Acne – clinical presentations, treatment and when to refer

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Intended learning outcomes:

- By the end of the session students will be able to:
  - Classify acne in line with the European acne guidelines
  - Identify appropriate treatments for severity and presentation
  - Be aware of indications to refer appropriately

Incidence of acne

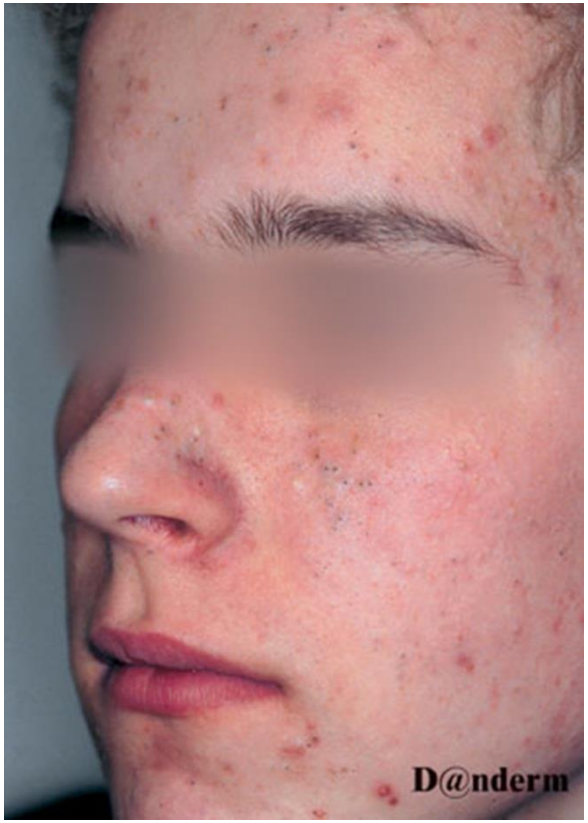
- Acne is a common skin disease (acne = acne vulgaris)
- Estimates of incidence in western industrialised cultures vary from 50% - 95% of the population
- Moderate to severe acne ranging from 20% - 35% of the population (Nast et al 2016)
- An academic search on the databases Cinahl Complete and Medline for the term ‘acne’ gave in 16,689 results and a search on Google gave 84,900,000 results

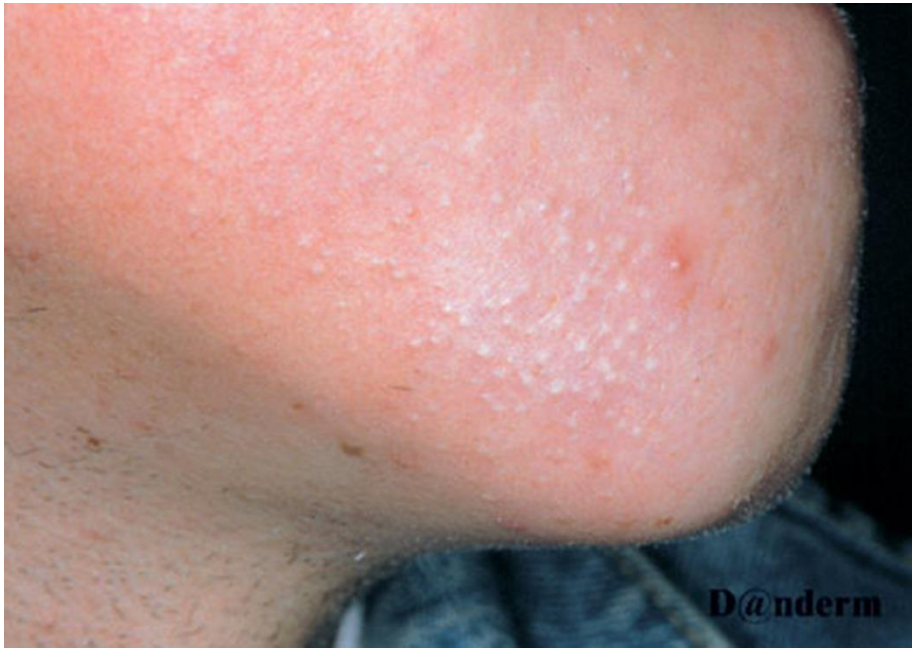
Mechanism of lesion development

- Androgens → stimulate sebum production
- Not usually higher levels of androgens but more sensitive sebaceous glands
- Abnormal shedding of keratin cells plugging hair follicles → microcomedones (sub clinical)
- *Propionibaterium acnes* flourishes in the sebum-rich environment in blocked hair follicles → release of inflammatory mediators – leak into surrounding dermis, more inflammation involving white blood cells
- Inflammatory lesions

