

A PREQUEL TO THE CORE TUTORIALS IN DERMATOLOGY FOR PRIMARY CARE

A SYSTEMATIC APPROACH TO DIAGNOSING SKIN CONDITIONS

"LEOPARDS NEVER CHANGE THEIR SPOTS
...OR IS THIS A CHEETAH?
THERE IS MORE TO DERMATOLOGY
THAN SIMPLY PATTERN RECOGNITION!"



SEPTEMBER 2012

‘Diagnose’ identify the nature of an illness or problem by examining the symptoms
‘Systematic’ done according to a system

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The full set of Core Tutorials in Dermatology for Primary Care comprises chapters on The Eczemas, Psoriasis, Skin Infection and Infestation, Skin Malignancy, Leg Ulcers, Acne and Urticaria and Related Allergic Disorders. These chapters and their accompanying Self Test Questionnaires are available from Dermal Laboratories. They can be downloaded from the Healthcare Professionals Resources section of the Dermal website www.dermal.co.uk or can be requested directly from Dermal at the contact details below.

CONTENTS

INTRODUCTION	1
HISTORY	2
EXAMINATION	3
DIFFICULT PRESENTATIONS	8
REFERRAL LETTERS	9



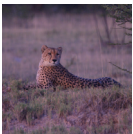
All photographs kindly provided by Dr Brian Malcolm, with the exception of hypertrophic scar on page 7 which was provided by the website of the New Zealand Dermatological Society.



It was several years ago that I first arrived at the concept of the “Core Tutorial” series which with the help and support of Dermal, has turned into such a successful project. I am presently halfway through updating the series but in the intervening years, it has become increasingly apparent to me through my experiences with educational dermatology, that perhaps traditional methods of teaching the subject are arguably flawed and before even embarking on writing the tutorials series, there was a need for a “prequel” to look at how to conceptually approach the subject in its broadest sense. Hopefully, it’s never too late and that this tutorial will be included in future editions as the starting point.

INTRODUCTION

The traditional approach has relied too heavily on “pattern recognition”; here is a picture of psoriasis; now try and match that visual image to the patient in front of you. This is fine when disease presents classically, when the “square peg fits the square hole”. It is rather like species spotting on the African plain; if the animal looks like a horse and has black and white stripes, then it is likely to be a zebra. What, however, if the zebra is heavily concealed in thick bush and only a flash of black fur is visible; is it a zebra or is it a water buffalo?



Could I be missing something potentially serious or even dangerous? To take the example of psoriasis, this can be probably one of the easiest and also one of the hardest diagnoses to make; such a common condition can be so protean in its manifestations. It has also become apparent to me in teaching numerous doctors, medical students and nurses over many years, that some have a much better developed capacity for pattern recognition and recall than others. Relying solely on pattern recognition is the equivalent of getting the correct answer to the mathematical problem but not necessarily being able to demonstrate how you got there in the first place and therefore not having a reliable system to consistently arrive at the right answers. I would commend adopting a systematic approach. Of course there will be many times especially as you gain experience, when “spot diagnoses” can be reliable and time saving especially when dealing with lesions. However being confident that you understand the principles of a more systematic approach, will give you something to fall back on for the more challenging diagnoses. Let us now consider these conceptual foundation stones further.

HISTORY

It was drummed into me, as an undergraduate, as I'm sure it was you that history taking is by far and away **the** most important part of diagnostics. This may arguably have been overtaken in some specialities by sophisticated technology such as CT and MRI but history remains "king" in the low tech world of dermatology!

Understandably though, the general public and indeed many doctors think it is all about looking at the rash/lesion. Many administrators share this misconception, thinking that teledermatology would be a partial or complete answer to the provision of dermatology services. Indeed patients may be in the process of removing clothing to let you see their problem even before they have sat down and you have had a chance to say hello! You must resist the temptation to collude with them...insist on a relevant history first. Practice the exercise of trying to make a diagnosis from the history alone **before** you examine the patient...you will be both surprised and increasingly satisfied as how often you get it right as your experience grows. An erudite educationalist colleague of mine once said "you could be a competent blind dermatologist but never a competent deaf one"!

The history must be often far ranging and comprehensive. One of the fascinations of dermatology for me is how often skin disease can overlap into other medical fields particularly those of pharmacology and both internal and occupational medicine. A history must take into account timescale, past history of skin problems, family history including contacts, symptoms, occupation/hobbies, medications both prescribed and over the counter, allergies, response or lack of it to treatments to date and patient perception/theory. These parameters will not all be relevant for every case especially in single lesion diagnosis but beware of too many shortcuts!

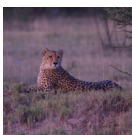


EXAMINATION

Next comes the examination. Skin is the biggest organ in the body comprising 16% of body mass and ideally we need to examine the whole organ. This is true in lesion diagnosis as well as rashes. It is a sobering thought that in pigmented lesion clinics, between 5 and 10% of the melanomas diagnosed are not the lesion for which the patient was referred! Only this week, I wrote back to one of my local GP colleagues agreeing that the lesion was indeed a BCC as per his referral letter but that there were a further 7 identified when a full body examination had been completed.

