check

RACGP CPD solution

Unit 605
August–September 2023

Aesthetic conditions



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About *check*

check is a CPD learning activity written by expert clinicians and reviewed by subject matter experts. Each unit comprises approximately five clinical cases with answers, followed by 10 multiple-choice questions (MCQs), as well as references and resources.

check aims to keep Australian GPs up to date with the most common and most important clinical conditions. While there are many different ways to keep up to date, it is essential for the RACGP to lead in this space, and provide updated, relevant support to GPs in their clinical practice. *check* seeks specific interests, and is a key resource for exam preparation. As such, *check* has a schedule of units that is informed by data on what the most common conditions are in general practice, and is responsive to those parts of general practice that are changing the most rapidly.

How *check* works

There are 11 *check* units each year. Each unit comprises approximately five clinical cases, and the choice of cases covers the broad spectrum of the unit's topic. Each unit is led by a GP with an interest and capability in the topic, and they scope the five different cases for that unit in collaboration with the *check* team.

Completing a unit of *check* means members achieve approximately 10 CPD hours (based on two hours per case). Every clinical case included in each unit will follow an agreed standard format, and will carry two CPD hours (one hour of Educational Activities and one hour of Reviewing Performance). In addition, each *check* unit will include one or more suggested topics that meet Measuring Outcomes requirements for CPD.

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We acknowledge the Traditional Custodians of the lands and seas on which we work and live, and pay our respects to Elders, past, present and future.

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The five domains of general practice

- Communication skills and the patient–doctor relationship
- Applied professional knowledge and skills
- Population health and the context of general practice
- Professional and ethical role
- Organisational and legal dimensions

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ACTIVITY ID **589792**

Aesthetic conditions

This unit of *check* is approved for 10 hours of CPD Activity (two hours per case). The 10 hours, when completed, including the online questions, comprise five hours' Educational Activities and five hours' Reviewing Performance.

To complete this unit as a CPD Activity, you should carefully read all cases, complete the questions for each case (hard copy or online), answer the linked multiple-choice questions online and score >80%, and complete the evaluation form online.

All doctors also need to do a minimum five hours' Measuring Outcomes CPD each year, and you can do this by completing one Mini-Audit each year. You can do a Mini-Audit based on this unit, or any other unit of *check*, or on any topic that is relevant to your practice.

To do a Mini-Audit on this unit's topic, select the last five relevant patients you managed. Review their records, summarise your management and findings, and indicate in writing (for yourself) where your management and patient outcomes could have been improved, based on what you have learned following your completion of this *check* unit.

You can access all online resources here: https://mycpd.racgp.org.au

For any technical issues, including guides and templates for a Mini-Audit, contact us on 1800 284 789. To purchase this unit if you are not an RACGP member, please call 1800 284 789.

About this activity

Concerns about skin and skin-related conditions are very common in Australian general practice, and they range from dangerous lesions (such as highly malignant skin cancers) through many benign and self-limiting conditions, and onto the purely cosmetic or aesthetic.

Most general practitioners are faced with patients with skin conditions on a daily basis, and many of us struggle to manage all of them effectively. Furthermore, more patients are now presenting with requests for cosmetic and aesthetic consultations and referrals, and the Medical Board of Australia has recently established strict standards of practice around cosmetic surgery and procedures.[1]

Many general practitioners have developed a specific interest in skin cancer and in skin conditions more broadly. Here we present five cases (not skin cancer–related) that seek to deal with some common skin-related conditions.

References

1. Medical Board, Australian Health Practitioner Regulation Agency. Guidelines for registered medical practitioners who perform cosmetic surgery and procedures. Ahpra, 2023. Available at www.medicalboard.gov.au/codes-guidelines-policies/cosmetic-medical-and-surgical-procedures-guidelines.aspx [Accessed 2 August 2023].

Learning outcomes

At the end of this activity, participants will be able to:

- assess and evaluate patients presenting with some common skin-related conditions
- develop an approach to management for the topics listed, including what referral options might be appropriate
- appreciate the rationale for, and how to safely practise within, the new Medical Board of Australia standards for cosmetic surgery and cosmetic procedures.

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CASE

1 Kim is bothered by dark brown facial spots

Kim, aged 40 years, is of Southeast Asian origin and presents with dark brown patches on her face of more than six months' duration without pruritus (Figure 1). Kim is a mother of three, whose youngest child is aged five years. She is a non-smoker and does not drink alcohol. On examination, Kim is systemically well. Slightly darkish-brown hyper-pigmented macules and patches are evident on her face, involving the bilateral cheeks, forehead with glabella, mandible and chin.



Figure 1. Kim's facial hyperpigmentation

Question 1

What further history would be helpful in determining the aetiology of Kim's facial hyperpigmentation and what specifically would you look for on examination?

Further information

Kim stated that she was not using any medication or cosmetic agents. She had no known allergies, but reported that her mother has also had similar dark brown patches on her face. Kim worked as a vegetable grower.

Question 2

What conditions would you include in your differential diagnosis, and what is the most likely diagnosis based on Kim's clinical information?

Question 3

What is melasma and what is its epidemiology?

Question 4

What investigations would you consider for Kim?

Question 5

What is the aetiopathogenesis of melasma?

Question 6

What treatment options can you offer Kim?

Further information

Along with general skin care, Kim was treated with oral tranexamic acid 500 mg daily for six months with topical modified Kligman's formula (compounded by a pharmacy: hydroquinone 5% + tretinoin 0.05% + hydrocortisone 1%) daily for four weeks, on alternative days for another four weeks and then twice weekly for six months, resulting in an optimal outcome (fading of hyperpigmentation).

Note that more novel treatments for melasma are expected to emerge because, as yet, no single complete satisfactory treatment has been established.

Question 7

What are the complications and prognosis/course of melasma?

CASE 1 Answers

Answer 1

It is important to enquire about risk or aggravated factors for skin discolouration such as any medication used, particularly oral contraceptive pills and photosensitive drugs/agents (eg doxycycline, minocycline, sun-sensitive cosmetics). In addition, asking about allergy history, occupation, sun exposure and sun preventive measures used, family history of skin disorders (including melasma), family heritage ethnicity, how long and where Kim has lived, if the discolouration started or increased during pregnancies and any prior treatment of the site would be useful.

A brief, relevant physical examination focusing on the pigmented lesions (ie colouration, borders with or without elevation, location and pattern of distribution) is recommended. If available, Wood lamp and dermatoscope examinations may help evaluate the depth of pigment infiltration and confirm the diagnosis.[1,2] In the case of epidermal melasma, the Wood lamp will show increased pigmentation with clear border contrast of the hyperpigmented skin (accentuation of pigment); in the case of dermal melasma, the skin will appear unchanged. Dermatoscopic features include a brownish reticuloglobular pigment network with brown or grey granules (dots) and telangiectasias.[1,2]

Answer 2

The differential diagnoses for facial hyperpigmentation, listed in Table 1, can be broad. Given Kim's age, ethnicity and sex, the pattern of hyperpigmentation on the face makes melasma the most likely diagnosis.

Table 1. Differential diagnoses for facial hyperpigmentation disorders[1,3,4]

Condition	Characteristics
Melasma	Brown or dark brown facial hyperpigmentation macules and patches in reproductive-aged women of colour (predominantly Fitzpatrick skin phototype III–IV) No pruritus
Postinflammatory hyperpigmentation	Can occur at any age and in any site with prior inflammatory erythema in the area (eg prior contact dermatitis [pigmented cosmetic dermatitis], which can result from sensitising chemicals in cosmetic products)
Drug-induced pigmentation/ photosensitivity	Can occur at any age, with blue or slate grey pigmentation over the face, limbs, trunk and mucosa Drugs such as tetracyclines, antiepileptics, antimalarials and non-steroidal anti-inflammatory drugs are common culprits
Actinic lichen planus (pigmented form)	Occurs in adults Pigmented erythematous patches or plaques over sun-exposed sites (face, neck and dorsum hands)
Solar lentigo	Occurs particularly on fair skin Well-demarcated pigmented macules and patches over sun-exposed sites (face, neck and extremities)
Exogenous ochronosis	Occurs at sites of prior hydroquinone use, with blue–black hyperpigmentation
Discoid lupus erythematosus	Occurs mostly in young adult women Scaly erythematous patches or plaques over the face and scalp Look for autoimmune-associated manifestations
Frictional melanosis	Occurs in adults at any site Results from excessive and repeated mechanical stimulation (habit of rubbing)
Acquired dermal macular hyperpigmentation	Occurs mostly in young adults Brown to dark brown pigmented patches or plaques with pruritus involving the face, neck and trunk
Hori's Naevus	Occurs mainly in adult Asian women Blue–grey to grey–brown patchy and spotty pigmentation on the bilateral cheeks and less often on the forehead, nose and eyelids The condition is often misdiagnosed because it may resemble or coexist with melasma
Poikiloderma of Civatte	Commonly occurs in adult women, with linear telangiectasia, erythema, mottled hyperpigmentation symmetrically on sun-exposed areas (cheeks, neck and upper chest)

Answer 3

Melasma, historically called chloasma, is a common, acquired, pigmentary disorder characterised by brown or dark brown pigmentation symmetrically involving the face: cheeks, forehead, nose, upper lip, chin and jawline. Melasma may start with macules and later become large patches with an ill-defined border. There is no pruritus.

