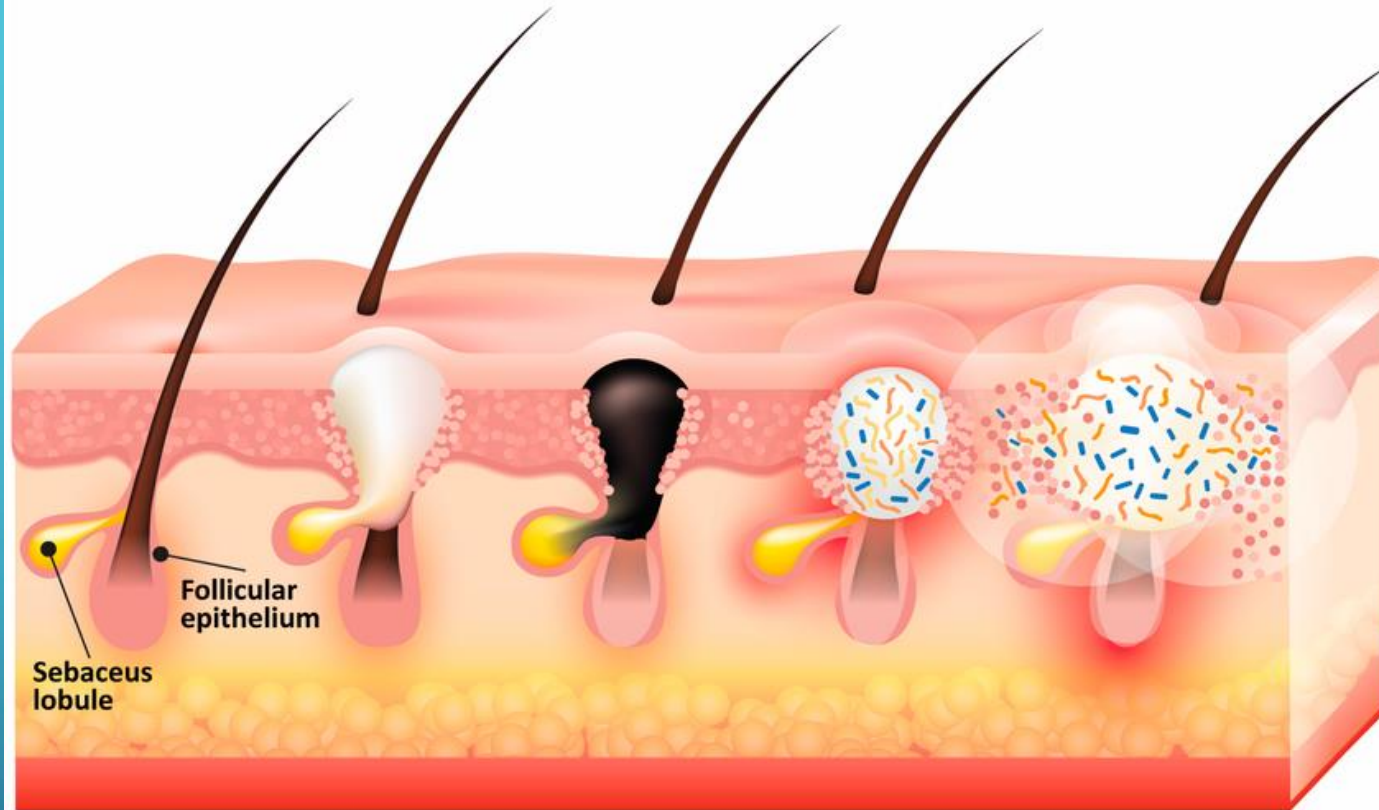
4 Pillars of Acne Pathogenesis;

- 1) Increased Sebum Production** – Androgen hormones stimulate sebaceous glands to produce more sebum
- 2) Follicular Hyper-keratinization** – An abnormal increase in the shedding of keratinocytes leads to clogged hair follicles = **MICROCOMEDONE**
- 3) Colonization by Cutibacterium Acnes** – This bacteria proliferates within clogged follicles contributing to inflammation
- 4) Inflammation** – The body's immune response to bacterial proliferation & other factors leads to pus formation & characteristic inflammatory lesions of acne; papules, pustules, nodules and cysts

