

2 metres

total cover

NZ Dermatology Nurses emag
March 2020

Two metres
total covers

Editorial

"It was the best of times; it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of incredulity, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us"...

...is the opening paragraph from Charles Dickens novel, A Tale of Two Cities written in the late 18th century, the same year Big Ben first chimed and District Nursing began in Liverpool, UK. Those words suggests a time of major conflict, despair and suffering then joy and hope; overturning one way of life for another. This could be a time like that.

As dermatology nurses we may not be on the front line but we are supporting our colleagues, friends and families and as Dickens continues in the final chapter of the novel "It is a far better thing that I do, than I have ever done....."

The March 2020 issue of 2m² Total Cover concentrates on skin conditions starting with the letter 'T' with two professional development topics, and an interesting nursing profile.

The 15th annual NZDNS conference on 6 & 7 August 2020 has been postponed due to COVID-19. We look forward to seeing you on 19 & 20 August, 2021 in Queenstown

Kia noho haumarū, keep safe.



Tracy Fenton



Ann Giles

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Tuberculosis of the skin

Tracy Fenton

Cutaneous tuberculosis (CTB) is the result of a chronic infection by *Mycobacterium tuberculosis*, the same bacteria that causes tuberculosis (TB) of the lungs (pulmonary TB) (Ngan, 2003; Oakley, 2015). Occasionally *M. Bovis* and *bacillus Calmette-Guerin* (BCG), an attenuated strain of *M. Bovis* can cause CTB (Griffiths et al., 2016).

CTB was first documented in 1826 by Laennec when he reported his own 'prosector's wart'; a lesion that likely represented tuberculosis verrucosa cutis, a variant of TB that results from direct entry of the organism into the skin. However, it was Robert Koch in 1882 who discovered the causative organism of TB (Handog & Macarayo, 2019).

Epidemiology

Even though diseases caused by mycobacteria are widespread and serious, the organisms are neither very virulent nor very infectious. Only 5-10 percent of infectious with *M. tuberculosis* lead to disease

(Freedberg et al., 2003). CTB has a worldwide distribution; more prevalent in regions with a cold and humid climate. The incidence of CTB has declined steadily over the decades, paralleling the decreasing incidence of pulmonary tuberculosis (Freedberg et al., 2003). However, in the late 1980s, cases of TB rose, especially in urban centres, in immigrants from countries with high TB burdens (Griffiths et al., 2016).

CTB is a relatively uncommon form of extrapulmonary TB even in countries where TB still commonly occurs such as India and China (Ngan, 2003; Oakley, 2015). CTB generally accounts for 1 to 2 percent of all TB cases (Handog & Macarayo, 2019). Although rare, given its global prevalence, it is imperative for clinicians to distinguish the many clinical variants (see table) of CTB (Khadka et al., 2018).

Mortality, morbidity and prognosis

Now revolutionized by modern therapy, the prognosis depends

largely on early and accurate diagnosis (Griffiths et al., 2016). Tuberculosis confined to the skin generally responds well to multiple therapy and a clinical response will usually occur within 4-6 weeks, with lupus vulgaris showing a faster response time than scrofuloderma (Griffiths et al., 2016) (see table for clinical features).

Terminology

Morphology – the study of the form, shape or structure of things

Paucity – the presence of something in only small or insufficient quantities or amounts

Prosector's wart – small red papular nodules in the skin caused by inoculation with mycobacterium tuberculosis

Virulent – extremely severe or harmful in its effects

Etiology and Pathogenesis

Transmission of infection within and between species is mainly inhalation of airborne droplet nuclei particles containing *M. tuberculosis* complex resulting in pulmonary infection. Direct inoculation of skin by *M. tuberculosis* also occurs, particularly if there is any defect in the skin barrier (Griffiths et al., 2016).

The mere presence of mycobacteria in the skin, does not necessarily lead to clinical disease and colonization with *M. tuberculosis* is not synonymous with tuberculosis (Freedberg et al., 2003).

Route of infection

CTB can be acquired from haematogenous or lymphatic disseminations of pulmonary focus or by direct inoculation. The pivotal factor for the clinical presentations prior to contact with bacilli is the host natural immune response, (Khadka et al., 2018) however:

- Exogenous infection occurs with direct inoculation of bacilli into the skin of predisposed individuals (tuberculous chancre, tuberculosis verrucosa cutis)
- Endogenous infection is secondary to a pre-existing primary focus and may result from contiguous (orificial tuberculosis, scrofuloderma), haematogenous (acute miliary tuberculosis, tuberculous gumma, and lupus vulgaris) or lymphatic dissemination (lupus vulgaris).

Diagnosis and differential diagnosis

The diagnosis is usually suggested by clinical features and characteristic histopathological features on skin biopsy. Typical tubercles are caseating epithelioid granulomas that contain acid-fast bacilli. These are detected by tissue staining, culture and polymerase chain reaction (PCR) (Ngan, 2003; Oakley, 2015).