Melasma mostly affects women of colour (Fitzpatrick skin phototype III–V; from Asia, the Middle East, Mediterranean Africa and Latin America), commonly of child-bearing age (20–40 years). Men are less commonly affected, with a male to female ratio of 1:9.[5] Although overall global prevalence is reported as 1%, this is an under-reported skin disorder, as most sufferers seek treatment over the counter. The actual range has been reported as being between 9% and 40%, with higher rates in Southeast Asian and South Asian women.[1,5] Aboriginal and Torres Strait Islander, Māori and Polynesian women can also be affected by melasma, but the exact prevalence in these groups has not been established. Melasma can be divided into subtypes based on clinical morphology and the depth of pigment infiltration as follows.[6,7]

- Based on clinical morphology (clinical patterns):
  - centrofacial: involving the cheeks, forehead, upper lip, nose and chin
  - malar: involving the zygoma and nose (Figure 2)



Figure 2. Melasma over the zygoma in a woman aged 35 years

  - mandibular: involving the mandible and chin
  - extrafacial: involving the neck and sun-exposed extremities, although this is extremely rare.

- Based on depth of pigment infiltration (Wood lamp/dermatoscope or histology examinations):
  - epidermal type
  - dermal type
  - mixed type (combined epidermal and dermal).

Some individuals can experience a combination of clinical patterns, as seen in Kim.

Answer 4

A diagnosis can be made by evaluating a patient's history and based on clinical examination. In doubtful cases, a biopsy may be considered to differentiate melasma from other conditions.

Answer 5

The cause of melasma is multifactorial and complex. As such, the precise aetiopathogenesis of melasma remains unclear. However, the risk factors listed below can be associated with the development of melasma, and are important to identify:

- sun exposure, especially cumulative exposure
- genetic predisposition (20–50% of individuals have a positive family history)[1,8]
- hormones (hormonal contraception, pregnancy [melasma occurs in 15–50% of pregnancies])[8]
- the use of photosensitive medications and cosmetic products.

Answer 6

The aim of melasma treatment is to diminish the pigmentation by halting the proliferation of melanocytes and the formation and degradation of melanosomes. There are several treatment modalities for melasma, as outlined below.[1,5,9]

- General skin care: sun protection is paramount, with wide-brimmed hats or umbrellas and the use of broad-spectrum tinted sunscreens during outings, because sunlight can enhance pigmentation. Cosmetic camouflage is also a useful option.
- Medical treatment: a wide range of medical treatments are available, as described below.
  - Topical treatments: triple combined topical treatment (hydroquinone main component with retinoid and corticosteroid) is recommended as the first-line and gold-standard treatment because of its better effectiveness compared with other modalities and its non-invasive nature.[1,9] For example, Kligman's formula (hydroquinone 5% + tretinoin 0.05% + dexamethasone 0.1%) or Tri-Luma (Galderma Australia, North Sydney, NSW; approved by the US Food and Drug Administration [FDA]) (hydroquinone 4% + tretinoin 0.05% + fluocinolone acetonide 0.01%) can be used, with instructions to apply once or twice daily over the lesion for four weeks, after which treatment is reassessed. Treatment will take 3–6 months and adverse effects, such as skin irritation, erythema and post-irritant hyperpigmentation, are minimal. It is important to counsel the patient to cease use of the topical agent immediately if they develop *any* localised irritation with these topical treatments. Irritation will increase the melanin production in the melanocytes and worsen melasma in these susceptible individuals. This is particularly important in any preparation containing hydroquinone. Hydroquinone and topical tretinoin should not be used during pregnancy.
  - Other topical treatments: there are other useful mono-topical forms, such as hydroquinone (2–5%), azelaic acid (5–20%), kojic acid (1–2%), cysteamine cream (5%), ascorbic acid (5–15%), niacinamide (2–5%), tranexamic acid (2–5%), glutathione (2%), tretinoin (0.025–0.5%) and corticosteroid (mild to mid-strength). Of note, combined treatment or the addition of an adjuvant generally provides better efficacy and effectiveness.[5,6,9]
  - Systemic treatments: various systemic treatments are available, including tranexamic acid, carotenoids (lutein/zeaxanthin), glutathione and *Polypodium leucotomos* extract and nicotinamide. Of these, tranexamic acid has been widely studied, with favourable results. Tranexamic acid may be cost-effectively prescribed by general practitioners in Australasia, although its main established use is for menorrhagia. The recommended oral dosage is 500 mg daily or twice daily for 3–6 months' duration. Options include 250 mg twice a day for 3–6 months, 250 mg three times a day for 12 weeks[10] (to improve patient compliance) and 500 mg daily for 8–12 weeks (low dose).[11] In cases of severe melasma (extensive areas with dermal involvement) or recalcitrance to topical therapy, a combined oral tranexamic acid and topical regimen was reported to deliver better outcomes.[5,12] Maintenance topical therapy (twice weekly or at an appropriate frequency) is recommended in view of easy relapse after stopping treatment. The benefits of tranexamic acid in melasma treatment outweigh minor side effects (headache, epigastric pain, hypomenorrhoea and theoretical thromboembolic risk),[6] but the use of tranexamic acid in people prone to coagulopathy will require extra caution. Oral nicotinamide (500–1000 mg daily) also acts on melanin as a migratory melanin inhibitor, which, over time, contributes to the evening out of pigmentation while also moisturising skin and reducing the occurrence of skin cancer.[13]
- Non-pharmacological treatment: microneedling, chemical peeling, dermabrasion and laser- and light-based therapies (intense pulsed light, pulsed dye laser, Q-switched [Nd:YAG] laser) can be used, with variable responses.[5,12] These forms of treatment are not cheaper than the treatment regimens described above and should be reserved for cases in which conventional treatment has failed or according to patient choice, with referral to a

dermatologist, or dermatologist-preferred specialist laser technician, being warranted. The combination of a topical therapy, particularly tranexamic acid, with laser/microneedling treatments often gives a clinically better lightening response. Melasma in pregnancy may be transient and improve after delivery.[6] Topical tranexamic acid, azelaic acid and kojic acid are preferred for the treatment of melasma during pregnancy if a patient wishes to be treated.

Answer 7

Melasma in women can cause psychological morbidity, with low self-esteem and aesthetic concern affecting quality of life. Although melasma can fade away spontaneously, this could take several years depending on the individual's risk factors and the severity of the lesions. Recurrent or refractory melasma is not uncommon for this chronic disorder.

Resources for patients

- The Australasian College of Dermatologists, www.dermcoll.edu.au/atoz/melasma/
- American Academy of Dermatology Association, www.aad.org/public/diseases/a-z/melasma-treatment

Resources for doctors

- DermNet New Zealand, https://dermnetnz.org/topics/melasma
- Global Dermatology, https://genevadermatology.ch/melasma-for-professionals/

References

1. Doolan BJ, Gupta M. Melasma. Aust J Gen Pract 2021;50(12):880–5. doi: 10.31128/AJGP-05-21-6002.
2. Navya A, Pai V. Comparison of dermoscope and Woods lamp as a tool to study melanin depth in melasma. Indian Dermatol Online J 2022;13(3):366–9. doi: 10.4103/idoj.idoj_245_21.
3. Lyford WH. Melasma differential diagnoses. Medscape, 2020. Available at https://emedicine.medscape.com/article/1068640-differential [Accessed 1 January 2023].
4. Wang RF, Ko D, Friedman BJ, Lim HW, Mohammad TF. Disorders of hyperpigmentation. Part I. Pathogenesis and clinical features of common pigmentary disorders. J Am Acad Dermatol 2023;88(2):271–88. doi: 10.1016/j.jaad.2022.01.051.
5. Neagu N, Conforti C, Agozzino M, et al. Melasma treatment: A systematic review. J Dermatolog Treat 2022;33(4):1816–37. doi: 10.1080/09546634.2021.1914313.
6. Mahajan VK, Patil A, Blicharz L, et al. Medical therapies for melasma. J Cosmet Dermatol 2022;21(9):3707–28. doi: 10.1111/jocd.15242.
7. Wu MX, Antony R, Mayrovitz HN. Melasma: A condition of Asian skin. Cureus 2021;13(4):e14398. doi: 10.7759/cureus.14398.
8. Majid I, Aleem S. Melasma: Update on epidemiology, clinical presentation, assessment, and scoring. J Skin Stem Cell 2021;8(4):e120283. doi: 10.5812/jssc.120283.
9. González-Molina V, Martí-Pineda A, González N. Topical treatments for melasma and their mechanism of action. J Clin Aesthet Dermatol 2022;15(5):19–28.
10. Wang W-J, Wu T-Y, Tu Y-K, Kuo K-L, Tsai C-Y, Chie W-C. The optimal dose of oral tranexamic acid in melasma: A network meta-analysis. Indian J Dermatol Venereol Leprol 2023;89:189–94.
11. Bala HR, Lee S, Wong C, Pandya AG, Rodrigues M. Oral tranexamic acid for the treatment of melasma: A review. Dermatol Surg 2018;44(6):814–25. doi: 10.1097/DSS.0000000000001518.
12. McKesey J, Tovar-Garza A, Pandya AG. Melasma treatment: An evidence-based review. Am J Clin Dermatol 2020;21:173–225. doi: 10.1007/s40257-019-00488-w.
13. Chen AC, Martin AJ, Choy B, et al. A phase 3 randomized trial of nicotinamide for skin-cancer chemoprevention. N Engl J Med 2015;373:1618–26. doi: 10.1056/NEJMoa1506197.

