Lower limb cellulitis: a dermatological perspective

Skin disease such as venous eczema and tinea pedis are often overlooked as primary causes of lower limb cellulitis. This article will look at the management of these two common skin conditions as well as the diagnosis and management of lower limb cellulitis. Kilburn et al (2003) acknowledge that the treatment of cellulitis is multiciplinary stating that no one speciality can claim the condition as their field and the Clinical Resource Efficiency Support Team (CREST, 2005) recommend that key staff in an integrated cellulitis pathway should include dermatologists. The article will give details of a dermatology-led lower-limb cellulitis service which demonstrates a best practice initiative which avoids unecessary hospitalisation, incorrect diagnoses and also helps to reduce the risk of recurrent cellulitis.

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KEY WORDS
Dermatology
Lower limb cellulitis
Venous eczema
Tinea pedis
Service provision

Cellulitis currently accounts for 2–3% of hospital admissions (Cox et al, 1998) and is an acute, painful and potentially serious infection of the skin and subcutaneous tissue (*Figure 1*), usually involving pathogens *Staphylococcus aureus* and *Streptococcus pyogenes*. The average length of inpatient stay for cellulitis is 7.1 days (Department of Health [DoH], 2009), a total of 30,524 bed days in 2007–2008. These figures do not differentiate which part of the body is affected, but evidence suggests that lower limb cellulitis is the most prevalent (Cox et al, 1998; Halpern et al, 2008). Further episodes of treatment for patients with lower limb cellulitis show that 25–50% have other associated morbidity, such as oedema, ulceration and skin disease (Cox et al, 1998; Dupuy et al, 1999).

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Kilburn et al (2003) acknowledge the treatment of cellulitis as multidisciplinary stating that no one speciality can claim the condition as their field. Dermatologists often receive tertiary referrals to see patients who have been treated as inpatients on acute medical/surgical wards for lower limb cellulitis. On examination it is not uncommon to find a differential diagnosis of infected venous eczema (*Figure 2*), or undiagnosed tinea pedis (*Figure 3*). The consequence of these skin disorders being overlooked or misdiagnosed and the subsequent need to treat patients for cellulitis can result in unnecessary admissions, use of hospital bed bays, pressure on emergency medicine resources and the use of inappropriate intravenous antibiotic therapy. Admission to hospital can be daunting and unsettling and could also place the patient at risk of hospital-acquired infections and increased risk of antibiotic resistance (Wingfield, 2008).

Both venous eczema and tinea pedis are recognised as risk factors for the opportunistic development of lower limb cellulitis. Venous eczema, sometimes called stasis eczema or varicose eczema is linked to secondary venous hypertension. It is often associated with varicose veins, although they are not always present. Clinical presentation includes pitting oedema, stasis purpura resulting in haemosiderin deposits, dry itchy skin,

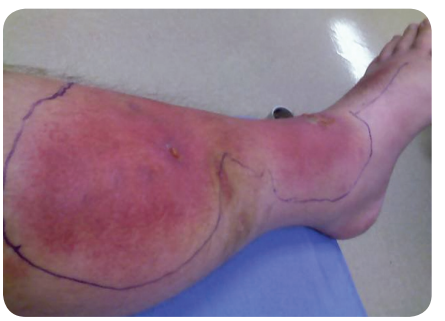


Figure 1. Example of lower limb cellulitis.

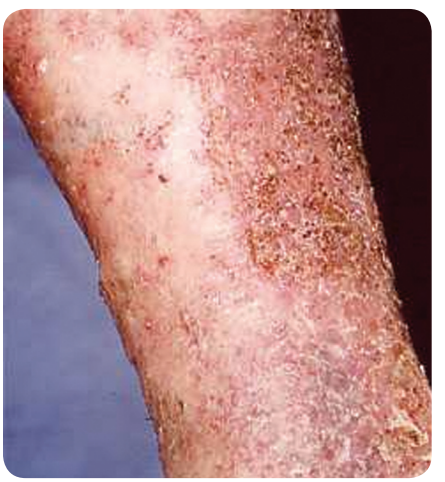


Figure 2. Infected venous eczema with yellow crusting (impetiginisation).