Sharing my time between dermatology and general practice, I am only too aware of the constraints of primary care both in terms of time and infrastructure. Examination rooms are not always readily available and nor are chaperones or nurses to help patients dress and undress/take down bandages etc; even good lighting can be an issue but would we be professionally satisfied or indeed even considered competent if we undertook a cardiovascular examination by only checking the pulse? Skin rashes are often like jigsaw puzzles, the more pieces we can see the clearer the picture. This anecdote of course not only applies to the fully developed rash but also to one in the process of developing. The doctor working in primary care is usually the first and often very early point of contact when there may just not be enough jigsaw pieces in place to reach an accurate diagnosis. Try and encourage patients to come back to see the same person if rashes are evolving...as the old saying goes, “the clever doctor is the last doctor”, when a fuller clinical picture has developed.

The first point in examination should become almost subtentorial: “What is the patient’s skin type?” This has relevance to a whole range of skin conditions not just those that are directly sun related but also as to which treatments will be better tolerated both systemically and topically.



SKIN TYPE	CHARACTERISTICS
Type 1	Always burns, never tans
Type 2	Usually burns, sometimes tans
Type 3	Usually tans, sometimes burns
Type 4	Southern European/Mediterranean skin
Type 5	Asian skin
Type 6	Afro-caribbean

Then I suggest working through this five point descriptive paradigm which can be applied to both rashes and lesions:

- 1) **DISTRIBUTION** of the rash with a particular reference to symmetry. A general rule of dermatoses is that symmetry equates to endogeny and asymmetry to exogeny. Some rashes can be strikingly symmetrical, psoriasis and lichen planus for example, while infections such as cellulitis and those caused by fungi are asymmetrical. Indeed two common anecdotes in dermatology teaching are “there is no such thing as bilateral cellulitis” and “beware the unilateral eczema” which so commonly is a missed diagnosis of tinea often modified into so called tinea “incognito” when the appearances have been altered by the inappropriate application of a topical steroid. Such rules as in all things medical will often have exceptions however.

SYMMETRICAL PSORIASIS OF TRUNK



TINEA INCOGNITO



- 2) **DEMARICATION:** Both rashes and lesions can be well, moderately or poorly demarcated. Again psoriasis is an example of an often very well demarcated dermatosis while atopic eczema is often difficult to identify where involved skin finishes and uninvolved skin begins.

DEMARICATION OF PSORIASIS



SEVERE ATOPIC ECZEMA



- 3) **COLOUR:** The subtleties of colour in skin disease are often not apparent to the novice but gain importance as you develop a more powerful diagnostic “search engine”. At the beginning, everything is “erythematous” but gradually the clinician begins to appreciate the violaceous hue of lichen planus or the heliotrope of dermatomyositis.

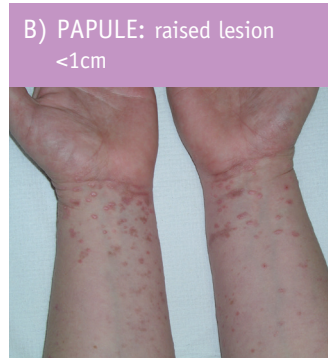
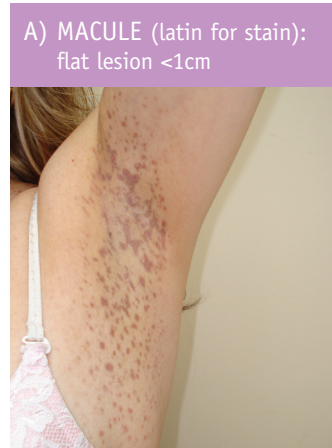
Colour was of importance to the latter day generation of highly observant and descriptive physicians who created much of our rich diagnostic glossary. The “lipoidica” in necrobiosis lipoidica diabetorum referred to the subtle yellowish hue “like fat” while pityriasis versicolor literally translated means scaly or bran like and of various colours bringing textural concept into the description as well.



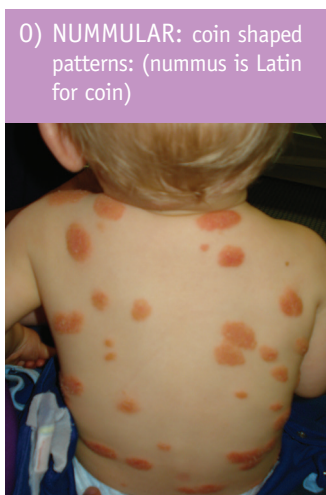
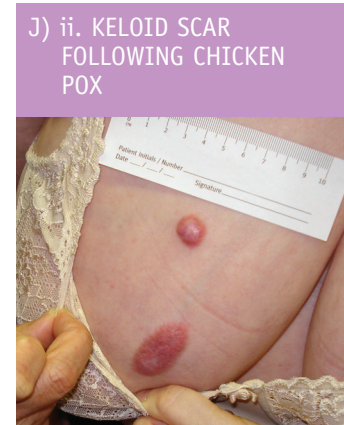
- 4) **SURFACE CHANGE:** This gives important clues to which layers of the skin are involved. A classic example where mistakes are often made is the misdiagnosis of Granuloma Annulare as “ringworm”. This should not happen as the former is a granulomatous dermal infiltrate while the other is primarily an invasive epidermal infection penetrating through skin and thus causing disruption which clinically appears as scale. Another example would be recognising the appearances of lichenification which confirms a condition to be both chronic and itchy.