CASE

2 Malcolm is red-faced

Malcolm, aged 59 years, is concerned about his red face and attends your clinic with his wife. Malcolm is a cattle farmer and though active and relatively fit, he is concerned he may be experiencing blood pressure issues (his father had a touch). His main reason for this self-diagnosis is his continuously flushed and red face. He does not drink. He explains that his face seems to fare better in the winter, when he experiences less irritation. He offers that he is not fond of wind as he finds it causes his skin to pain. He notes that attempts to use his wife's face creams only seem to make his skin more painful and that sunscreen is the worst. He stopped applying sunscreen a number of years back and has not washed his facial skin with any soap or other cleanser due to the discomfort it causes. Shaving has become a painful daily chore. Of late his face feels red and irritated all the time.

Question 1

On initial presentation, Malcolm gives an articulate description of his skin sensations. What particular part of his history and presentation would concern you the most?

Further information

Malcolm has no history of cigarette smoking and takes no regular medications. He volunteers that he does not have a family history of cardiovascular disease except for his father's blood pressure issue. He is physically active, riding his horse daily to muster cattle. He states that he does not take any natural therapies, alternative medicines or vitamins.

Malcolm is not aware of any allergies, chronic diseases or occupational chemical exposure that may have caused his skin irritation. He has previously experienced a red, irritated rash caused by mouse droppings (in hay), but the last mouse plague was a couple of years ago and he does not suspect any recent exposure. His diet is meat and three vegetables, confirmed by his wife, and she has not changed anything in the household (such as washing powder or use of pesticides) that he may have had contact with. Malcolm has a body mass index of 27, his blood pressure is 131/85 and his heart rate is 72 (sitting).

Malcolm states that he has always had a red face, but it has got progressively worse. Your screening questions reveal that he is Fitzpatrick skin phototype 2 and your review of his abdomen reveals non-sun-damaged skin.[1,2]

Question 2

Why is it important to ask about natural therapies and occupational exposure to chemicals (such as sheep drench)?

Further information

On examination, you find Malcolm to be clean-shaven with flushed reddened/ruby to purplish, swollen facial skin, the redness extending down his neck and joining with his Poikiloderma of Civatte (known colloquially as 'T-shirt tan'). His face is warm to touch, with elevated temperature on both cheeks and forehead compared with nose and chin; you note dilated pores and congested skin on the nasal bridge, and a slightly fleshy nasal tip. His skin does not appear infected, there is no discharge and minimal papules are evident to your naked eye. Profuse dilated telangiectasia is evident on his cheeks and chin.

Malcolm's skin demonstrates Rubin's Level 3 sun damage. You note a dark shadow (poorly visualised and difficult to define against the inflamed background) on the mid-left lower orbit, for which Malcolm cannot provide a history.[3]

Malcolm cannot provide any information on what lessens his discomfort, only that the discomfort is now becoming intolerable and it feels like his skin is continually burning. He has raised the issue with his general practitioner on one of his rare visits to the family doctor, and they stated it was the result of lifelong sun damage.

Question 3

What other pathologies would concern you, given Malcolm's presentation?

Further information

Evident in Malcolm's history is the continuing presence of irritated skin and the sensation of flushing, the warm seborrhoeic skin (especially on his nose) and obvious dilated vessels.

An allergy could be considered in the differential diagnosis, but your careful history taking reveals that there appear to be no seasonal triggers to Malcolm's skin irritation (barring mice droppings) and that it has slowly worsened over the years until it reached this intolerable state. Another health professional had suggested a topical steroid.

Question 4

What occurs with the application of topical steroids to the facial skin?

Further information

Routine bloods return results within normal parameters. Fungal and skin swabs return no apparent abnormalities. Dermatological assessment is not possible, but in ideal circumstances could be requested. The nearest dermatologist is an 8–10-hour round trip (by road), which the patient will not contemplate. Due to the negative fungal and bacterial cultures, it is possible to rule out an infective cause and Malcolm's history does not support either an allergen or chemical exposure.

Question 5

Acne and rosacea both involve an inflammatory component in the disease process. Can they occur together?

Question 6

Is photodynamic therapy a treatment option for rosacea?

Further information

You start Malcolm on a water-based topical ascorbic acid 10% with a pH of 3.5 for morning application, selecting the water-based solution so that you can reduce the strength if he does not tolerate the initial application of ascorbic acid, and script metronidazole 0.75% gel twice daily.[4] You plan to review Malcom after his first light treatment; if he does not respond or experiences a flaring of his roseacea, you may need to consider a course of tetracycline or topical ivermectin.

Malcom undergoes a single laser treatment for vascular dilation, concentrating on his cheeks and nasal region; he tolerates the treatment well. You re-examine his 'dark shadow', now more visible due to the reduction in background inflammation.

On suspicion of lentigo maligna melanoma you conduct a broad shave biopsy and your suspicions are proven correct. Malcolm continues his topical treatments and you refer him for Mohs surgery for removal of the melanoma.

Surgery is successful. Within six months Malcolm's skin tone has begun to normalise, his irritability has abated remarkably and he is applying sunscreen.

Question 7

Is Mohs surgery appropriate for lentigo maligna melanoma?

Question 8

Could rosacea be considered an immune response?

CASE 2 Answers

Answer 1

Malcolm's self-reported continuous flushing would be of concern for rarely encountered paraneoplastic syndromes. Rural patients often present late for diagnosis and treatment of illnesses, including cancers. Some cancer patients experience rare paraneoplastic syndromes. For more information on paraneoplastic syndromes, consult the DermNet website.

Answer 2

It is important that the practitioner ensures all medications, tablets and natural therapies are documented. Patients may not consider their natural supplements a factor and rural patients may not consider occupational chemical exposure to be a factor affecting their skin. Larger agricultural farming operations are more likely to adhere to occupational health and safety regulations; an owner–operator may take a more casual approach. Chemical formulations may change over time and go unnoticed, so something that may not previously have been an irritant could become one.

Answer 3

The Rubin skin classification scale offers a visual guide to the effects of sun damage on skin at the superficial, medium and deep levels (Levels 1, 2 and 3, respectively). Malcolm's Level 3 classification indicates skin that has been greatly affected by UV radiation; in Australia, an immediate concern would be a skin cancer pathology.

Malcolm shows a classical presentation of rosacea, particularly in rural environments where men do not traditionally approach medical care with enthusiasm and without a preconceived diagnosis. Rural men tend not to be concerned with their appearance but will present for medical attention when they experience real discomfort or hold real concerns about their health.

Answer 4

Thinning of the skin and tissues, increased telangiectasia and rebound presentation of rosacea. Latent infections may also be exacerbated.

Rosacea can be confused with both acne and perioral or periorbital dermatitis, and in rare cases seborrhoeic dermatitis. Patients can be provided with topical steroids over the counter for the rash or redness, and usage has increased in recent years with easier over-the-counter access. Topical steroids may provide some temporary relief but will obscure the full extent of the condition, thin the skin and increase telangiectasia. In addition, most patients report a rebounding of their condition upon cessation of application. If the patient is experiencing papular outbreaks, they may have used topical or oral antibiotics on the presumption of a bacterial infection or, in some cases, molluscum contagiosum, both of which can be exacerbated by the application of topical steroids.

Answer 5

Yes, acne and rosacea can co-occur; rosacea can be confused as presenting with an admix of acne, however, the lesions in rosacea are sterile, ie non-infective. Treatment for acne involves multi-factorial topical and physiological management; the mainstay of rosacea treatment is anti-inflammatory.

A diagnosis of rosacea is generally a clinical diagnosis cumulating with a constellation of signs: hot, flushed, irritable skin; telangiectasia; rhinophyma; sometimes papules and in florid presentations, ocular involvement.[5] For more information on the symptoms of rosacea, consult the DermNet website.

Rosacea may have many triggers and often it is not possible to determine if there is any one trigger for the disease. Rosacea is known by a number of names: couperose, acne rosacea and the Celtic curse. (Note that 'Celtic curse' is commonly used as a nickname for rosacea and also for haemochromatosis, but the two are not related.) It is important to note that acne and rosacea are two separate conditions but may look similar and that the two conditions may coexist. Triggers are often mentioned (spicy food, hot temperatures, alcohol, hot drinks and exercise), however, these are more likely to exacerbate the existing rosaceaic skin by causing increased vasodilation. Working theories revolve around the anaerobic gut bacteria of the Demodex mite spilling onto the skin at a mite's death, causing a catecholamine cascade eventually leading to congested, continually flushing skin.

Answer 6

Yes, photodynamic therapy has also shown some promise for the treatment of rosacea (with either 5-aminolevulinic acid or methyl aminolevulinate) and can be considered an option for the treatment of papulopustular subtypes and in cases of failure with other treatments. However, the practitioner requires the correct equipment and training; it is non-Medicare rebatable and costs can be prohibitive for patients; and the treatment itself is discomforting for some individuals.[6] Patients should be cautioned concerning variable responses to photodynamic therapy and variable periods of remission,[7] be warned of the discomfort and expected downtime before treatment, and be provided appropriate post-treatment support.[8] Some patients may experience post-laser inflammatory erythema, which will usually respond to rapid cooling of the skin immediately post treatment.