Other tests that may be necessary include:

- Tuberculin skin test (Mantoux or PPD test)
- Interferon gamma release assay

blood test

- Sputum culture (it may take a month or longer for results to be reported)
- Chest X-ray and other radiological tests for extrapulmonary infection.
- Interferon gamma release assays (IGRA)

The precise diagnosis is often significantly delayed as CTB is not routinely considered in the differential diagnosis due to the relative paucity of pathogens in lesions and the varied clinical manifestations (Khadka et al., 2018). A current problem is that atypical and even standard presentations may be overlooked through lack of familiarity with the various patterns that may occur (Griffiths et al., 2016). Hence differential diagnosis is obligatory for the successful clinical management and treatment (Khadka et al., 2018).

Clinical manifestation and presentation

The clinical manifestations comprise of a considerable number of skin changes (Freedberg et al., 2003) and depend on the interaction of several factors including the morphology, site of infection and the host's immunity (dos Santos et al., 2014). Direct infection of the skin or mucous membranes from an outside source of mycobacteria in an individual without natural or artificially acquired immunity (Griffiths et al., 2016), results in an initial firm lesion consisting of a shallow ulcer with a granular base called the tuberculous chancre. They appear about 2-4 weeks after mycobacteria enters through broken skin (Ngan, 2015; Oakley, 2015).

No entirely satisfactory classification exists, reflecting the difficulty in classifying a disease whose diverse clinical manifestations are dependent on so many factors (Griffiths et al., 2016).

Treatment and management

The National Institute of Health and Care Excellence (NICE) 2016 guidelines recommend that the

treatment of all patients should be supervised by physicians with full training in the management of tuberculosis and with direct working access to tuberculosis nurse specialists (NICE guideline NG33, 2016).

Treatment of CTB should follow the same drug regimen as that for systemic tuberculosis and patients need to be treated with antitubercular drugs (Ngan, 2003; Oakley, 2015). Patients with latent TB infection but no active disease may also be treated with antitubercular drugs to prevent development of active disease (Ngan, 2003; Oakley, 2015).

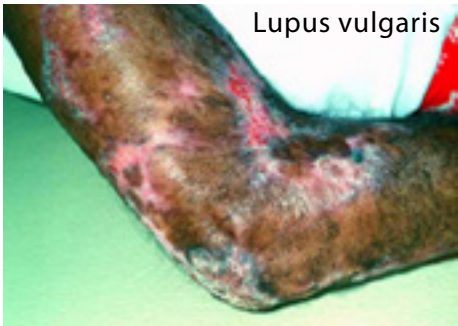
The administration of a course of multidrug therapy is the treatment of choice. An initial bactericidal phase, given for eight weeks to induce a rapid reduction in the number of bacteria, is followed by a longer treatment phase designed to eradicate any remaining bacteria (Handog & Macarayo, 2019). The choice of a specific regimen is influenced by patient comorbidities and immune status as well as mycobacterial resistance patterns.

Pharmacologic agents for treatment of TB are utilized in a hierarchical fashion (Drew & Sterling, 2020). First-line agents for treatment of TB consist of isoniazid, rifamycin, pyrazinamide and ethambutol. The regimen recommended by World Health Organisation (WHO) and NICE for new cases of drug-susceptible tuberculosis is highly efficacious with cure rates of around 90% (Griffiths et al., 2016).

The response to treatment of cutaneous lesions can be assessed clinically. In general, treatment should be continued for at least two months following the complete resolution of skin lesions (Handog & Macarayo, 2019).

Patient non-adherence is currently one of the most important factors limiting successful treatment. Directly observed therapy (DOT), where the ingestion of every drug

Cutaneous features of tuberculosis (Ngan, 2003; Oakley, 2015)	
Cutaneous TB	Features
TB verrucosa cutis	<ul style="list-style-type: none"> Occurs after direct inoculation of TB into the skin in someone who has been previously infected with mycobacteria Presents as a purplish or brownish-red warty growth Lesions most often occur on the knees, elbows, hands, feet and buttocks Lesions may persist for years but can clear up even without treatment
Lupus vulgaris	<ul style="list-style-type: none"> Persistent and progressive form of cutaneous TB Small sharply defined reddish-brown lesions with a gelatinous consistency (called apple-jelly nodules) Lesions persist for years, leading to disfigurement and sometimes skin cancer
Scrofuloderma	<ul style="list-style-type: none"> Skin lesions result from direct extension of underlying TB infection of lymph nodes, bone or joints Often associated with TB of the lungs Firm, painless lesions that eventually ulcerate with a granular base May heal even without treatment but this takes years and leaves unsightly scars
Miliary TB	<ul style="list-style-type: none"> Chronic TB infection that has spread from the primary infection (usually in the lungs) to other organs and tissues via the bloodstream Skin lesions are small (millet-sized) red spots that develop into ulcers and abscesses More likely in immunocompromised patients, e.g. HIV, AIDS, cancer The patient is generally sick Prognosis is poor (many patients die even if diagnosed and treated)
Tuberculid	<ul style="list-style-type: none"> Generalised exanthem in patients with moderate or high degree of immunity to TB because of previous infection Usually in good health with no identifiable focus of active TB in skin or elsewhere Erythema induratum (Bazin disease) presents as recurring nodules or lumps on the back of the legs (mostly women) that may ulcerate and scar. It is a type of nodular vasculitis Papulonecrotic tuberculid results in crops of recurrent crusted skin papules on knees, elbows, buttocks or lower trunk that heal with scarring after about 6 weeks. Lichen scrofulosorum is an extending eruption of small follicular papules in young people with underlying TB.