5) **MORPHOLOGICAL FEATURES:** During the period of study for a medical degree, it has been calculated that the student learns enough new words to competently speak a different language. Having learned the language of medicine, it is important now to understand the dialect of dermatology. This is vital and requires understanding a short glossary of terms and what precisely they describe. These are the most pertinent:



j) SCAR: a permanent insult to the collagen infrastructure of the skin. There can be various types; hypertrophic scars are raised/thickened but limited to the original site of injury while keloid scarring is a pathological process where the scarring extends beyond the original site.



q) KOEBNERISATION: a phenomenon specific to only a few conditions such as psoriasis, lichen planus and warts where the disease process selectively follows trauma whether this is scarring or excoriation.



There may be a mixture of morphologies (polymorphic) present simultaneously. Rashes can be maculopapular or vesicobullous. Increasing the clinicians' understanding of what they are seeing is absolutely axiomatic to good diagnostic skills.

Understanding these morphologies is **fundamental!** The word lesion can become obsolete...it only equates to medical jargon for "thing"! We need to really focus on **what sort** of lesion/lesions we are looking at.

Try the mental discipline of imagining constantly attempting to describe the rash or lesion over the phone to a specialist colleague **without** a video link!

DIFFICULT
PRESENTATIONS

Often, we will follow all the right procedures; take a comprehensive history, have the patient appropriately undressed in a well lit examination room but then be diagnostically derailed by seeing a rash that initially completely flummoxes us. It is important to have some fallback manoeuvres; this at very least allows for thinking time!

My first is to use my "wide-angled lenses" expanding examination to the specialised skin structures, the nails, hair and mucosal surfaces. These often are a rich vein of clues. If still completely baffled, consider a rather counter-intuitive manoeuvre of focusing on a very small area of involved skin, the "macro-zoom", and trying to work out exactly what is going on there. Tests including biopsy should be to confirm or support what we already know or suspect. The "knee jerk" biopsy of the undiagnosed rash has been described as "the last bastion of the diagnostically destitute"!



The histology reports may serve to confuse even more as skin both macroscopically and microscopically has only a limited number of responses and these are rarely specific or pathognomonic. Often only an informed interchange between clinician and histopathologist can progress a diagnosis. This particularly involves providing good information and committing to a differential diagnosis on the histology form. For those whose like acronyms, your pathologist will be **SAD** if you do not give him a minimum data set; Site, Age and Distribution. Biopsies of single complete lesions pose less of a challenge but a record of the size of the lesion will also be of help.

There is an old joke that the best place to hide a £5 note from a GP is under a dressing! This brings me to something I think is very important, the concept of "knowing your enemy". So often I am sent lesions to diagnose both urgently and routinely that are completely hidden under a keratinised crust or scab.

LESION (SCC) with a scab or crust and de-scabbed



This is the equivalent of trying to work out if there is an enemy in the tank without opening the turret or a serpent under the stone without lifting it! The keratin obscures the diagnosis; it is what is causing it that is important. Most scabs can be dislodged relatively easily from lesions with some oil and patience. Some, if very adherent, may need a little local anaesthetic before detaching them. Then it can be determined if a biopsy is indicated, or a referral, and indeed whether it needs to be prioritised or not. It can be diagnostically satisfying, often lead to prompt reassurance of the patient, and either reduces unnecessary referrals or result in a speedier one if appropriate.

REFERRAL LETTERS

When referral is required, the art of the well constructed and comprehensive referral letter is inexorably intertwined with developing the good observational and descriptive skills already discussed above. It should not be just a mindless stack of computerised printouts where all the relevant information is deeply buried and difficult to extract. Thought should be given to highlight pertinent past medical, family and drug history along with relevant social/occupational factors and allergy status. It should include a summary of the evolution of the rash or lesion along with any symptoms (“if it ain’t itchy, it ain’t eczema”) and a precise account of any treatments and responses not just a comment of “tried all the usual creams and ointments” or “failed to respond to steroids and antifungals”. If a surgical procedure can be anticipated, then particular reference both to anticoagulant medications and their indications for use is helpful to determine whether they can be safely stopped in the short term.

Paradoxically, the more detailed the thought process employed, the less referral will be necessary as descriptive and diagnostic skills become better developed!

I hope this introduction has been thought provoking and has stimulated an appetite to learn more about this most fascinating of organs, the skin, and will provide an impetus to improve the diagnosis and management of dermatological disease.



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