inflammation and induration called lipodermatosclerosis. The eczema can be more prominent when coexisting with venous ulcers (Holden et al, 2004). Tinea pedis is a fungal infection presenting mostly in the interdigital toe web spaces. It is often

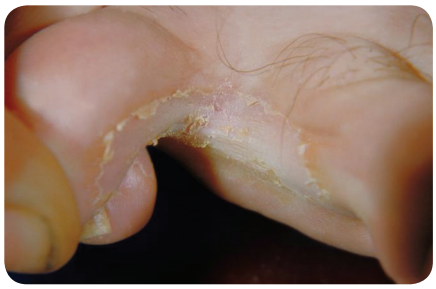


Figure 3. Tinea pedis.

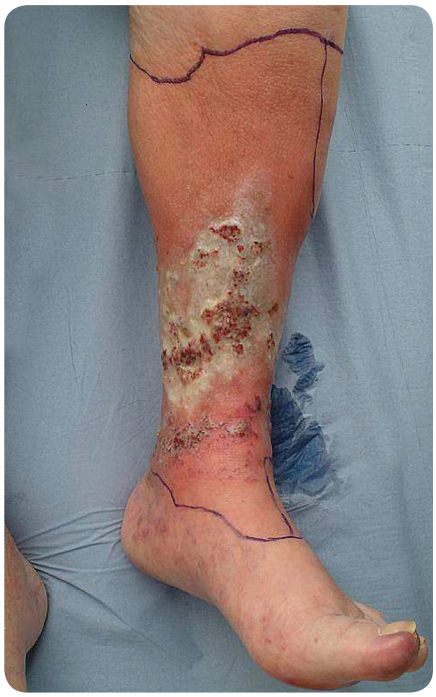


Figure 4. Venous leg ulcer with secondary cellulitis.

asymptomatic and is commonly caused by *Trichophyton rubrum, T. mentagrophytes and Epidermophyton floccosum*. Hands and toenails may also be involved. Clinical presentation includes scaling, maceration, fissuring and erythema in the interdigital area (Fleischer et al, 2002). If these skin conditions are diagnosed and treated appropriately, there is both a possibility of reducing this risk of developing cellulitis and experiencing recurrent cellulitis episodes which can lead to chronic oedema. The key objective of this article is to heighten awareness of the diagnosis, treatment, management and investigation of these common skin conditions as part of the assessment and diagnosis of suspected lower limb cellulitis.

Recognising and treating skin disease associated with lower limb cellulitis

Venous eczema

It is extremely important to be able to differentiate cellulitis from other dermatological and vascular diagnoses (Quartey-Papafio, 1999; Cox, 2002). Others have concluded that 29% of patients develop recurrent lower limb cellulitis within a mean of three years after the first episode (Jorup-Ronstrom and Britton, 1987). This is frequently associated with existing venous insufficiency with developing or existing venous eczema and/or venous ulcers which also increase the prevalence of cellulitis episodes (Jorup-Ronstrom and Britton, 1987) (*Figure 4*). These conditions are recognised as risk factors for the entry of 'infective organisms' (Dupuy et al, 1999). Cox et al's (1998) retrospective study identified skin disease/broken skin in 51/92 patients, the most common being minor trauma and tinea pedis. This study was conducted as an audit and held across two hospitals. It looked at the case notes of 92 patients admitted with a diagnosis of lower limb cellulitis under different adult specialities. It also concluded that pathogens were rarely identified.