Lupus vulgaris



Lupus vulgaris



Lupus induratum



Cutaneous military tuberculosis



Scrofuloderma



Scrofuloderma

dose is witnessed has shown improved cure rates in several countries (Griffiths et al, 2016). The WHO advocates universal DOT as part of an overall strategy, the aim being to increase treatment adherence rates to over 85%.

BCG vaccination

The Bacille Calmette Guerin (BCG) vaccine for the prevention of tuberculosis is almost 100 years old. Calmette and Guerin, at the Pasteur Institute in Lille developed the vaccine from 1908 onwards with final testing in humans in 1921 (Griffiths et al., 2016). While current BCG vaccines protect against severe forms of tuberculosis in children, its efficacy in preventing pulmonary tuberculosis in adults is highly variable. Several studies have shown that BCG does not appear to prevent skin tuberculosis (Griffiths et al., 2016).

References

Drew, R. H., Sterling, T. R. (2020). Antituberculous drugs: An overview. <https://www.uptodate.com/contents/antituberculous-drugs-an-overview> Accessed 6 April 2020.

Dos Santoa, J. B., Figueiredo, A. R., Ferraz, C. E., de Oliveria, M. H., da Silva, P. G., de Medeiros, V. L. S. (2014). Cutaneous tuberculosis: epidemiologic, etiopathogenic and clinical aspects – Part 1. *Anais Brasileiros de Dermatologia*, 89(2), 219-28.

Freedberg, I. M., Eisen, A. Z., Wolff, F., Austen, K. F., Goldsmith, L. A., Katz, S. I. (2003). *Fitzpatrick's Dermatology in General Medicine* (6th Ed.). USA. McGraw-Hill.

Griffiths, C., Barker, J., Bleiker, T., Chalmers, R., Creamer, D. (2016.) *Rooks Textbook of Dermatology* (9th Ed.). UK: John Wiley & Sons Ltd.

Handog, E. B., Macarayo, M. J. (2020). Cutaneous manifestations of tuberculosis. https://www.uptodate.com/contents/cutaneous-manifestations-of-tuberculosis?search=cutaneous%20tb&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1 Accessed 28 January 2020.

Khadka, P., Koirala, S., Thapaliya, J. (2018). Cutaneous Tuberculosis: Clinicopathologic arrays and diagnostic challenges. *Dermatology Research and Practice*. Article ID 720197319.

Ngan, V. (2005). Updated Oakley, A (2015). Cutaneous tuberculosis. <https://www.dermnetnz.org/topics/psoriatic-arthritis/> Accessed 28 January 2020.

NICE guideline NG33 (2016). Updated September 2019. Tuberculosis. <https://www.nice.org.uk/guidance/ng33>.

GLOSSARY

Dermatological Terms and Conditions



Target lesion - concentric rings like a dartboard. Also known as iris lesion.

Telangiectasia - prominent cutaneous blood vessels, which are red or purple

Tense - stretched tight; strained, taut.

Tinea barbae - tinea involving the bearded area of the face and neck, occurring in three types: in the inflammatory type, usually caused by *Trichophyton mentagrophytes* and *T. verrucosum*, the typical lesions are kerion like swellings and nodular swellings and may produce marked crusting; in the ringworm type, the annular lesions resemble those of ringworm of non-hairy skin; and in the sycoform type (*Tinea sycosis*); caused usually by *Trichophyton*

violaceum and less often by *T. rubrum*, the lesions are follicular pustules, each containing a hair that may break off and leave a stub or become epilated. Called also barber's itch and ringworm of the beard.

Tragus - a tongue like projection of the cartilage of the auricle in front of the opening of the external acoustic meatus and continuous with the cartilage of this canal.

Transudation - passage of a fluid or solute through a membrane by a hydrostatic or osmotic pressure gradient.

Triple response of Lewis - a cutaneous response that occurs from firm stroking of the skin, which produces an initial red line, followed

by a flare around that line, and then finally wheal. The triple response of Lewis is due to the release of histamine.

Truncal - favours the trunk and rarely affects the limbs.

Tuberculosis - any of the infectious diseases of man and other animals caused by species of mycobacterium.

Tumour - A mass or lump that can be felt with the hand or seen with the naked eye. This may be a neoplasm, hyperplasia, distention, swelling, or anything that causes a local increase in volume. The thing to remember is that not all tumors are cancers, and not all cancers are tumors.

Clinical Nurse Specialist

Thrombosis

Haematology, Auckland District Health Board

Kiri Mann

Why did you choose nursing as a career and where did you do your nursing training?

I was going to be an electrician or a nurse. A two day trial at a medical centre and a conversation with an apprentice coordinator cemented my decision to become a registered nurse. I trained at Auckland Institute of Technology, now Auckland University of Technology, in the second intake for the Bachelor of Health Science (Nursing).