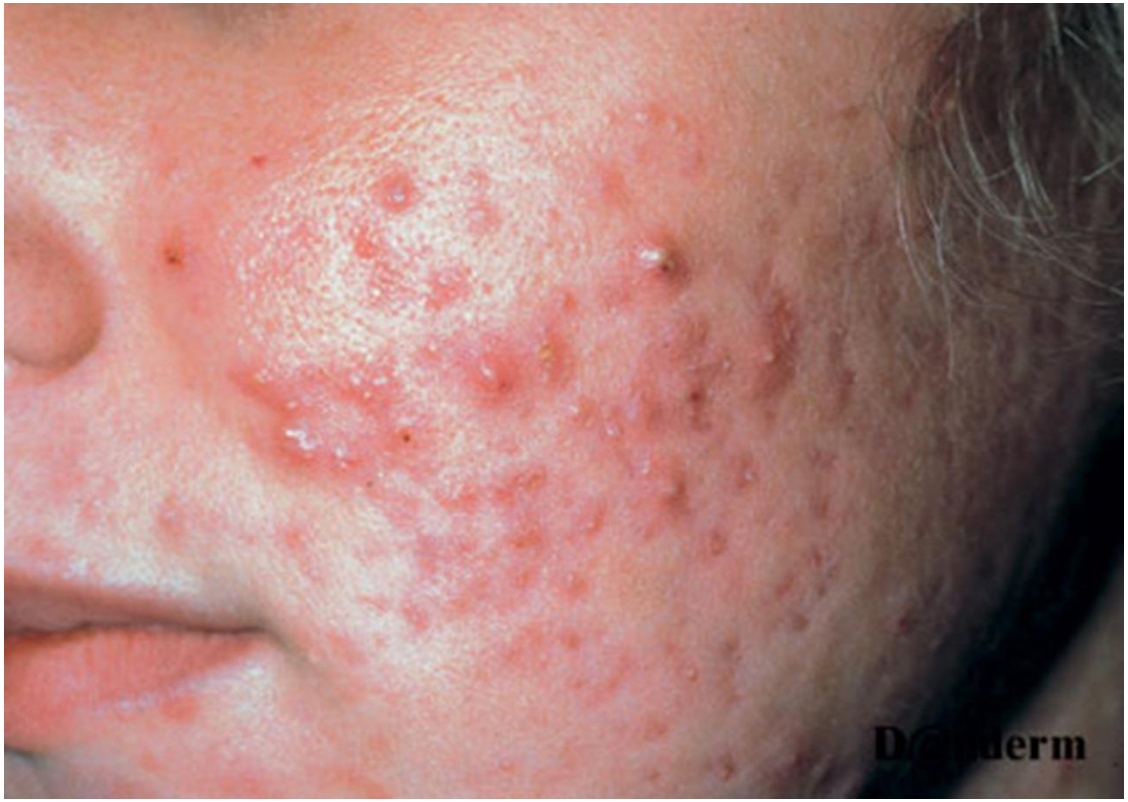
Comedonal acne

- Open and closed

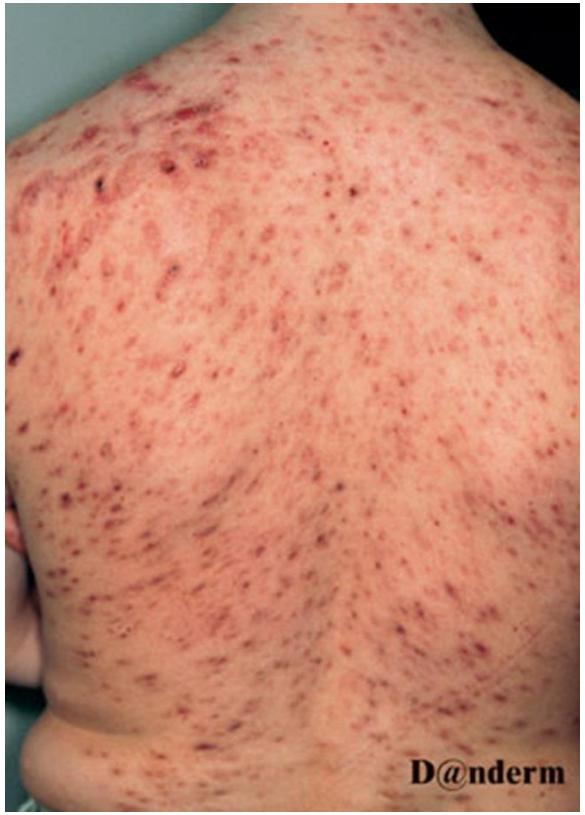


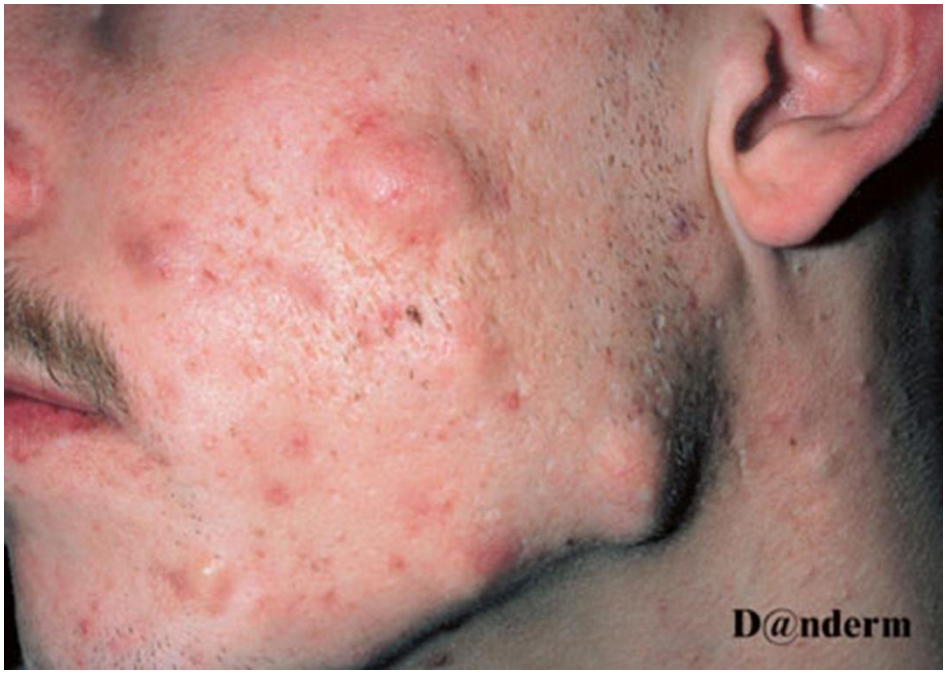


Papulopustular acne



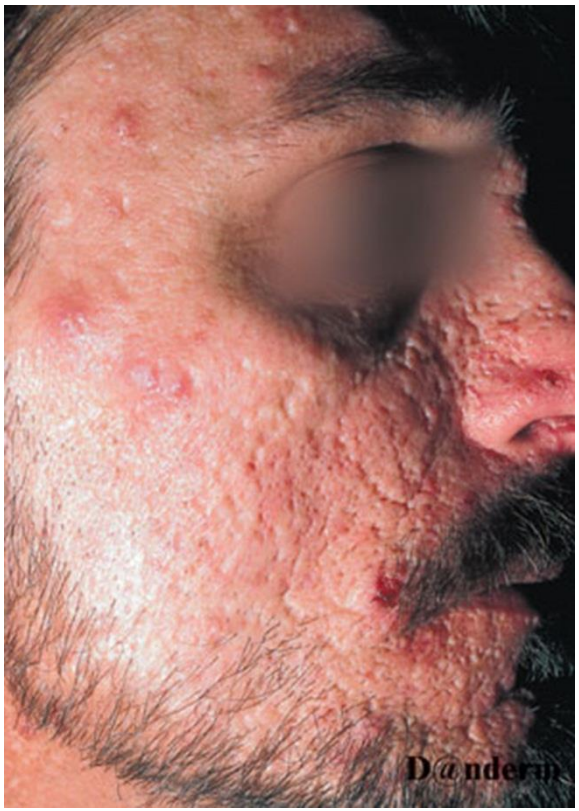
Nodular / conglobate

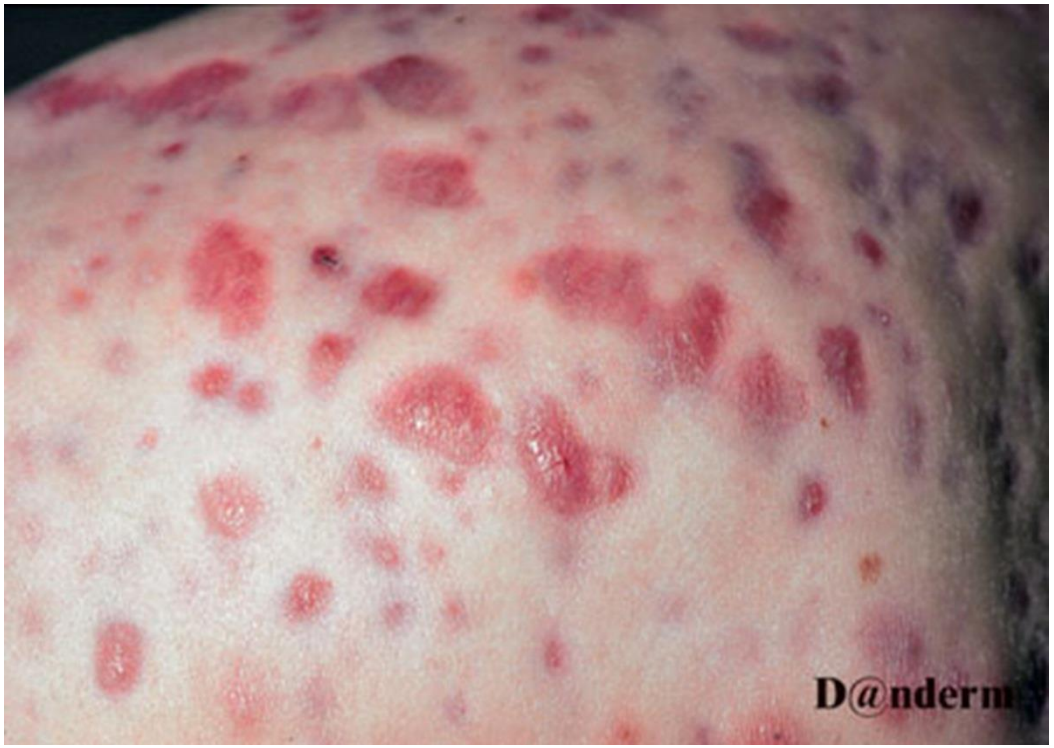




Acne scarring

- Mainly atrophic





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Acne grading (based on Nast et al 2016)

1. Comedonal acne
2. Mild-moderate papulopustular acne
3. Severe papulopustular acne and moderate nodular acne
4. Severe nodular and conglobate acne

Assessment

- All acne-prone areas
- Previous treatments and tolerability
- Any triggers?
- Family history
- Age of onset
- Impact on quality of life (DLQI, CADI)
- Depression screening

Treatments for acne

- Aims of treatment:
  - Reduce bacteria in the hair follicle