PILOSEBACEOUS UNIT



Pathogenesis of Acne vulgaris



Healthy follicle

Closed comedon

Open comedon

Inflammatory papule/pustule

Nodule/cyst



Corneocytes



Sebum



C. acnes

TYPES OF ACNE LESION

MICROCOMEDONE = PRIMARY LESION OF ACNE – ALL LESIONS ARISE FROM THIS

- CLOSED COMEDONES (Whiteheads)
- OPEN COMEDONES (Blackheads)
- INFLAMMATORY PAPULES/PUSTULES
- NODULES & CYSTS

NON-INFLAMMATORY LESIONS

CLOSED COMEDONES (WHITEHEADS)



OPEN COMEDONES (BLACKHEADS)



MACROCOMEDONES

- Deep, large Comedones that obliterate the skin pore
- Don't respond to medical treatment – often lead to nodulo-cystic lesions
- Require cauterisation with Hyfrecator
- Contraindication to Oral Isotretinoin as have potential to generate severe inflammatory lesions with the drug leading to scarring



INFLAMMATORY LESIONS

PAPULES VS PUSTULES



NODULES/CYSTS



EXACERBATING FACTORS

- HORMONAL CHANGES

- Puberty – Increased Androgens
- Premenstrual Acne Flares – Reduced Oestrogen & SHBG – Increased Free Testosterone

- CONTRACEPTIVES

- 2ND Generation Progestones (Levonorgestrel) – Increased Androgenic Properties
- 3RD Generation Progestones better – Desogestrel (Cimizt) & Norgestimate (Cilique)
- Anti-Androgenic Progestones – Drospirenone (Yacella, Yiznell, Dretine) & Cyproterone Acetate (Dianette – Only licensed for Anti-Acne Treatment)

EXACERBATING FACTORS

- HIGH HUMIDITY – Swelling of Dead Cells – Intense Inflammatory Response
- STRESS – Increased production of Adrenaline, Steroids & Androgens
- DIET – High Dairy & Sugar – Increased IGF-1 & Inflammation
- POOR SLEEP – Increased Cortisol causing increased Oil Production/Inflammation & Reduced Skin Barrier Function
- DRUGS
 - Corticosteroids – Steroid Acne
 - Lithium – can cause Nodulocystic Acne
 - Anabolic Steroids – Androgenic properties
 - Anti-Convulsants – Phenobarbitone & Phenytoin – worst affect
 - Bromides, Iodides & Other Halogens – stimulate aggressive comedogenesis – ‘Chloracne’

PSYCHOLOGICAL IMPACT

- Acne significantly affects mood, anxiety, social activities, study/work & interpersonal relationships
- Acne can cause anxiety, depression, reclusiveness & suicidal ideation in sufferers
- **DYSMORPHOPHOBIA** – Abnormal image of body & severity of acne – even mild acne can result in not going school/work – requires psychological intervention
- Consider Psychiatric Referral – particularly in those with current or PMHx;
 - Suicidal Ideation/Self-Harm, Severe Depressive/Anxiety Disorder or Body Dysmorphic Disorder

CATEGORISATION

MILD – MODERATE ACNE (75%):

People who have 1 or more of:

- any number of non-inflammatory lesions (comedones)
- up to 34 inflammatory lesions (with or without non-inflammatory lesions)
- up to 2 nodules.



MODERATE - SEVERE ACNE (25%):

People who have either or both of:

- 35 or more inflammatory lesions (with or without non-inflammatory lesions)
- 3 or more nodules.