I started nursing in 1996 in a general medical ward. The senior nurses provided excellent mentorship and support. I moved to general surgery, then the Emergency Department. A stint in agency nursing ended in a position at the Ascot Hospital Admissions Unit and finally in the Thrombosis Service at Waitemata District Health Board on a friend's recommendation, to cover maternity leave. I have been working at Auckland District Health Board (ADHB) since 2011 but involved in venous thrombosis management since 2008. I initially resisted post-graduate study but have completed a Masters of Nursing Science through Victoria University of Wellington. I travelled down for classes, like little holidays, and met amazing tutors and colleagues.

How does your role fit in with the nursing and medical team?

We work closely with the haematology senior medical staff who specialise in haemostasis. These doctors manage thrombosis and haemophilia. Technically we are an advisory service to all teams in the hospital and primary care, but often coordinate and provide the care particularly between tertiary and primary services. Patients with VTE can contact us directly if they have questions or concerns.

What are the most rewarding aspects of your job?

Job satisfaction comes when a patient or family member says they are well informed and less anxious about the VTE diagnosis. Successful medication adherence tells me I have shared information on the rationale for therapy in a way the patient understands.

What is a typical day in your work life like including the most important skills and abilities required?

There are two full time Clinical Nurse Specialists in this role. A typical day in the service starts with triaging referrals and screening potential patients. Patients for discharge are given priority. We then visit new and existing inpatients to develop an individualised care plan which considers their risk of venous thromboembolism (VTE) and potential risk of bleeding or ensure their existing plan is being managed. We have guidelines which include taking renal and liver function, baseline coagulation, drug type and dose into consideration. And of course there is plenty of paper work, clinical notes, database entry, GP letters, surgical plans plus professional development and education sessions.

What kinds of nursing decisions do you have to make and who assists you when making difficult decisions with patients and families?

Our main nursing concern for these patients is medication safety. If a patient has a reduced Montreal Cognitive Assessment (MoCA) score or poor health literacy, information is condensed and simplified. It may mean medication options are prescribed or reduced. Nursing care is often discussed with my colleague. For complicated cases, such as a patient with a large thrombus burden and a high risk of bleeding, anticoagulation management is discussed with a haematologist. This requires a full review of the medical history including current results. This plan is relayed to the managing medical/surgical team. Occasionally, not giving anticoagulation is the safest treatment following discussion with the wider multidisciplinary team including the patient and their family.

What abilities or personal qualities do you believe contribute most to success in your job?

An important skill for this role is being able to think on your feet and outside the box to provide safe anticoagulation to a wide range of people. The ability to quickly build rapport with anxious people helps. When patients are diagnosed with VTE, one of their concerns is the possibility of stroke or heart attack. Reassurance helps with anxiety and quickly gains their confidence.

What parts of your job do you find most challenging? For example how do you convince a patient that the compression socks are comfortable especially in summer? Also do you have any tips for putting the tight fitting socks on?

For patients who we strongly recommend to wear compression socks, I discuss the role of and rationale for the garment including what may happen if they don't use it. I try and give them a little slack in the summer instead advising leg elevation if the sock is unbearably hot. The SOX trial (Kahn et al., 2014) found compression socks did not prevent post thrombotic syndrome (PTS) therefore we use class 2 compression for those patients who have on going leg swelling.

Patients suggest using dish washing gloves on hands helps with sock application and a non-slip door mat helps to get the sock off.

What nursing preparation, educational or other work would you recommend for someone wanting to become a nurse in your speciality?

This role is quite specialised and having a broad base of nursing and people skills is sound preparation in any role. Simply having a passion for people and giving good care would be an excellent foundation for becoming a clinical nurse specialist. Having some haematology/oncology experience might be an advantage but not a requirement.

What makes your role unique?

Several doctors in our team have said they are pleased when a thrombus is diagnosed as they know they can refer the patient to us and we will review the case, educate the patient and family, arrange community supports if needed, arrange special authority medication applications, organise outpatient follow up and provide written information. They then only need to provide a prescription and discharge paperwork.



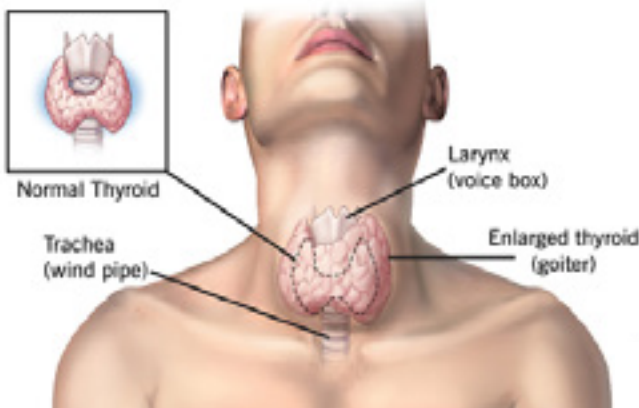
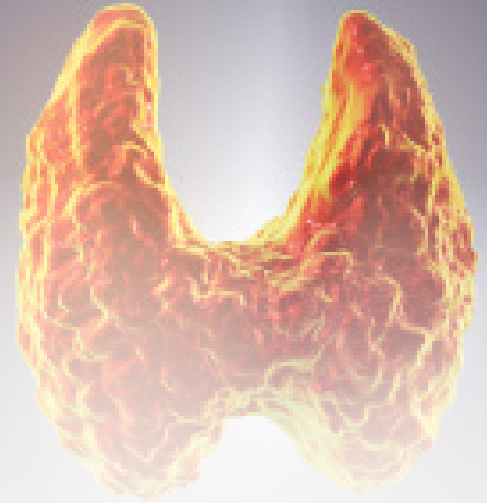
Kiri Mann is a Clinical Nurse Specialist Thrombosis, Haematology in Auckland New Zealand

If you could change one thing in your role, what would it be?