Treatment with acidic solutions and light

Male presentation to clinic is often late and male patients' rosacea quite florid. Rosacea can be managed more quickly with the addition of acidic solutions and the use of a light device with LED diodes to activate the cream than with medical treatments alone.[4]

A rosacea subtype evaluation may direct treatment options:[7]

- papulopustular: combination topical therapies with oral antibiotics, oral isotretinoin
- erythrotelangiectatic: azelaic acid, brimonidine, laser therapy
- ocular: oral antimicrobials, topical anti-inflammatory drops, oral retinoids
- rhinophymatous: oral isotretinoin (if early), laser therapy (CO2, ablative, if later stage).

Metronidazole 0.75% is used topically, for its anti-inflammatory effect as well as its anaerobic capabilities. Metronidazole is available in two preparations: gel and ointment. Experience would nominate the gel as an effective starting treatment, especially with twice-daily application in warm climates or for a physically active patient. The ointment preparation performs slightly better at night as the ointment base itself is moisturising and of more comfort in dry climates and dehumidified environments.

Ivermectin 1% is a newer preparation, developed on the basis of rosacea being caused by the Demodex mite.[9,10] It is important to note the cost of prescriptions; patients may not adhere to the program you have set due to cost and/or availability. Ivermectin became available in Australia in November 2015. Price rises and shortages occurred during COVID-19 and patients have since reported both. Some patients who apply ivermectin 1% may experience a papular outburst. For this reason, introduce with caution and support.

Oral antibiotics

For advanced rosacea or rosacea with ocular involvement, oral antibiotics (doxycycline or minocycline, both 50–100 mg daily/twice daily) can be considered. If the patient is experiencing ocular involvement, referral to an ophthalmologist should be strongly considered but do not delay treatment with the appropriate oral antibiotic.[11]

pH-lowering solutions

Newer treatment options include the addition of pH-lowering solutions, eg 10% ascorbic acid applied daily (ensuring skin pH is lowered to 3.5), which helps to restore the skin's microbiome and increases skin barrier health.[4,12] The patient should be cautioned that acid solutions may be an irritant to the skin initially; water-based solutions that can be diluted as the patient acclimates to its application are a way around this issue. A cream and/or sunscreen containing niacinamide are also recommended; niacinamide has additional anti-inflammatory effects and can provide moisturising comfort.[13]

Treatment with isotretinoin

Some subtypes (papulopustular, ocular, early rhinophymatous) can be managed very effectively with low-dose, longer-term isotretinoin (off-label prescription; 90% reduction of papulopustules in one-third of patients).[14]

In patients who have treatment-resistant disease or repeated/frequent flares, a referral to a dermatologist is recommended, for consideration of this option. Prescribed at low doses, isotretinoin is often well tolerated, with minimal long-term implications – it can be a 'game changer' for many patients.[15] As a Category X medication, all caution must be exercised when using it in women of child-bearing age.[14]

Treatment with laser

Rhinophyma is also treated with laser, but rather than a vascular laser, this condition requires an ablative laser to remove the congested skin around the enlarging nose in males that creates the social stigma of 'alcohol abuser', and may require the practitioner to initiate the conversation.[16] Laser and light devices appropriate for vascular treatment (wavelengths 500–600 nm, 850 nm or more) are able to close the dilated vessels and can be appropriately billed under Medicare.[17,18] Intense pulsed light therapy is a good adjunct for maintenance treatment.

Classification

Rosacea is classified by four grades, though a newer grading system may reduce this to two broad grades.[19,20] In clinical practice, symptoms are not discrete and often the presentation is mixed.[19,20] For more information on management and treatment of rosacea, consult the DermNet website.

Answer 7

Cancerous melanotic lesions such as lentigo maligna melanoma can have very indistinct lesion margin, often poorly visualised with a dermatoscope. For longer-standing lesions or lesions with a poor history, Mohs surgery is an appropriate option to suggest, particularly for rural patients who would like the maximum assurance for clearance of their skin cancer.

Answer 8

Yes, recent findings indicate genetic and environmental components contribute to rosacea initiation and that aggravation involves a dysregulation of both the innate and adaptive immune systems in the skin.[5,21] Trigger factors also lead to the release of various mediators from the keratinocytes[5,21] and to immune recruitment, which contribute to the ongoing inflammatory cycle and patient discomfort.

Conclusion

Rosacea, a common and chronic skin complaint, can have a significant impact on a patient's quality of life, causing discomfort and embarrassment. Pathophysiology and aetiologies remain poorly understood and continue to be frustrating for patients. Patients are often between the ages of 30 and 50 when they first experience rosacea, however, they may be younger or older and the disorder is not confined to White skin; it appears to run in families and between spouses. Once triggered, other events, such as stress and menopause, tend to re-trigger rosacea. Counsel patients early regarding the approach to management and maintenance of their skin. Flares can last weeks, months or even years. As such, some patients will require short, intermittent treatments whereas others will require lifelong maintenance therapies.

Treatment regimens last between 12 and 16 weeks and an estimated one in 300 patients gain clearance.[16] Once settled, caution patients to watch for signs of exacerbations, and encourage them to self-manage and begin treatment early. The mainstay of a maintenance treatment is ascorbic acid 10% (with a pH lower than 4) and niacinamide-based cream, with access to laser or light therapy as required. Note that not all patients respond immediately and you may have to change to or integrate new treatment options for them.

Malcolm's rosacea is not a curable condition, however, it is manageable. General practitioners can start treatment and refer to an appropriate physician(s) with the necessary laser and light devices to augment treatment. A nominal number of laser treatments do attract a Medicare rebate, but patients should be cautioned that they may be out of pocket. There are many alternative access points to laser and light devices in Australia; however, the high risk of skin cancer in the Australian population would urge caution and the provision of a referral to a medically registered physician is suggested. Psycho-social concerns should be addressed early and the patient reassured. Education for patients is key to a successful treatment partnership, particularly for men, who tend to present late and with florid rosacea. Patients are quite observant and compliant with treatment options, particularly if they get quick relief from the most irritating symptoms.

Resources for doctors

- Demodex, https://dermnetnz.org/topics/demodex
- Rosacea, https://dermnetnz.org/topics/rosacea
- Paraneoplastic syndrome, https://dermnetnz.org/topics/cutaneous-markers-of-internal-malignancy
- Ocular rosacea, Dhingra D, Malhotra C, Jain AK. Ocular Rosacea—A Review. US Ophthalmic Rev 2017;10(2):113–18. doi: 10.17925/USOR.2017.10.02.113.
- Fitzpatrick skin phototype scale, www.arpansa.gov.au/sites/default/files/documents/2022-09/Fitzpatrick%20scale.pdf
- Photoaged and photodamaged skin, www.google.com.au/books/edition/Manual_of_Chemical_Peels/AZBGIovfrlUC?hl=en&gbpv=1&dq=inauthor:%22Mark+G.+Rubin%22&printsec=frontcover

References

1. Australian Radiation Protection and Nuclear Safety Agency. Fitzpatrick skin phototype. arpansa. Available at www.arpansa.gov.au/understanding-radiation/radiation-sources/more-radiation-sources/sun-exposure#whatisyourskintype [Accessed 27 July 2023].
2. Chng WQ, Samuel M, Naidoo K, et al. Topical treatments and skin- resurfacing techniques for skin ageing. Cochrane Database Syst Rev 2021;2021(8):CD014391. doi: 10.1002/14651858.CD014391.
3. Rubin, MG. Manual of chemical peels: Superficial and medium depth. Lippincott Williams & Wilkins, 1995.
4. Caswell G and Eshelby B. Skin microbiome considerations for long haul space flights. Front Cell Dev Biol 2022;10:956432. doi: 10.3389/fcell.2022.956432.
5. Buddenkotte J, Steinhoff M. Recent advances in understanding and managing rosacea. F1000Res 2018;7:F1000 Faculty Rev-1885. doi: 10.12688/f1000research.16537.1.
6. Bao N, Gu T, Zeng J, et al. Combined therapy of 5-aminolevulinic acid photodynamic therapy and intense pulsed light for rosacea.

Lasers Med Sci 2022;38(1):17. doi: 10.1007/s10103-022-03685-y.