Quartey-Papafio (1999) identified the issue of misdiagnosis and confusion of cellulitis and venous eczema and highlighted the clinical difference between the two conditions in a simple table (*Table 1*). This table is a useful assessment tool when assessing the lower limb for suspected cellulitis. The absence of pain is a good indicator that there is no subacute soft tissue infection. From clinical experience, any applied pressure or handling of a leg with cellulitis is often acutely tender and painful for the patient and they will frequently have difficulty bearing weight on the affected leg. Although some discomfort is noted in infected venous eczema, the pain would not be acute and mobility should not be affected unless the patient had other

Table 1

Comparison of clinical features of varicose (venous) eczema and cellulitis of the leg adapted from Quartey-Papafio (1999)

	Eczema	Cellulitis
Symptoms	Apyrexial Itching History of varicose veins or deep vein thrombosis (DVT)	May have pyrexia Painful No relevant history
Signs	Erythematous, inflamed No tenderness Vesicles Crusting Other lesions on body	Erythematous, inflamed Tenderness One or a few bullae No crusting No other lesions
Portal of entry	Not applicable	Usually unknown but may be ulceration or associated skin disease such as eczema or tinea pedis
Investigations	White blood count normal Blood culture negative Skin swabs — *S. aureus* common	White blood count high Blood culture usually negative Skin swabs usually negative except for necrotic tissue

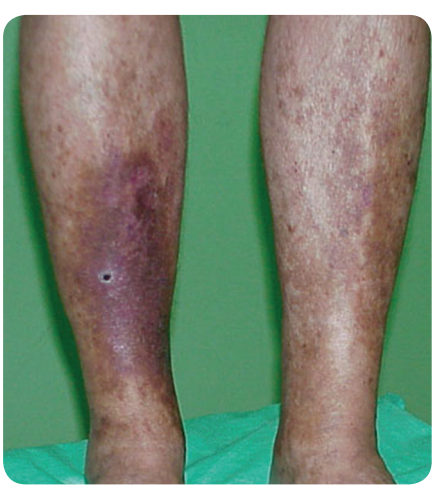


Figure 5. Lipodermatosclerosis.

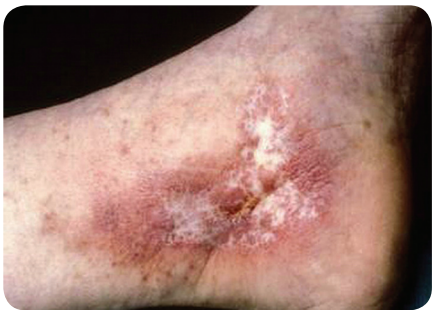


Figure 6. Atrophy blanche.

painful coexisting conditions, for example ischaemia, ulceration or lymphoedema. It is important to note that infected venous eczema and cellulitis can present together.

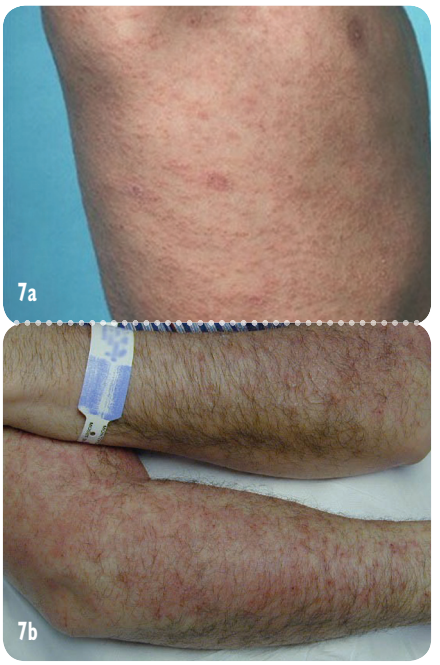
When diagnosing venous eczema the following signs can be clinically indicative:

- Varicose veins/deep vein thrombosis
- Lipodermatosclerosis (*Figure 5*), a localised chronic inflammation of the skin and subcutaneous tissues — a sign of severe chronic venous disease
- Atrophy blanche (*Figure 6*)
- Infection may be evident by yellow crusting or small vesicles (impetiginisation) (*Figure 2*)
- Hyperpigmentation — skin darkens in colour
- Gravitational eczema (autoeczematisation *Figures 7a* and *7b*). This condition sometimes occurs when venous stasis eczema is present on the lower legs. The eczema can spread to other parts of the body as an autosensitisation reaction
- Family history of venous disease, history of leg ulceration. Existing or healed leg ulcer.