NODULO-CYSTIC ACNE

- Severe form of Acne characterized by painful deep-seated nodules & cysts
- Typically causes scarring



ACNE CONGLOBATA

- Severe form of Nodulo-Cystic Acne with interconnecting sinuses & abscesses

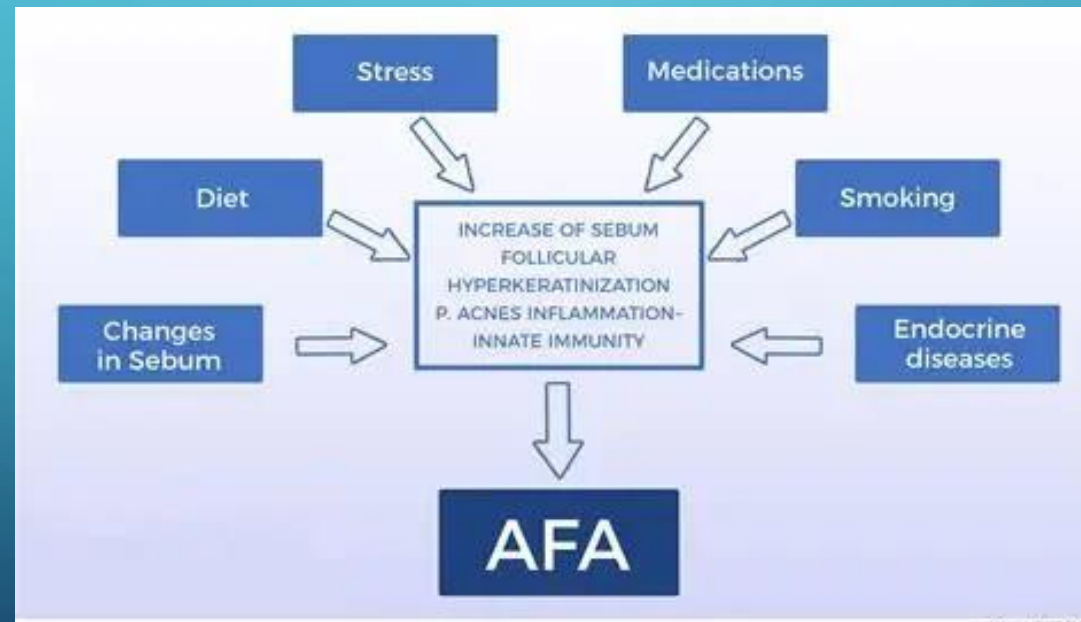


ACNE FULMINANS

- Very severe form of Acne Conglobata with systemic involvement
- Urgent Same-Day Dermatology Referral to On-call Dermatologist
(At GWH call Dermatology Secretaries to arrange)
- To be assessed within 24 Hrs

ADULT FEMALE ACNE

- Occurs in women >25 yrs
- Often chronic & can be influenced by hormonal changes, lifestyle factors & stress



CHARACTERISTICS OF ADULT FEMALE ACNE

- Typically affects Cheeks, Chin & Jawline

Either;

- Inflammatory lesions, deep seated nodules & cysts
- Hyperseborrhoea & non-inflammatory lesions
- Mild-Moderate severity
- Can last a lifetime once it starts
- Associated with increased Skin Sensitivity
- Significant impact on self-esteem & body image



POLYCYSTIC OVARIAN SYNDROME (PCOS)

- PCOS characterised by; Irregular Periods, Excess Androgens & Polycystic Ovaries
- Acne common feature due to Hyperandrogenism – often severe & persistent
- Consider Referral to Gynaecologist for PCOS patients with Acne & other features of Hyperandrogenism ie. Hirsutism

ACNE TREATMENT

NON-INFLAMMATORY ACNE

- TOPICAL RETINOIDS

- Vitamin A derivatives
- Speed up cell turnover, normalise keratinocyte growth & mild anti-inflammatory action
- Can cause dryness & irritation – Build up gradually
- Cause ‘Purging’ after few weeks of daily use – Warn patients
- Photosensitisers – use at Night & Daily SPF50 essential
- Teratogenic – Contraindicated in Women trying to conceive/pregnancy – important to warn women & effective contraception required

NON-INFLAMMATORY ACNE TREATMENTS

- TOPICAL RETINOIDS

- **Adapalene 0.1% (Differin) Gel or Cream ON**

- Gel better for Oily skin – lightweight, dries quickly

- Cream better for Drier, more sensitive skin – more moisturising

- AZELAIC ACID – comedolytic & some anti-inflammatory activity

- **Azelaic Acid 20% (Skinoren) Cream BD**

- BENZOYL PEROXIDE – very mild comedolytic activity – can use alone if retinoids CI & don't want Abx, warn pt's - can bleach hair & fabrics