I love this job. I get to meet and talk to people from all walks of life. Discussing and tailoring their anticoagulation treatment to fit with their lifestyle is rewarding. Aiming for an efficient information sharing system not only between the hospital and primary care but between all District Health Boards would eliminate duplication of documentation.

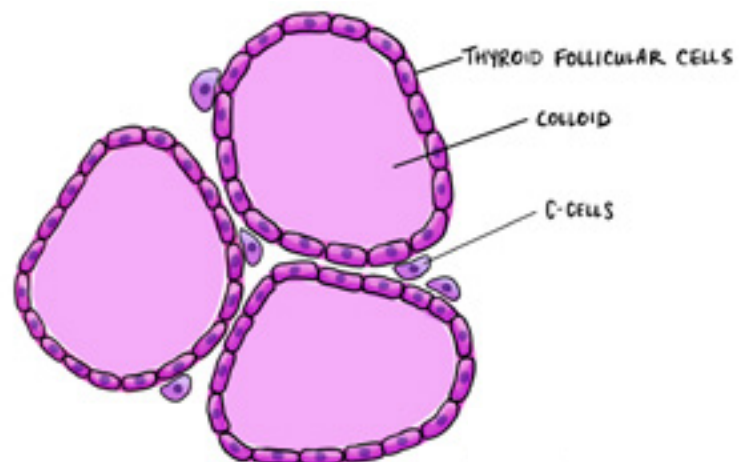
Thyroid disease & skin

Ann Giles



The thyroid, part of the endocrine system, is made up of glands that produce, store and release hormones into the blood. Proper functioning of the thyroid gland and thyroid hormones from the time of birth is vital for normal growth and metabolic regulation of every cell in the human body. This butterfly shaped gland composed of two elongated lobes joined by a thin isthmus of thyroid tissue is wrapped around the trachea, below the larynx, at the base of the neck. The 5cm long normal human thyroid gland weighs approximately 20 grams. Goitre or an enlarged thyroid gland is a common finding, indicating abnormal growth with a weight of several hundred grams. Relative to its weight, the thyroid gland receives a greater flow of blood than most other tissues of the body.

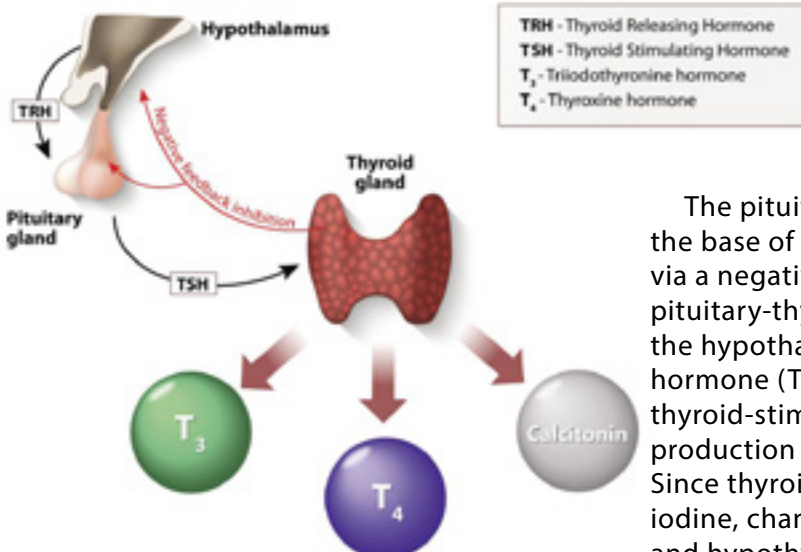
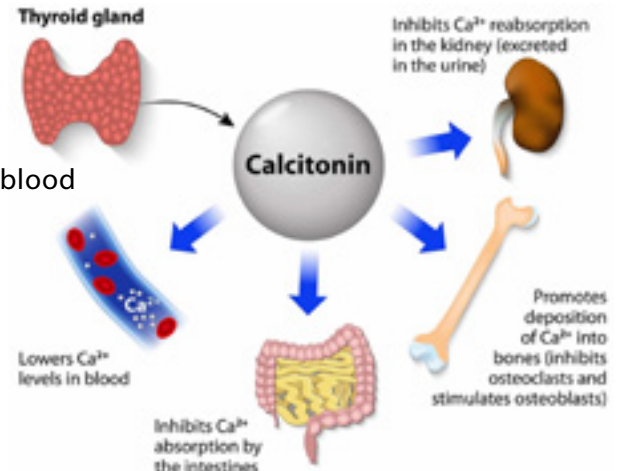
Follicles, the functional unit of the thyroid gland are composed of epithelial cells arranged as hollow vesicles surrounded by a dense capillary network and are the only cells in the body able to absorb iodine found in food to make hormones. Groups of densely packed follicles bound together by connective tissue to form lobules also contains parafollicular or C-cells, which receive blood from a single small artery. One lobule may function differently from an adjacent lobule.