  - Normalise keratin cell formation in hair follicle
  - Inhibit sebaceous gland
- Decisions usually based on disease severity
- But also think patient concordance
- General skin care

Washing and emollients

- Soap free cleanser, preferably formulated for acne prone skin
- Oil free emollient

Treatments

- Benzoyl peroxide (BPO)
- Topical retinoids
- Topical antibiotics
- Oral antibiotics
- Oral antiandrogens
- Oral retinoids (isotretinoin)

BPO

- Antimicrobial properties
- Irritant (as can most of the topical treatments for acne)
- Bleach – it is important to warn patients that it will bleach towels, clothes, bed linen and anything it comes into contact with (including hair)
- Start in small areas on alternate days and built up gradually to daily use. Commencing treatment with a preparation with a lower content of BPO initially may also help tolerability
- Photosensitiser
- Also has effect on keratin shedding

Topical retinoids

- Reduce inflammatory processes in acne lesions and have an effect on the abnormal keratin processes in the epidermis
- Adapalene should be selected over tretinoin and isotretinoin topically as it shows the best tolerability/safety profile and patient preference favours it
- Side effects of topical retinoids are similar to BPO except that they do not bleach
- Not recommended in pregnancy as there may be some systemic absorption but can be used during breastfeeding as the absorption is likely to be minimal
- Fixed dose preparation of adapalene and BPO (marketed as Epiduo in the UK) has a high strength of recommendation for mild to moderate papulopustular acne
- Treat all affected areas not individual lesions