7. van Zuuren EJ, Arents BWM, van der Linden MMD, Vermeulen S, Fedorowicz Z, Tan J. Rosacea: New concepts in classification and treatment. Am J Clin Dermatol 2021;22(4):457–65. doi: 10.1007/s40257-021-00595-7.
8. Li A, Fang R, Mao X, Sun Q. Photodynamic therapy in the treatment of rosacea: A systematic review. Photodiagnosis Photodyn Ther 2022;38:102875. doi: 10.1016/j.pdpdt.2022.102875.
9. Dall'Oglio F, Nasca MR, Gerbino C, Micali G. Advances in pharmacotherapy for rosacea: What is the current state of the art? Expert Opin Pharmacother 2022;23(16):1845–54. doi: 10.1080/14656566.2022.2142907.
10. Dall'Oglio F, Nasca MR, Micali G. Emerging topical drugs for the treatment of rosacea. Expert Opin Emerg Drugs 2021;26(1):27–38. doi: 10.1080/14728214.2021.1887138.
11. Kaur G, Redd TK, Seitzman GD. Practice patterns and clinician opinions for treatment of ocular rosacea. Cornea [Internet] 2022 September 30. Epub ahead of print. doi: 10.1097/ICO.0000000000003157.
12. Baldwin H, Alexis AF, Andriessen A, et al. Evidence of barrier deficiency in rosacea and the importance of integrating OTC skincare products into treatment regimens. J Drugs Dermatol 2021;20(4):384–92. doi: 10.36849/JDD.2021.5861.
13. Liu H, Yu H, Xia J, et al. Topical azelaic acid, salicylic acid, nicotinamide, sulphur, zinc and fruit acid (alpha-hydroxy acid) for acne. Cochrane Database Syst Rev 2020;5(5):CD011368. doi: 10.1002/14651858.CD011368.pub2.
14. Altıntaş Aykan D, Ergün Y. Isotretinoin: Still the cause of anxiety for teratogenicity. Dermatol Ther 2020;33(1):e13192. doi: 10.1111/dth.13192.
15. Chu S, Michelle L, Ekelem C, Sung CT, Rojek N, Mesinkovska NA. Oral isotretinoin for the treatment of dermatologic conditions other than acne: A systematic review and discussion of future directions. Arch Dermatol Res 2021;313(6):391–430. doi: 10.1007/s00403-020-02152-4.
16. Dick MK, Patel BC. Rhinophyma. StatPearls Publishing, 2023. Available at https://pubmed.ncbi.nlm.nih.gov/31335093/ [Accessed 27 July 2023].
17. Schaller M, Tan J, Webster G. How to optimize rosacea treatment for better patient outcomes: An opinion piece. J Clin Aesthet Dermatol 2022;15(7):E60–E62.
18. Kang CN, Shah M, Tan J. Rosacea: An update in diagnosis, classification and management. Skin Therapy Lett 2021;26(4):1–8.
19. Juliandri J, Wang X, Liu Z, Zhang J, Xu Y, Yuan C. Global rosacea treatment guidelines and expert consensus points: The differences. J Cosmet Dermatol 2019;18(4):960–65. doi: 10.1111/jocd.12903.
20. van Zuuren EJ, Fedorowicz Z, Tan J, et al. Interventions for rosacea based on the phenotype approach: An updated systematic review including GRADE assessments. Br J Dermatol 2019;181(1):65–79. doi: 10.1111/bjd.17590.
21. Searle T, Al-Niaimi F, Ali FR. Rosacea. Br J Hosp Med (Lond) 2021;82(2):1–8. doi: 10.12968/hmed.2020.0417.

CASE

3 Gino is depressed

Gino, aged 34 years, is a computer engineer with an established career. He lives alone.

Gino enjoys being social and attends weekend parties and goes to the pub with friends. On one occasion, a female friend casually commented that his growing baldness made him look like a tired, 50-year-old businessman. Gino has been depressed since and constantly thinking about his baldness. He has started to feel a lack of confidence as a result. He is avoiding meeting clients face to face and is no longer spending time with his friends. He now spends hours in front of the mirror or looking at old pictures of himself, when he had a nice hairstyle in his younger days. He has started drinking alcohol more frequently as a result of stress/anxiety about his baldness.

On the recommendation of his best friend, Gino attends your clinic as you have a special interest in hair loss management. Gino is seeking a solution for his baldness and is enquiring about treatment options to grow his hair back.

Question 1

What history would you seek from Gino?

Further information

For the past 1–2 years, Gino has noticed the occasional few hair strands on his pillow in the morning. He has not experienced any massive hair shedding in his comb. He has had no trauma or surgery to the head. He has minimal work stress.

Gino keeps his hair short and does not use any dye or styling products. He has no history of itchy scalp or rashes. He is not taking any over-the-counter medications or herbs except for recent use of topical hair preparations he bought from a nearby pharmacy. He has never taken any anabolic steroids.

His diet has been good; however, Gino has recently increased alcohol consumption to two or three standard drinks every night. He does not smoke or use recreational drugs. Gino goes to the gym three days per week and swims on the weekend. Gino has no skin disorders or allergies. He has no symptoms suggestive of diabetes mellitus or hypothyroidism.

He is sexually active but has no regular partner. His gender preference is females. He has a normal libido.

Gino notes that his father and older brother were both bald by their mid-40s.

Question 2

What examination would you perform?

Further information

Gino is 172 cm tall and weighs 73 kilograms. He has no pallor, jaundice, lymphadenopathy, hepatosplenomegaly or gynaecomastia. He has no thyroid enlargement.

Scalp examination reveals that hair loss is confined to the frontotemporal areas bilaterally and over the vertex. He has grade 2/3 baldness over the scalp and vertex. There is no rash or itch in the scalp, no isolated bald patch and no scarring on the scalp. The hair-pull sign is negative. There is some thinning of hair. There is no exclamation sign and no broken hair shafts. Hairs are dark brown with no evidence of folliculitis. There is no sign of psoriatic patches or seborrhoea.

Gino has normal secondary sexual characteristics, and examination of the testes is deferred at this stage.

He has depressed mood with a Kessler Psychological Distress Scale score of 15. Gino has no delusional thoughts. Recently, he has had obsessive thoughts about his baldness and hair loss. There is no history of suicidal ideations/self-harm. Gino continues to cook healthy food for himself.

Question 3

What are the potential causes of baldness?

Question 4

What is the most likely diagnosis?

Question 5

What tests would you advise initially?

Further information

Gino's test results are all within reference ranges. You explain the results and reassure Gino regarding the absence of any serious illness causing hair loss. You discuss initial medical management.

Question 6

How will you manage Gino now?

Further information

Gino tries both topical minoxidil and finasteride, 1 mg at night, for six months.

Gino returns to see you in six months. No major effects are noted except for some thickening of existing hair. A few new roots started to grow in certain places, but this has not covered the baldness. Gino is not feeling very positive about this medical treatment. You explore Gino's expectations, and he expresses his intentions to have his hair restored by any other treatment.

You discuss hair restoration surgery with him.

Question 7

What are the surgical treatment options available for Gino?

CASE 3 Answers

Answer 1

It is important to explore Gino's ideas, concerns and expectations regarding his hair loss.

Other aspects to explore with Gino include:

- information about the type of hair fall, the number of hairs on his pillow in the morning, any loss of a bunch of hair
- history related to breast enlargement, libido or impotence
- use of any over-the-counter medications or herbs to treat baldness
- history of psoriasis or skin allergies
- diet and general wellbeing
- family history of baldness
- use of recreational drugs, smoking, alcohol and anabolic steroids
- mood and impact of baldness on his daily life
- history of diabetes mellitus – alopecia areata is associated with undiagnosed or untreated diabetes mellitus
- whether he is willing to try any lotions, tablets or interventions to help.

Answer 2

A systemic general physical examination would include height, weight, body mass index, pallor, icterus, thyroid, generalised lymphadenitis or hepatosplenomegaly, or signs of testicular or liver failure.

Local examination would involve scalp inspection for any skin lesions, and assessing for type and pattern of baldness with office tests such as looking for exclamation mark hairs, atrophic scarring over the scalp or hair-pull sign. Ascertaining whether the scalp is healthy is of the utmost importance. Assessment of the occiput for a potential donor site is also essential.

A mental health screen using the Kessler Psychological Distress Scale or Depression Anxiety and Stress Scale is recommended to assess Gino's mood and coping behaviour. The Alcohol Use Disorders Identification Test to assess alcohol dependence may also be considered.

Answer 3

Common potential causes of baldness in young men include:[1,2]

- androgenetic alopecia
- traction alopecia
- telogen effluvium
- psoriasis
- systemic lupus erythematosus
- hypothyroidism
- diabetes mellitus
- alopecia areata (circular, coin-sized patches of baldness)
- drug use
- depression
- substance abuse.

Answer 4

Gino has male pattern baldness or androgenetic alopecia. This affects both males and females but presents differently in each sex. In males it starts with a receding frontal hairline and thinning of hair over the vertex. There are different patterns and stages of this hair loss, which are generally determined by a dermatologist or hair transplantation surgeon. The occipital hairs are much less affected, hence are a good donor site for hair transplantation.

Answer 5

Recommended tests include a full blood examination, electrolyte/liver function, thyroid stimulating hormone, iron and testosterone.[3]

Answer 6

Several treatment options are available:[4–7]

- topical minoxidil 2% daily at night. It is important to discuss with patients the proper technique for use – potential side effects of the medication include background headache, as well as staining of pillow covers
- finasteride 1 mg at night – potential side effects include loss of libido.

A treatment duration of 3–6 months is recommended, with the patient to return for review after six months.

Use of platelet-rich plasma in the near future may be recommended for some individuals,[5] depending on the response to conservative treatment in six months, the condition of the scalp, the urgency to get treated or as part of the procedure while undergoing hair transplantation.

It is also recommended to discuss the importance of a healthy lifestyle. In Gino's case, he should be advised to decrease alcohol consumption.

Answer 7

There are currently three commonly used techniques for hair restoration for cosmetic reasons:[8,9]

- follicular unit extraction
- strip technique
- robotic hair transplantation.

In all these techniques, individual hair follicles are harvested from the occiput, primarily extending to other hair-bearing areas if the area to be covered requires more hair. The hair

follicles are then transplanted to the bald areas to restore the frontal hair line and cover bald areas. The transplanted hair stays for a long period of time and does not shed easily.