A rich lymphatic system may play an important role in the delivery of the three vital thyroid hormones secreted into circulating blood which regulate the level of biochemical activity of most of the body's tissues; thyroxine (T_4), triiodothyronine (T_3) and calcitonin (Goodman, 2009). T_4 and T_3 maintain the rate the body uses fats and carbohydrates, controls body temperature, influences heart rate and regulates the production of proteins.

Calcitonin produced by the parafollicular or C-cells regulates blood levels of calcium and phosphate.

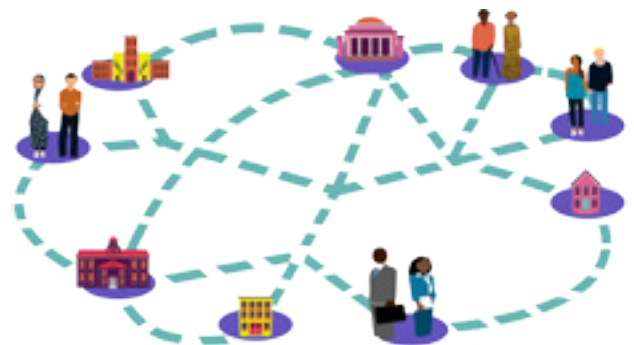


Hypothalamic-pituitary-thyroid axis

The pituitary gland and hypothalamus, both located at the base of the brain, control the rate T_4 and T_3 are produced via a negative feedback control system, the hypothalamic-pituitary-thyroid axis. Blood concentrations of T_4 and T_3 cause the hypothalamus to inhibit or release thyrotropin-releasing hormone (TRH) which signals the pituitary gland to produce thyroid-stimulating hormone (TSH). Thyroid gland hormone production is based on TSH received from the pituitary gland. Since thyroid hormone synthesis is heavily dependent on iodine, changes in iodine intake results in hyperthyroidism and hypothyroidism. Thyroid hormone levels are also affected by various medical conditions and medications (Table 1 & 2) (Burman & McKinley-Grant, 2006; Freedberg et al., 2008).

EPIDEMIOLOGY

The prevalence of hyperthyroidism and hypothyroidism vary related to older age, being female, geographic location, smoking, genetic susceptibility and ethnicity (Taylor et al., 2018). Worldwide the number of people with thyroid disorders ranges from 200 to 800 million and is higher in countries with iodine deficiency causing widespread goitre (Freedberg et al., 2008). Vanderpump (2011) suggests about a third of the world's population live in locations with iodine deficiency. This includes people who live in remote mountainous areas of Southeast Asia, Latin America and Central Africa (Sulejmanovic et al., 2019). Data for ethnic differences are scarce, but hyperthyroidism seems to be slightly more frequent in white people than in other races and four to five times higher in older women (Freedberg et al., 2008).

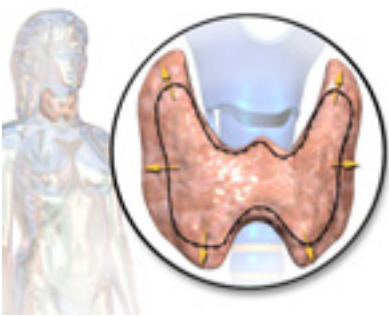




HYPOTHYROIDISM

Primary thyroid disease or hypothyroidism, also known as myxoedema, is characterised by hypometabolism with low levels of circulating thyroid hormone from defects in the thyroid gland. This results in a puffy face, eyelids, hands and feet, weight gain, cold intolerance, low mood and menstrual disorders. Lifetime risk in 40 to 50 year old females is eight times more than in males (Englina, 2016; Freedberg et al., 2008). The major cause in the developing world is a diet

deficient in iodine. Iodine deficiency is uncommon in the developed world with iodine added to salt and fortifying food. Hypothyroidism in the developed world is caused by several types of autoimmune thyroid destruction with the most common being Hashimoto's thyroiditis. Collectively referred to as autoimmune lymphocytic thyroiditis, antibodies develop against the thyroid gland gradually over months or years. Damage can also be caused by radioiodine used to treat hyperthyroidism. Other causes include subacute thyroiditis from inflammation of the thyroid gland caused by a viral infection or pregnancy, congenital defects in thyroid hormone synthesis which is a common treatable cause of neonatal mental retardation, cancer of the thyroid gland, partial or total thyroidectomy, antithyroid medications, infiltrative disease such as haemochromatosis or sarcoidosis and rarely pituitary or hypothalamic destruction due to radiation, tumours or trauma (Englina, 2016). Thyroid function blood tests usually show a high serum TSH with low T_4 and T_3 levels. In pituitary and hypothalamic disease TSH may be low or normal. Complication of hypothyroidism include heart disease due to high lipid levels and life threatening myxoedema coma. The mainstay of treatment is by replacing thyroxine with levothyroxine (T_4) medication usually for life (Burman & McKinley-Grant, 2006; Doshi et al., 2008; Englina, 2016; Freedberg et al., 2008).