Examine the rest of the body as untreated venous eczema may gravitate to the upper thighs, trunk and upper limbs, a phenomenon known as gravitational eczema (autoeczematisation/Id reaction). The rash often occurs at a site distal to the original onset. The existing venous eczema on the lower leg acts as a stimulus causing a reaction to the body's immunological response (Evans and Bronson, 2009).

Assessment and treatment of venous eczema, gravitational eczema and lipodermatosclerosis

The pathophysiology of venous eczema is not clear. It is classed as an inflammatory dermatoses that responds to emollients and topical steroids (Quartey-Papafio, 1999; Smith, 2006; Middleton, 2007). Inflamed lipodermatosclerosis has a slow response to topical treatments and may require use of very potent topical steroids (Duffill, 2008). It is not uncommon for contact dermatitis to present with venous eczema (*Figure 8*). The literature shows that patients with chronic venous leg ulcers are more prone to sensitisation to topical applications such as creams/ointments, primary dressings and bandages (Barron et al, 2007; Middleton, 2007).



Figures 7a and 7b. Gravitational eczema (autoeczematisation/Id reaction).

There is insufficient evidence on the use of compression stockings in treating venous eczema and lipodermatosclerosis. The general view is that compression plays an important role in reducing venous hypertension, therefore improving and slowing down skin changes which may contribute to venous eczema. Leg elevation and exercise can improve venous return and reduce venous pressure and this may help to improve the skin. However, there is no trial evidence regarding the benefits of these interventions (Wounds UK, 2002; Partsch, 2003; Barron et al, 2007; Duffill, 2008).

The management of infected venous eczema will require skin assessment and interventions involving frequent applications of topical treatments such as corticoid steroids, emollients and dressings. Some patients may need intensified treatment application to bring the eczema under control. Assessment would include exclusion of cellulitis, pain, skin integrity, choice and implementation of topical or systemic therapy. Daily application may be required, in particular if the legs are weeping and dressings have been necessary or if the patient is not able to apply their topical treatments. If a moderate-to-potent steroid has been used a review will be required to step down the strength according to response. If there is coexisting leg ulceration, redressing of the ulcer may have to be increased in the short term to access the eczema and treat accordingly.

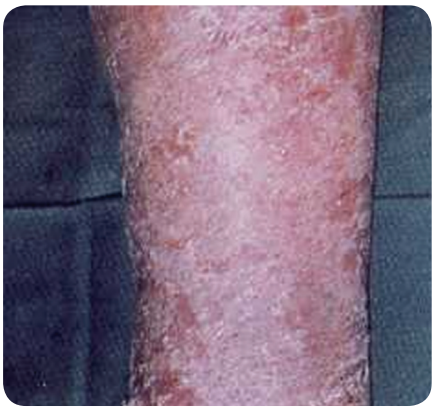


Figure 8. Contact dermatitis — the identified allergen in this case is a paste bandage containing parabens.

There is little evidence to support the use of topical antiseptics. The National Institute for Health and Clinical Excellence (2007) recommends that these products can be used as adjunct therapy to reduce bacteria levels on the skin. It advises that topical and systemic antibiotics should not be used where no clinical signs of infection are observed.

Tinea pedis

Tinea pedis, also known as athlete's foot (*Figure 3*), is a dermatophyte infection and is recognisable as a curable, dermatological primary cause of recurrent lower limb cellulitis, but is rarely diagnosed in clinical areas other than dermatology (Pierce and Daugird, 1992). Tinea pedis affects the interdigital web space, commonly between the fourth and fifth toe. Cox et al (1998) conclude that the treatment and diagnosis of tinea

Table 2
Management and assessment of infected venous eczema (adapted from NICE, 2007)