Topical antibiotics

- Due to the risk of developing antibiotic resistance, topical monotherapy with antibiotics is not recommended
- No evidence for the use of topical antibiotics in comedonal acne
- High strength evidence for the use of fixed dose clindamycin and BPO (Duac Once Daily) for the treatment of mild to moderate papulopustular acne
- Not for use as maintenance therapy

Oral antibiotics

- Comparable efficacy of doxycycline, lymecycline, minocycline and tetracycline orally
- All slightly more effective than clindamycin and erythromycin
- Doxycycline and lymecycline are preferred due to their tolerability and safety
- Minocycline associated with more side effects
- Doxycycline is photosensitiser
- Tetracyclines not for under 12s, pregnant or breastfeeding women
- Medium strength evidence for oral antibiotics plus adapalene for mild to moderate and severe papulopustular acne

Oral antiandrogens (NICE CKS 2018)

- Oral progesterone only contraceptives or progestin implants with androgenic activity may exacerbate acne, second and third generation combined oral contraceptives are generally preferred.
- Co-cyprindiol (Dianette®) or other ethinylestradiol/cyproterone acetate containing products - careful discussion of the risks and benefits with the patient.
- Use should be discontinued 3 months after acne has been controlled and prescription guided by the UK Medical Eligibility Criteria for Contraceptive Use and the Summary of Product Characteristics for the individual product.

Ask the dermatologist….

- Implant and depo-provera make acne worse, evidence for Mirena coil making it worse is limited although BNF mentions it, progesterone only pill makes it worse probably
- Acne FRIENDLY pills, Marvelon and Cilest, debate about Yasmin probably OK
- Some pills make it worse, it’s the progesterone that makes the difference, commonest pill prescribed Microgynon makes it worse
- Acne treatment is Dianette but need to take account of increased oestrogen content

Oral isotretinoin

- High strength evidence for its use in severe papulopustular, nodular and conglobate acne
- BAD guidance on introduction and safe use
- Contraindicated in hypervitiminosis A, uncontrolled hyperlipidaemia and airline pilots
- Teratogen (pregnancy prevention plan)
- Mood changes

Practical issues with oral isotretinoin

- 2 big issues….pregnancy prevention plan and risk of depression/suicide
- But also remember:
- Need for baseline and some monitoring blood tests
- Occupation (night vision)
- Vitamin supplements (Vitamin A)
- Media reporting

Summary of strength of evidence-based acne treatments (based on Nast 2016)

Acne lesions	High	Medium	Low
Comedonal	• None	• Topical retinoids	• Topical BPO • Topical azelaic acid
Mild-moderate papulopustular	• Topical adapalene + BPO • Topical clindamycin + BPO	• Topical azelaic acid • Topical BPO • Topical retinoids • Topical clindamycin + tretinoin • Systemic antibiotics + adapalene	• Topical erythromycin plus isotretinoin or tretinoin • Topical isotretinoin + erythromycin • Systemic antibiotics + adapalene (+/- BPO)or Azelaic acid
Severe papulopustular / moderate nodular	• Oral isotretinoin monotherapy	• Systemic antibiotics + topical adapalene (+/- BPO) or + topical azelaic acid	• Oral anti-androgens + systemic antibiotics • Oral anti-androgens + topical therapy • Systemic antibiotics + BPO

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What about maintenance

- Some evidence for ongoing use of adapalene or adapalene/BPO
- Evidence not good
- (Dressler et al 2016)

Support for patients

- http://www.acnesupport.org.uk/ 'Offering you impartial, expert advice on acne'. BAD resource
- www.samaritans.org Samaritans are there to 'support anyone in distress, around the clock, through 201 branches across the UK and Republic of Ireland.'
- www.changingfaces.org.uk Changing faces are 'a charity for people and families who are living with conditions, marks or scars that affect their appearance.'
- www.kidscape.org.uk Kidscape is a charity supporting children and families in the area of bullying and abuse. Its mission is 'to ensure children live in a safe and nurturing environment. By providing training, support and advice to children, parents, schools and those in professional contact with young people, we enable them to gain knowledge and develop the confidence and skills to challenge abuse and bullying in all its forms'.
- http://www.dermatology.org.uk/quality/quality-life.html is the site for validated quality of life measurements

Q1

- What treatment would you advise for comedonal acne?

References and acknowledgements

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