- **Benzoyl Peroxide 2.5% Gel ON**

TOPICAL TREATMENTS FOR INFLAMMATORY ACNE

- Combined Retinoid & Benzoyl Peroxide
 - **EPIDUO** 0.1 /0.3% Adapalene with 2.5% Benzoyl Peroxide ON
 - Very drying/irritating for patients – introduce gradually

- Combined Retinoid & Topical Antibiotic:
 - **TRECLIN GEL** - 0.025% Tretinoin with 1% Clindamycin – ON
 - Better tolerated

MILD-MODERATE ACNE TREATMENT

- Combined Benzoyl Peroxide & Topical Antibiotic
 - **DUAC** 3/5% Benzoyl Peroxide & Clindamycin 1%
 - Drying & irritating
 - Can be used in Pregnancy & Breast-feeding

- Combined Retinoid & Topical Antibiotic:
 - **TRECLIN GEL** - 0.025% Tretinoin with 1% Clindamycin – ON
 - Better tolerated
 - Cannot be used in Pregnancy & Breast-feeding

MODERATE-SEVERE ACNE TREATMENT

- **EPIDUO** 0.1 /0.3% Adapalene with 2.5% Benzoyl Peroxide ON
& **Oral Lymecycline/Doxycycline OD**

OR/

- **AZELAIC ACID 20% SKINOREN Cream BD**
& **Oral Lymecycline/Doxycycline OD**

OR/

- **DIFFERIN 0.1% ON** & consider adding in **AZELAIC ACID 20% SKINOREN OD/BD**
& **Oral Lymecycline/Doxycycline OD**

ORAL ANTIBIOTICS

- 1ST LINE - **Lymecycline** 408mg OD / **Doxycycline** 100mg OD (> Age 12yrs Only)
 - 2nd LINE - **Trimethoprim** 200-300mg BD - works quickly, good nodules/cysts
 - **Erythromycin** 250mg QDS (can be safely taken in pregnancy or if trying to conceive)
 - Course length – **3/12 & Review;**
 - If Acne cleared, stop Antibiotic & continue Topical Rx
 - If Acne improved but not cleared, consider further 3/12 Antibiotic + Topical Rx
- NB/ Only continue Abx > 6/12 in exceptional circumstances, review 3/12 & stop ASAP – risk of antimicrobial resistance

NICE GUIDELINES FOR ANTIBIOTIC USE IN ACNE RX

DO NOT USE THE FOLLOWING;

- monotherapy with a topical antibiotic
- monotherapy with an oral antibiotic
- a combination of a topical antibiotic and an oral antibiotic.

HORMONAL TREATMENTS IN WOMEN

- COMBINED ORAL CONTRACEPTIVE PILL (COCP)
 - 3rd Generation Progesterones – Acne friendly ie. Desogestrel (**CIMIZT**) & Norgestimate (**CILIQUE**)
 - Anti-Androgenic Progesterones
- Cyproterone Acetate (DIANETTE) – **Only licensed for Treatment of Severe Acne & Hirsutism**
 - Contains Ethyl-estradiol – increases SHBG & inactivates testosterone
 - Cyproterone Acetate – inhibits 5-alpha reductase in sebaceous gland reducing sebum production
 - Successfully treats acne in 40% Women
 - Risks – Increased thromboembolic risk compared to other COCPs – short term use 6-12 Months
 - Acne can flare 2-3 Months after Dianette is stopped
- Drospirenone (YACELLA, YIZNELL, DRETINE) – analogue of Spironolactone
 - Not as effective as Dianette – can also cause rebound acne 2-3 months after stopping

HORMONAL TREATMENTS IN WOMEN CONT.