The procedure is done under local anaesthetic, and no special settings are required. It can be done in a general practice setting with a dedicated suite for hair restoration surgery, provided the general practitioner has appropriate training.

Conclusion

You recommend that Gino chooses between the surgical techniques to restore his frontal hairline and cover the bald area. You give him details about the procedures.

The approximate number of hair follicles required is calculated as per the hair graft calculator, and a treatment plan is discussed with Gino including potential risks, expected result and time needed for growth of transplanted roots.

Follicular unit extraction is done after two weeks, and Gino is excited to have the surgery done under tumescent local anaesthesia. Over a period of eight months, Gino has gradual hair growth of transplanted hair follicles. He has his hairline restored and baldness covered with natural, growing hair. He feels confident again to work and socialise.

References

1. de Lorenzi C, Quenan S. [When hair starts to fall out]. Rev Med Suisse 2018;14(600):662–9. [Article in French]
2. Manabe M, Tsuboi R, Itami S, et al. Guidelines for the diagnosis and treatment of male-pattern and female-pattern hair loss, 2017 version. J Dermatol 2018;45(9):1031–43. doi: 10.1111/1346-8138.14470.
3. York K, Meah N, Bhoyrul B, Sinclair R. A review of the treatment of male pattern hair loss. Expert Opin Pharmacother 2020;21(5):603–12. doi: 10.1080/14656566.2020.1721463.
4. Gupta AK, Mays RR, Dotzert MS, Versteeg SG, Shear NH, Piguet V. Efficacy of non-surgical treatments for androgenetic alopecia: A systematic review and network meta-analysis. J Eur Acad Dermatol Venereol 2018;32(12):2112–25. doi: 10.1111/jdv.15081.
5. Elghblawi E. Platelet-rich plasma, the ultimate secret for youthful skin elixir and hair growth triggering. J Cosmet Dermatol 2018;17(3):423–30. doi: 10.1111/jocd.12404.
6. Varothai S, Bergfeld WF. Androgenetic alopecia: An evidence-based treatment update. Am J Clin Dermatol 2014;15(3):217–30. doi: 10.1007/s40257-014-0077-5.
7. Suchonwanit P, Iamsumang W, Rojhirunsakool S. Efficacy of topical combination of 0.25% finasteride and 3% minoxidil versus 3% minoxidil solution in female pattern hair loss: A randomized, double-blind, controlled study. Am J Clin Dermatol 2019;20(1):147–53. doi: 10.1007/s40257-018-0387-0.
8. Collins K, Avram MR. Hair transplantation and follicular unit extraction. Dermatol Clin 2021;39(3):463–78. doi: 10.1016/j.det.2021.04.003.
9. Jimenez F, Alam M, Vogel JE, Avram M. Hair transplantation: Basic overview. J Am Acad Dermatol 2021;85(4):803–14. doi: 1016/j.jaad.2021.03.124.

CASE

4 Hiromi looks tired

Hiromi, aged 46 years, is an administrator who works for a large multinational company. She has an established career with a good income. She lives alone. She is lively and cheerful with no stresses. Hiromi has a healthy diet regimen and goes to the gym regularly. She has good sleep and does not snore. She is a non-smoker and occasionally drinks wine at social gatherings. There are no other medical issues of note.

Hiromi recently underwent a health assessment for people aged 45–49 years, for which all blood tests returned results in the reference ranges. Despite her good health and lifestyle, Hiromi has lots of wrinkles on her face and looks tired. She is becoming overtly concerned about it. She has heard about antiwrinkle injections and has come to see you to find out more about them.

Question 1

How will you examine Hiromi?

Further information

Hiromi has prominent glabella and horizontal dynamic forehead wrinkles with few fine static wrinkles. Her eyebrows are slightly curved. There are no upper eyelid folds. She has 'crow's feet' (fine lines spreading from the outer corners of the eyes) bilaterally. There are a few wrinkles at the root of the nose, with prominent nasolabial folds. Hiromi has no tear troughs. There are prominent malar prominences with no apparent loss of fat in the buccal region. There is no masseteric hypertrophy or labiomental folds.

Hiromi's chin is smooth. There is no overt facial asymmetry. Her general skin tone and elasticity is good.

Question 2

What treatment options would you suggest?

Further information

Hiromi opts for botulinum toxin injection to target her forehead and crow's feet at this stage.

Question 3

What counselling will you undertake with Hiromi before proceeding with the therapy?

Question 4

Are there any contraindications to botulinum toxin?

Further information

Hiromi has botulinum toxin injections for her forehead and crow's feet wrinkles and is very happy with the results. At her next appointment she brings her mother, Akina, who is aged 65 years. Akina has a sagging face with loss of tone and skin elasticity. She has multiple prominent facial folds. She has a loss of facial fat and a deflated appearance.

Question 5

Would Akina be a candidate for botulinum toxin injection?

CASE 4 Answers

Answer 1

It is important to undertake a thorough general examination including height, weight, body mass index, blood pressure and a thyroid examination.

Given her concerns, Hiromi will need specific assessment of her face for wrinkles from the hairline to the neck.[1,2] This would include looking for:

- skin type and thickness
- photoaging of skin, skin elasticity, hydration, remodelling of underlying cartilage and bony structure
- overall facial symmetry and balance
- extent of facial expression
- prominence of anatomical facial folds – nasolabial, labiomental, nasojugal folds
- loss of facial fat at malar eminence, cheek
- static wrinkles and evaluating fine lines over the forehead and lateral side of orbits
- dynamic wrinkles: assessed by dividing the face into upper, middle and lower thirds
- platysma folds: by assessing the forehead, glabella, dorsum nose, lateral side of orbits, upper lip, chin and anterior neck
- shape and curvature of eyebrows
- masseter hypertrophy
- asymmetry between the right and left sides of the face.

Answer 2

It is important to establish realistic goals with Hiromi at the initial consultation. It is recommended to undertake mental health screening to rule out any borderline personality trait or unrealistic body image concept for all patients seeking cosmetic procedures. Her goals and expectations should align with the treatment therapy offered.

It is evident that Hiromi has age-related dynamic wrinkles with few static lines and prominent nasolabial folds because of the effects of ageing and gravity. Considering her good skin tone and no loss of facial fat, a suitable treatment option could be to target the dynamic wrinkles as well as the prominent nasolabial folds and few static lines on the forehead. It would be advised to explore Hiromi's areas of concerns.

Hiromi would be a good candidate for botulinum toxin injection in combination with dermal fillers for full face treatment.[3–8] Facial fillers are generally used in the mid and lower face.

Answer 3

It is important to explain to Hiromi the procedure and the mechanism of action of botulinum toxin in detail. Cover the details of the procedure regarding the number of botulinum toxin units needed, the injection method and the cost of the procedure, the result expected, the recovery time and common sequaele such as bruises, redness and swelling. It is essential to advise that the treatment cost is not covered by the Medicare Benefits Schedule. Patients should also be made aware of necessary post-procedure care and review, as guided by their treating practitioner. Explain that botulinum toxin is a selective, temporary chemical denervation of groups of subdermal facial muscles, which are responsible for dynamic wrinkles while animating and making facial expressions.[5,6]

The goal of the treatment should be improvement in overall looks rather than complete removal of all dynamic wrinkles, giving rise to mask-like faces. It is important to discuss expected outcomes thoroughly with patients.

Effects of botulinum toxin are seen from day three and peak on day seven. Some patients may need minor touch-up doses of botulinum toxin at day seven, after assessment. The total effect lasts up to six months and gradually wanes. However, the effect can wane sooner depending on sun exposure, facial muscle thickness, outdoor activities, exercise and many unknown factors. It is essential to tell patients that there can be minor asymmetry between the right and left halves of the face, and that not all the wrinkles can be removed.

With the patient's consent, appropriate pre-procedure photographs and notes should be used to document the therapy.

Further, to remove facial folds and static lines, dermal fillers can be combined with botulinum toxin after the full effect of botulinum toxin is evident.

Botulinum toxin treatment can be repeated six months after the initial treatment.

Answer 4

Botulinum toxin is contraindicated in patients with known allergies to any component of the formulation and pre-existing infection at the injection site. The manufacturer warns against using botulinum toxin in patients with known neuromuscular conditions such as myasthenia gravis and Lambert–Eaton myasthenic syndrome.[7] Botulinum toxin is not recommended to be used in pregnant and lactating women. There is a relative contraindication to use in people with skin conditions such as psoriasis and contact dermatitis until these conditions have completely resolved.[7]

Interactions with some medications such as aminoglycosides, succinylcholine, magnesium sulphate, quinidine and calcium channel blockers have been reported in relation to myotonic response.[7]

Answer 5

A limitation of botulinum toxin therapy is that it is not suitable for static wrinkles and folds. It will not have the desired effect in people with skin with a loss of elasticity and can aggravate the effect of gravity as there will be no muscle tone to support the skin. Akina is not an ideal candidate for botulinum toxin therapy and would benefit from interventions such as fillers, thread lifts or a formal facelift procedure.[9–11]

Conclusion

Botulinum toxin is a safe and clinically effective therapy for dynamic wrinkles. A clinician with sound knowledge of facial anatomy can use botulinum toxin to achieve dramatic effects in selected patients. It is recommended that this procedure be carried out by a plastic surgeon, dermatologist or general practitioner trained in these procedures.