Characteristics	▸▸ Weeping, crusting pustules ▸▸ Failure to respond to treatment ▸▸ Worsening eczema ▸▸ Fever/malaise
Interventions/ investigation	▸▸ Wash skin with a suitable soap substitute at each dressing change ▸▸ Antiseptic emollients can be useful
Medications/treatments	▸▸ Daily topical treatment and assessment may be required ▸▸ Assess and document the extent of skin surface affected ▸▸ If extensive, swab skin and prescribe first-line antibiotics ▸▸ If the infection responds poorly to antibiotic treatment, consider results of the swab and treat according to sensitivities, or seek specialist advice ▸▸ If there are localised areas of infection, consider prescribing a topical antibiotic ▸▸ Creams or ointments containing antibiotics can be used as separate products or combined with a corticosteroid ▸▸ Advise that the ointments should be used for no longer than 7–14 days and should not be used as a stand-alone therapy for more extensive infected eczema
Maintenance	▸▸ If not already performed, assess arterial circulation, ankle brachial pressure index (APBI) using a hand-held Doppler ▸▸ If the APBI is >0.8, consider compression hosiery once infected eczema has been treated. APBI should be considered with the patient's history and other comorbidties as part of the decision process. If it is <0.8, refer the patient to a vascular surgeon ▸▸ Class 2 (medium) hosiery suits most people. Use class 1 (light) if not tolerated. Class 3 (high) may be difficult to tolerate ▸▸ Consider topical skin regimen that patient or carers may be able to continue and sustain and educate the patient about the signs of infection/cellulitis
Evaluation	▸▸ If not responding to treatment, refer to swab results for antibiotic sensitivity ▸▸ If the condition deteriorates despite correct antibiotic therapy, consider contact dermatitis or inadequate control and refer the patient to a dermatologist ▸▸ Reassess ongoing management with topical treatment tailored to the individual ▸▸ Issue new topical treatment supplies after the infection is treated and discard old treatment to avoid the possibility of cross-contamination by old supplies

pedis in combination with treatment of chronic oedema, for example with compression, can reduce subsequent cellulitis episodes. This supports the need for dermatologist input within a lower limb cellulitis pathway (Wingfield, 2008).

Dermatophytes are fungi that can cause infections of the skin, hair, and nails. Common dermatophyte infections are caused by trichophyton, microsporum, and epidermophyton species. Tinea pedis is most commonly due to *T rubrum*, but also caused by *T interdigitale* (Clinical Knowledge Summary, 2008a). Clinical signs are:

- Itching
- Burning
- Irritation over site
- Skin scaling

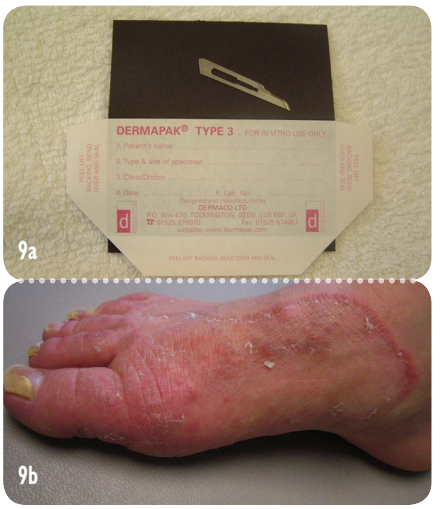


Figure 9a. Dermapak® and size 15 blade for distribution of tinea pedis. Figure 9b. Fungal toenails and moccasin skin scrapings/toenail clippings.

- Maceration
- Fissuring.

Diagnostic investigations for athlete's foot or other fungal skin infections are not always required if the presenting clinical picture is clear. Recommendations are to take skin scrapings for microscopy and culture if the diagnosis is not clear, the skin has not improved or has deteriorated with standard topical treatment, or if oral antifungal medication is indicated as first-line treatments have failed or condition is becoming more widespread (Loo, 2004; Andrews and Burns, 2008). It should be highlighted that microscopy/culture results from scrapings and clippings can take a few weeks to come back. There is also a significant false-negative rate for microscopy and culture. Therefore, a negative result does not always exclude fungal infection and the diagnosis may need to be made clinically if signs are significant (Higgins et al, 2000).

Tinea pedis can become more extensive affecting the plantar and dorsum surface of the foot; lateral borders can also be involved giving a moccasin distribution. Fungal toenails (*Figure 9b*) are sometimes evident and were thought to be commonly associated with tinea pedis. However, evidence involving a large study of patients with tinea pedis (n=5,143) showed that only 20% of patients were found to have coexisting fungal toenails (Burzykowski et al, 2003).