- SPIRONOLACTONE (initiated in Secondary Care)
 - Potassium-sparing Diuretic
 - Anti-androgenic properties - reduce sebum production
 - Used off-license for treatment of **Persistent-Acne** in women, particularly **Adult Female Acne**
 - 50-200mg OD
 - Monitoring – U&Es before starting & 1/12 after dose increase unless >45yrs then 6/12'ly or 3/12'ly RFs for CKD
 - Can be used for Pre-menstrual exacerbations of Acne in Younger women - 100mg OD for 7 days before period
 - Side Effects – headaches, dizziness, can give shorter menstrual cycles, spotting between periods & potentially amenorrhea
 - DO NOT USE in women trying to conceive as can cause feminisation of Male foetus

ADULT FEMALE ACNE TREATMENT

- Topical Retinoid – Adapalene ON AND Azelaic Acid 20% OD-BD
- Oral Antibiotics depending on severity
- Hydrating Skincare Regime to minimise sensitivity, strengthen skin barrier & minimise Trans-epidermal Water Loss (TEWL)
- Consider Hormonal Treatments ; Anti-androgen COCPs or Spironolactone

ACNE TREATMENT IN PCOS

- Rx Acne with 1st Line Rx Option depending on severity
- If 1st Line Rx Option not effective consider Dianette COCP
- PCOS with Severe Acne – start Dianette COCP immediately in addition to other first line topical treatments & Abx & R/V 3/12

SKINCARE

- Good Skincare regime essential – Non-comedogenic products
- Brands to recommend;
 - CERAVE, CETAPHIL & LA ROCHE POSAY - EFFACLAR H
- Cleanse BD with pH balanced cleanser & water
 - Salicylic Acid cleanser (Cerave) – gentle keratolytic action
- Use clean towels & flannels

SKINCARE CONT.

- Maintain Skin Barrier – ok to use *Moisturisers* for skin-type
- Non-comedogenic *Make up* – remove well – Double cleanse
- Recommend ‘not to pick’ – Hydrocolloid Spot patches
- SPF50 Daily if using Topical/Oral Retinoids or Tetracycline Abx

TRUNCAL ACNE

- SALICYLIC ACID CLEANSER – as body wash
- RETINOIDS – TRIFAROTENE (AKLIEF) 50mcg/gm ON
 - Licensed for Acne on face &/or Trunk >12yrs
 - SPF50 daily if treated area is uncovered

KEY POINTS ON ACNE TREATMENT

- Compliance - Important to continue treatment for 3 months – takes 6/52 to see benefit & 3/12 to see real change in Acne
- Topical treatments need to be used daily all over face once tolerated
- Skincare Important – Cleansing BD & important to maintain skin barrier – ok to use moisturisers

NON-MEDICAL ACNE TREATMENTS

- DIET - Low sugar/Low Dairy, Plenty Water
 - Supplements – Skin Accumax – contain Vit A, C, E & phytonutrient DIM
- PROBIOTICS – Gut-Skin Axis – essential if taking Oral Antibiotics
- STRESS MANAGEMENT – Exercise & Relaxation Techniques
- SLEEP – Prioritise Sleep/good ‘Sleep Hygiene’ – Teenagers 8-10Hrs & Adults 7-8Hrs

DERMATOLOGY REFERRAL

- Acne Conglobata
- Nodulo-Cystic Acne
- Diagnostic uncertainty about a patients Acne

DERMATOLOGY REFERRAL

- Moderate-Severe Acne failed to respond to Rx containing Oral Antibiotic
- Mild-Moderate Acne failed to respond to 2x different 12/52 treatment regimes
- Acne leading to Scarring
- Acne with persistent Pigmentary changes
- Acne of any severity causing or contributing to persistent Psychological Distress or Mental Health Disorder

DERMATOLOGY REFERRAL

If referring for consideration of Oral Isotretinoin (Roaccutane);

- fully inform the person (and their family and carers, as appropriate) about the potential risks of Isotretinoin treatment as well as the expected benefits
- provide details of the person's current and PMHx (including all current and previous mental health issues), and any relevant Social and Family Hx
- for people under 18, document whether you are willing to become the second approved named healthcare professional who agrees that Isotretinoin is the appropriate treatment

ORAL ISOTRETINOIN (ROACCUTANE)