References

1. Glogau RG. Systematic evaluation of the aging face. In: Bolognia JL, Jorizzo JL, Rapini RP, editors. Dermatology. Mosby, 2003; p. 2357–60.
2. Wong R, Geyer S, Weninger W, Guimberteau J-C, Wong JK. The dynamic anatomy and patterning of skin. Exp Dermatol 2016;25(2):92–8. doi: 10.1111/exd.12832.
3. Ballin AC, Brandt FS, Cazzaniga A. Dermal fillers: An update. Am J Clin Dermatol 2015;16(4):271–83. doi: 10.1007/s40257-015-0135-7.
4. Liu MH, Beynet DP, Gharavi NM. Overview of deep dermal fillers. Facial Plast Surg 2019;35(3):224–9. doi: 10.1055/s-0039-1688843.
5. Small R. Botulinum toxin injection for facial wrinkles. Am Fam Physician 2014;90(3):168–75.
6. Dessy LA, Fallico N, Mazzocchi M, Scuderi N. Botulinum toxin for glabellar lines: A review of the efficacy and safety of currently available products. Am J Clin Dermatol 2011;12(6):377–88. doi: 10.2165/11592100-000000000-00000.
7. Foster JA, Wulc AE, Holck DE. Cosmetic indications for botulinum A toxin. Semin Ophthalmol 1998;13(3):142–8. doi: 10.3109/08820539809066090.
8. Li K, Meng F, Li YR, et al. Application of nonsurgical modalities in improving facial aging. Int J Dent 2022;2022:83332631. doi: 10.1155/2022/8332631.
9. Lighthall JG. Rejuvenation of the upper face and brow: Neuromodulators and fillers. Facial Plast Surg 2018;34(2):119–27. doi: 10.1055/s-0038-1637004.
10. Trinh LN, Gupta A. Non-hyaluronic acid fillers for midface augmentation: A systematic review. Facial Plast Surg 2021;37(4):536–42. doi: 10.1055/s-0041-1725164.
11. Solish N, Bertucci V, Percec I, Wagner T, Nogueira A, Mashburn J. Dynamics of hyaluronic acid fillers formulated to maintain natural facial expression. J Cosmet Dermatol 2019;18(3):738–46. doi: 10.1111/jocd.12961.

CASE

5 Kirsty looks overfilled

Kirsty, a well-presented, stylish woman aged 28 years with enhanced long eyelashes and heavy make-up, is complaining of asymmetry in her cheeks. She has accentuated cheeks and chin, voluptuous lips and a defined, sharp nose.

On questioning, Kirsty explains that she had hyaluronic acid filler injected at the site of concern three months ago and was never happy with the result. She had gone back to see her doctor several times, but they were unable to correct the asymmetry. Kirsty was impressed by your patients' reviews online and hopes you can improve her facial asymmetry.

Question 1

How would you manage Kirsty and what other information do you need?

Further information

Kirsty mentions that she had an MRI. She has a report to demonstrate the hyaluronic acid filler injected in her face and there is significantly more volume on the side of concern.

The radiologist offered hyaluronic acid injection under ultrasound guidance.[1] Their charges were too expensive for Kirsty, hence she is looking for alternatives.

Kirsty does not have any known allergies and confirms that she is not aware of any allergy to a bee sting. You offer Kirsty a test patch. She refuses this and goes ahead with the actual treatment.

Question 2

What are some concerns and questions you may have at this point?

Further information

Kirsty seems very knowledgeable about the process of hyaluronic acid injection and has taken painstaking steps to identify and locate the fillers in her face. She name-drops specialists in the field and quotes clinical papers on the use of MRI in aesthetic treatments.

Kirsty has recently moved from Queensland. She is healthy, with no medical conditions and no regular medications. She does not have a regular general practitioner.

Kirsty complains about her previous cosmetic injector, their lack of knowledge and their reluctance to manage her concerns. She does not want to share their identity. She is also unimpressed with the doctor who quoted her a significant cost for reversal of her fillers despite it affecting her mental state.

Kirsty appears to have spent a considerable amount of time, effort and money in demonstrating the asymmetry of her cheeks clinically, with the use of medical imaging. She seems somewhat obsessed by the report and by the location of the filler.

Question 3

What physical examination would you perform and how would you manage Kirsty?

Further information

You establish that Kirsty will not be returning to her initial cosmetic injector and confirm her request for dissolution of the hyaluronic acid filler to improve the appearance and symmetry of her face.

Your physical examination satisfies you that there are no granulomas, no abscesses and no allergic reaction to the hyaluronic acid filler that was injected. There is no cervical lymphadenopathy.[2]

You explain to Kirsty that any information you can get from her previous cosmetic injector will help you determine your treatment plan, as the type of hyaluronic acid filler injected can give some indication as to how it will respond to hyaluronidase. You explain that hyaluronic acid fillers are easily reversible and, given that her MRI has confirmed the nature of the filler used by her initial cosmetic injector, you will be able to reduce the size and correct the asymmetry.

Question 4

What treatment do you propose?

Further information

You document Kirsty's request and discuss the proposed treatment with hyaluronidase. You explain that this is an 'off-label' use of the medication and discuss the potential rare adverse reactions that may occur.

You give Kirsty an aftercare leaflet and also attach this to her file.[3] You advise her to monitor for adverse reactions and to report them to you.

Question 5

How would you determine the dose to be given and the titration?

Question 6

What is your follow-up plan for Kirsty?

Further information

Kirsty returns in four weeks. You take new photos and compare these with the photos taken at baseline. Kirsty looks more balanced in her cheeks and you decide to proceed with a second injection to further reduce the volume of hyaluronic acid.

Hyaluronidase does likely degrade native hyaluronic acid found in skin and subcutaneous tissue, but long-term deficiency has not been described in the literature and the continual production of hyaluronic acid should lead to a restoration within days.

Three months later, Kirsty returns demanding her money back. She claims she has had a repeat facial MRI and that it continues to demonstrate the presence of hyaluronic acid in her cheek. Despite your explanation and documentation that the desired outcome was not a full dissolution of all the hyaluronic acid but to improve the symmetry of her face, Kirsty becomes hostile and refuses to leave the clinic unless her money is returned.

Kirsty becomes verbally aggressive and threatening, and police are called to escort her from the premises. Kirsty files a complaint with the Health Complaints Commissioner demanding compensation for her mental state, loss of income and costs of medical procedures. Your careful management and documentation of dealings with Kirsty mean that this case is subsequently dismissed.

CASE 5 Answers

Answer 1

Take further history regarding what has been done thus far to improve the asymmetry. Note any history that is suggestive of filler reactivity, excluding allergies and possible infection at the site of concern.

- Allergic reactions are a side effect of hyaluronidase. Most reactions are immediate hypersensitivity reactions, hence a skin test patch is recommended. Although very rare, there can still be a risk of anaphylaxis.[4]

- The incidence of allergic reactions is reported to be 0.05–0.69%, and urticaria and angioedema have also been reported to occur at a low frequency (<0.1%).
- Allergic reactions are more likely when the dose is more than 100,000 IU, through an intravenous injection.[5] In such cases, systemic steroids and antihistamines are helpful.
- Hyaluronidase should be avoided in patients who are allergic to bee stings.

Try to contact the previous cosmetic injector to get further history regarding Kirsty, the type of filler used, the treatment performed and what management steps have been followed so far. Practice guidelines issued by the Medical Board of Australia and the Australian Health Practitioner Regulation Agency in April 2023 came into force on 1 July 2023. New safety measures require a general practitioner referral before all cosmetic surgery, including injectables, to review the patient's past history and psychological problems.[6]

Answer 2

Kirsty's motives raise some concerns. It is unusual for a patient to commence a formal investigation with imaging rather than the more common first step of attempting to correct overfilling.

With the significant rise in the use of injectables, MRIs are used to map out fillers that may be causing concern.[7] Incidental findings of dermal fillers are so prevalent that radiologists need to be able to distinguish the nature of these from pathological lesions.

Diagnostic imaging tools including ultrasound are also becoming commonplace to help guide safer injecting techniques, to avoid danger zones and to prevent vascular occlusion leading to necrosis. Due to the longevity of even temporary dermal fillers, accurate placement of product is essential.

Answer 3

You take photos of Kirsty's whole face at baseline (prior to your proposed treatment), at all angles, to allow subsequent comparisons and so that you can demonstrate the effectiveness of the reversal.

Answer 4

A non-urgent treatment with hyaluronidase. You decide upon correction of the overfilling and decide not to attempt complete removal of the hyaluronic acid filler.

Discuss the benefit, immediate adverse reactions, possible rare side effects and high cost of hyaluronidase with Kirsty and document this discussion. Manage Kirsty's expectations by explaining that more than one attempt may be required.

More importantly, ensure that Kirsty understands that it is difficult to specify the amount of hyaluronic acid that will be dissolved with the use of hyaluronidase and that the process may involve multiple visits, depending on the desired outcome.

Inform Kirsty that she can expect an immediate side effect of bruising and swelling after hyaluronidase treatment and also advise her of possible itching and redness at the injection site.

Obtain a signed consent form documenting the above.[5] This is necessary as evidence of Kirsty's understanding of what has been discussed, and an important document for your protection.