Table 3
Presentation/management of lower limb cellulitis

Clinical presentation	
Risk factors	**Symptoms**
Obesity	Spreading erythema (redness)
Lymphoedema	Painful, tender skin
Diabetes	Hot, swollen
Venous disease/ulceration	Blister or bullaeo
Previous episodes of cellulitis	Pyrexia
Immunocompromised	Malaise, nausea, rigors
Intravenous drug users	Lymphangitis/lymphoedema (*Figure 10*)
Diagnosis/clinical assessment	
Consider differentials	
Identify primary cause if possible	
Swab if there is an obvious portal of bacterial entry	
Mark any tracking erythema with a skin marker	
Take baseline observations (refer on if there are two or more signs of sepsis)	
Biochemistry: the following blood tests although none specific are nearly always elevated in patients with cellulitis — ESR (erythrocyte sedimentation rate), CRP (C-reactive protein) and WBC (which blood cell count). Normal results make a diagnosis of cellulitis less likely	
Check lymph glands. They may be swollen, tender	
Determine or initiate investigation or referral if differential diagnosis	
Take patient history, date of onset, first or recurrent episode of lower limb cellulitis	
Medications, past history, allergies, social circumstances	
Intervention (Class I)	
If diagnosed as lower limb cellulitis and systemically well, commence high-dose oral antibiotic for 7 days	
Treatment: primary care	
Flucloxacillin (500mg qds)	
Erythromycin (500 mg qds) — if allergic to penicillin	
Clarithromycin (500mg bd) — if erythromycin not tolerated	
Consider adding on a second antibiotic if the cellulitis has arisen from a wound contaminated with water: doxycycline (100mg once a day) for saltwater contamination; ciprofloxacin (750mg twice a day) for freshwater contamination	
Treat any co-existing skin condition, venous eczema, tinea pedis	
Advise on appropriate analgesia if required	
Advise to drink plenty of water to avoid dehydration	
Leg elevation to ease pain and help reduce swelling	
Review	
Ask patient to contact if symptoms deteriorate in the next seven days	
Plan and organise a review appointment to monitor progress	
Assess skin and any treated skin condition	
Monitor erythema markings on review. If erythema is below the original line it is a useful indicator that the infection is subsiding. If erythema is spreading above the original line consider referral to secondary care	
Repeat baseline observations	
Doppler if compression is to be considered and cellulitis resolved	
If the patient has deteriorated consider referral to secondary care	
If resolved educate patient to possible cause, and educate to recognise signs and symptoms of recurrence and to avoid injury, burns and bites	
Referral class II–III refer to secondary care	**Refer to secondary care for:**
Complex comorbidities	Systemically unwell/toxic symptoms
Failure to respond to treatment	Further investigation
	Uncertain/differential diagnosis
	Admission
	Intravenous therapy

Treatments

- Advise good foot hygiene to patient/carer/nurse and ensure that they dry thoroughly between the toes after washing
- Treat with a topical imidazole, undecenoate, or terbinafine. Imidazoles: treat for 2–4 weeks to clear the lesions. Terbinafine (adults only): treat for 1–2 weeks to clear the lesions. Undecenoates (adults only): treat for 2–4 weeks to clear the lesions
- Continue topical treatment for 1–2 weeks after the skin has healed
- Preparations combining a topical anti-fungal agent with corticosteroid are usually unnecessary. Consider doing this if the infection is particularly inflamed and irritated
- Failure to respond to treatment and if the condition becomes more extensive may indicate a need for systemic treatment. Consider referring the patient to a dermatologist.

Lower limb cellulitis — diagnosis and management

Cellulitis is an acute bacterial infection of the dermis and subcutaneous tissues, and typically affects one limb and is rarely bilateral (Swartz, 2004) (*Figure 10*). It is important to make a diagnosis and exclude other differentials such as:

- Deep vein thrombosis
- Infected venous eczema (usually bilateral)
- Erythema nodosum
- *Pyoderma gangrenosum*
- Vasculitis
- Necrotising fasciitis
- Gangrene
- Acute gout
- Drug reactions
- Metastastic cancer.