- Reduces sebum production by 90%, clears follicular hyperkeratinization, kills *C.acnes* & has powerful anti-inflammatory action
- **TERATOGENIC** – cant get pregnant on Roaccutane or for 1/12 after stopping
 - Patients only prescribed 4/52 of drug at a time & must have a negative pregnancy test before further scripts given

ORAL ISOTRETINOIN (ROACCUTANE) SIDE EFFECTS

- SEVERE CHEILITIS – lip balms & vaselines
- DRY SKIN++ - moisturisers
- DRY EYES – avoid contact lenses & use artificial tears
- ARTHROPATHY & MYALGIA
- NOSE BLEEDS
- PHOTSENSITIVITY – approx. 25% patients – spf50
- IMPAIRED CONCENTRATION – avoid if studying for exams

ORAL ISOTRETINOIN (ROACCUTANE) SIDE EFFECTS

- NIGHT BLINDNESS – important for Pilots – unable to fly while on Roaccutane
- SEVERE DEPRESSION & SUICIDE – rare but well documented SE
- ACNE FULMINANS – Acute & severe acne within first 4/52 Rx
- FATIGUE SYNDROME – Rare, starts after 4/52 Rx, mimics ME & doesn't stop after Roaccutane is stopped
- ACUTE SCHIZOPHRENIA – V. rare, comes on quickly, generally affects young men
- SEXUAL DYSFUNCTION – Can cause ED in Men & reduced Libido in Women
- PERSISTENT SYMPTOMATIC SEs – affects approx 10% pts after Rx ie. Dry skin

RECOMMENDATIONS WHILST AWAITING DERMATOLOGY APPOINTMENT

- If Mental Health Hx - refer & optimise this before seen
- Prescribe Contraceptives/Counsel re LARC in women – given serious harm that Isotretinoin can cause to developing baby if patient fell pregnant whilst taking it
- Consider alternative antibiotics/topical treatment
- Optimise Skincare Regime
- Advise patients to consider treatment adjuncts such as Chemical Peels

CHEMICAL PEELS

- Useful adjunct to Treatment
- Salicylic Acid Peel
 - Keratolytic action – removes top layers of dead skin, unseats comedones, releases blocked sebum & reduces occurrence of inflammatory lesions
 - also contains ingredients with anti-inflammatory/anti-bacterial properties
- Every 2-4 Weeks
- Useful in patients that can't tolerate/unable to use Retinoids

RELAPSE

- If Acne responds to 1st Line Rx then relapses;
 - Prescribe another 3/12 same Rx OR/
 - Prescribe 3/12 alternative Rx depending on severity

- If Acne relapses after good response to Roaccutane & Mild-Mod Severity
 - Prescribe appropriate 1st Line Rx & Review 3/12

- If Acne relapses after good response to Roaccutane & Mod-Severe Severity
 - Prescribe 3/12 appropriate Rx **AND** Re-Refer to Dermatology

MAINTENANCE ACNE TREATMENT

- Ongoing Skincare Regime
- **Maintenance Acne Rx may be required;**
 - Pts with Hx of previous Acne Relapse
 - Teenage Pts - fluctuating hormones – consider maintenance Rx for several years
 - Adult Female Acne/PCOS – chronic conditions
- Consider **EPIDUO** – if not tolerated consider Topical Monotherapy with **DIFFERIN, AZELAIC ACID** or **BEN PEROXIDE** – Review 3/12

ACNE SCARRING

- Can occur even with Mild Acne – scarring correlates to individual response to inflammation rather than severity of acne
- Scarring is permanent unless treated
- Scarring causes significant Psychological Distress – sometimes worse than acne itself
- Post-Inflammatory Erythema & Hyperpigmentation – NOT scarring, self-limiting – Chemical peels & Pulsed-Dye Laser can help

