CHILBLAIN (ERYTHEMA PERNIO)

Chilblain is an inflammatory condition caused by chilling and a drop in extremity temperature; an injury caused by cold, damp and wet conditions… it does not occur on cold dry days. The chilblain is a localised vasculitis - inflammation of a blood or lymph vessel… chil - exposure to moist cold... blain - skin sore, blister, blotch, inflammatory swelling. Cold and damp conditions leave patients with painful sore fingers and toes. Also occurs on acral sites – parts exposed to the cold – heels, ears, and noses.

Good blood flow is vital for warmth of the extremities. Unfortunately, cold and wet conditions cause blood vessels to constrict and when it is very cold and wet, they can constrict so much that the blood supply becomes minimal to the extremities i.e. fingers and toes (nose/ears/calf of legs) become painful, numb and stiff resulting in itchy and painful swellings called chilblains.
At worst, extreme cold and exposure can result in Frostbite and Tissue Necrosis.

The young, the elderly, and particularly females are at risk. History and records suggest that women are more susceptible. Chilblain can be a 'family thing' - familial tendencies. Chilblain can be a complication of Diabetes, particularly where neuropathy is established, vascular disease, vascular insufficiency, and Reynaud's syndrome.

When the body core temperature drops, nature will attempt to save/preserve life, we can live without fingers and toes, even arms and legs, and these will be sacrificed in order to support the centrally placed vital organs deep within the body.

Chilling of the extremities causes a state of paresis/paralysis of the tissue cell walls and blood capillary walls, and this prevents a return to normality on artificial warming from an external heat source. The paresis prevents the normal transport of interstitial fluids through the cell walls and capillary walls by osmosis, diffusion, and infiltration**.** Leucocytes can enter the tissue spaces by diapedesis, migration of white cells through the walls of the blood capillaries into the tissue spaces. This is an important part of the inflammatory reaction of the tissues to injury. Hence the cells and the tissue spaces around them fill with excess fluid and inflammation products which build up and cannot be readily dispersed by the blood stream. A local stasis results.

GLOSSARY

PARESIS is a paralysis of the cell walls.

OSMOSIS is the passage of fluids across a selective permeable membrane caused by different pressure conditions on either side of the membrane

DIAPEDESIS is explained as migration of white cells through the walls of the blood capillaries into the tissue spaces.

STASIS is stagnation or cessation of flow.
e.g., Haemostasis of Blood.

Chilblains occur in four stages…

STAGE ONE
CYANOTIC STAGE: an asymptomatic chilling not felt by the patient which goes unnoticed - there is palidification or blueness of the tissues due to vasoconstriction.

STAGE TWO
HYPERAEMIC STAGE: symptomatic to the patient and noticeable upon examination**…**-reddening of the skin – inflammation following the original vasoconstriction. a delayed vasodilation occurs in response to tissue damage done in the cyanotic stage. the afflicted area is now bright red (erythematous). Tissue fluid and inflammation products build up in the interstitial tissue spaces.

It is between stages 2-3 when the chilblain will feel hot, burning, itchy and painful. It is at these stages that the patient will be tempted to scratch the areas of discomfort and cause the skin to break down, leading to stage 4. The skin has very little resistance to breakdown in the later stages of Perniosis.

STAGE THREE
CONGESTIVE STAGE: the affected areas are red/purple/blue and may itch due to the presence of the excess fluid. The chilblain might resolve from this stage but may proceed to the fourth stage. This can happen in a short space of time depending on the patients' susceptibility, internal condition or external conditions. Within a few hours the area may become tightly swollen, and red/purple/blue due to the prolonged vasodilation and congestion of the retained fluids.

STAGE FOUR
ULCERATIVE: this last stage may incur secondary pyogenic infection of the broken ulcerated lesion by pus forming pyogenic bacteria which might include Staphylococcus aureus, and other bacteria. Chilblains that become injured, traumatically broken, or ulcerated can take weeks to heal.

Resolution may take days, or weeks, The appearance of the skin in resolution may be shiny or scaly.

Topical preparations can be employed to improve circulation**.** Rubefacients applied as soon as the condition is recognised can be helpful but are not always well tolerated. Cream containing colloidal silver applied x3 daily may prove beneficial in controlling itch, pain, and in reducing inflammation.

Try to encourage your patients to use warming creams from Autumn onward and throughout the Winter period with passive massage to increase blood flow unless massage is contraindicated.

Practitioners are advised to visit local pharmacies or check suppliers to see what is available or new for treatment of chilblain.

EDUCATION/ADVICE/PREVENTION IS BETTER THAN CURE
In essence, education and prevention result in better clinical outcomes than treatments, i.e. prevention is better than cure.
Minimum exposure to cold, wet conditions is the ideal, and we should be quick to warn patients we know to be susceptible that covering up is the best policy. It is the young, the elderly, and particularly females who are most at risk.

The feet should not be considered in isolation and advice should be given to keep the legs and body warm with the wearing of Long Johns, thick tights and thermal underwear, two pairs of socks might be worn - two thin pairs being superior to one thick pair. Shoes should fit well. Tight shoes could cause local areas of Ischaemia. Loose shoes could usefully accommodate a thicker pair of socks or a thermal insole.

Soles on shoes should be thick enough to provide adequate insulation from cold, wet pavement surfaces.

Shoes and boots benefit from a good application of Dubbin or polish that will help to waterproof them and exclude the damp. There is no substitute for substantial shoes. Cheap, imported, thin and inferior stock should be rejected in favour of protective, well-made footwear.

Stage 1 Cyanotic foot showing the effects of exposure to cold.

Stage 2 Hyperaemic skin is filled with tissue fluid and inflammation products. Skin is erythematous.and tense.

Stage 3 Congestive prolonged vasodilation and retention of tissue fluid. May resolve or proceed to Stage 4.

Stage 4 Ulcerative lesion is broken and may be reluctant to heal.

ALLIANCE PROFESSIONAL DEVELOPMENT

CHILBLAINS

Answers to these questions should be submitted on A4 paper and must be of sufficient length to demonstrate full understanding of the topic. Single word answers are not permissible. Try to answer in one or two short paragraphs, generally not more than ⅓rd page per answer.

Q1. What is a chilblain?

Q2. How do chilblains arise?

Q3. Where do chilblains occur?

Q4. What history would you expect to hear to support the visual presentation of chilblains?

Q5. Detail the management of a broken chilblain.

Please credit the Alliance with the administration fee (£25) and send your answers to:

CPD Dept, The College of Foot Health Practitioners, Parkside House, Oldbury Road, Blackheath, B65 0LG

A CPD certificate will be issued for 10 CPD points on successful completion.

Name: ……

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