Assess the limb for possible primary cause, for example:

- Venous eczema
- Tinea pedis
- Trauma
- Ulcerations
- Burn/bites.

Take a swab for bacteriology if appropriate.

Assessing the severity of the cellulitis is important as the presence and signs of

systemic symptoms may indicate sepsis or osteomylitis which could lead to a speedy deterioration in the patient's condition. Patients with two or more signs of sepsis should not be managed in primary care and will require hospital assessment and admission. Signs of septicaemia include:

- Pyrexia
- Tachycardia
- Increased respiration
- Elevated white blood cell count
- Hypotension
- Reduced urine output
- Diarrhoea
- Cold/clammy
- Confusion/disorientation.

Table 3 outlines assessment process, intervention, treatment and recommended review for lower limb cellulitis.

Grading is recommended using a classification system from class I–IV (Eron, 2000) (*Table 4*). Only patients with Class I cellulitis should remain in primary care. These patients would have no uncontrolled comorbidities or systemic symptoms and can be managed with oral antibiotics (CREST, 2005). Refer to secondary care if diagnosis is not clear or the patient has already received first-line antibiotics and is deteriorating. Other comorbidities may complicate the diagnosis and delay healing. These multiplex cases should also be considered for referral to secondary care. Consider routine referral if the patient is experiencing recurrent episodes of lower limb cellulitis with associated lymphoedema (*Figure 10*).

Table 4
Grades of cellulitis (Eron, 2000; CREST, 2005)

Class I
Patients have no signs of systemic toxicity, have no comorbidities and can usually be managed with oral antimicrobials as outpatients.

Class II
Patients are either systemically ill or systemically well but with a comorbidity such as peripheral vascular disease, chronic venous insufficiency or morbid obesity which may complicate or delay resolution of their infection.

Class III
Patients may have a significant systemic upset such as acute confusion, tachycardia, tachypnoea, or may have unstable comorbidities that may interfere with a response to therapy, or have a limb-threatening infection due to vascular compromise.

Class IV
Patients have sepsis syndrome or severe life-threatening infection such as necrotising fasciitis.

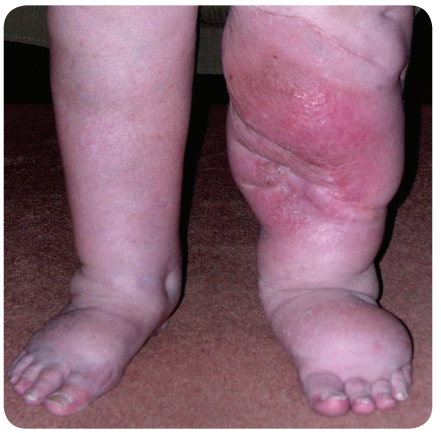


Figure 10. Lower-limb cellulitis with associated lymphoedema.

Lymphoedema

Recommendations vary for antibiotic therapy in the management of cellulitis with lymphoedema. The British Lymphology Society (BLS) recommends prophylactic antibiotic treatment for patients who have two or more attacks a year. They have published a consensus document giving concise guidance on management and treatment (British Lymphology Society and Lymphoedema Support Network, 2007).

Following an episode of cellulitis of the leg evidence suggests 7% of patients go on to develop chronic oedema (lymphoedema), known as secondary lymphoedema (CREST, 2005). The cellulitis infection causes damage to a previously fully functioning lymphatic system. A recent hypothesis suggests a predisposition to cellulitis in patients with previous unpresenting, undiagnosed primary lymphatic abnormality. The cellulitis then causes further damage and symptoms become apparent (Keeley, 2008). Patients with primary or secondary lymphoedema are high-risk candidates for recurrent cellulitis due to local immune deficiency (Dupuy et al, 1999).

Key Points

- Cellulitis accounts for 2–3% of all hospital admissions.
- Recurrent episodes of lower limb cellulitis can be associated with primary skin disease such as venous eczema and tinea pedis and it is important to treat these conditions appropriately when they are first encountered.
- Venous eczema is often misdiagnosed and treated as cellulitis.
- The treatment of cellulitis is multidisciplinary and benefits from the involvement of dermatologists.