ACNE SKIN CHANGES DEPENDING ON SKIN TYPE

POST-INFLAMMATORY
ERYTHEMA (PIE)
SKIN TYPE I



POST-INFLAMMATORY
HYPERPIGMENTATION (PIH)
SKIN TYPE V & VI



ATROPHIC SCARS

TYPES:- ROLLING, BOX & ICE PICK



APPEARANCE OF ATROPHIC SCAR TYPES



HYPERTROPHIC SCARS

- KELOIDS



SCAR TREATMENT

- MICRONEEDLING

- Electric pen device with disposable needle head containing 12 Accupuncture needles with adjustable depth & speed
- Multiple tiny wounds to skin, healing response induced, Collagen put down filling scars & stretching skin – takes approx. 4 Weeks

- TCA CROSS (Trichloroacetic acid Chemical Reconstruction of Scarred Skin)

- Particularly useful for Small Box Scars
- Up to 100% TCA applied carefully to base of scars with orange stick
- Causes localised injury that induces new collagen production, filling the scar & obliterating sharp edges
- Rpt Rx every 6-12/52

- FRAXEL LASER

- Type of CO2 Laser – injures the skin & induces a healing response, new collagen induction, painful, 1/52DT

TCA CROSS & MICRONEEDLING RESULTS



TETHERED SCAR TREATMENT

ROLLING & BOX SCARS

- Can be 'Free' & will flatten completely when skin is lightly stretched

Or

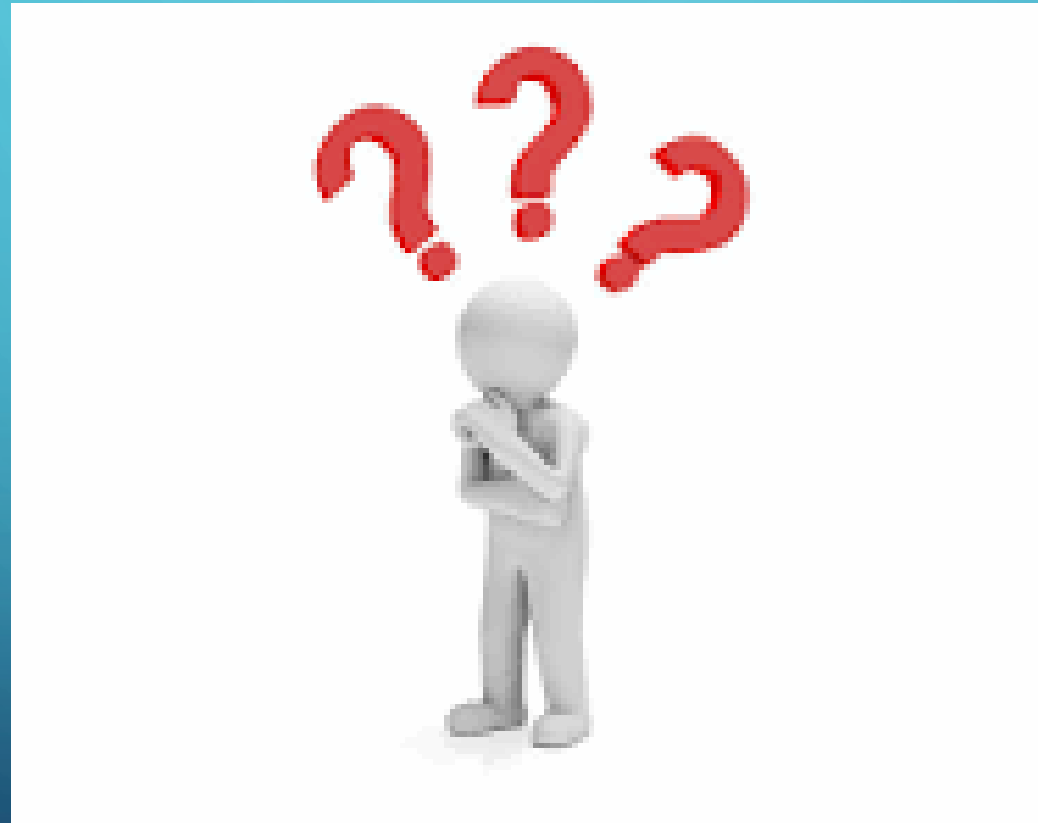
- 'Tethered' by scar tissue to deeper areas of dermis & won't flatten when stretched – additional 'Subcision' treatment required to release scar tissue

NHS REFERRAL FOR SCARRING

- If a person's acne-related scarring is severe and persists a year after their acne has cleared:
 - Refer to Consultant Dermatologist Team with expertise in scarring management for consideration of Fraxel Laser (modified CO2 Laser - alone or after punch elevation) or Glycolic Acid Peel
 - Locally refer to Dermatology at GWH who refer on to Bristol

NB/ Prior Approval from Exceptions Committee required before Referral

QUESTIONS ?