- Hyaluronidase is commonly used in ocular surgery. It is also indicated for use to enhance permeation of subcutaneous or intramuscular injections, local anaesthetic and subcutaneous infusions; and to promote resorption of excess fluids and blood.
- Hyaluronidases are enzymes (endoglycosidases) that can break the linkages binding hyaluronic acid. This will speed up its degradation by hydrolysing the disaccharides.
- It is currently used by cosmetic injectors 'off-label', ie for purposes other than those for which it was originally approved.[3]
- Although hyaluronidase is not indicated for use in correcting problems with dermal filler injections and off-label promotion is not allowed, the use of hyaluronidase is allowed provided the patient's best interest and autonomy are a respected part of informed consent.[5]
- There is considerable evidence for the off-label use of hyaluronidase for managing vascular compromise due to inadvertent intravascular injection or external compression, over-correction, asymmetry and lumps and nodules caused by the injection of hyaluronic acid.

Answer 5

To determine the volume and concentration of hyaluronidase needed to dissolve a specific amount of hyaluronic acid, it is helpful to know the brand and the type of filler injected. It is important to consider the impact of factors such as the G prime (a rating based on the viscosity and elasticity of the product) and the concentration of hyaluronic acid together with the cross-linking bonds attaching to molecules of hyaluronic acid in your discussions with patients about their expectations of the reversal process. An experienced cosmetic injector will have some idea of the type of hyaluronic acid based on the area injected and its intended use.

The dosage of hyaluronidase required is dependent on several factors relating to the nature of the hyaluronic acid filler injected. The amount of cross-linking, the concentration of hyaluronic acid and whether it is particulate or non-particulate all have an influence on the speed of degradation of the hyaluronic acid filler and the dose needed to achieve breakdown. The amount injected should be titrated to clinical effect.

Larger volumes of dilution are recommended when smaller amounts of hyaluronidase are required, to allow more precise dosing. Smaller volumes should be used in the case of vascular occlusion or when large volumes of dissolution are required, to allow a higher concentration of hyaluronidase in a smaller area.

The volume of diluent used will depend on the indication and surface area to be treated; a range of 1–10 mL has been evidenced in clinical practice and published papers.[5]

Hyaluronidase can be stored at room temperature (25˚C), with the stability guaranteed, for 12 months. Once the ampoule is opened, hyaluronidase should be used immediately and any unused contents discarded.

Hyaluronidase may be reconstituted with either saline or water for injection. Saline is less painful on injection and is recommended for this reason.

Once you have determined the volume of diluent:

- add 1 mL of saline to the opened ampoule of hyaluronidase
- draw and expel the syringe several times to ensure the powder is fully dissolved
- aspirate the 1 mL of saline with the reconstituted hyaluronidase
- add this to X amount of saline, depending on the dilution required
- use a two-way tap to mix the solution thoroughly throughout the whole volume
- draw into smaller syringes for more precise injection.

Answer 6

Explain to Kirsty that the volume of hyaluronic acid will drop over a period of time, and that further treatment can be performed, if necessary, at two weeks. Given that you have no information on the type of hyaluronic acid that was injected, the speed of dissolution of cross-linked disaccharides and the number of treatments necessary will be dependent on the initial response to hyaluronidase.

Advise Kirsty to avoid taking high doses of aspirin, cortisone, oestrogen and antihistamines as these can make the tissues more resistant to the spreading effect of hyaluronidase.

Hyaluronidase has immediate effect and a half-life of two minutes, with a duration of action of 24–48 hours. Though it has a short half-life, its effectiveness lasts longer; even when the hyaluronidase has mostly degraded, its action continues.

Additionally, the initial action of hyaluronidase might break cross-links in the hyaluronic acid filler so that it behaves like native hyaluronic acid in the skin, which has a half-life of 24–48 hours.

References

1. Quezada-Gaón N, Wortsman X. Ultrasound-guided hyaluronidase injection in cosmetic complications. J Eur Acad Dermatol Venereol 2016;30(10):e39–40.
2. DeLorenzi C. Complications of injectable fillers, part I. Aesthet Surg J 2013;33:561–75.
3. Bailey SH, Fagien S, Rohrich RJ. Changing role of hyaluronidase in plastic surgery. Plast Reconstr Surg 2014;133(2):127e–32e.
4. Hyaluronidase: An overview of its properties, applications, and side effects. Arch Plast Surg 2020:47(4):297–300.
5. King M, Convery C, Davies E. This month's guideline: The use of hyaluronidase in aesthetic practice (v2.4). J Clin Aesthet Dermatol 2018;11(6):E61–8.
6. Australian Health Practitioner Regulation Agency. Patients better protected under new cosmetic surgery reforms. Ahpra, 2023. Available at www.ahpra.gov.au/News/2023-04-03-cos-surgery-update.aspx [Accessed 8 August 2023].
7. Tal S, Maresky HS, Bryan T, et al. MRI in detecting facial cosmetic injectable fillers. Head Face Med 2016;12:27. doi: org/10.1186/s13005-016-0124-y.

Multiple-choice questions

Case 1 – Kim

Kim, aged 40 years, is of Southeast Asian origin and presents with dark brown patches on her face. The patches have been visible for more than six months. She is a non-smoker and does not drink alcohol.

Question 1

Melasma is more commonly seen in:

A. White women

B. African women

C. Southeast Asian and South Asian women

D. Northern Chinese women

Question 2

The differential diagnoses for melasma will include:

A. Hori's Naevus

B. Drug-induced pigmentation

C. Postinflammatory hyperpigmentation

D. All of the above

Question 3

Which statement regarding the conveniently available treatment modalities to date is correct:

A. Laser is the best

B. Triple combined topical (hydroquinone + retinoids + corticosteroid) is the first choice

C. Oral tranexamic acid is always indicated

D. Hydroquinone 5% cream is better than a combined cream

Question 4

Which of the following has the fewest associated risk factors for hyperpigmented face:

A. Fitzpatrick skin phototype I–II

B. Pregnancy

C. Cumulative sunlight exposure

D. Photosensitive medications

Case 2 – Malcolm

Malcolm works as a farmer and for many years has suffered red reactive skin on his face, aggravated greatly by wind, sunscreen and other creams. He consulted his general practitioner and was advised it was accumulated sun damage. In reality it was worsening rosacea. Malcolm presented to a physician who was able to both treat his rosacea and diagnose and refer him for definitive treatment of a facial melanoma, which had gone unnoticed due to his inflamed skin tone.

Question 5

Can rosacea be considered a dysregulated immune response?

A. Yes

B. No

C. Maybe

D. Not sure

Question 6

Ocular rosacea can be encountered in patients with rosacea. Please choose the most appropriate initial treatment:

A. A course of cephazolin or similar antibiotic and referral to an ophthalmologist

B. A course of doxycycline or similar antibiotic and, in ideal circumstances, referral to an ophthalmologist

C. Does not need medical attention; refer to an optometrist for management

D. A and C

Question 7

Ivermectin 1% is a newer preparation developed on the basis of rosacea being caused by which mite?

A. Chigger

B. Dust

C. Clover

D. Demodex

Case 3 – Gino

Gino, aged 34 years, comes to see you with concerns about his thinning hair. You notice some patches of baldness.

Question 8

Which one of the following common conditions results in circular coin-sized patches of baldness?

A. Vitiligo

B. Male pattern baldness

C. Alopecia areata

D. Traction alopecia

Question 9

Which one of the following is *not* a type of hair transplantation technique?

A. Follicular unit extraction

B. Strip technique

C. Glue technique

D. Robotic hair restoration

Case 4 – Hiromi

Hiromi, aged 46 years, is an administrator who comes to you with concerns about her appearance. She feels she looks tired and older than her actual age. She is interested to learn more about botulinum toxin injection for the face.

Question 10

Botulinum toxin injection can be used for which one of the following?

A. Giving glow to skin

B. Reducing dynamic wrinkles

C. Uplifting the face

D. Removing blemishes

Question 11

Which one of the following is a commonly encountered side effect of botulinum toxin injection?

A. Numbness and bruising

B. Facial spasm

C. Burning sensation

D. Redness of face

Case 5 – Kirsty

Kirsty, a well-presented, stylish woman aged 28 years with enhanced long eyelashes and heavy make-up, is complaining of asymmetry in her cheeks. She has accentuated cheeks and chin, voluptuous lips and a defined, sharp nose.

Question 12

Kirsty, aged 28 and new to your clinic, presents with an asymmetrical 'overfilled face' and requests the reversal of her dermal fillers. What will be your investigation?

A. Send Kirsty for an MRI to determine the type of dermal filler and identify dermal filler location

B. Advise Kirsty to seek treatment from her cosmetic injector as they will know what has been injected

C. Assess Kirsty clinically to determine if there is any pain/swelling and/or cervical lymphadenopathy to exclude other pathological causes of asymmetry

D. Offer Kirsty correction with hyaluronidase as this is highly effective in the reversal of hyaluronic acid

Question 13

Kirsty returns five days later, concerned about a significant reduction in volume at the site of injection. She requests treatment with hyaluronic acid to improve the asymmetry. How do you respond?

A. Explain the amount in mL and the type of hyaluronic acid necessary to lift the area of concern

B. Advise Kirsty to follow energy-based treatment to improve her skin quality and rebuild the collagen affected by the hyaluronidase

C. Discuss other options for dermal fillers that may best suit Kirsty

D. Advise Kirsty to wait for two weeks for full resolution of treatment

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