Suggested service provision and development

There is limited evidence-based research supporting dermatology as an appropriate specialist team to manage uncomplicated lower limb cellulitis. However, in the available published work, dermatology is highlighted as being a necessary cohort of expertise in the diagnosis and management of this condition (CREST, 2005).

The common scenario already mentioned of patients sitting in hospital beds with a misdiagnosis of cellulitis has become a key driver for service development in one dermatology department in Norwich. Previously, the majority of cellulitis referrals came through either the Emergency Assessment Medicine Unit (EAUM) or A&E. Tertiary referrals would come into the dermatology department for opinion on rashes or ulcerations for patients admitted to hospital for intravenous therapy. Both the dermatologist and emergency medicine team realised that patients with lower limb cellulitis were missing out on quick diagnosis of primary skin disease and

late differential diagnosis was delaying the patient's pathway of care.

As a direct consequence of this a new same-day referral outpatient cellulitis clinic was set up in the dermatology outpatients department (Wingfield, 2008). GPs using a criteria, can refer lower limb cellulitis cases to this clinic where a thorough assessment is carried out to include diagnosis/ treatment/investigation of any differential diagnosis or coexisting skin disease. The patients are seen by a specialist dermatology nurse and a junior doctor. Each new patient is booked into a 90-minute assessment slot. Suitable patients are treated with ceftriaxone intravenous therapy (IV), a once-a-day antibiotic IV treatment over a three-day period. After receiving their first administration in clinic they are discharged with a cannula in situ and receive their next two doses at home from the community IV team. On day four they return to the clinic for review where they are stepped down to oral antibiotics over a period of a further 11 days if their symptoms are improving.

The benefits of this are:

- Ease of pressure on EAUM resources
- Reduced waiting lists helping to achieve the four-hour target wait in A&E
- Early discharge/prevention of admission
- Patient is not exposed to hospital-acquired infections
- Provision of a faster pathway
- Care in the community. The patient remains closer to home
- Treatment of skin conditions prevents recurrent episodes of cellulitis.

Studies have supported this change of clinical pathway and management of lower limb cellulitis. Seton et al (2005) recognised high standards in nurse-led home IV services using IV ceftriaxone. They concluded that care is not compromised and the need for medical review is reduced. Caplan et al (1999) and Corwin et al (2005) state home IV treatment is as effective as hospital inpatient treatment as well as being more acceptable to patients. To date, this clinic has seen 500 cases of lower leg cellulitis. Out of this cohort only 12 (10.6%) patients have been admitted

to hospital; 76.5% had confirmed cellulitis, 23.4% had differential diagnosis, 33.6% had co-existing primary skin disease — either tinea pedis or venous eczema. This has produced a massive saving on bed days offset against the cost of outpatient treatment. In recognition of this service innovation, the clinic received the Health Enterprise East Innovation Award in 2008.

Conclusions

The recognition and treatment of dermatological skin disease in patients presenting with cellulitis of the lower limb is arguably a crucial part of this condition's management. By treating these primary sources of potential infection, recurrent cases of cellulitis and the risk of chronic oedema can be reduced.

Health professionals dealing with this condition should include dermatology knowledge as an important asset for their own professional practice. Dermatologists are a useful resource and should become a necessary part of the patient's pathway where appropriate. This is supported by important recommendations made in the CREST (2005) guidelines stating that key staff should be identified in an integrated cellulitis pathway with the inclusion of dermatologists. The establishment of dermatology-led lower limb clinics in secondary care can greatly improve the patient's experience if supported by a well-resourced home IV community team. All stakeholders need to take ownership of this innovation to successfully incorporate an integrated pathway for lower limb cellulitis management. It is recognised that the service is only sustainable in larger dermatology departments where there is a full complement of specialist medical and nursing skills and good support from junior doctors. These clinics will be an ideal base for evidence-based practice and further research in the field of cellulitis treatment and management. WUK

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