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CASE STUDIES

CASE STUDY 1

- 14 Yr Old Female, No PMHx, NKDA, Oily T-zone
- Acne 1.5yrs, worse for 2/52
- Taking Doxycycline for 2/12
- Epiduo v.irritating so stopped
- Acne worse cyclically, Periods regular
- Good skincare regime, cleansing BD
- Doesn't want Roaccutane
- BMI 20.2 BP 116/69



MODERATE-SEVERE NODULO-CYSTIC ACNE

- Stopped Doxycycline & switched to Lymecycline 408mg OD with probiotic
- Topical Retinoid – Differin gel ON given irritation with Epiduo
- Dianette – no Cis
- Advised re skincare – to switch to Salicylic Acid cleanser BD, non-comedogenic make up & double cleanse ON, daily moisturiser & SPF 50
- Advised re Diet/Stress/Water intake
- Accumax Supplements
- Course of 5 Salicylic Acid Chemical Peels



- Weaned off Abx at 4/12
- Stopped Dianette at 6/12 & switched to Cimizt COCP
- Continues on skincare regime & daily Differin gel

CASE 2

- 18yr old Male, no PMHx, no DHx, Allergic to Penicillin
- Acne for 2/12, flared during A'level Exams
- Washes face with water only
- Not tried any acne treatments previously
- Eats high dairy & sugar diet
- Sensitive skin
- Not keen to take Oral Abx



MILD-MODERATE ACNE

- Mixture of inflammatory & non-inflammatory lesions
- Combined Retinoid & Topical Antibiotic - Treclin Gel
 - Introduce gradually, advised re potential SEs – dryness & purging
- Advised re skincare – to start Salicylic Acid Cleanser BD, daily SPF 50 & moisturiser
- Advised re Diet – to reduce sugar & dairy intake
- Probiotic daily
- Advised re Stress/Water intake
- Significant improvement at 3/12 review

CASE STUDY 3

- 34yr Old Female Project Manager, No PMHx, Medium Stress levels, NKDA
- 2yr Hx Acne since stopping POP, Husband Vasectomy
- Previously took POP for 10yrs
- Acne worse cyclically, regular periods
- Benzoyl Peroxide irritating & no benefit
- Restarted Desogestrel POP 4/12 ago but no benefit
- Skincare regime – lots of expensive products, confused with what to use
- BMI 20.7 BP 110/70



ADULT FEMALE ACNE

- Typical presentation AFA affecting cheeks & jawline
- Topical Retinoid – Differin gel ON
- Lymecycline 408mg OD with probiotic
- Dianette – no CIs
- Advised re skincare – Cleanse BD & Double Cleanse in evening, non-comedogenic make-up, good moisturiser & daily SPF 50
- Advised re Diet/Stress/Water intake
- Course of 6 Salicylic Acid Chemical Peels

- Reviewed patient regularly
- Weaned Pt off Abx from 6/12, stopped by 8/12
- Stopped Dianette at 1yr & switched onto Yasmin
- Continues on skincare regime & Differin daily



ACNE – KEY POINTS

- Topical Retinoid essential in all treatment regimes if suitable – educate patients re SEs, start gradually & build up, daily SPF 50 required
- Skincare Regime – Cleanse BD & ok to Moisturise if required
- Refer Mod-Severe cases not responding to 3/12 Abx & Topical treatment/with evidence of Scarring
- Optimise patients for Roaccutane Treatment whilst awaiting Dermatology Appt
- Recommend considering private adjunct treatments whilst awaiting Dermatology

THANK YOU

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