HYPERTHYROIDISM

Hyperthyroidism also known as thyrotoxicosis, is characterised by hypermetabolism with an excess of circulating thyroid hormone from a disturbance in the hypopituitary-thyroid-axis. This results in heart palpitations, fine tremor, weight loss, heat intolerance, increased perspiration, anxiety and menstrual disorders. It occurs five times more frequently in 40-60 year old females than males. A major cause in younger woman is Graves' disease, an autoimmune disorder caused by the production of TSH receptor stimulating antibodies attacking the thyroid gland. Goitre from abnormally multiplying follicular cells

and excess production of T_4 and T_3 is seen in many patients with Graves' disease. Graves' ophthalmopathy or protruding eyes is present in approximately half of patients and less commonly pretibial myxoedema or waxy, discoloured or purple, yellow-brown, tender lumps with peau d'orange or orange peel looking skin on the lower leg. An enlarged thyroid gland from benign nodules are more common in older women caused by thyroid tissue functioning independently of TSH regulation and increasing thyroid hormone levels. Other reasons include genetic predisposition, environmental factors including infection, thyroid cancer, iodine excess, TSH secreting pituitary tumour and thyroid hormone resistance. Thyroid function blood tests usually show a low serum TSH with high T_4 and T_3 levels. In pituitary disease TSH can be high. Complications of hyperthyroidism include atrial fibrillation, cardiomyopathy, heart failure, stroke, bone fractures and rare but life threatening muscle paralysis from potassium imbalance. Hyperthyroidism is treated by medications primarily carbimazole for approximately one to two years or until remission, although relapse can occur. Oral radioiodine taken up into the thyroid to destroy thyroid tissue is a more permanent and reliable treatment. Beta blockers are useful to control tremor (Burman & McKinley-Grant, 2006; Doshi et al., 2008; Englina, 2016; Freedberg et al., 2008).



Goitre



Ophthalmopathy



SKIN, HAIR AND NAILS

A detailed history, physical examination and blood tests are required if a patient is suspected of having thyroid disease. Skin is an important peripheral neuro-endocrine-immune organ. Thyroid dysfunction is associated with many cutaneous conditions (Table 1.) which may affect the epidermis, dermis, hair and nails including skin thickness, hair growth and dryness from sebaceous glands producing reduced sebum (Table 2.) In many cases treatment of the underlying thyroid disorder improves or resolves skin problems.

Table 1. Cutaneous conditions associated with thyroid disorders
(Doshi et al., 2008; Freedberg et al., 2008)

Hypothyroidism	Hyperthyroidism
Acanthosis nigricans	Anetoderma
Acral papulokeratotic lesions	Dermatitis herpetiformis
Alopecia	Mid-dermal elastolysis
Bannayan-Riley-Ruvalcaba syndrome	Herpes gestationis
Dermal mucinosis	Onycholysis
Eczema craquelé	Pemphigus vulgaris
Epidermolysis bullosa	Sweets syndrome
Granuloma annulare	Vitiligo
Keratosis pilaris	
Leprosy	
Lichen sclerosus et atrophicus	
Melasma	
Mid-dermal elastolysis	
Morphea	
Onycholysis	
Primary localised cutaneous amyloidosis	
Palmoplantar pustulosis	
Reticular erythematous mucinosis	
Vitiligo	
Urticaria - chronic	
Vogt-Koyanagi-Harada disease	

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Acanthosis nigricans



Anetoderma



Morphea



Granuloma annulare



Sweets syndrome



Dermatitis herpetiformis

Table 2. **Skin hair and nail changes associated with thyroid disorders** (Burman & McKinley-Grant, 2006; Englina, 2016; Freedberg et al., 2008; Kasumagic-Halilovic, 2014; Safer, 2011).

Hypothyroidism	Hyperthyroidism
SKIN	SKIN
Thin, coarse, rough skin covered in fine scales (eczema craquelé)	Thin, soft, smooth skin like baby's skin
Yellow-orange (carotenaemia) skin colour on palms and soles	Hyperpigmentation, palm creases, gums or mouth
Cold peripheries	Warm, moist skin
Puffy face, eyelids, hands and feet or myxoedema	Flushing of face and palms, telangectasia
	Pretibial myxoedema
Hypohydrosis, or decreased sweating	Hyperhydrosis or increased sweating
Purpuric rash, reddish spots that come and go	Generalised itching or pruritus
Poor wound healing	Urticaria or hives
HAIR	HAIR
Sparse, brittle, slow growing hair	Fine, soft hair
Alopecia or Increased hair loss with shedding,	Alopecia or thinned scalp hair
Madarosis or loss of hair in the outer third of the eyebrows	Loss of pigment or early greying of hair
Diminished body hair	
NAILS	NAILS
Coarse, thin, dull, brittle, slow growing nails with ridges	Shiny, soft nails that crumble easily
	Thyroid acropachy or distorted, overgrown nails with thickened skin above the nail, digital clubbing and fingertip swelling
	Plummer's nails with concave curving that may lift off the nail bed

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Eczema craquelé



Alopecia



Carotenaemia



Acropachy



Acropachy



Myxoedema



Madarosis

References

Burman, K.D., McKinley-Grant, L. (2006). Dermatological aspects of thyroid disease. *Clinics in Dermatology*, 24, 247-255.

Doshi, D.N., Blyumin, M.L., & Kimball, A.B. (2008). Cutaneous manifestations of thyroid disease. *Clinics in Dermatology*, 26, 283-287.

Englina, S. (2016). Hypothyroidism, *Dermnet NZ*. <https://dermnetnz.org/topics/hypothyroidism/> accessed April 2020.

Englina, S. (2016). Hyperthyroidism, *Dermnet NZ*. <https://dermnetnz.org/topics/>

hyperthyroidism/ accessed April 2020.

Freedberg, I. M., Eisen, A. Z., Wolff, F., Austen, K. F., Goldsmith, L. A., Katz, S. I. (2008). *Fitzpatrick's Dermatology in General Medicine* (7th ed.). USA: McGraw-Hill.

Goodman, M.H. (2009). *Basic Medical Endocrinology* (4th ed.). USA: Elsevier Science.

Kasumagic-Halilovic, E. (2014). Thyroid disease and the skin. *Annals of Thyroid Research*, 1(2), 27-31.

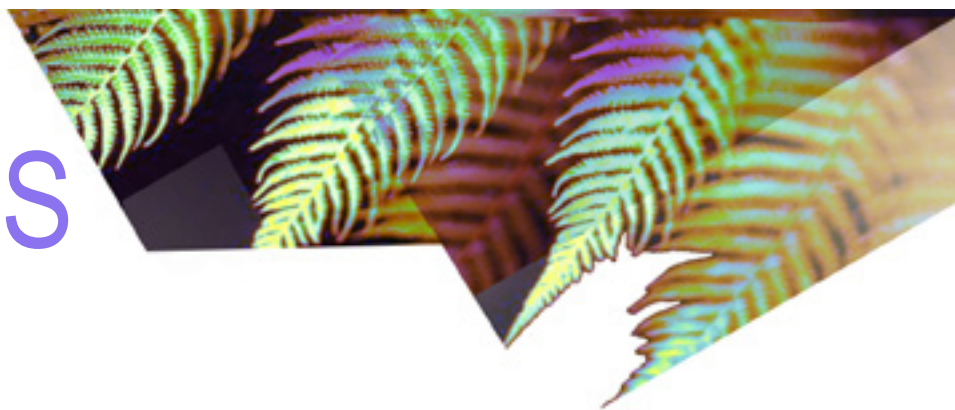
Safer, J.D. (2011). Thyroid hormone action on skin. *Dermato-Endocrinology*, 3 (3), 211-215.

Sulejmanovic, M., Cickusic, A.J., Sabina, S., & Bousbija F. M. (2019). Annual Incidence of Thyroid Disease in Patients Who First Time Visit Department for Thyroid Diseases in Tuzla Canton. *Mater Sociomed*, 31(2), 130-134.

Taylor, P.N., Albrecht, D., Scholz, A., Gutierrez-Buey, G., Lazarus, J.H., Dayan, C.M., & Okosieme, O.E. (2018). Global epidemiology of hyperthyroidism and hypothyroidism. *Nature Reviews Endocrinology*, 1-16.

Vanderpump, M. P. J. (2011). The epidemiology of thyroid disease. *British Medical Bulletin*, 99, 39-51.

FUTURE EVENTS



19th National Conference 2020
Australian Dermatology Nurses Association
Adelaide Convention Centre
Adelaide, South Australia
Conference postponed to 9-11 April 2021
<https://www.adna.org.au/>

20th Annual Meeting 2020 European Society for Paediatric Dermatology
11-13 June 2020
Vienna, Austria
Conference postponed to 12-14 May, 2021
<https://www.espd.info/espd2020/vienna>

30th Annual Conference 2020
British Dermatological Nursing Group
16 – 18 June 2020
Harrogate, United Kingdom
Conference cancelled
<https://bdng.org.uk/annual-conference/>

18th World Congress On Cancers of the Skin 2020
25-27 June 2020
Buenos Aires, Argentina
Conference postponed to 3-6 November, 2021
<https://www.wccs2020.com/>

100th Annual Meeting 2020
British Association of Dermatologists
7-9 July 2020
Manchester, United Kingdom
<https://badannualmeeting.co.uk/>

15th Annual Conference 2020
New Zealand Dermatology Nurses' Society
6-7 August 2020
Queenstown, New Zealand
Conference postponed to 19-20 August 2021
<https://www.nzdermatologynurses.nz/>

CELEBRATE

Looking Back Looking Ahead

Copthorne Hotel Queenstown New Zealand
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**Conference postponed
to
19 & 20 August 2021
in Queenstown**

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